Wednesday, 2 May 2012

(10.00 am)

(Delay in proceedings)

(10.23 am)

DR SIMON ROBERT HAYNES (called)

Questions from MS ANYADIKE-DANES

A. My full name is Dr Simon Robert Haynes.

MS ANYADIKE-DANES: Good morning. Before you give your evidence, I think it would be helpful if I explained what I have already explained to counsel as to the approach that I'm going to take with the expert witnesses in giving their evidence.

They have all provided reports, some of them a considerable number of reports. You have all had them. Those reports have been provided on the basis of witness statements that they've seen, information that they have seen and other expert reports that they have seen and considered. So you have that. I'm not proposing, unless something turns up that makes it relevant, to go through those reports, certainly not in any detail.

What they haven't had the benefit of is what the witnesses have said in their oral evidence. So, as I had explained before, my focus is on putting to the experts that evidence and seeking to have their response

to it and maybe having them explain certain other things arising out of their report that maybe would be helpful for people to have explained in this forum, rather than just in the written report.

So that's my focus. You should all have received some indication of the direction that I'm taking with this witness, and you have in previous times with the witnesses of fact, but this perhaps is more important because we're talking about certain extracts out of the transcripts. So you should have received that, and it's going to be my practice to do that with all of the experts.

THE CHAIRMAN: Just in relation to this expert, Dr Haynes, the fact that Dr Taylor made significant additional concessions in his oral evidence over two days, the week before last, should make the giving of some of Dr Haynes' evidence easier, because Dr Taylor has made concessions, which he had not made at the time Dr Haynes prepared his expert reports.

MS ANYADIKE-DANES: Yes, that's right, he had made concessions that he hadn't made previously, that's correct.

I should also say, just to finalise the housekeeping, there have been some further documents this morning, which you should all receive copies of.

There has been a witness statement from Dr Taylor and along with it, although not, I think, exhibited to it, has been a piece dealing with blood gas machines and the use of heparin and its effects. There has also been a report from Dr Taylor himself -- sorry, from Dr Haynes, and with it is a protocol dealing with brainstem death. So those are the further documents that you will have, and I will be inviting Dr Haynes to deal with those.

THE CHAIRMAN: Thank you. Sorry, Dr Haynes, I assume that you have seen the transcript of the evidence that Dr Taylor gave the week before last, have you?

A. Yes, thank you.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: So then if we just, for everybody's benefit, know what the reports are that Dr Haynes has produced, and Dr Haynes, you can then formally adopt them, subject to anything that you may wish to say in the course of your oral evidence.

There's a report of 2 August 2011, reference 204-002-043.

7 October 2011, reference 204-004-143.

1 November 2011, reference 204-006-322.

20 February 2012, reference 204-008-353.

6 March 2012, reference 204-009-361.

There are two reports on 18 March, one dealing with matters relating to the experts' meeting in Newcastle, and the other dealing with, if you like, effectively a closing and final report. The first is reference 204-012-378. The second is 204-013-389, and then the most recent, which is dated 30 April 2012, the reference for that is 204-014-001.

Just as I make reference to the fact that there is a report from Dr Haynes dealing with matters in relation to the Newcastle meetings, I should also say that, as you know from the chairman's announcement, Professor Kirkham's report is now subject to peer review. I am not going to take any of the witnesses who participated in the Newcastle meetings to any of the views relating to Professor Kirkham. We will see what happens as a result of the peer review process, and the chairman will direct subsequently how we address matters.

At present, I'm dealing with their evidence as it was up until the publication of Professor Kirkham's report on those issues, if I can put it that way. Obviously they've got subsequent reports from that, but dealing with the pre-Kirkham issues.

THE CHAIRMAN: Yes.

MS ANYADIKE-DANES: Thank you.

I wonder, Dr Haynes, do you have a copy of your CV there? If we can call it up, it's 306-032-001.

We see your current position is as a consultant in paediatric cardiothoracic anaesthesia and intense care at the Freeman Hospital in Newcastle. You have held that position since August 1994; is that correct?

A. That is correct.

Q. We see also that you have been a clinical director. Can you just help, so that we can understand, what that would have entailed?

A. The role of clinical director has evolved over the last 15 years or so in the National Health Service. Hospitals are now divided into separate directorates, usually the divisions occurring either along shared infrastructure or specialities in common.

I was asked by my colleagues, both anaesthetic and surgical, if I would consider becoming clinical director of a newly identified directorate within the Freeman Hospital in 2000, that being the directorate of cardiothoracic services. That meant that I became the clinical director of a group of approximately 30 consultants. Some were cardiac surgeons dealing with adult cardiac surgery, some were thoracic surgeons dealing with pulmonary surgery. A large number were anaesthetists servicing this group.

Within that group was the paediatric cardiac group, of which I was a member, and included the paediatric and congenital cardiac surgeons and my immediate colleagues in paediatric anaesthesia and paediatric intensive care. It was very much an evolving role, which I kept for the best part of six years, in addition to maintaining my full-time clinical duties. Part of it was managerial, in terms of overseeing the infrastructure, overseeing the activity in terms of volume and type of work undertaken by the group. I like to call it a group rather than a directorate. But a large part of it was dealing with what is now known as clinical governance, which was a concept which was evolving in the late 1990s and has become more developed latterly.

This meant that if there were problems within the directorate, in terms of unexpected bad outcomes, perceived problems with an individual's clinical performance, outcomes, attitude to work, involvement with patients, involvement with parents, involvement with family, involvement with colleagues outside the directorate, I was very much the first port of call. Some of these issues were dealt with in a very straightforward manner by informal, but usually minuted, discussions between various individuals and their peers.

Items of a more serious nature, if I was unhappy

that they could be dealt with satisfactorily by myself and my immediate peers, were referred to the medical director and ultimately the trust board.

Q. Sorry, I wonder if I might just -- what would you classify as an item of a more serious nature which would lead to that consequence?

A. Something where perhaps an individual's outcomes were less than expected, where there was perhaps a completely unexpected death or inappropriate behaviour or interaction with either patients or colleagues, that kind of thing, a fairly wide range of problems, but it meant that I knew from a large group of people everything that was happening, good as well as bad.

Q. So can I put it in this way, when in your report you have made observations or commented on how things were organised in relation to the paediatric renal service as it impacted on this particular case, is that the sort of resource of experience and information that you are drawing on?

A. Yes. I would emphasise that I'm now able to draw on that now, but perhaps in 1995, when the events that we're about to discuss took place, it was the beginning of a learning process about that. But now I think my experience gives me the ability to take a step back and to take a complete retrospective view of events in any

situation.

Q. Thank you.

THE CHAIRMAN: Sorry, not only were you at the start of a learning process, but so, I understand, was the service in 1995 --

A. Yes.

THE CHAIRMAN: -- because governance now -- is it quite different from what it was in 1995?

A. Yes. No one really knew what the term "clinical governance" meant when it was first introduced, and it has evolved into a much more structured phenomenon. In 1995, the term "clinical governance", people said, well, it's what you look at when things aren't really going terribly well, and that's about as good a starting point as any, I think.

THE CHAIRMAN: Even in 1995, if things weren't going very well, whether there was the term "clinical governance", whether you had a structure, as you may do now, something should have been done about things which didn't go properly in 1995?

A. Yes. If I can give an example, without being too specific. If one of my colleagues came to me and said, "This individual, his last three patients haven't done terribly well", I would have to appraise myself of the situation, look at it as objectively as possible, make

my own mind up about the gravity or not of the situation, if I had any doubts at all about the ability to deal with it in-house, if you like, there and then, I was responsible to the medical director of the trust, who is responsible for the trust board.

THE CHAIRMAN: Sorry, when you're giving that example, is that speaking as if you were in 1995?

A. Yes.

THE CHAIRMAN: Right, thank you.

A. I wasn't clinical director until 2000. But if the clinical director in 1995 was made aware of a problem that he thought was significant and he couldn't deal with it himself, he was responsible to the medical director, who in turn was responsible to the trust board.

MS ANYADIKE-DANES: Thank you very much. I wonder, when you were talking about your experiences of things that may be of assistance to the chairman, in your sub-specialist interests and expertise, you have indicated that you were the author of the Freeman Hospital's PICU guidelines for the provision of renal replacement therapy. What are those guidelines exactly and what did that entail?

A. If I can go back a little bit to my involvement in the renal medicine aspect of my work.

Q. Yes.
A. Prior to taking up my consultant post, I was a senior trainee in Newcastle, and it was felt by my future colleagues at the Freeman Hospital that an incoming consultant with added knowledge about renal problems would be a valuable asset. So I was asked latterly, just before I took up my consultant post, if I would consider spending some time working in the paediatric nephrology department, both to gain added knowledge and also to form clinical links for future reference.
Q. Sorry, Dr Haynes, is that what we see over the page at 306-032-002? Just right up at the top there.
A. I haven't got it on my screen in front of me. I've turned it on now.
Q. Is that what you see when you see in parentheses, "(included 12 months paediatric anaesthesia training)"?
A. Right, if you look at the first paragraph:

"Senior registrar in anaesthesia northern region, June 1992 to July 1994."

That included 12 months paediatric anaesthesia training, some time which was spent in the Royal Hospital for Sick Children in Glasgow, and one month in a paediatric nephrology attachment at the Royal Victoria Infirmary Newcastle-upon-Tyne. That's what I'm referring to.

Q. Is it at that place where you met Dr Coulthard? I think you have said that you worked with him before?
A. Yes.
Q. Thank you.
A. So that was one of the most valuable months of my professional life. I subsequently took an active interest in the development of renal support for acute renal failure, which is different. It's a different context. And latterly, in conjunction mainly with my senior nursing colleagues, we've produced a manual, which is really a how to do it guide to the management of acute renal failure in the context of a mainly cardiac intensive care setting.
THE CHAIRMAN: When you say latterly, when were the guidelines produced?
A. A year ago.
THE CHAIRMAN: Okay.
MS ANYADIKE-DANES: Thank you. Your other paediatric experience, I think one can see it there in your previous positions on that page.
A. Yes. In addition to my training in paediatric anaesthesia, I spent a total of a year in junior trainee jobs in paediatrics in Scotland, during the 1980s.
Q. You also, starting at 306-032-003, have publications. I'm not going to go through them in detail except to

invite you to say, are there any publications there that you would draw our attention to that may be relevant to these issues or the opinions that you've expressed in your reports?

A. No. The main purpose of including my publication list to the inquiry is really, I've had an enquiring mind, always been keen to review the activity of my work. It's something that our department encourages and it's a demonstration of my commitment to my profession, if you like.

Q. Thank you.

A. There are some publications with significant references to children with a renal impairment, but it's as a secondary involvement.

Q. Thank you. I wonder if I could now ask you, by way of a preface to the evidence that you're going to give, to go through, just in a summary way, a document that you attached to one of your reports. If we can pull it up now, 204-004-294.

There we are. That's an extract from a textbook, isn't it? In fact, I think it was attached to your second report of 7 October 2011?

A. That's correct, yes.

Q. I wonder if it's at all possible to increase the size of that diagram. There. Now, can you help us by --

I think there are three or four diagrams that I think you've indicated might help set the scene, if I can put it that way, for the fluid management and particularly in relation to sodium.

A. Yes. I thought it would be helpful with my -- with the reference that I provided and for the benefit of those listening, this is an undergraduate textbook in medical physiology. This particular edition dates back to the late 1970s or early 80s, I can't remember, but it's one that I kept from my days as a medical student, and I've enclosed a section from the opening chapter, which is called "Introduction".

A lot of what is germane to the case that we're discussing revolves around what the human body or how the human body deals both with water and with sodium ions. And before looking in depth at what did or didn't happen in the case that we're discussing, I thought it would be helpful perhaps just to show some illustrations.

This diagram shows roughly how water is distributed within the human body. Starting at the bottom, there's a big block, which is labelled "Intracellular fluid, 40 per cent of body weight". What that is saying is that for those of us in this room, say for the sake of argument that there's a man weighing 100 kilograms,

about 40 kilograms of that weight will be water, which is contained within the cells of his body. Okay?

Then the next block, it says "Interstitial fluid, 15 per cent of body weight". So for the same 100-kilogram man, that would mean that about 15 kilograms of his body weight is water, which is neither in his bloodstream, in his circulation, nor contained within his cells but is fluid that is within his tissues but not in either of those compartments.

Then the top bar is the plasma component of blood. Now, "plasma" is the term used to describe blood once the cellular components have been removed. So once the white blood cells, the red blood cells and the platelets have been removed, you're left with a solution containing various electrolytes and plasma proteins. It is with the blood that the lungs interface for gas exchange, that the kidneys interact with for fluid and electrolyte regulation, and it is the blood by and large with which the intestines communicate with to take both fluid and nutrition on board within the body.

So we can see that the human body has a lot of water in it, a lot of it is contained within cells, some of it is between cells, and only a small amount is actually in the bloodstream at any moment in time.

Q. Is there then another diagram, I think at 204-004-296,

which deals with -- well, in layman's terms -- where the sodium is?

A. Yes. Could you blow up the diagram a bit, please? Thank you.

This is another diagram taken from the same chapter in the same textbook. It's looking at what the solutes, ie the non-solvent, non-water constituents of the various body fluid and compartments are.

Perhaps slightly obtusely, if we start on the right with intracellular fluid, that is water that is contained within the cells of the body. We can see that it contains a lot of potassium, quite a lot of magnesium, protein, phosphate and not very much sodium, and the cells of the body pump sodium out and allow potassium to stay within.

Next we move to the interstitial fluid, and again we can see that within this fluid compartment there, conversely, is a lot of sodium, not much potassium, and quite a lot of chloride ions.

Then if we move to the plasma component of blood, we can see again that it normally contains quite a lot of -- well, a large concentration of sodium and chloride ions and not much potassium.

Q. Then if we go perhaps to another diagram, maybe the final diagram, unless there is another one you want to

call up, which is 204-004-298. We can look at this process of osmosis, which is all about movement?

A. This is a wonderfully simple diagram, which I think is particularly germane to the cases addressed by this inquiry. It is demonstrating the phenomenon of osmotic pressure. Now, osmosis refers to the movement of solute -- sorry, solvent rather than solute, which is what is dissolved in the solvent, if that makes sense.

Q. Yes.

A. So this diagram is composed of two parts, A and B. If you look at the top part, diagram A, it's a very simple diagram, which describes a U tube with a semi-permeable membrane across which water can be transmitted or can flow. And in the right-hand part of the U tube is a solution, which could be any solution, but I think they use glucose in this example. In the left-hand part is just water.

So what happens by the time we move to part B of the diagram is you can see that the water level -- or the fluid level has risen in the right-hand part and diminished in the left. That is because water has travelled across the membrane, which is permeable to water but not to a solute, into the solution until it has reached the point where the hydrostatic pressure of the column of fluid is balancing the Drago(?) solvent

into that solution. So we can see what happens when a weak solution is mixed with a strong solution, how water will flow across a semi-permeable membrane, such as described, a cell membrane around the cells in our body.

Q. Why do you say this series of three diagrams are so important for the issues, certainly that you wish to discuss in relation to this case and others that the inquiry is dealing with?

A. Because I think a lot of people don't appreciate how much of your body is water and how vitally important the concentrations of various substances dissolved in it -- how vitally important it is to -- the maintenance of structure and function, that these are regulated within normal limits. Otherwise we can see, for example, that if we were to say that this speckled part in diagram A is a salt solution, that water will flow in to try and balance the hydrostatic pressure against the osmotic pressure. And we can see that if different amounts of sodium are contained in that speckled part of the diagram, then different volumes of water are going to flow across a semi-permeable membrane.

Q. You prefaced all of that by saying that this was a student textbook that you had from your student days, which would have pre-dated the events of Adam's surgery,

and that these three diagrams come from the very introduction to that.

A. That's correct.

Q. So in terms of what happened in relation to Adam's fluid management, how do you categorise what Dr Taylor has conceded were errors?

A. I think to put it into context, I think that some of the things that occurred he believes to be errors, perhaps he's revisited this chapter or a similar chapter and thought about it along those lines.

Q. No, I don't mean that.

A. Sorry.

Q. Well, that is a helpful observation. But what I am trying to find out is how basic are the errors, how basic do you regard those errors to be?

A. Very basic.

Q. Well --

A. Can I elaborate on this?

Q. Yes.

A. I used this particular chapter to help my son with his GCSE biology exam.

Q. Right. Well, I wonder if we can go, just to bring it into the evidence that we have heard, to the transcript of 19 April and go to page 29, starting at line 15.

There we have Dr Taylor going through the fluid

management charts, which were the comparative charts, which make comparisons. I won't bring that chart up now because we've seen it many times, and I think he goes on to explain that his chart actually reflects his changed position and not the position in 1995, when he was formulating the plan for Adam's fluid management.

Are you able to understand how a consultant paediatric anaesthetist could have made the statements that he did in his witness statements? You have read his witness statements.

A. Yes.

Q. You have read his statement under caution to the police. Are you able to understand how he could make those statements in relation to the matters that are of concern to you as an anaesthetist?

A. I'm afraid it's beyond my comprehension how he was able to make those statements.

THE CHAIRMAN: To be fair to Dr Taylor, he's also conceded it's beyond his comprehension how he could make those statements.

A. Yes, but referring to the original statements, that's my view.

THE CHAIRMAN: Yes.

A. But subsequent to reading Dr Taylor's later and latest statements, he now agrees.

THE CHAIRMAN: Yes.

MS ANYADIKE-DANES: Yes. I'm trying to approach it in a slightly different way from you, from I think in the way it has just been put to you, which is he does concede that he made those errors. What I'm trying to see if you can assist us with is, if those sorts of errors were made in 1995, then what further information would you as an anaesthetist require to have to enable you to appreciate that you had made those errors?

A. I don't quite know how to begin this. This is quite a large topic. It perhaps would lead us on to a discussion of how to manage fluid therapy and fluid balance in a major operation.

Q. Well, let me put it a different way. You have described those -- taking just those three diagrams as a way to try and encapsulate what is happening, and you have described that as in the introduction of a student textbook. You have said that I think you regard that as fairly basic information. Is there anything different between what you were writing in your reports as to Adam's fluid management than was being written in Dr Sumner's reports, or any of the other reports that commented on the fluid management?

A. The theme of Dr Sumner's report was very similar to mine. The stance adopted by Dr Coulthard is very

similar to mine. The stance adopted by Professor Gross is very similar to mine. And the stance latterly adopted by Dr Taylor, again, is not too dissimilar to mine.

It may help to refer to a reference from my first report, which is from a postgraduate textbook in paediatric anaesthesia.

Q. Yes.

A. If you bear with me just a second, I can give you the page number.

Q. Well, your report -- that first report starts in its substance at 204-002-020. I'm not entirely sure which is the reference you would wish us to call up.

A. I've quoted two textbooks of paediatric anaesthesia at various times in my various reports. One dates from 1993 and one, a more recent one, edited or originally edited by Professor Sumner.

Q. If we go to 204-002-040, it will be the list of the references.

A. The reference starts 204-002-127.

Q. Is that the Philadelphia 1993?

A. Yes, that is The Practice of Anaesthesia for Infants and Children, emanating basically from Harvard Medical School. It was published in 1993 and it's the textbook that I used when I was a trainee latterly.

Q. What about that textbook exposes the basic nature of the task that faced Dr Taylor, if I can put it that way?
A. Right. Within this chapter, which I have included, if we could perhaps turn to 204-002-131.
Q. Yes.
A. Look at the right-hand column, the heading "Electrolytes", if I may read it out, the first sentence:

"Although salt-free solutions such as 5 per cent dextrose are available for fluid administration, these solutions should not be used indiscriminately because water intoxication and hyponatraemia may result."

Q. And that's 1993?
A. That's 1993 in a standard textbook of paediatric anaesthesia.
Q. Thank you.
THE CHAIRMAN: And that wasn't breaking news in 1993? Was that a repetition of what the knowledge was before, or was that breaking news in 1993?
A. Can I be allowed to put a slightly historical context in how things have evolved?
THE CHAIRMAN: Yes.
A. Which hopefully will help the inquiry. It's always been the case that fluid management and electrolyte management, you're trying to -- with the information

you have available -- restore the body as much as possible towards a healthy situation such as described in the diagrams I began my morning with.

Before I saw this textbook, I was taught verbally by my senior colleagues when I was a trainee that fluid replacement or intravenous fluid therapy, very broadly speaking, had two components. One was to give what the body would normally take in that wasn't being given for whatever reason, so if you were fasting for a reason in hospital, had to fast, this is what would be given to maintain the status quo. The other component is to put back what's been lost for whatever reason. And working from that stance, the only time that one ever gave hypotonic fluids really was to provide what was not being provided because a person wasn't able to eat or drink.

Now, historically -- and I think it was very important to look at 1995 from 1995 -- if you like, the use of hypotonic fluids was much more widespread in paediatrics and in general hospital medicine in the early 1990s. I think it would be a digression to talk about the paper which generated all of that in 1958, but the unfortunate extrapolation of that information is that people have -- or clinicians have, with the best of intentions, often assumed that fluid deficit can be

made up with hypotonic solutions of the variety normally used to provide maintenance therapy as opposed to replacement therapy.

Does that help? Does that make sense?

THE CHAIRMAN: It does.

A. I'm sure we'll come back to some of the questions, but ...

MS ANYADIKE-DANES: But in terms of the development of the condition of hyponatraemia in children by the overadministration of low sodium fluids, I think what the chairman's point was there was nothing new in that?

A. No, that was basic teaching from a very early stage. As a junior houseman or senior house officer, you were responsible, at the onset of your medical career, for prescribing and overseeing intravenous fluid administration. Some senior consultants took an avid interest in getting it right, some were less interested, but the theme was always there, that you had to take into consideration the context of the patient, what fluid was being lost, what electrolytes were being lost, and try and give the appropriate volume and the appropriate kind of fluid.

Q. Thank you.

A. It doesn't mean to say that we always got it right.

Q. No. Then just so that we have it, in terms of --

I think you're speaking generally about the use of intravenous fluids. But Adam, of course, had a renal condition. He had a renal disease. Now, was there anything about that renal disease that changed the basic premise as to the effects of overadministration of low sodium fluids?

A. Yes. In health, or certainly in renal health, perhaps, if we consider that, the kidney is very forgiving as to what is ingested or given to the body. And usually, barring unusual circumstances such as major illness or injury, the kidney and the hormonal responses of the body, which ultimately are enacted by the kidney, are very good at sorting out whatever cocktail of fluid is taken in by the patient or individual.

So, for example, if you were to drink more water than you need to, for whatever reason, your kidneys would sort it out for you.

Q. What do you mean by that? How would they respond to that?

A. If you drank a lot of non-electrolyte containing fluid, water, your kidneys would be able to shed as urine a large volume of dilute urine not containing much in the way of sodium. Likewise, if you took in an excess of salt, your kidneys would be able to regulate the amount of sodium and chloride that you retained in your

body.

Adam's kidneys, although they produced urine, were not able to regulate either the volume of urine produced in response to whatever he took in, nor were they able to regulate the content as in concentration of various substances dissolved in his urine. So that meant that his kidneys were not able latterly, certainly in the time he was dialysed, to be able to regulate in the same way as a person with healthy renal function the water and sodium content of his blood.

Q. What would the implications of that be for his fluid management?

A. The implications of that were that the normal safety buffer of healthy kidneys wasn't there. The people looking after him, be that the medical staff or his mother, as I understand, who undertook his dialysis, would have to look at what went into him, what came out of him, and periodically, particularly if he was unwell, measure what was put out in terms of volume, concentration and what went in and what is in his blood by blood tests.

Q. So they're effectively doing the regulation?

A. Yes, but it's nowhere near as efficient as your own kidneys looking after your own fluid and electrolyte homeostasis.

Q. From a point of view of an anaesthetist, is that itself a difficult concept, that if you're dealing with a child who has end-stage kidney failure, that you have to pay attention to that and apply very carefully the principles of fluid management in terms of the consequences of low sodium? Solutions?
A. Yes. Because Adam's kidneys weren't, first of all, able to regulate the volume of fluid lost, there would have to be attention paid to the total amount of fluid in his body, in particular in his circulation.
Q. Sorry, I didn't explain myself. What I meant is: is there anything new for an anaesthetist in recognising that that's what he has to do?
A. No. You have to be able to assimilate the information available to you and guide and synthesise it in your own mind so you have some idea of what Adam or the patient such as Adam is going to need in terms of fluid replacement for whatever circumstance you're dealing with.
Q. But does the principle change, that an overadministration of low sodium fluid is going to produce adverse consequences?
A. The same principle applies, but more so.
Q. More so?
A. Yes.

Q. And is the anaesthetist supposed to appreciate that?
A. Yes.
Q. In 1995?
A. Very much so.
Q. So then, a final question I want to ask you in this section is, we know from Dr Taylor's CV that he had a teaching position and he had quite a lot of contact with students. Is there any concern that you have?
A. Well, I don't know exactly what he taught and how he presented it.
MR UBEROI: Can I rise to pick up on that observation? There wasn't really any direct evidence taken as to Dr Taylor's precise teaching, and I'm concerned with the generality of the question.
MS ANYADIKE-DANES: It was a very general question and I apologise for that. I didn't mean it be quite as general as it came out.
What I'm trying to get at is, you have explained how you think all of this that you have been explaining to the chairman and to everybody else is fairly basic stuff. What I'm trying to find out is if there are any concerns that you would have that somebody who is in that position and engaging in teaching medical students could make those sort of errors and not recognise they had made those sorts of errors for about

17 years.

A. The short answer to that is yes.

Q. You would have concerns?

A. Yes. But I would have to add a caveat that I do not know what he was teaching.

Q. Yes. That I understand. But I hadn't put it in quite that way. It's the fact of making that sort of error and not apparently being able to appreciate, recognise or acknowledge that those sort of errors had been made for so long. That's the issue that I had really put to you.

A. I think that is an issue.

Q. Of concern?

A. Yes.

Q. Thank you. I wonder if we could go to -- staying with the transcript of 19 April and go to page 101.

If we start with line 7, and we can go over the page in a minute.

The transcript here is dealing with Dr Taylor's evidence in relation to the renal protocol, transplant protocol. He essentially, if I may summarise him, somebody correct me if I've misrepresented him, says he doesn't recall seeing it or really knowing about the renal transplant protocol, I believe, at the time.

He says:

"I can't remember if there was one."

At line 14.

Then in line 24:

"I can't recall. I can't recall having made reference to it, which would confirm that I hadn't seen it, so without making reference to it, I can't speculate. I just can't recall seeing it before his [Adam's] inquest."

Then at line 11 he deals with whether he actually asked about one.

He says:

"I didn't keep a record of the telephone call so I can't say if I asked: was there a protocol?"

What I want to ask you is: would you expect to either see or know about a transplant protocol?

A. I think there's two -- there's a slightly broader issue here about the development of a service.

MR UBEROI: The generality of the question, I would be concerned that the witness doesn't answer it under the mistaken impression that there's a transplant protocol that was, as it were, a tablet of stone which everyone should know about. If it could be contextualised. Perhaps if he could be shown it and asked specifically what it is that would be useful to an anaesthetist from it, and also reminded of Professor Savage's evidence

that it was effectively an aide-memoire for him, the nephrologist.

MS ANYADIKE-DANES: I'm sure you have seen it yourself. It's 002/2, page 52. There it is. Dr Savage did give evidence that he had developed it out of his own experience as an aide-memoire. He had recorded effectively the sort of things he would have told junior doctors and so forth and then developed it in this way, and, as you know, it has been revised.

MR FORTUNE: Sir, can I rise at this stage to give the reference for that. It's the transcript of 17 April. It's at page 25. The questioning starts at line 11:

"Am I right in saying that you devised that protocol?"

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: Yes. Shall we look at that? Line 11:

"Am I right in saying that you devised that protocol?

"Answer: Yes.

"Question: When you did, what was your purpose in doing so?

"Answer: The purpose of the protocol was so that if any child came into hospital for a renal transplant, that whether you were a nurse or a junior doctor or indeed myself or anyone else involved that they could

look at the protocol and say: this is the standard way that we proceed with the transplant, these are the tests that need to be done when the child comes to the ward, this is the information that we need in terms of biochemistry, blood tests, X-rays, before we proceed to theatre. It also lays down, for instance, for the junior doctor what bloods they need to take."

And so on.

He did go on to say that it was not necessarily set in stone, if I can put it that way, it was a guidance. But in any event, what he is highlighting there is what its purpose was. So bearing in mind that that is the -- shall we go over the page?

MR FORTUNE: Over the page to page 26, line 25.

MS ANYADIKE-DANES: Thank you. There we are:

"Well, in a way it's a ..."

Let's just go to the question:

"Can you take us through though what it is that you are requiring to happen from this page and who the target is for these activities?

"Answer: Well, in a way it's an aide-memoire for me but more importantly, it is for the junior doctor to know when he's taking the history, writing the notes, examining the child and organising the investigations, what I expect to be done. I would have regarded it as

my responsibility then to go through and check that all those things had been done."

And so on.

THE CHAIRMAN: I think the point of the interventions, Dr Haynes, is that it's not entirely clear from Professor Savage's evidence that this protocol or aide-memoire or guide was for Dr Taylor.

A. If I could perhaps make one or two comments, Mr Chairman. I think it's important that one differentiates between the word "protocol" and "guidelines". Protocol is something that has to be strictly adhered to, A follows B follows C. Guidelines are more an aide-memoire, these are the kind of things that should be taken into consideration when such a patient presents for such-and-such an operation.

It's also very important to compare and contrast the situation in 1995 with the current decade, where any guideline or protocol can be rapidly called up on a computer screen, such as that in front of me, whereas protocols and guidelines may accumulate, occasionally looked for in dusty folders in the corner of a ward office.

MS ANYADIKE-DANES: Yes. I was actually going to come to that. That was my next point before you explained that. Dr Savage's evidence is that this guideline, protocol,

document, maybe that's a neutral way, was on Adam's medical notes and records. Now, having heard what its purpose was and that it was on his medical notes and records, is it something that you would expect the paediatric anaesthetist who was coming in to do the transplant and who was reading Adam's medical notes and records to be aware of?

A. Yes. If it had been displayed in an accessible, prominent position, then very much so. If it, for example, was buried under a pile of other paperwork in a shelf in a corner of the ward office, then I can quite see how any individual can fail to be made -- or can make himself availed of such a document.

Q. Yes, but if you're a consultant paediatric anaesthetist coming in to perform anaesthesia in the paediatric renal transplant unit, would you expect to ask whether there were any protocols, even if you didn't happen to see it on his medical notes and records when you checked that?

A. Yes. Maybe we've talked or we will at some juncture talk about what may or may not have been said between Doctors Taylor and Savage, but an appropriate question which I can envisage and have asked myself in various situations is: have you got anything written down to help me with this?

Q. Yes.

MR FORTUNE: Can we be sure we're talking about 1995 because it's very easy to slip into 2012 and what is now expected.

THE CHAIRMAN: I accept that.

I understand, Dr Haynes, it's now much more prevalent for there to be protocols on a whole lot of issues, not just about renal transplants. Is that right?

A. Yes. Because of the ease of access, because of electronic versions. In 1995 it was quite hard sometimes, unless it was presented in front of your nose by somebody saying, "Please read this" --

THE CHAIRMAN: Right.

A. -- to even be aware that there may have been a protocol.

THE CHAIRMAN: And if it wasn't put under your nose, would you necessarily go looking for it or in those days would you think -- you wouldn't assume that there would be something to go looking for, would you?

A. You wouldn't assume, but I think looking back at times in my professional life when I've been asked something a little unusual, I have asked senior colleagues, "Have you anything written?" The very question, "Have you anything written down that I can follow or have you anything written down that may be of help to me?"

MS ANYADIKE-DANES: Thank you.

MR FORTUNE: Sir, I rise again, based on that last answer. Bearing in mind Dr Haynes' speciality or sub-speciality, cardiothoracic anaesthesia, when asked to do something unusual, this, in relation to Dr Taylor, was a paediatric renal transplant anaesthesia well within the competence of a paediatric consultant anaesthetist. That's the evidence we're going to hear from Dr Haynes.

THE CHAIRMAN: Yes, but that doesn't mean it's not unusual. The fact that it's well within his competence doesn't mean -- it doesn't follow from the fact that it is within his competence that it isn't something which is also unusual.

MR FORTUNE: Well, perhaps we can clarify --

THE CHAIRMAN: There's a judgment call to be made. The evidence has been that this was a -- I think Dr Savage and Mr Keane have both said that this operation was within the competence of a consultant paediatric anaesthetist.

A. They have, and I have in my report as well.

THE CHAIRMAN: Yes. Would that mean that it wasn't unusual?

A. It was unusual in terms of the numbers carried out that any one consultant may not have seen any or a small number. But if you look at what is encompassed by the term "paediatric anaesthesia", a consultant paediatric anaesthetist, at regular intervals throughout his

working life, will be presented with things he's never specifically seen before but which should lie within his competence.

THE CHAIRMAN: And then the intervention by Mr Fortune was, in that scenario do you go looking for or make a query about whether there's anything written down or not?

A. The answer to that is yes.

THE CHAIRMAN: That's an option rather than a must.

(11.21 am)

(A short break due to a technical failure)

(11.26 am)

MS ANYADIKE-DANES: Dr Haynes, I wonder if I can deal with matters in this way. If we can go to witness statement 008/6, page 2. This is the witness statement of Dr Taylor of 1 February 2012.

There you see the second paragraph:

"Adam was the first renal transplant that I was asked to anaesthetise since my appointment as a consultant anaesthetist in February 1991."

So if we bear that in mind.

Then if we go to the transcript of Professor Savage's evidence, which was 17 April 2012, page 26, line 19. There he is answering my question, which perhaps, in fairness, I should put:

"Can you just take us through, firstly, was it

a guide, did you really expect to people to follow this?

"Answer: Both.

"Question: Well, how important did you regard it that people actually carried this out?

"Answer: I think it was important, yes."

And if we move on to page 41, line 1:

"Was a copy of it placed on Adam's file?

"Answer: Yes.

"Question: When would that have happened?

"Answer: As soon as he was admitted. Every child who's admitted would have a copy of that provided with their notes.

"Question: So it's not when he goes on to the register?

"Answer: No, no, no. In the ward, we would have a renal file and in it would be a transplant protocol. So when someone comes in for a transplant, you would take a copy of the protocol and have it available with the notes or at the nursing station for everyone involved to have a look at."

Now, I'm not going to parse all the way through Professor Savage's evidence and pick up every time he refers to the protocol and his various views on it, but you heard right at the beginning the context of it was it was supposed to inform people as to what he really

expected to happen in relation to paediatric renal transplant. That was the first thing.

The second thing, he says that it was placed on the file. So it was there and intended to be there to help people.

The third thing is that Dr Taylor has conceded himself that he was not and nobody would regard him as an experienced paediatric anaesthetist in renal transplants. He hadn't done very many and he'd actually only done one as a consultant. Nobody had done very many at that stage in the Children's Hospital. So that's the third thing to bear in mind.

It's in that context that I ask you, to what extent would you have expected, in 1995, the anaesthetist to have asked whether there was any guidance, anything in writing, I think is your term, in relation to what happens?

A. I thought I answered that previously, but I'll say it again. If I was going along in the 1990s to anaesthetise something that's not straightforward but within my capabilities, there is a senior colleague of another speciality there involved in the patient. Again, putting it in the context, it's out of hours, at the end of what could have been a long weekend for Dr Taylor. The obvious thing to say: have you anything

written down to help me? Or words to that effect.

Q. Thank you. I wonder if I could ask you a question that --

MR FORTUNE: Sir, I hesitate to intervene, but the way this topic has now been left leaves hanging in the air what exactly Dr Haynes would expect to see. Because these questions have been tailored, if you'll excuse the pun, directly to the protocol that was in existence at the time. If Dr Haynes had been in the place of Dr Taylor and had asked, "Is there anything in writing?" and he was then presented with the protocol -- and perhaps that can come back on screen, it's witness statement 002/2, page 52.

If you had asked and been presented with that document --

THE CHAIRMAN: How much benefit would it have been?

MR FORTUNE: Absolutely.

THE CHAIRMAN: Let's ask Dr Haynes that.

Doctor, it is up on screen in front of you and I think that it's page 52, and possibly if you put up page 53 because they might ... Okay? Because page 54 goes on to post-operative management.

So if we look at pages 52 and 53, if you had asked Dr Savage for that, had you been in the Royal in 1995, and you had been given that, what would that have

informed you of to help your operation?

A. The first line, residual renal function and urine output. Type of dialysis. Drug therapy, state of nutrition and hydration. Blood pressure. Height and weight. The expectation that contemporaneous blood tests would be made available, some of which are specifically related to the care of the transplant and some of which are specifically related to the anaesthesia and operative process. Consent is something different, which I suspect I'll be asked about at another time.

Assess degree of fluid restriction. Aide-memoire for people organising it. Intraoperative fluids. A fairly general statement saying that continuous ambulatory peritoneal dialysis patients may be relatively hypovolemic and hypoalbumenaeic. A reminder that blood, plasma or half-strength saline may be required before unclogging the artery, which is dealt with in much greater detail in the two plus -- the Newcastle protocols --

THE CHAIRMAN: Yes.

A. -- that you have available.

MS ANYADIKE-DANES: I think the question is directed at, if you may forgive me, Mr Fortune, if you had asked "Is there anything in writing?", as you said you would, and

you'd be presented with that, is that a helpful document to you?

A. Yes, it would certainly make you think about the things that one would hope would have been thought about.

THE CHAIRMAN: But the first section under "Note", is that not information which you would have from the notes and records which are going to be made available to you before you anaesthetise Adam?

A. Which I understand were 10 volumes.

THE CHAIRMAN: Well, yes, but --

A. If someone was able to give you a concise summary of the state, in this case, of Adam's urine output, renal function, in a short period of time or one paragraph of writing, that would be very helpful indeed.

MS ANYADIKE-DANES: Can I just follow up on that. If you saw that, would it convey to you that somebody might have actually summarised those matters from his medical notes and records?

A. If I saw that, I would expect to either have it presented concisely, single-page bullet points, or if I couldn't untangle information, it would be perfectly appropriate to pick up the telephone and, on this occasion, speak to Dr Savage and ask --

Q. And just run through that protocol and say, "What's the position on this --

A. Because there's no such question as a daft question if you don't know the answer.

THE CHAIRMAN: This leads really into the slightly separate issue of multi-disciplinary meetings in advance of the transplant, doesn't it?

A. Yes, it does, but there's still ... Perfectly reasonable, and I have done it and continue to do it, if I'm faced, as I said before we adjourned, with something you're not too familiar with but you should be able to do, the easiest thing is to pick up the telephone or speak to someone face to face and say, "Can you just remind me of the things I need to remember here?"

MS ANYADIKE-DANES: I beg your pardon, Mr Fortune, just one last -- and this could have provided a checklist for doing those things?

A. Yes, whether it's a checklist or whether it's the kind of things you need to think about and maybe "I don't know the answer to that, perhaps I should ask somebody or perhaps I should look in the notes to find that out".

MR FORTUNE: Sir, it comes back to the question of: what would this document tell you? To the proposed operation comes an experienced paediatric consultant anaesthetist. No doubt Dr Haynes will confirm that when he would have approached a situation like this in 1995, he would already have in his mind a mental checklist: what do

I need to know about the proposed operation?

What does he actually learn from this document that Dr Haynes, as an experienced paediatric consultant anaesthetist, doesn't already have in his mind?

THE CHAIRMAN: Okay. Do you get that point?

A. I think -- can I just check that I'm understanding this correctly? The question you are asking is: should I not be thinking these things and seeking the answers before I read a document?

THE CHAIRMAN: Or without a document. I think the point is, without this document, would you not have been asking, thinking of these issues and asking yourself these questions in any event?

A. Yes.

THE CHAIRMAN: So that the document does not add to that?

A. Yes. I think that's probably a fair appraisal of my interpretation of it. If you -- if you run through the scenario and you as an anaesthetist say, "I'm going to be presented with this patient, step A is this, step B is that, the surgeon's going to do that, the patient's underlying condition is this. I'm not too sure what that is, perhaps I'd better find out", you should be able to run through a mental checklist of what you're going to be faced with, and if you can't answer the questions in your mind before you start --

MS ANYADIKE-DANES: Mr Chairman, I think that Dr Haynes is answering a slightly different question. If Mr Fortune will forgive me, I think there's a bit of a submission creeping into his question.

MR FORTUNE: Sir, I make it plain, there is no submission. I'm just trying to tease out through the chairman what it is that this document would have told Dr Haynes in 1995 over and above the mental checklist that he's already referred to. He comes to an operation, Dr Haynes is an experienced consultant anaesthetist. He knows what he wants to elicit. How he elicits it is a matter for him, whether he talks to Professor Savage, looks at records or a combination of both. What exactly does this document add to the knowledge of the mind of an experienced paediatric consultant anaesthetist?

MS ANYADIKE-DANES: If Mr Fortune will forgive, I think that Dr Haynes has actually answered that in part. Firstly, he said this is an operation that could be considered to be out of the ordinary for Dr Taylor, not necessarily out of his ability to carry out, but out of the ordinary. And in those circumstances, he has said at least three times now, if the transcript can be checked, that in those circumstances you would routinely ask: is there anything in writing? That's the first thing.

The second thing he said, this is coming, as I think

he posited, at the end of perhaps a very busy weekend. It would be useful to have a document you just run through.

And the third thing he said, if you look at the fact and under history on admission and examination on admission, there is notes, it may suggest to him, if he had this, that somebody had helpfully put together that information for him, and that would enable him to ask: where is that? Instead of having to plough through the 10 volumes, or whatever it was, of Adam's medical notes and records. So I think Dr Haynes is answering the question and I think has answered the question, and I wonder if I might move on.

THE CHAIRMAN: I have got the point.

Can I just ask you one more thing about this. This is described as a protocol. Actually in terms of what Dr Taylor was to do, is it actually a protocol?

A. No.

THE CHAIRMAN: It is in effect an aide-memoire, isn't it?

A. Yes.

THE CHAIRMAN: Thank you. Sorry, and that's not to diminish the value of an aide-memoire, but this is not a protocol which says: you must do one, you must do two, you must do three.

A. Can I refer you to one of my references?

THE CHAIRMAN: Yes.

A. Bear with me a minute, I'll get you the page number. The reference starting 204-002-066.

MS ANYADIKE-DANES: Yes, we have that. Do you want to take us to something?

A. Right. The point of differentiating between an aide-memoire, protocol and guidelines is that this document, which comes from Stanford University in California, came, I think, from the early 2000s, so it's not quite contemporaneous, but it spells out in very simple sentences what to look for and what to do. That is called a guideline, but it's a clear guideline.

A protocol is more than a guideline. A guideline is if you have condition A, you do action B. A guideline is: these are the things you should be thinking of, but core guidelines here, it's pretty didactic as to what should be done. I don't know if that helps.

Q. Yes, it does, and we don't need to go over Professor Savage's evidence to know what he expected should be done in the ordinary course of events in relation to whatever we're now going to call that document. Thank you very much, we can move on to the issue of multidisciplinary meetings. That's something that the chairman had just raised, and I think maybe this is the appropriate place to deal with it.

If we can go to 204-004-154, which is in your second report. You, I think, state that questions raised suggest a failing of the system, and it could be predicted that Adam's transplant procedure would be difficult for both the anaesthetist and the surgeon:

"A planned multidisciplinary meeting shortly after he [Adam] was placed on the transplant waiting list with representation at consultant level from nephrology, transplant surgery and paediatric anaesthesia should have been scheduled. Adam's history and likely difficulties at the time of transplant would then have been identified in the cold light of day, well in advance. An entry could have been made in a prominent place in his medical records to be read by whichever consultants were rostered when he presented for his transplant operation."

Now, you're not the only expert who has advocated that as a way of most efficaciously dealing with paediatric transplants. But what I wanted to ask you is, one can see the wisdom of that, and it has been accepted by Professor Savage and, I think, also Dr Taylor, and Mr Keane even, but in 1995, were there multidisciplinary meetings in your experience?

A. The simple answer is yes, but if I could elaborate on that. I think it's very important that we don't mix

1995 up with 2012.

THE CHAIRMAN: Yes.

MS ANYADIKE-DANES: Yes. We all agree with that.

A. I really want to make that extremely clear. In 2012 the expectation is that these minutes are a standard of care by which a service is monitored. If you don't have them, you're not providing the service properly, subject to external peer review. They are now minuted and it's documented who attends them, and I'm talking about a wide range of specialities here. I learned about this from my time as clinical director when I interacted with other departments more.

Then going back to 1995, yes, these meetings happened, but they were much less formal. Sometimes minuted, sometimes not. But --

Q. What happened at them?

A. Right. There were either timetabled events or a particular problem patient arose and an appropriate group of individuals would be invited, arranged to sit down in an orderly fashion with a chairman, go over the details and discuss the options available for that patient. It's a long-established way of working in cancer services. It was also clearly evident as a way of working in the paediatric nephrology department when I spent my month as a trainee there. And it's long been

the way of practice in congenital cardiology and cardiac surgery.

So the straightforward, or straightforward as I can make it, answer is, yes, there are many examples in 1995 when multidisciplinary meetings were held, but they were not held invariably with the same rigour and expectation as they are nowadays.

Q. I understand. Can I go back to one point when you said it was well-established. From your CV at 306-032-002, you have identified the time when you did spend your month in paediatric nephrology, and I think that straddles 1992 to 1994, and I think you had just said during that period of time, and maybe also during the period of time that you spent in paediatrics, that that was a well-established practice.

Did you get any impression of how long they'd been doing that?

A. It's an impression. I don't have the specific information.

Q. Yes.

A. But years rather than months.

Q. I understand. Can I go back to, just so that we're clear -- I know that you said sometimes in -- 1995 we are concerned with. Sometimes they would be minuted, sometimes they wouldn't, depending on where you were

they may have more or less structure. But what was actually the purpose of them and what was going on in those meetings, in 1995?

A. It may be more helpful to take an example from a completely different area of medicine. Let's say you have a patient who presents with lung cancer. At the meeting would be thoracic surgeons, oncologists, respiratory physician, non-medical staff involved in the patient's care, radiologists. Nowadays, but not in 95 --

Q. Let's stick with 1995, otherwise we'll get ourselves confused. Let's stick with 1995.

A. Okay. That would be your type of patient attending, both -- kinds of people attending, both at consultant level and at trainee level. Somebody would be asked, usually a trainee, to present a patient or a patient in turn, at which time, in 1995 -- mostly variable but with some visual aid a presentation would be made of the patient's signs, symptoms and investigations, and the various treatment options would be presented. The radiologist may wish to comment in more detail on the investigations presented, and then there may be -- well, no, no may, there would be a general discussion as to what would be the best course of action for that patient, taking into account all the information given

by people approaching the same condition from a slightly different angle.

Q. If I go back to the part of your report that I read out, are you saying in 1995 that is the sort of thing that you think could have been happening with Adam?

A. Yes. I think it is -- you have used the word "could", and I think that is the correct word to use because I don't know if it did happen. But it could have happened to the benefit of Adam and other patients in the service.

MR FORTUNE: There's no dispute because it did happen. If you go to the transcript of Professor Savage of 17 April, page 108, line 18 --

MS ANYADIKE-DANES: Sorry, if Mr Fortune will just forgive me. Sometimes I'm actually going to come on to deal with these points.

The point I'm going to make is that Professor Savage said there were multidisciplinary meetings, but they did not, other than by special appointment, involve the surgeons. So the force of what I was going to ask is -- because you have got in your passage a reference to the surgeons, so the point that I want to ask you is: when you talk about the multidisciplinary meetings in relation to paediatric renal transplants, are you saying that you were expected, not by special

arrangement but expected the surgeons to be part of those meetings?

A. Yes, I would expect --

Q. And how important is that, so far as you understand it?

A. In a patient such as Adam, who has had extensive previous surgery, who has, as it turned out, presented at the end with what could have been a busy weekend for the surgeon, to have had an appraisal, a precis of the relevant background information would be very productive.

Q. Thank you. Now, I want to move on to something else in the transcript.

If I may go to the second day of Dr Taylor's evidence, which is 20 April, and go to page 103 at line 25, and moving on to 104. Sorry, I think that must be an incorrect reference.

Sorry, let me take you to a different -- sorry, that's an incorrect reference. Perhaps if we go to 108.

I don't know why some of these references are out of sequence. Let me put the point to you in any event.

The point that I want to ask you is in a case such as this, your comment on the amount of time that somebody -- not somebody, that the anaesthetist, who is going to be the consultant anaesthetist, should really have to consider the medical notes and records.

We understand from Dr Taylor's evidence that he left the house at 5.15 for an operation that he thought was going to happen at 6.

THE CHAIRMAN: I'm not entirely sure about that.

MR UBEROI: Quite. It's unclear when --

THE CHAIRMAN: It's unclear and I'm not sure that when Dr Taylor was giving his evidence that he -- whatever else he conceded, whether he did not make a concession which may not have been correct on that. I got the impression from trying to interpret his evidence as a whole that if he did leave the house at 5.15, it can't possibly have been on the basis that the operation was going to be at 6.

MR UBEROI: I think if I may say, sir, that's very fair and that's my assessment of his evidence as well, having re-read it.

MS ANYADIKE-DANES: If we start with the witness statement and then we'll go into the evidence and try and understand the concession. The point --

MR UBEROI: If I may make my last observation on it in support of the chairman's observation. I think he was taken into it through the witness statement. There was then some confusion, which the chairman has alluded to, as to what was in fact conceded. But leaving that aside, the key point is that it certainly wasn't

established that he was leaving at 5.15 for an operation to start at 6, because it has never been established when and how he was informed that the operation would in fact start at 7.

THE CHAIRMAN: I think, Ms Anyadike-Danes, having heard Dr Taylor's evidence and the other evidence, subject to any other evidence which emerges, the view which I formed is that if Dr Taylor is remembering correctly and he left his home at about 5.15, that is almost certainly on the basis that by then he knew that the operation was at 7, not at 6. Because any other interpretation has him arriving at the hospital only a few minutes before the operation is due to start. Whatever other criticisms there are of Dr Taylor, and there are clearly many, I don't think he was quite that cavalier in his arrival at the hospital.

MS ANYADIKE-DANES: Yes, I understand. Just because I've referred to the transcript, what I had was the incorrect date and I'm sorry about that. All the line references are the same. Pardon me, Mr Fortune.

If you go to the transcript for 19 April and page 103 that I referred you to, and line 25, I think that works. It starts there -- well, in fact the question is probably fairer:

"You get a phone call from Dr Savage in the evening.

I appreciate that the decision is: let's all go in fresh first thing in the morning. If you're going to do that, how much time were you going to allow yourself for the purpose of going through his medical notes and records, having any further discussion that you might want to with Dr Savage and examining Adam?"

And the answer starts on line 25:

"I would have expected to give about an hour to assess a patient before a transplant."

Then we start to work back from that. If you look at line 8, you see:

"If you're going to start the surgery at 6 [because at one stage that was when they were planning to start the surgery], what does that mean in terms of when you would need to get to the hospital to do all those things?

"Answer: Well, it would mean I'd need to leave over an hour to be in the hospital before the operation was due to start."

Then if one finally goes through, and I think this is the point the chairman was picking up on, to his line 25, he would say that if the operation was going to start at 6, he would need to leave before 5.

And my learned friend Mr Uberoi is right, if one goes over the page to 105, one sees then that is

juxtaposed with what he says in his witness statement, which is 001 at page 2, and that's where I think it's being put to him that leaving home, if you stay at 14:

"Leaving home at 5.15 to prepare the patient drugs and before my pre-anaesthetic equipment check ..."

And you can see the point that is being made, that that can't possibly work.

MR FORTUNE: The challenge comes on page 106. Firstly, the chairman and then yourself. It starts at line 9.

MS ANYADIKE-DANES: Yes, that's correct. I don't think I need to read all that out because we know where this is going. Where this is going is that the chairman has expressed himself as being not entirely clear on when Dr Taylor left at 5.15, what he understood to be the time of the surgery. And I think the chairman is prepared to interpret that as meaning that if he was doing that he must at that stage have known that the surgery had already been put back to 7 o'clock. That is what I understand the chairman to be construing from that.

So the point that I wanted to -- it's a rather long way of getting round to the point. I'm sorry about that, Dr Taylor. The point that I wanted to put to you is that whatever he was doing in terms of what he thought the start time was, when he was asked how long

did he think he would need to review the medical notes and records and consult, to speak to people, the other things that he would need to do before he actually got started on his anaesthetic work, he said an hour.

MR UBEROI: Over an hour.

MS ANYADIKE-DANES: Over an hour. Well, it changes, but okay, we'll have now it's over an hour.

MR UBEROI: You're right, and he repeats it in order to add clarity. What he repeats is over an hour.

MS ANYADIKE-DANES: Yes, well, there we are.

THE CHAIRMAN: Sorry, let's get the question for the witness.

If he allowed himself over an hour, what observation have you to make about the time which he allowed himself?

A. My first comment is a rhetorical question, if you like. Why didn't he come in and see Adam and his mother on the eve of surgery?

MS ANYADIKE-DANES: Yes?

A. Because that would have saved a lot of time.

Q. In fairness to Dr Taylor, he doesn't know why he did [sic], but he has regretted and that has conceded that that was an error. So we don't know why he didn't do it. But what is your view of not having done it?

THE CHAIRMAN: I take it your view is that he should have

done that?

A. Very much so.

THE CHAIRMAN: Because if he does that, that effectively amounts to a lot of the preparation and saves -- eases the pressure on him on the Monday morning.

A. That's correct. If he had come in the evening before, yes, it would have been late at night, but he could have stayed and spent as long as he felt he needed to appraise himself of all the information he needed to gather, to telephone Dr Savage if he so wished, to have sat with Adam's mother and gone through just the things that Adam would expect and she could expect.

THE CHAIRMAN: With less time pressure?

A. Yes. The only time pressure would be that it would be late at night and he knew that he would have to get up in the morning.

MS ANYADIKE-DANES: Can I ask you, how important is the information that he would have gained from physically being there to look at the medical notes and records, which, of course, he could do in the morning? But more to the point examining Adam, speaking to his mother, how important is that information to his task in the morning?

A. It's crucial.

Q. Why is that?

A. First of all, in the general sense, you have a child who's coming for major surgery. It needn't necessarily be a renal transplant. The information that you can ascertain from a very brief, almost cursory examination of the patient and discussion with the mother as to the nature of his underlying condition, previous experiences, good and bad, with surgery, a wealth of information can be gleaned very rapidly. And anything arising from that can be investigated not at leisure but certainly without the time pressure of an impending operation.

Q. And then having not done that, and assuming in Dr Taylor's favour that he knew already that the operation was going to start at 7 and he leaves at 5.15 and, in fairness to him, he said it wouldn't have taken very many minutes to get to the hospital from where he lived, what do you say about the amount of time he allowed himself to do all that you consider was necessary before he embarked on anaesthetising Adam?

A. He put himself under time pressure. He was under pressure. My interpretation is that there was significant pressure to proceed with the operation as soon as feasible, that he -- if something had come up in his appraisal of either the history, discussion with Adam, his mother, Dr Savage, he had no time to resolve

any questions which had been raised. The fact that -- perhaps we'll come on to talk about preoperative blood tests, the fact that they hadn't been done when it was now too late to do them. He put himself, colloquially speaking, on the back foot by not having been in the night before to collate all these pieces of information.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: Thank you. Then I want to ask you about -- you have referred to it as possibly being a busy weekend. In fairness to Dr Taylor, he says, in I think it's almost his first inquiry witness statement, that it was a busy weekend. So we know that he was on duty from Friday, on call through Friday evening, he's on duty Saturday, on call through the evening, on duty on Sunday, and on call through Sunday evening. That's, of course, when he gets the call from Professor Savage.

Once he's got all of that, we know also that he got an early morning call or some time many hours after midnight, I think Dr Montague phrases it, a call about inability to insert the IV cannula into Adam, which is something that he has to deal with, and then we know he's leaving his house, having got ready and one thing and another, at 5.15.

The whole purpose of putting the operation back to 6 and then 7 o'clock, according to Professor Savage, and

indeed Mr Keane, was to enable the transplant team to be fresh, I think they put it. Have you any comment to make as to the extent to which Dr Taylor was able to be fresh in that way, given those facts?

A. Well, I have not been presented with information as to how busy he was or wasn't, but I understand he was on call both for the anaesthetic component of his duties and the intensive care component.

Q. Well, if I can help you so we know what the reference is --

THE CHAIRMAN: Sorry, let's deal with it this way. In these terms, for an anaesthetist who's been on call over the weekend and is then starting an operation early on Monday morning, "fresh" is a relative term, isn't it?

A. Relative. Very relative.

THE CHAIRMAN: I presume you've been in this scenario many times.

A. Frequently.

THE CHAIRMAN: And Dr Taylor before and since will have been in this situation many times.

A. I'm sure.

THE CHAIRMAN: When we say "fresh", we're not actually talking about somebody who's well rested and has necessarily had the sleep he needs. We're talking about somebody who has been on duty, and if you're on duty and

on call over a weekend and then you're coming in early on Monday morning, in real terms you're not fresh, though by the terms of your job it might not be the least fresh you've been?

A. Yes, that is true. "Fresh" is a relative term. I think the purpose would be to ensure that those involved had at least had some sleep and were able to perform their duties safely.

THE CHAIRMAN: Okay, thank you.

MS ANYADIKE-DANES: Yes. What I was trying to ascertain from you is whether you thought that if that was the purpose of it, the slightly disturbed night that Dr Taylor had, did you regard that as significant or not?

A. Yes, I think it's significant.

Q. Thank you. In what way?

A. It is significant because even though he may have gone to bed, I'm sure that he would have been running through events the following morning. The fact that his sleep was disturbed, and I don't know how much sleep he had or hadn't had over the preceding two nights, the likelihood is that when he woke, at whatever time he woke, he would have not have had more than a few hours' sleep. And, yes, he was starting a difficult procedure under less than ideal circumstances in terms of personal rest and

preparation.

Q. And on the back foot, as you've described it?

A. Yes.

Q. How significant is the combination of those factors?

A. I think they add together or multiply together to be very significant.

Q. Dr Taylor, in fact, gave evidence to say -- I'm not going to take you to it, but just to refer to it to get your comments. It's 19 April at page 63. It starts at line 19 and goes on to 13.

He talks about the fact that at the hospital, they have considered that circumstance of a consultant having a busy on call weekend and then having to come in in the morning and carry out his normal duties and then on through the week, as it were. He says that they are working towards splitting the consultant's rota as between intensive care and surgery.

In your experience as a clinical director, how was that managed?

A. There's two issues which we have resolved in my experience. First of all, right from the point of my consultant appointment, if you had a disturbed night you went home and someone else appeared the following morning, and if it meant cancelling an operation, it meant cancelling an operation.

Q. Was that your experience in 1995?
A. 1994 onwards. We did not encourage or allow people to carry out operations in a sleep deprived, unsafe state. So that's the first point.

I think it would have been quite reasonable, had he embarked on this, to have been expected to be relieved of any duties from roughly 9 o'clock onwards by a colleague, even if that meant cancelling a surgical list.

The second part, when he refers to being responsible both for the intensive care unit and the operating theatre anaesthesia, that is something that we as a department, in my personality experience, have addressed such that, barring illness and extreme circumstances, one individual is no longer asked to take responsibility for both areas.

Q. When would that change have happened?
A. That is within the last decade. From what Dr Taylor says and what you have read out to me, it appears to me as if it's something that they were thinking of and looking towards developing as a safer way of functioning as a group of clinicians.
Q. Yes. I wonder if I may now move on to the issue of consent. Dr Taylor has said that it was his normal practice to go and see the patient and the patient's

mother or parent beforehand, partly to impart information to the -- if the patient was old enough to understand it, to the patient, but if not to the patient's family. But if we're dealing with consent and not just the provision of information, what are your views in 1995 as to who should have been involved in taking consent as between the nephrologist and the surgeon, in your experience?

A. In my experience, looking back to the mid-1990s, both as a trainee and as a junior consultant, consent was very much a topical issue during the 1990s, and in the latter part of my training and in my early part of my experience as a consultant, there's a lot of effort went into improving the consent process for medical and surgical care.

When I began as a doctor in the early 1980s, the consent procedure basically involved getting the patient to sign the form. Some clinicians are more caring and would explain in more detail what is involved, others less so.

During my training and in subsequent seminars organised by my hospital, which I attended as a junior consultant, it was made abundantly clear that consent is not just signing a consent form, it involves engaging with the patient, having a discussion of the options,

telling the patient what you anticipate doing to them, telling them of what -- the likelihood of success, likelihood of failure, likelihood of misadventure.

Q. If I just pause you there. You said seminars that you attended as a junior consultant. Now, you became a consultant in 1994; is that right?

A. Yes.

Q. I know that we're going to have the question posed if I don't clarify it with you. What you're saying now, does that relate to 1995 or some time thereafter?

A. What I'm saying now relates to the early 1990s onwards.

Q. Right. Okay.

MR FORTUNE: Can we be clear in this line of questioning what consent is being sought for? Because the practice has changed in terms of whether it's for the operation or for the anaesthesia.

MS ANYADIKE-DANES: I had not addressed the anaesthetic -- I was going to deal separately with the anaesthesia. But in terms of the operation, because that's what we have discussed consent with in this context, and that is why I juxtaposed the two options of the nephrologist and surgeon. But let us be very clear about that.

The consent I'm asking you about is the practice in relation to the consent for the renal transplant

surgery. So with that in mind -- and we can deal separately with whether you think in 1995 it would have been necessary to take consent from Adam's mother in relation to the anaesthetic element of the surgery. We can deal with that separately. Let's focus on the transplant itself.

MR MILLAR: In relation to the transplant itself, it's certainly my understanding from the experts' reports, or the three specialisms that we have expert evidence from, anaesthesia, nephrology and surgery, there's no question of the anaesthetist being involved in the consent taking process. And I wonder whether this issue is not one better explored with the nephrologist and the surgeons, who seemed to be the two areas where the consent process -- they seem to be the two areas of expertise who might be involved in the consent process. There doesn't seem to be any suggestion that an anaesthetist was involved.

MR UBEROI: If I might, I would echo that concern as expressed by my learned friend.

MS ANYADIKE-DANES: I understand that. You have -- and this is why I'm taking you to it because clarifications were sought, it's a direct response to that. In your report of 204-002-037, you refer to it being inappropriate that written consent was taken by the nephrologist.

So you have given your expert view about that. People may want subsequently to comment as to what the weight of your expert view as a consultant paediatric anaesthetist is on that topic, but that is the expert view that you have provided. And where I was going to take you to is, out of your own experience, what your view was on the difference between or at least whether or not the nephrologist should take the consent or the surgeon could take the consent. And then, just to pre-empt any risings, I was going to take you to the two reports which have addressed that, one from a nephrologist -- sorry, one from the nephrologist who is Dr Coulthard, the expert, and the other from a surgeon, Professor Koffman.

So if we can stick with you and the first question I asked you. Out of your experience, in 1995, paediatric renal transplant, was it the nephrologist or the surgeon who was taking consent for the surgical elements of the transplant?

THE CHAIRMAN: Mr Millar.

MR MILLAR: My learned friend has referred to Dr Haynes' experience, I'm sure it's vast, but would it not be appropriate, sir, to ask what his experience has been of being physically present when consent is being taken for a transplant procedure? If he's never been there, if he

doesn't know who's there, if he doesn't know what the dynamics are, then, really, it doesn't seem to be an issue on which he can assist the inquiry. If, of course, he has been there lots of times and he can say that he knows, from his own personal experience, who does it, then that's a different --

MS ANYADIKE-DANES: Let's ask him what his experience is.

THE CHAIRMAN: Sorry, there are two different points. One is, what is Dr Haynes' view about who should take consent? And, secondly, why is that his view? And he doesn't have to be present when consent is taken to express an informed view. I will then decide at a later stage what weight I attach to his view compared to the views of others, including the views of those who have already given evidence, such as your client and those who were also directly involved in the operation.

He has something relevant to say. How weighty it is is a matter to be decided later, Mr Millar.

MS ANYADIKE-DANES: Thank you.

Could you answer the question, in your experience?

A. In my experience, if I can preface it by saying that we're talking about consent really for three different areas here. One is, as has been pointed out, the consent for the process of transplantation and all that will mean for the patient. The second is the consent,

the actual process of the surgery. And the third is the consent, or otherwise, that it was appropriate for an anaesthetist to obtain from a patient and parents, next of kin, regarding the interventions that he was going to make.

Q. Yes.

A. And the teaching that very much evolved during the 1990s, from the early 1990s onwards, was to take consent for something, you had to be capable of doing that yourself. So it would be inappropriate for a surgeon to go to a child's parents and say, "Do you consent to anaesthesia? There's no problems involved". When I might go along and say," Actually anaesthesia comprises A, B, C and D. I envisage a particular problem with this aspect of your care. Do you consent to a blood transfusion? Do you consent to receiving an epidural? Do you consent to having a central venous line inserted in your neck?"

Those are things which I am able to seek consent for.

The surgeon is able to explain and have a two-way exchange with the patient or parents about what he is able to do or not do for that patient. And, likewise, the physician or nephrologist is able to have an exchange of views and sharing of information about what

is involved in the overall impact in this case for transplantation.

THE CHAIRMAN: Thank you.

A. Can I conclude what I would like to say about this?

MS ANYADIKE-DANES: Yes.

A. Consent for anaesthesia is approached differently in different institutions. Right from the 1990s, some trusts, authorities, have taken it upon themselves to insist that written consent is obtained for intervention by an anaesthetist. Others do not make this a mandatory requirement of the way of operating. And in others, there's an expectation that the anaesthetist will do what I've said, share information, make sure, for example, that a patient has no objections to receiving a blood transfusion.

And the consent process is a sharing of information, answering of questions, explaining what is going to happen, explaining what the likely outcome or otherwise may or may not be. And the consent for any particular part of -- well, the current phrase is the "patient's journey", has to be worked through by an individual who's capable of delivering that part of the patient's care. That goes back to the early 1990s and onwards.

MS ANYADIKE-DANES: I understand that. Now, I think that Professor Savage and others have described the informing

of the patient or the patient's family, if they're too young to understand themselves, which is the prelude to actually taking the consent, as a process that can take place over quite some time and which, in the case of Adam, culminated in the actual signing of a document. We can see that at 058-039-185.

Now, that is the actual document that was signed by Debra Slavin, and we see exactly what it is that she is signing to. That she as a parent:

"... concepts to submission of her child to the operation of kidney transplantation, the nature and purpose of which have been explained to me by Dr Savage. I also consent to such further or alternative operative measures as may be found to be necessary during the course of the operation and to the administration of a general, local or other anaesthetic for any of these purposes."

Then there is a note that there's no assurance that you'll get the particular surgeon that you wish.

And then she signs it, and underneath that, Dr Savage, as he was then, says:

"I confirm that I have explained to the child's parent the nature and purpose of this operation."

So that is the consent that Debra Slavin signed for Adam's operation on the 27th, the morning of the

operation itself.

You have told us about three stages, and you've also been asked specifically to focus on the surgery as the transplant operation. Just so that we're clear about it, given that in this form there seems only to be one space for one person to sign, on this kind of form, taking consent from Adam's mother for his transplant surgery, what is your view as to whether, out of your experience, that is something that should have been taken by the nephrologist or by the surgeon?

A. My view, unshakenly, is that this would have been better taken by the surgeon doing the operation.

Q. Thank you. What I was going to put to you is your observations on two other experts who have a slightly different views. One can be explained and the other will give his evidence about it.

If we take Dr Coulthard, who's also a nephrologist, a consultant nephrologist, like Professor Savage, 200-022-264. He says that it was acceptable and appropriate that consent was taken by Dr Savage, but then he goes on to say that, in their system, they have already involved the transplant surgeon. So it's in that context that he appears to be saying that the nephrologist can take the consent right at the final stage, if I can put it that way.

Now, we know that in Adam's case the transplant surgeon had not been involved previously. If we go to Professor Koffman's report, he's at 094-007-031. There we are. It's at paragraph 3.1, I believe.

He says:

"It appears from the records that consent for the operation was not performed by the surgeons but probably by the paediatric nephrologist, Dr Savage, and this would be normal acceptable practice for the mid-1990s. It would be important to view the consent form and, if possible, review the topics that were discussed with Adam's mother, including the risk of death and serious adverse events from the procedure."

Which sounds -- there's a slight caveat. Whether it is or not, we'll find out when he gives his evidence. But that's not what I'm putting to you.

He has said what he thinks ought to happen. In fact, indeed what he thought was normal, acceptable practice in the mid-1990s. Dr Coulthard has said what he thinks is the position.

What is your comment about certainly Professor Koffman's view?

A. There's two parts. First of all, in my previous discussion a few minutes ago about the subject, I said that when I first began medicine consent was about

getting a form signed and it has evolved from the 1990s onwards to being an information sharing, explaining exercise, of which the form signing is only a part thereof.

My initial reaction, when I read this, is that this approach perhaps belongs more to a decade earlier, that it's a senior surgeon who is used to working in an environment where one of his trainees, possibly more experienced, or one of his other colleagues, who knew the family better, would deal with the formal signing of the piece of paper.

Reading the second part of what has been written, the last three lines:

"If possible review the topics that were discussed with Adam's mother."

Well, I'm not entirely sure -- I have no information to tell me what topics were discussed with Adam's mother, including the risk of death and serious adverse events from the procedure. From the surgical procedure, that is.

Q. In fairness to Professor Savage, he has provided witness statements which set out what he discussed, and during the break perhaps we can provide that to you and you can refresh your memory on that.

A. Okay.

Q. But sorry, I interrupted you. I just wanted to make that point.

A. I can understand how Professor Koffman can make that comment, but equally, at the time we're talking about, the middle of the 1990s, the process of consent had moved on and it was very clear where I was working that consent for anything that was done had to be done by someone who understood and was able to explain and do that procedure themselves.

THE CHAIRMAN: I think, doctor, in fact it is quite clear that it was also moving on in Northern Ireland. Because there was a circular about consent issued just a month before Adam's operation, October 1995. But it appears that it hadn't filtered down into actual practice. We'll maybe hear more about that at a later stage in the inquiry. But there were developments in the mechanism by which consent was taken, which were happening at that time.

Professor Koffman's report is talking about what was acceptable in the mid-1990s. One interpretation of this is in fact things were changing in the mid-1990s.

Now, you had said this evolved during the early 1990s and onwards. It does appear that they were changing in Northern Ireland as well in the mid-1990s, round about 1995. So could it be that Adam's operation

was at a time when things were changing or on the cusp of change?

A. Yes, I think that is a very fair comment. But I've looked at this and thought about this long and hard, and thought about not just major operations but operations involving children I've been involved in, major and minor, and at that time, in the environment in which I worked, this was customary for consultant surgeons to directly deal with this issue themselves.

THE CHAIRMAN: Okay, thank you.

MR FORTUNE: Sir, I rise at this stage -- without getting into a discussion about the respective ages of the experts and which decade they represent, given the lack of unanimity on this topic of consent, if Dr Haynes is correct that there should in theory, and perhaps in practice, have been three discrete consents, one for the transplantation, one for the anaesthesia, one for the surgery, given that there was only one standard consent form, whether it be in the United Kingdom or specifically in Northern Ireland at the time, how would the three specific consents be evidenced in writing? Because we have only one consent form here and that was signed by Professor Savage.

MR UBEROI: May I also add, I wasn't going quite so far as to suggest there was a separate discrete process of

consent for the anaesthesia as in 1995.

MS ANYADIKE-DANES: I didn't think that either.

THE CHAIRMAN: I don't think that's been raised before. And that wasn't an issue which was raised with Dr Taylor. It hasn't, to my knowledge, been raised in the previous reports, Mr Uberoi, which rather seems to suggest that it would be difficult for me to be critical of any anaesthetist for not having taken the separate consent form when nobody has referred to a separate consent for anaesthesia until today.

MR UBEROI: I'm grateful, sir. I think this is another area where in fact, although there are areas of interest to the inquiry that Dr Taylor is fundamental to, consent is not one of them.

MS ANYADIKE-DANES: The transcript will reveal, but I'm not sure that Dr Haynes was specifically saying that, that a separate written consent was taken by an anaesthetist, or should have been.

MR UBEROI: [Inaudible: no microphone].

MS ANYADIKE-DANES: Yes, exactly. I'm not sure he was going as far as that. Anyway, he's here, so let him give his evidence.

THE CHAIRMAN: What in fact you said was that consent for anaesthesia is approached differently in different institutions, and you said some require to be taken by

an anaesthetist and some don't.

A. Yes. That's correct.

THE CHAIRMAN: Whether it's taken by the anaesthetist or whether it's taken by somebody else, is it a separate form? And if so --

A. It depends where you work. If you go to some hospitals in the United Kingdom, the anaesthetists are expected to get a signature on a form for the process of anaesthesia.

MS ANYADIKE-DANES: In 1995?

A. The minority in 1995. I still think it is probably a minority, but when looking at the consent procedure, it is more than just signing a piece of paper.

THE CHAIRMAN: Okay, thank you.

A. It's about a discussion and information sharing.

THE CHAIRMAN: Right.

MS ANYADIKE-DANES: Yes. And I had understood your evidence to be that if you looked at the transplant procedure as a whole, then the person that I think you were saying should have been taking consent for that in 1995 was actually the surgeon?

A. For the surgical transplant procedure, yes.

Q. Thank you.

A. But for the concept of renal transplantation, that would have been approached on many occasions, I'm sure, by the

nephrologist and the family.

THE CHAIRMAN: Is that at the earlier stage when there's a discussion which leads to Adam going on to the register for transplant? It's hardly the night before.

A. That will go back weeks or months.

THE CHAIRMAN: Yes.

A. Yes.

MR FORTUNE: That's not consent in the topic that my learned friend is --

THE CHAIRMAN: I understand, because it can't -- it's a discussion which leads to Adam going on to the transplant register, right?

A. Yes.

THE CHAIRMAN: But that isn't actually -- I mean, as Mr Fortune emphasises, that's not a consent that in six months or a year's time there's consent to the transplant when a kidney becomes available. That's quite a different thing.

A. Yes. But, equally, it goes back to the concept of assessment of the patient by more than one person --

THE CHAIRMAN: Okay.

A. -- in that if a surgeon had been involved at an outpatient preliminary stage, the discussion could have been had then of what actually having the operation involves.

THE CHAIRMAN: Okay. That just reminds me, Mr Fortune, you made a point a few minutes ago about multidisciplinary and the evidence that in fact there were multidisciplinary meetings. I can check the record, but, as I understand it, they involved people like Professor Savage, renal nurses, psychologist. These aren't multidisciplinary meetings involving an anaesthetist and a surgeon; isn't that right?

MR FORTUNE: That's correct. Those were the meetings that were held at the time. We then had the evidence from Mr Keane -- and I'll be forgiven for not having to hand the reference. I'm just looking at my learned friend. But quite seriously, Mr Keane, so that Dr Haynes should be clear, came from the City Hospital, a different site, a different trust.

THE CHAIRMAN: Yes.

MR FORTUNE: And it would be by special arrangement that the surgeon would attend. The anaesthetist, as we understood it, did not regularly attend those meetings.

THE CHAIRMAN: Okay, thank you. I just wanted to make sure we weren't talking about different multidisciplinary meetings. Thank you. Let's move on.

MS ANYADIKE-DANES: Can we look at the anaesthetic record, which starts at 058-003-003. I think if we go to 058-003-007, there we are. You'll see this is referred

to as a preoperative record.

Then you see another title down, "preoperative Assessment". Then there's an assessment of that.

And then ultimately, right down at the bottom, there is a series of boxes for times. And then there is a place for the anaesthetist to sign.

But in any event, above all of that is this part of the form which is recording matters taken preoperatively, including the assessment.

Now, Dr Taylor's evidence, which I think is still in 19 April. I think it starts at 116. Dr Taylor's -- page 116, I should have said. I'm so sorry. I think line 9 probably.

I have asked him some questions about -- what I'm really asking him about is whether he had physically examined Adam, and I'm asking him some questions about that, and he is looking at this form.

He said he's not entirely sure when he examined Adam, but I think ultimately what it comes down to is he believes that he could have done it when Adam was already anaesthetised. Because --

MR UBEROI: I'm not sure that's right. Again, on a fair reading of the evidence in its totality -- I recognise the passage my learned friend is referring to, but I think it's plain that what Dr Taylor was doing was

bending over backwards to put forward circumstances where it might not be conducted pre the anaesthesia, but his actual evidence was he couldn't remember when it was done, and he was taken to the fact that he had ticked these boxes in the pre-anaesthesia chart. So I think that's rather cherry-picking an extract that I don't think reflects the totality of this passage of evidence.

MR FORTUNE: 113.

MS ANYADIKE-DANES: I was just going to 117, but let's have them all. 113?

MR FORTUNE: At line 6. If we can have the anaesthetic record up on the screen at the same time.

MS ANYADIKE-DANES: So he's explaining, when we see that part of the anaesthetic record -- do you see that? There's "ASA classification" and 3 is ringed. He's explaining what that means. Number 1 is a healthy patient and so on, until you get to number 3, which is ringed for Adam:

"A patient with a systemic illness but who's controlled, and I classified that to be Adam."

Then he goes on and he's asked about his writing, and that he signed off on the anaesthetist's signature. And he explains what "HO" means and so on.

Then if we move on, the place where I had taken you to was 116, which my learned friend was concerned may

have indicated a rather partial view, or at least not his entire view but his attempt to assist.

If one goes on to page 117, at line 2:

"I can't tell by this sheet when that physical exam was completed. I can't remember. The usual practice is to do it before the patient goes to sleep."

So then he's asked:

"Do you mean that it might have been done after you had anaesthetised him?

"Answer: Well, as we go on, you will see or we'll find that Adam was upset on arriving in theatre, which may have -- could have made an examination very difficult. So it's possible that the examination was done after he went to sleep."

And so the chairman then intervenes and says:

"If I may take an example."

Then I ask him about the purpose of the physical examination.

We go over the page and, as we carry on down with the hypothesis that -- well, let's go to line 16:

"I can't remember. But it is unlikely that he would have been examined if he was crying."

Pausing there, the sheet is signed by Dr Taylor as Adam coming into theatre crying. That is one of the things that we do appear to know:

"But it's unlikely that he would have been examined if he was crying. It's unlikely I would have got the detail of the examination that I required if he was being asleep, but I can't remember.

"Question: I understand that."

So I ask him:

"If it is not happening then, it means that you are relying on the adequacy of the note that was made of the examination of Adam on 26 November; is that correct?"

And he answers:

"That would be correct."

That, I hope, is a survey through it. And the chairman, ultimately, will give what weight as to what actually was happening.

MR UBEROI: I'm grateful. If I may suggest, this is a way through it. Rather than a proposition from that passage of evidence being put -- rather than a singular proposition being put to the witness, if my learned friend is about to ask, well, for the witness's views on a set of circumstances where the examination was carried out pre-anaesthesia, and then for his view on a set of circumstances where it was carried out post-anaesthesia, then perhaps that's a sensible way through it.

MS ANYADIKE-DANES: Well, thank you. I was going to do

that.

So assuming that there is no difficulty with the crying child, in your view, when should the physical examination of the child take place?

A. Before the patient leaves the ward.

Q. Before the patient leaves the ward?

A. Yes.

Q. And what should that physical examination entail?

A. It's not just a physical examination, it's an appraisal of the underlying medical condition and fact gathering, as I've alluded to earlier, of all pertinent facts regarding that medical condition.

From a purely anaesthetic point of view, approaching a child for an operation such as this, where you know there may be significant blood loss, you know that the child has had several previous operations, has had numerous central venous lines inserted, has been in hospital an awful lot of his life, you would want to -- or I would want to look through the tasks that are part of delivering an anaesthetic to this -- you know, to a patient, in this case Adam.

First of all, the issues relating to anaesthetising any child, most importantly what is -- do you anticipate any airway difficulty in terms of limited mouth opening, abnormal anatomy. Well, we know that Adam had been

anaesthetised several times, numerous times, countless times almost during his life, without difficulty from that point of view, and unless there was an acute illness which had changed things, that can be put to one side.

You would want to know if the child -- if the patient had any other intercurrent illness, unrelated to the actual planned surgery. The commonest things in children are respiratory tract infections, gastrointestinal upsets, which in Adam's case, when we're talking about fluid balance, would be particularly relevant. These can be ascertained both from questioning and from looking at the patient.

In terms of a patient like Adam, where you are concerned about his hydration status and fluid status, I would want to make a direct physical examination of Adam, which would involve looking inside his mouth, assessing his skin terga, feeling his peripheral pulses, looking at his abdomen, looking at how dry or otherwise his mouth was, whether his eyes were sunken as markers of dehydration or otherwise. A very simple examination, which takes minutes at most to do.

Then other things you might find out maybe not from direct examination himself -- yourself, such as what's his pulse? What's his blood pressure? What's his

temperature? These would normally be recorded at his bedside.

A patient that was dialysed, I would want to know what his weight is now, what it normally is, what it normally is at the end of dialysis. What is the estimated overall fluid balance at the time you visit him. And again, if I had seen Adam on the eve of surgery, I would have made that assessment again at the end of his dialysis when he presented for surgery.

It's a very simple examination, fact gathering, which will take a few minutes.

Q. Yes. Can we then pull up again 058-003-007. Right. What you have described, does it involve more or less than is indicated on that form?

A. Significant history is inadequate. When asked to go over the information given to me, it became very quickly evident that he had had multiple previous operations, had spent significant periods of his time in hospital, some of it with severe electrolyte imbalance. He'd had numerous previous urological operations, and the likelihood was that the operation of transplantation would be rendered difficult surgically because of adhesions, and there would be the potential for blood loss.

The fact that he'd had numerous central lines

inserted would cause me to think at least about any potential difficulties of venous access. There's nothing there to say if there'd been any problems directly related to anaesthesia after any of his previous surgical interventions.

Q. Then if you look at the physical examination itself through that tick box system, how does that compare with what you have been describing that you would have wanted to do, both in the previous evening and again after his dialysis in the morning?

A. If we go through it --

THE CHAIRMAN: Sorry, can I just intervene for a moment. I don't want to cut the witness off, but unless I'm mistaken, Mr Uberoi, Dr Taylor accepted the criticisms which were made of his preoperative examination, didn't he? I have a note here that he was taken to Dr Haynes' statement at 204-004-163 and he says:

"I accept what Dr Haynes says about the mistakes made if there's inadequate preparation."

And at (iii), the list of what Dr Taylor should have noted:

"I accept that this is a usual preoperative check. I can't recall if I did all of those things. What I would have done under normal circumstances -- there was a pressure of the cold ischaemic time before it was

too late. I can't recall talk about how much time, but no general impression of urgency to protect the child."

So he accepted that the preoperative -- well, he accepted that what Dr Haynes said he should have ascertained wasn't done and that the preoperative preparation was inadequate.

MR UBEROI: He certainly accepts Dr Haynes' evidence on what should have been done.

THE CHAIRMAN: Yes.

MR UBEROI: My reading of the evidence is, I think again, in totality, I can entirely understand how it would be characterised as you just have. As with many of the incidents, he can't remember specifically what he did or didn't do. What we have, in my submission, is -- it's clear on a balance of probabilities or any test that this was done pre the anaesthetic, but he can't add any more detail than that. That's my recollection of his evidence.

MS ANYADIKE-DANES: Well, there we are. What is clear on the balance of probabilities, Mr Chairman, is obviously a matter for you. If I can put it this way, if it is the case that Dr Taylor accepts that he should have done all these things, maybe we can cut to this, which is: what, in your view, is the significance in terms of the cause of Adam's anaesthetic management of not having

done all these things, in your view?
A. The significance principally is that Dr Taylor did not form a correct appraisal of the fluid and electrolyte requirements for Adam during the course of his surgery. He's ticked on the form that there's a problem with the renal system.
Q. Yes.
A. And it is because of this problem and because of the fluid and electrolyte management during the course of the operation that Adam died.
Q. Yes. So if I understand you correctly, when he goes down his physical examination tick box, he's identified polyuria as a problem, but there is no information as to --
A. The full --
Q. -- what that is or how he's going to address it.
A. Yes. There's no detailed -- he may have thought about it, but he hasn't documented it for public consumption the actual implications and requirements for Adam during the course of his surgery.
Q. Quickly moving to another point, that is that if since Dr Taylor conceded that is it was a possibility, he cannot remember, he cannot remember many things. This is one he cannot remember. But he conceded it was a possibility, and that's why I'm going to ask you about

it.

If he did not physically examine Adam before he anaesthetised him but waited until he was quiet, having anaesthetised him to physically examine him, and if, therefore, prior to anaesthetising him he was relying on the junior doctor's notes of the previous evening, can you comment on that?

A. There would be a lot of information to be gleaned from the junior doctor's notes the previous evening. But I still feel that he put himself under some pressure by not meeting Adam, even if he didn't formally examine him at a time distant from the start of the anaesthetic.

Q. And how appropriate or not do you regard it to anaesthetise without him having examined him?

A. If you do that often enough, you will make a mistake.

Q. In 1995?

A. Regardless of whenever.

Q. Okay.

A. If you -- it is a basic tenet of anaesthetic training that you must appraise yourself as much as you can of the patient's condition. If you omit to do that, at some point in time you will make an avoidable error.

Q. If we go on to page 140 in the transcript of 19 April. Then I think it starts ...

THE CHAIRMAN: Line 12?

MR FORTUNE: 16?
MS ANYADIKE-DANES: Yes, that's where I was trying to get to. No, I was going to 12 to 24.
THE CHAIRMAN: I think it's really 12:
"Did that mean that you didn't necessarily carry out all the investigations of the medical notes and records?
"Answer: I can't exactly when I did. I would have ensured that the safety of his anaesthesia was not compromised by a rush to theatre. What I tried to say and indicate was that there should be no impediment or time wasting, which can happen, that would delay surgery."
MS ANYADIKE-DANES: And the particular point I was going to ask you, is to pick up Dr Taylor at line 23, which is where he says:
"I am not trying to imply that corners were cut to try and rush a patient to theatre. That is not what I'm trying to express, if you understand."
I'm just asking for your view. You have been going through what happened and you have, I think, on a number of occasions expressed the view that you think that Dr Taylor put himself under some pressure of time. Do you have an observation as to whether you think corners were cut or not?
A. Yes, he didn't visit him in a timely manner. He didn't

give himself the chance to appraise himself of his underlying medical condition. He didn't give himself time to digest that and think things through properly, because he put -- he was under pressure of time and hadn't taken the opportunity on the eve of surgery to address those issues.

Q. I wonder if I can move on to the subject of communications. If we could start at page 16 of the transcript of 20 April and start with line 5. We're dealing with at this stage communications between Dr Taylor and Professor Savage.

And he says that how he characterises it is that he sees it that it is:

"[His] failure to act on the information that was given by Professor Savage. [His] misinterpretation or misapplication or miscalculation of that information on [his] independent assessment of Adam."

So that's what he thinks is happening there. He's not saying that he wasn't given the information, he had the information but, for reasons which he can't explain, he wasn't able to deal with it appropriately or accurately.

Now, there are no full notes of the exchanges, or maybe any, between Dr Taylor and Professor Savage. In fact, the issue of communication goes on in this

section. We can pick it up again at 23.

That's the chairman's intervention:

"Professor Savage told me everything I needed to know on the Sunday night and then maybe again on the Monday morning."

And it goes on over the page up to and including line 17 where I ask:

"Is there a record of the information that you sought from Professor Savage and Professor Savage gave to you?

"Answer: No."

And then if we go over the page to 18, one can pick it up at 3:

"I think, following Adam's death, my own personal practice has improved and that's something I've taken from my experience of Adam. I pay more attention to the comments and requirements and orders given to me, instructions given to me by the patient's paediatrician, nephrologist or surgeon."

He concedes that.

And then if one picks him up again towards the bottom of the page, line 24:

"What I do now is what I have admitted I ought to have done then, which was to make myself available for [a physical examination]."

And then we go on:

"If you had done that, would you have recorded the information you were given during that face-to-face meeting?

"Answer: I would."

And then I go on:

"Had you had such a face-to-face meeting in 1995, would you have recorded the information that you received during it."

And he says ...

THE CHAIRMAN: He ended up saying that:

"Had I had a meeting I would have recorded the information [on 058-003-007]."

MS ANYADIKE-DANES: Yes.

Over the page to 20, we deal just very briefly with notes of the information. Then he refers to himself as speculating.

If I pause there, before getting too much into the recording of it, what I'm wanting to ask you, because it has arisen, is the quality of the communications. So far as you can tell, because you're at a remove, you weren't there at the time, there are no notes of it so all one can see is the evidence of what happened, and one has very fairly said that he acknowledges errors. But so far as you can tell, the quality of the

information exchange process between Dr Savage and Dr Taylor --

MR FORTUNE: Before the witness answers, I rise on this basis. This must be a question inviting speculation. There can be no alternative answer.

MS ANYADIKE-DANES: Then let me rephrase that.

Do you see the evidence of the kind of information exchange you would have expected to see in 1995 between the patient's nephrologist and his anaesthetist?

MR FORTUNE: What does my learned friend mean here by evidence?

MS ANYADIKE-DANES: Written evidence. Recorded evidence.

MR FORTUNE: Well, my learned friend knows the answer. There is no written note.

MS ANYADIKE-DANES: No.

THE CHAIRMAN: Let me tell you what my note is, and this is trying to summarise the last few pages, Dr Haynes.

Dr Taylor said:

"I spoke to Professor Savage on the evening of the 26th and I think on the morning of the 27th. I felt fully briefed by him."

It was then put to him that Dr Haynes says that there wasn't enough discussion of Adam's fluid and electrolyte management. Dr Taylor's response was to exculpate Professor Savage.

He said:

"Professor Savage then and now is an excellent communicator and was available to answer queries. The problem isn't from Professor Savage to me but my interpretation and understanding of what Professor Savage told me."

He was then asked:

"Have you changed your practice?

"Answer: Yes, it's improved. I take more notice of what I'm told, directed and informed. What I do now is what I agree I ought to have done then, make time for the face-to-face meeting with the nephrologist and surgeon and note what they say. Had I had the meeting, I'd have recorded the information ..."

On the document that you were looking at a few minutes ago, 058-003-007, which you said was an inadequate note.

So he has said that in Dr Taylor's eyes, this wasn't Professor Savage's fault for not giving him the information, it was his fault for not interpreting and understanding it. He hadn't noted it, he hadn't had a face-to-face meeting with the nephrologist and the surgeon, and he'd also previously said it would have been better had he seen Adam beforehand.

I presume all of that you would agree with, that he

should have seen Adam beforehand, he should have noted what was said to him, because if the information he was given from Professor Savage was reliable, as he assumes it was, then that would have put him in a position to understand what he was going to do?

A. Yes. I agree with everything said in that.

MS ANYADIKE-DANES: Then can I rephrase that question then. Or not that question, have another question, which is this. Clearly Dr Taylor made errors. He's acknowledged it. You have commented on it in your reports and others have too. Do you consider -- well, what responsibility, if any, do you think that Professor Savage had to ensure that Dr Taylor properly understood Adam's condition and, therefore, could not fall into the errors that he did fall into?

MR FORTUNE: I object to that question. On what basis can Dr Haynes answer for Professor Savage in those circumstances? It is quite clear from the evidence of Dr Taylor that he was given all the information that he required for Adam, whether last thing at night or first thing in the morning.

THE CHAIRMAN: And he also said if there were any more queries, Dr Savage would have been there to provide more information.

MR FORTUNE: Absolutely, sir.

MS ANYADIKE-DANES: It's a different question that I've asked. I understand, of course, that that is what Dr Taylor has said. The question is different.

In your experience -- you, I presume, deal with nephrologists. In your experience, does a nephrologist have any obligation to satisfy himself that the anaesthetist understands the information that he is giving?

MR FORTUNE: Well, sir, once again I rise. Other than Dr Haynes saying to the likes of Professor Savage, "Have you told me everything? Is there anything else you feel I should know?", how is Dr Haynes --

THE CHAIRMAN: Let me test it this way.

Can you answer that question? If you have a discussion in a similar scenario with a nephrologist, what do you ... He's given you the information which you think you need. Would you regard him as being under a continuing obligation to be assured that you have the information, you have gathered it? In the absence of any indication from you as the anaesthetist that you didn't have all the information?

A. I think the answer has to be, yes, there has to be some recall.

THE CHAIRMAN: Sorry, I'm not sure what you mean by recall.

A. If we go back to my introductory session where I showed

the diagrams, by recall I might say to you, Mr Chairman, "Do you understand that?" and you might say, "Well, I'm not too sure Dr Haynes, can you go over that bit again?" That's what I mean by recall.

So I think it wouldn't have been unreasonable -- and again we're moving from objective to subjective appraisal of a situation, which is why I'm hesitating. But I think it would have been reasonable for Professor Savage to have asked Dr Taylor something along the lines of "This is really important, can you just -- I'm sorry to bother you, but can you just go over this again with me?"

THE CHAIRMAN: But if Professor Savage had no reason to think that Dr Taylor wasn't following or understanding what he said -- I'm just teasing it out -- would it be a bit cheeky, almost, for him to say, "Have you got that? Do you understand what I'm saying to you?"

A. It may have seemed cheeky, but it would have been in the patient's best interests.

THE CHAIRMAN: Do I understand it then that it's something that he could possibly have done, but you wouldn't go so far as to say that he failed in any way, or would you?

A. Perhaps if I could use a slightly different analogy. If I'm teaching a trainee something and I am a little worried about the condition of the patient and the

trainee's interpretation of what I've said, I will say to that trainee, "Remind me what I've just told you. Show me what you're going to do. Tell me about it".

MR FORTUNE: Sir, this is not a training situation.

THE CHAIRMAN: I've got it. I don't think you suggest that's the direct analogy.

A. No, I'm not, but I'm just saying how it wouldn't be entirely inappropriate.

THE CHAIRMAN: I think that's about --

MS ANYADIKE-DANES: Mr Chairman --

A. I think that's about as far as I can go on that.

MS ANYADIKE-DANES: I'm looking at the clock. Can I leave it in this way --

THE CHAIRMAN: I've got the point. Sorry, the last answer was it wouldn't be entirely inappropriate. Okay?

MS ANYADIKE-DANES: But I wanted to put it this way, if I may, Mr Chairman.

Dr Haynes has actually expressed a view on this in one of his reports. Regrettably, I can't find the reference to it. What I was going to say is, given the time, it may be better if you will permit us to rise at this stage, and then we can find that and that particular report can be put to Dr Taylor. He has made that --

MR FORTUNE: Dr Haynes.

MS ANYADIKE-DANES: Sorry, to Dr Haynes. He has made a reference to that. He has also commented in terms on the communications between the various members of the team, and I would like an opportunity to find that reference so instead of speculating about things, Dr Haynes is having put to him what he had said in his report. Because these two particular issues are things that have been raised with me that people would like some clarification on. They would like to know the basis of Dr Haynes' view. And that was part of the reason why I was going down this line, although some have risen about it. But that is what I would like to do.

MR UBEROI: I only rise to assist and certainly not to express any submission or view on this particular debate, but I'm fairly sure, if it assists, the page reference is 204-013-393.

MS ANYADIKE-DANES: Thank you.

THE CHAIRMAN: Thank you very much.

MR FORTUNE: Having had time to reflect on this matter, and if my learned friend as leading counsel is going to return to this issue, when the questions were asked, if Dr Haynes can pause just in case objections wing in from the right or the left.

MS ANYADIKE-DANES: I can discuss it with you during the

break.

MR FORTUNE: Absolutely.

THE CHAIRMAN: I take it that your concern on behalf of Professor Savage is whether it's within the -- well, (a) what the established facts are and, secondly, whether it's within the remit of Dr Haynes to comment on the adequacy of communication from Professor Savage to Dr Taylor in circumstances where there isn't actually a record that we can look at to see what precisely the communication was.

MR FORTUNE: Yes, and also given the evidence of Dr Taylor to date on that matter.

THE CHAIRMAN: Okay, thank you very much. This might take a -- let's sit at -- can we do 2 o'clock or do you want 2.10?

MS ANYADIKE-DANES: I'm entirely in your hands, Mr Chairman.

THE CHAIRMAN: I want you to get a break, but I'm just looking at the note. I think we're coming towards the end of page 1 of three and a half.

MS ANYADIKE-DANES: We're not, we are fairly further advanced than that.

THE CHAIRMAN: Oh great. Let's do 2.10. You can sort out your issues, and Mr McBrien, Mr Hunter, you can speak to your client over lunch about any particular points which have emerged from this morning so far. Thank you very

much indeed.

(1.15 pm)

(The Short Adjournment)

(2.10 pm)

MS ANYADIKE-DANES: Just to give a reference that you, sir, were looking for in relation to the letter that went round with a guidance on consent. The reference is 305-002-003. It's a letter of 6 October, and then behind that, 004, 005. There we are, that's the guide to consent for examination or treatment.

I'm not proposing to take you to it now, I mention it simply because the chairman had raised it. In that guide, towards the back, are some specimen consent forms and we did look, during the evidence of Professor Savage, at a comparison between the consent form that Adam's mother signed and those specimen consent forms, at least the relevant one for surgery.

MR FORTUNE: I stand to say that there was no evidence that that guide had in fact been cascaded down through the trust.

THE CHAIRMAN: I know that, and I made that point this morning. The point I was making to Dr Haynes this morning was that would indicate that what you had said was happening from the early 1990s onwards in England, that you were familiar with, was also happening in late

1 1995 in Northern Ireland.
2 A. Yes.
3 THE CHAIRMAN: That's the only point. So if we were behind,
4 we weren't far behind.
5 It's just perhaps a bit unfortunate that the
6 cascading down hadn't happened, but I guess cascading
7 down inevitably doesn't happen overnight?
8 A. I think the cascading of this document probably would
9 follow considerable discussion in fairly wide circles
10 about the issue.
11 MS ANYADIKE-DANES: Thank you. This is your report,
12 Dr Haynes, 204-013-393. This, I apologise, is the
13 report that I was looking for unsuccessfully before we
14 broke.
15 If we can go to the first paragraph:
16 "However there were two significant failures on
17 Dr Taylor's part."
18 The first is one that has already been addressed:
19 "Secondly, he did not gain a clear understanding of
20 Adam's clinical condition -- with especial reference to
21 his renal function, fluid and electrolyte balance and to
22 the history of central venous cannulation. A more
23 ordered [and this is the force of what I was putting to
24 you] discussion with Dr Savage could have better
25 appraised him of Adam's fluid and electrolyte needs.

Equally, it is my opinion that Dr Savage might have been more forceful in his discussions with Dr Taylor regarding Adam's fluid management."

The question is, firstly, what did you mean by that last reference to Dr Savage? And, secondly, where is the evidence from which you formed that view?

A. The evidence I formed that view is that it's quite clear that Dr Taylor did not appreciate or was not able to put into practice the correct understanding of fluids and electrolytes in terms of Adam's renal condition. Having reflected a little bit further over it in the last little while, I do think it was incumbent upon Professor Savage to ensure that his understanding of the condition had been imparted with Dr Taylor.

I look back and reflect on my career and I can look back on times as a consultant when I have been put in the same position as Dr Taylor by consultant colleagues and asked if I actually understand the implications of what I am being told. Again, we're moving slightly away from objective towards subjective, but my impression is that this did not take place.

MR FORTUNE: Sir, I rise at this stage because once again this is highly speculative. When you hear the words "my impression", you know it's not based on fact.

THE CHAIRMAN: I've got the point. Thank you.

MR FORTUNE: Thank you, sir.
MS ANYADIKE-DANES: What is it that you think specifically Professor Savage should have ensured that Dr Taylor understood in terms of what was important in relation to the fluid management, given his polyuric condition? What is it?
A. Two things. One that Adam was not able to regulate sodium losses, nor was he able to regulate water, volume losses, and that he required particular attention to -- I use the word carefully -- balance aspects of his fluid and electrolyte balance management during the period of disruption during surgery.
MR FORTUNE: I regret to say, I come back to my feet because this is an unfair criticism of Professor Savage, because it is criticism. The basis is highly speculative. If Dr Taylor, for whatever reason, made a miscalculation, and we've all heard the evidence of Dr Taylor, the fault is Dr Taylor's. It cannot be attributed to Professor Savage in these circumstances. And you are effectively being asked to draw an adverse inference from the answers just given by this witness. It's wrong, it's unfair, in our submission.
THE CHAIRMAN: Well, I've only got one minor caveat on that, which is the fact that Dr Taylor exculpates Dr Savage doesn't mean that he properly exculpates Dr Savage. But

I've got the force of your point, which is that Dr Taylor has taken responsibility for this. He has said: if I had needed more information, Dr Savage would have been there to answer my queries. And he has not tried to blame Dr Savage. In fact, on the contrary, he has accepted it was his responsibility. And I do take the point that this evidence which Dr Haynes is giving is his impression of what happened and his impression of what Dr Savage should have done, which I will consider with some degree of caution, in light of the state of the other factual evidence to date.

MR FORTUNE: Thank you, sir.

MS ANYADIKE-DANES: Thank you.

In these things, Dr Haynes, I'm seeking to see if you can explain the basis of certain views that you have expressed in your report, which aren't immediately obvious to those who read your report. This is one, and there is a slightly similar one coming up, if I may give the reference, 204-004-161. I think it's the last paragraph where it says -- literally I think it's the last sentence in the last paragraph:

"I get the impression ..."

Perhaps it's better to put the context:

"The operation was scheduled to start early in the morning and some discussions were held with Dr Savage on

the eve of the surgery. Had Dr Taylor visited Adam and his mother on the eve of surgery and even briefly discussed Adam's past medical history, I think that he would have realised how susceptible Adam was to either water overload or inadequate sodium replacement and formulated his fluid replacement plan more appropriately."

This is the point that I want to get you to explain:

"I get the impression that everything was hurried, that tensions had developed between the surgeon and anaesthetist, and that there was no adequate dialogue between those involved."

Now, you are asked to expand on that, so I want you to bear that in mind and the answer that you give, when you're asked to expand on it, which is to be found at 204-006-334. If one sees right up at the top of the page, that very sentence that I quoted is taken, is extracted, and you're asked:

"Explain the basis of your impression that tensions had developed between the surgeon and anaesthetist."

And then in your response, over a number of bullets, you seek to do that.

The question is, what is the evidence, the actual evidence, that you have seen that has allowed you to express the view that tensions had developed between the

anaesthetist and the surgeon?

A. The answer is that it is inevitable that some tension will have developed because of the length of the cold ischaemic time of this kidney. It is ... And again, drawing the line between what is objective and what is subjective, that I think Dr Taylor had made himself time pressured by not visiting Adam the previous evening. He put himself under pressure by not thinking through the circumstances of: what if I have a problem with such-and-such? And I'm sure we'll go on to discuss the central line.

There is little evidence of dialogue in any of the documents I've been given to read between --

Q. If we pause there for the moment. What evidence of dialogue would you expect to see?

A. There may be some sentences that "We discussed and it was agreed that --

Q. Where would that --

A. They would appear in the statements of either Mr Keane or Dr Taylor, somewhere along the line.

Q. Sorry, you don't mean contemporaneous evidence, you mean you don't see any of that in their witness statements?

A. Yes, that's correct.

Q. Is there any contemporaneous evidence that you would expect to see?

A. Are you referring to the transcripts from the recent --
Q. No, no, by contemporaneous I mean in 1995, from 1995.
A. Um ... In terms of hard, objective fact, it is very difficult, but being given the documents I have been and being asked to read through it and look back at the events that happened, I would have expected some indication somewhere in the text of one or more than one statement of a collaborative approach to the whole thing, and I have not seen this. We have not been able to ascertain when the operation was actually scheduled to start, why it started at 7 rather than 6, who discussed it with whom, and there is conflict in the statements between the interpretation of Mr Keane and Dr Taylor on the amount of blood lost during the operation, for example.
Q. Sorry, how do you interpret that?
A. Well, that they didn't communicate effectively with one another about what was actually happening.
Q. I understand.
A. And likewise, I've put down in the fourth bullet point that begins "Paragraph 35", Dr Taylor would have spent a considerable amount of time getting a central venous catheter into Adam, but there's no evidence that it was discussed with Mr Keane that he was having problems. The time pressure was still there. There was no note

that the problem was discussed or an agreement as to how best to proceed.

And I would like to draw attention to the fact, in the next bullet point, in which I conclude:

"This may be a misconception, but it is my perception."

And I stand by that statement.

THE CHAIRMAN: Sorry, Dr Haynes, in the original statement that you were asked to expand on there, "I got the impression that everything was hurried". And there's clearly evidence of that, "and that there wasn't adequate dialogue". Well, there's certainly question marks about the extent of dialogue.

The question about tensions developing, if I replaced "tensions had developed" and said, "pressures had developed involving the surgeon and the anaesthetist", is that much different? Tensions suggests some degree of --

A. Antagonism.

THE CHAIRMAN: Antagonism or dispute, which is more subjective and perhaps more speculative. If we replaced "tensions" with "pressures had developed" --

A. I'd be happy for that to be --

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: I'd like to move on to the question of

urine output of the native kidneys during the operation. That is something that had been discussed or raised by Dr Coulthard during, I believe, the experts' meeting on 9 March. The possibility -- in fact, let's go to it. 307-008-193.

I think it's at lines 1 to 3. If we start there:

"Their kidneys [this is children] are functioning on a real knife edge and anything, almost anything that happens to that child, is capable of just switching their kidneys off because they are so dependent and just not robust at all. Giving a child an anaesthetic very commonly makes them oliguric and makes them pass very, very little urine for a while. Then it often picks up afterwards and that is a very common event. I therefore find it extremely plausible that the only recorded volume that we have of 47 ml is true because that's the sort of volume that you would expect commonly to happen. For that reason..."

And then he goes on to say that he has recalculated the figures.

In fact, if we look at the perioperative fluid balance chart, which reflects that, which I think is 200-020-237, there you see urine output, and then you can see, if you will recall, Mr Chairman, these are stages and phases during the surgical period, those

numbers represent those, in fact there are a number of sheets that each of the clinicians and the experts involved filled in.

But if one looks at the urine output, you can see that although there is urine output for the first four, there is nothing thereafter --

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: -- in Dr Coulthard's calculation. So if one then goes to the transcript for 20 April at page 39, starting at line 16 with the question. I put to Dr Taylor:

"Dr Coulthard has suggested that it's quite possible, as a nephrologist, that when the surgery starts, that the kidneys can respond -- or the native kidneys can respond to that by actually shutting down and not producing any urine at all. You'll have seen that."

And I put to him the fluid balance sheet, and I took him to that. I asked him about that possibility.

Then if one goes over the page, starting at line 1:

"What I want to ask you is: when you were discussing Adam's condition and what that would mean for what you were trying to do with him, which is to provide an appropriate fluid management regime, did you have any kind of discussion with Professor Savage about that

possibility."

Being the fact that his kidneys could respond by simply shutting down.

Then the answer comes back at line 6:

"No. I hadn't heard of that theory before."

And I asked him again to make sure I'd understood it, and he said, no, he hadn't.

So the question I put to you is: do you have any comment to make, did that surprise you that that was his response?

A. Dr Taylor's response?

Q. Yes.

A. Yes.

Q. Why?

A. Because under the circumstances of Adam, his urinary output would have been very dependent on his blood pressure. It would not have been directly -- well, the kidneys would have not have changed in function in direct response to any of the anaesthetic drugs given, but they would be very blood pressure dependent. And if by the fact that he was anaesthetised, his blood pressure decreased from its normal, then it is quite likely, as Dr Coulthard has said, that the volume of urine produced would have diminished or even disappeared.

Q. Yes. I think Dr Coulthard explained the mechanism. What I was asking you is: is that something that in 1995 you would have expected a consultant paediatric anaesthetist or, for that matter, Dr Taylor, more to the point, to have known about and to have potentially raised with Dr Savage?

A. Certainly it would -- I would have expected a consultant paediatric anaesthetist carrying out a major operation in a child such as Adam to have known that the blood pressure of a child such as Adam would have influenced the volume of urine produced by the child during the operation.

Q. Influenced so that the kidneys could produce no urine at all?

A. None less, none or less, or perhaps the same if the blood pressure didn't change.

Q. Thank you. While you're just on that point, if he had appreciated that, is that something that you feel should have been factored into his fluid management calculations or plan?

A. Yes. It should have, could have been. I mean, the --

Q. Hang on, they're two different things. Should and could are two different things. Obviously it could have been. Is it something that you think should have been?

A. It should have been and it was an unknown. At the start

of the operation, Dr Taylor, or any other anaesthetist, would not have known what Adam's urine output would have been over the next few hours.

Q. What are the implications for that, then, as to how he should establish, if it can be done, what his urine output is or even identify whether the function has ceased altogether?

A. Right. The implication of my statement just there is that going back, we've said on several occasions that Adam's electrolyte and water regulating mechanisms were not able to be carried out by his kidneys. Therefore, care and precision was required by those attending him to make sure that the water and the electrolyte balance was taken care of for him.

Now, if you are going to put something into a patient, you need to have information as best as possible, knowing what is coming out of that patient. And to know what is coming out of a patient such as Adam, there were various fluid losses during the operation, one of which was, or might not have been, the volume of urine produced during the operation at various stages.

There are other mechanisms of fluid loss, which are included in the table we have here, which we've all been asked to complete. These would be evaporative losses

from the wound, insensible losses from his respiration, blood loss, and the fact that his blood vessels would have relaxed and vasodilate, and his circulating blood volume may have increased during the time of surgery, and may needed to have been kept replete, which leads us to the whole question of central venous pressure measuring.

Q. Just so that we understand, because this is part of -- well, it has come after your views on discussion with -- may or may not or should or should not have taken place between Dr Taylor and Dr Savage, as he was then. You, I think, have said that this is something -- the fact that the kidneys could do that is something that Dr Taylor should have been alive to and given some consideration to in formulating his plan.

Is it something that should have been raised with Dr Savage in part of the discussion they might have as to the likelihood of that happening, or is that something that Dr Taylor should have been expected to know by himself and made his own independent decision as to how he addresses that?

A. I think it would have been reasonable for it -- no, I'll rephrase that. It should have been discussed between Dr Taylor and Professor Savage. Attention should have been drawn to the fact, emphasising the fact that Adam

was not able to regulate, compensate for changes in fluid and electrolyte loss or administration in the same way as someone with normally functioning kidneys could and, therefore, full attention, scrupulous attention to detail in terms of fluid and electrolyte balance, as much as possible, by whatever means was appropriate should have been carried out by Dr Taylor during the procedure.

Q. Yes. This had started off on a slightly different place from that. That is a general statement that you have made a number of times that you think that scrupulous attention should have been paid to that management of Adam's fluid levels for all the reasons that you say. But the question was slightly different, and that is the possibility that Adam's kidneys could actually shut down.

What I was asking you is, is that something that you think Dr Taylor should have addressed by himself, he didn't need any further discussion about it, he would appreciate the implications of it, or is that one of those things that you think should have been discussed with --

MR FORTUNE: Sir, I rise again. This is going back to the same topic, if it includes Professor Savage. You have already indicated Dr Taylor's acceptance.

MS ANYADIKE-DANES: I'm sorry, this is getting at what the topics are that should have been addressed. That's what this is for. This is a line of questioning that emanated from the experts' own discussion about a function or lack of function of the kidneys.

So I am putting to this witness, in the shoes of a paediatric anaesthetist, what he independently should have understood about that possibility, or whether it's something that he can be expected not to have understood entirely by himself and should have raised with Dr Savage. That's the question I've put to him, and I think he's answering that. Or answered it, in fact.

THE CHAIRMAN: If you think he has answered it --

MS ANYADIKE-DANES: Yes, sir, I was moving on.

THE CHAIRMAN: I've got your point, Mr Fortune.

MS ANYADIKE-DANES: I'm sorry, sir, I may have been presumptuous there. You may not think he has answered that question or that it's inappropriate of him to be answering it. I apologise for that, I may have been presumptuous.

THE CHAIRMAN: No, your position, as I understand it, is that this should have been discussed between Dr Savage and Dr Taylor but that leads us back into the earlier debate. Dr Taylor is accepting that he understood everything that he -- he was given all the

information he needed to have. The question is whether he understood and interpreted it properly. And that then leads you back to your suggestion that it might have been prudent for Dr Savage to say to him something along the lines of: are you sure you've got that, or is that clear or whatever?

A. Yes, that is my answer.

THE CHAIRMAN: I've got that.

MS ANYADIKE-DANES: Thank you very much, Mr Chairman. The problem, of course, is that Dr Taylor has said that he didn't know that the kidneys could have that possibility, but that's a different question.

I wonder if I could take you then to, on the 19 April transcript, to page 42 at line 15. It's a small point to ask you, and that is -- this is all part of this dialogue.

The previous point that I had put to you is something that Dr Taylor very fairly said, "I didn't know the kidneys could do that".

In this case, this is a slightly different issue. If we start maybe at line 3, in fairness, I asked a question:

"Why you thought Adam could pass 200 ml an hour of dilute urine."

Then Dr Taylor embarks on trying to explain that.

And I think at line 8 he says:

"I truly can't explain it. I understood Professor Savage did tell me that he had a fixed urine output. That's what I was told. I made my own independent assessment of Adam and I miscalculated his urine output and that led me to give the wrong amount of fluid."

And then it goes on:

"You've just said that Dr Savage, now Professor Savage, had told you that Adam had a fixed urine output, is that correct; is that what you're saying?

"Answer: I believe he did and I've read his evidence that he did."

It's a small point, really, but one that has interested somebody, and that is, the issue of whether Adam did or did not have fixed urine output, in fact I think the expert evidence is, and Dr Savage certainly says it is, that he had a fixed urine output.

So the question is this, is that something that a consultant paediatric anaesthetist ought to be seeking to have from the nephrologist, or is that something he should know as an incidence of the renal disease that Adam had?

A. I'm certain in my opinion that anaesthetists should, if

he's unsure, ask and get a clear answer on that.

Q. I know that, sorry, but that's not the question. The question is whether it's something he should know, that Adam's chronic renal failure meant that his kidneys had a fixed urine output. Is that something that he, as a consultant paediatric anaesthetist, should know or is that something that he could and should be legitimately seeking information from Dr Savage about?

A. The latter is the answer. He should have sought confirmation or explanation from Professor Savage about Adam's urine output and likely urine output during the operation.

Q. He's conceded that in fact he got the information, he just misinterpreted it. What I was seeking from you is whether he should have been relying on Dr Savage or whether he should have understood sufficiently about the consequences of renal failure to have known that that would mean that the kidneys would have a fixed urine output.

A. No, I think it is unfair to expect Dr Taylor or any other paediatric anaesthetist to have a complete in-depth knowledge of paediatric renal medicine, and it was quite appropriate and correct that the anaesthetist should seek advice, information, fact, from the nephrologist in charge of Adam's case.

Q. And the evidence is he was given it, he just misinterpreted it.

A. That's my understanding.

THE CHAIRMAN: Is it inevitable that there's a fixed urine output, or is that -- sorry, I will keep it short. Is it inevitable that there's a fixed urine output?

A. In end-stage renal failure like this?

THE CHAIRMAN: Yes.

A. My answer to that is that you would be better to get a definitive answer from a paediatric nephrologist on that.

THE CHAIRMAN: Okay, thank you.

MS ANYADIKE-DANES: If we then start to get into the issue of fluids and the total volume that was administered to Adam. I think that issue starts, still on 19 April, at page 49. Sorry, actually, it starts -- in order to put it in its context, it starts at page 48.

This is Dr Taylor explaining about formulating his fluid management plan for Adam and, in doing that, trying to get a sense of what his hourly urine output was. You can see that the question is starting -- or the information is being given to him starting at line 6.

Then it's being put to him how he came about the figure that he actually used. And at 12:

"Did it occur to you whether that could possibly be correct? If that was his hourly urine output ..."

That's 200 ml an hour:

" ... What would that actually mean in terms of his input, his daily input? Did it occur to you to sort of cross-check yourself in that way."

Then Dr Taylor says he's not going to speculate any more. He has said he can't explain where he got the number 200 from, and he's not going to speculate about that.

Then he's pressed a little more as to whether he could possibly, if you like, have thought that that was the right answer or a correct figure.

If we go over to page 49, it's put to him:

"That would amount to about 4.8 litres a day on that basis."

And I asked him about that, and he agreed that it would. He's also agreed that you wouldn't find a figure like that anywhere in the notes.

Then the chairman intervenes to say:

"And that would be extraordinary at that level, wouldn't it, 4.8 litres?"

And the answer to that is:

"I don't know."

And then I ask him about that, how can he not know

whether it would be extraordinary for a four-year-old child of 20 kilos to be administered 4.8 litres of fluid a day. And the answer to that is:

"I'm not prepared to speculate."

And so that we have the whole thing in context without partial extractions, if one goes over the page to 50, we see that after putting all those propositions, Dr Taylor ends up with accepting that it's a very large number for any child to take in, in a day. Then we move on to another point.

What I wanted to ask you is your observation on that exchange in relation to Dr Taylor's response to the administration of 4.8 litres to a four-year-old child of 20 kilograms in a day.

A. My initial reaction was one of amazement when I read that. To give 4.8 litres of fluid to anyone of any size is a lot. I was very surprised that the simple arithmetic didn't strike him as being extremely unusual and well beyond what could normally be expected, certainly for a 20-kilogram boy.

Q. I wonder then if we can move into the issue of fluid deficit. If we go into the next day's evidence of 20 April and go to page 27. It really starts at line 20. What Dr Taylor's being asked about here is his view in relation to Adam having a fluid deficit as he

arrived for his surgery.

So he says:

"I believe my view at that time [that's obviously 1995] was that there was a fluid deficit because he had been denied -- he had been fasted, he had been denied fluids for two hours."

And then if we just pause there for the moment. What is your comment on that, that he had a fluid deficit on that basis alone?

MR UBEROI: Sir, I rise to -- it's perhaps a question that needs the added context of the debate of --

MS ANYADIKE-DANES: Well --

MR UBEROI: -- dialysis and the duration of dialysis.

MS ANYADIKE-DANES: Sorry, well, I was simply going to ask him that, but that's fine, we'll try and take it in bite-size chunks, but we'll move on.

So that's what he says there. I then ask him about the effect of peritoneal dialysis. And if we go over the page to 28, he says that he's going to -- the effect of that, he's going to defer to the experts. And I am seeking his view.

And then that's what he starts to give at line 8:

"My understanding is that peritoneal dialysis equilibrates, equalises the sodium and other electrolyte contents and fluids."

Then I ask him:

"So why did you think, since he'd had his dialysis, he was in deficit?"

And the answer he gives is:

"My understanding for Adam was that the dialysis didn't allow fluid to be taken up into his body or that there was little to be taken off his body, but I didn't have the access to his dialysis records."

Pausing there, that's an issue all on its own:

"And I believe that was my thinking at the time."

And then he goes on:

"When you told me before that you'd got all the information you thought you needed, have you identified now when we start to look at this in more detail, an aspect of information that you didn't have?"

And he says he believed he had the information verbally, that's on dialysis.

And if one goes over the page and the question is put:

"So in some way you gained the impression that although he had undergone peritoneal dialysis, for various reasons that had not been ..."

I think that's an error in the transcript. I think it's "able":

"... to have the effect which you thought it should

normally have, which is to equalise both the sodium content and the fluids. Is that what you're saying, essentially?"

To which he says:

"I think the dialysis is to be considered over the 24-hour period, as Professor Savage outlined, from 8 am on the previous morning to 8 am. It's a 24-hour fluid balance cycle that I was using. So therefore, Adam normally had 1,500 ml of fluid overnight during his dialysis, which would tend to equilibrate his fluid and sodium, and then two boluses of feed during the daytime, two 300 ml of boluses, and that made his daily requirements ..."

And then he goes on:

"So my understanding, if one looked at the 24-hour period at which Adam was coming towards the end of, at 7 am, that his fluid balance for that 24-hour period would have been in deficit by an amount between 300 and 500 ml. That was my understanding."

Now, your expert evidence has been that he wasn't in deficit. What is your view of his explanation for why he thought what Adam went into that surgery with a deficit of somewhere between 300 and 500 ml?

A. I have looked at this and I find it difficult to make an awful lot of -- I find it hard to understand his train

of thought. I find it much easier to approach it knowing what I do know about renal medicine and the effects of peritoneal dialysis. But what I find difficult to understand is Adam had an abbreviated period of dialysis on the eve of his transplant, and you've mentioned the fact that -- or highlighted the fact that dialysis records, in particular his weight and fluid balance, weren't kept perhaps as well as they might have been, and that has been addressed by one of the other experts. I cannot see how Dr Taylor came to the conclusion that Adam was short of fluid to that extent, no matter how I look at this, I find it very hard to draw that conclusion.

Q. To be fair to Dr Taylor, it's not only, I think, Dr Taylor who reached that view, I think so too did Dr Savage. He also thought that he was in deficit.

MR UBEROI: I think my recollection of the evidence was in fact that that was a passage where Dr Taylor was trying to explain it, but in fact his previous evidence had been that he would have received that information from Professor Savage.

MS ANYADIKE-DANES: Yes, and if one looks at the comparative sheet, although I think -- yes. The comparative table of Adam's perioperative fluid balances, which is reference 300-077-145, maybe that can be called up.

Actually, sorry, let's start with the beginning, sorry.

300-077-141. There we are. That shows you the daily 24-hour period. Then if one goes to 300-077-142, one sees the time between ward admission and start of perioperative fasting. You'll see along the top there's you, Professor Gross, Dr Coulthard, Dr Taylor and Dr Savage, all with your respective calculations.

Then the time between the start of the perioperative fasting and anaesthesia, which is 5 to 7. If you look along the line that says "Cumulative fluid losses", you can see the figure, cumulative fluid input and cumulative -- or estimated cumulative fluid excess.

And then if one sees -- and we'll go over the page:

"Time between the induction of anaesthesia and the start of surgery."

And then on through all the various phases that we have identified through his surgery.

So can you explain, just so that people have it, by reference to this, and tell me if this isn't helpful to you for that purpose, why you came to the view that Adam was not in deficit? That's one task I would like you to do, and when you have done that, we'll move to the difference between the 24-hour cycle he took and the cycle from admission.

A. Right. If we could perhaps go back to the first --

Q. Yes, the very first page of the daily, the 24-hour period?
A. No, the part that shows 2200 to 0500 hours. The previous page.
Q. Yes, that's 300-077-142.
A. Yes. Would you like me to take you through the calculations?
Q. Well, I think so, because there is a difference and I think that it would be helpful if you explained how you arrived at your figures and why you say he wasn't in fluid deficit.
A. Okay. If we look at row (a) where I've put "Insensible losses", insensible losses are water that is lost either through transpiration in your exhaled breath, perspiration or as a component of faeces. There are various formulae for calculating this, but they all come up with a fairly similar answer. If we look at the formula I have used, that I use in my clinical work, it is that the insensible losses for an afebrile patient are 400 ml per metre squared of body surface area per day. And you can see that the other experts have come up with similar but not identical calculations.
Q. Yes. We can see the difference it makes. You're at 403, Professor Gross is at 392, Dr Coulthard's at 434, Dr Taylor is at 547, the largest, I think, and then

Professor Savage is at 434.

A. That's looking at the urine output as a consequence of insensible losses. So if you look at row (a) first, the calculation I have arrived at using the formula that I use in daily practice is that during the seven-hour period overnight, Adam would have lost 93 ml of water through insensible losses. Professor Gross came out with a slightly larger figure. Dr Coulthard, a slightly smaller figure. Dr Taylor, the same as Dr Coulthard. And Professor Savage, by a different formula but the same figure as the other two.

Q. Mm-hm.

A. So they're pretty much of a muchness. Professor Gross' is a little bit larger, but I don't think it would make any difference to the overall management.

And then row (b), on the basis that everything has to add up, the urine output would be what would go in during that period less the calculated insensible losses. Okay?

Q. Mm-hm.

A. So we can see that the calculation is to work out what we expect Adam's urinary losses would have been during that seven-hour period.

Q. Okay.

A. So using my formula, I came up with a calculation that

Adam would have lost 403 ml of fluid during that seven-hour period. Professor Gross came out with 392 ml; pretty similar. Dr Coulthard, very similar. Dr Taylor, larger but, from a practical point of view, wouldn't have made a significant difference. And Professor Savage came up with the same as Dr Coulthard.

Then there's the slightly uncertain row, row (c). Adam received eight of his usual 15 peritoneal dialysis cycles, and the figures derived here can only be a best guess, since there was no actual measurement. However, what I think is interesting is that by slightly different means, and I chose to use the fact that he had eight instead of 15, so I multiplied what one would expect his dialysis losses to have been, by eight over 15, that everyone, except Dr Taylor, has entered a fairly similar prediction.

THE CHAIRMAN: Dr Savage's is a wide-ranging one, from 50 to 250?

A. I think because mine was an arithmetical calculation, I just did the sum and put down a final figure. Dr Savage has put a range, which is what he would anticipate, knowing the effects of peritoneal dialysis in a patient such as Adam, what it's likely to have been. And it's within the same range as myself, Professor Gross and Dr Coulthard.

THE CHAIRMAN: Well, sorry, it's beyond everybody's maximum and not quite as low as Dr Taylor at zero. It's a very wide range. Because his top of the range at 250 is larger than you or Messrs Gross or Coulthard, and his bottom of 50 is substantially less than all three of you, and not far off Dr Taylor.

A. Yes, but if you were to take the biggest discrepancy, if you were to take Professor Savage's lower estimate of 50 ml and my estimate of 213 ml, that will put an error of 163 ml into the fluid balance calculation, and as we'll see further down the chart, that is much smaller than the volumes we're talking about.

THE CHAIRMAN: Okay.

A. Likewise, if you take the other extreme, if you take Professor Savage's 250 ml estimate and take Dr Taylor's estimate of zero, again that's the biggest discrepancy's going to be 250 ml when it comes to overall fluid balance calculation, and we'll see that that represents a small fraction of the volume of fluids we are talking about.

So for practical purposes I put it to you that there's no significant difference in the calculations to date, as far as the end of row (c).

THE CHAIRMAN: Okay.

A. The line below that is -- just for easy of reading, I'll

go over this -- that for the time period there's a number and then in brackets is a summation of the total fluid losses from 2200 hours to the end of the point being discussed. So for this first page, the two numbers are going to be identical.

THE CHAIRMAN: Yes.

A. So if we proceed down to the row that begins "Estimated (cumulative) fluid excess", which is derived by subtracting the input from the output, we can see that the range is the lowest from Dr Coulthard, an estimate of fluid excess at 0500 hours of 248 ml, and Dr Taylor's excess of 353 ml, but I would put it to you that although they're slightly different, in the greater scheme of things the differences, at this point, are insignificant.

THE CHAIRMAN: Does that mean that -- just to bring this to a head because obviously everybody has been asked to do their separate calculations, and Dr Taylor's estimate that Adam's fluid deficit was between 300 and 500 ml, in the train of what happened how significant is that?

A. In the train of what happened, that is a very small number.

THE CHAIRMAN: Yes, that's what I thought.

A. If you place that as the numerator over the fractions we're talking about.

THE CHAIRMAN: In other words, if he'd got his other calculations and assessments right, the fact that he was out at the start perhaps by 300 or 500 ml would have made no difference at all?

A. No difference at all.

THE CHAIRMAN: So this is perhaps instructive about his understanding of the starting point, but it is not the fundamental problem of what went wrong during Adam's operation?

A. No. It shows that whenever Dr Taylor compiled his column of this chart, by whatever route he took to derive it, it's not that dissimilar from what everyone else has said.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: I probably should mention, Mr Chairman, that when Dr Taylor was giving his evidence, I believe he said -- and I will stand corrected -- that this chart was compiled with matters as he knew them to be now and not from what he actually did in 1995.

THE CHAIRMAN: Yes.

MS ANYADIKE-DANES: Now, he knew or appreciated that Adam had a fixed urine output but not of the sort that he had understood it to be, if I can put it that way. So this chart doesn't actually reflect the calculation, as I understand it, that he made in 1995.

MR UBEROI: Yes, that's correct.

MS ANYADIKE-DANES: Thank you.

A. That is why I phrased my answer to the last question the way I did.

Q. Now, what I was asking you to help with is the route that Dr Savage and, with him, Dr Taylor, I understand, got to thinking that Adam had a deficit going into his surgery, was that whilst Dr Savage and, for that matter, Dr Taylor appreciated the equalising effects of peritoneal dialysis, if I can put it that way, the view they took, I think Dr Savage was leading in this, is that you need to apply that over a 24-hour period. And if you apply it over a 24-hour period, you actually end up with a deficit of somewhere between 300 and 500 ml. Whereas if you apply that principle of equalising to the position from when he was admitted to hospital until he presented for his operation, he's not in deficit at all. And that seems to be a difference between you, Dr Coulthard and possibly Professor Gross as well, and on the other side, Professor Savage and Dr Taylor.

So what I wanted you to help us understand, and maybe the better way is for you to just go straight to that, is, in your view, what is the period of time over which you are looking at the dialysis? Is it a 24-hour

cycle, or from his admission?

A. I think you need to look at it from both points. If you take a step back and look at the way Adam's fluid balance would have evolved over an average day, if you take, for example, 8 o'clock in the morning as time zero, as the start of Adam's day, from 8 o'clock in the morning, he would have produced whatever volume of urine he produced, and there's been some discussion as to whether it's 58 ml an hour or less, but he would have produced on average that amount per hour.

Q. Yes.

A. And he was mostly fed overnight. But because of the ongoing steady loss of volume during the day, he was also given supplementary feeds during the daytime to try and even out this fluctuation. The insensible losses would have fluctuated a little bit as well. If he was more active he'd have lost a little more through perspiration and transpiration in his exhaled breath. But I think the simplest way of approaching it is that, yes, there would have been fluctuations during the day up to the point of dialysis. But when he was in health and given the way his fluid intake was managed, those fluctuations would not have been huge, and that is how Professor Savage evolved his care, which was carried out by his mother. Obviously very successfully and very

well because of the way in which he grew and thrived.

Then it's only when you start the overnight period that you can perhaps look in detail at what is happening hour by hour or time period, or epoch by epoch. And whatever has to happen, if Adam stays the same weight at 8 o'clock the following morning compared to the previous morning, the assumption is that his fluid balance is neutral, he's neither gained nor lost fluid.

Now, in an ideal world that would almost never happen, there'd always be a little bit of change from day-to-day. But during that 24-hour period, there would be times when he would be relatively fluid overloaded and times when he might be a little bit short of fluid. But one would imagine that -- no, I take that word out. He would never be either dangerously overloaded or dangerously dehydrated, assuming that he was otherwise healthy and not losing fluid.

Q. Okay.

A. Does that make --

Q. It does. Maybe I can ask you this question then. Ultimately, between all of you, it's somewhere in or about 300 or 500 ml?

A. Yes.

Q. Ultimately. Lets just go to that. In terms of Adam arriving at theatre -- let's assume Dr Savage was right

and let's take 300 or 500 -- how significant is that in terms of his fluid balance, if he should arrive in the theatre in that condition, leaving aside whether you think he or he didn't?

A. If it's between 300 and 500 ml in a 20-kilogram child, it is very unlikely to be of major significance whether it is 300 ml of excess, 300 ml of deficit, because if you look at a child, it is very hard clinically, when you examine a patient, to say that a child is dehydrated before they've become 5 per cent dehydrated, which would be 5 per cent of body weight. So in Adam's case, he would have had -- 5 per cent is 1/20, so he would have had to have had a litre of variation in his fluid balance before he was obviously dehydrated from the end of the bed, and we're talking about between 300 and 500.

If you are examining a child you're doing very well if you can say with certainty that someone is 2 or 3 per cent dehydrated.

Q. This leads directly into the plan to replace what was perceived to be a deficit. Let's keep on with the theme that there was one and it was of the order of magnitude that Dr Savage and Dr Taylor thought it was, which was somewhere between 300 and 500 ml. We have Dr Taylor's evidence as to replacing that deficit. It's 20 April, I believe it starts at page 36.

If one goes to line 12 -- well, line 10 is the question, in fairness. So the question is put:

"How quickly did you think or at what rate did you think you needed to recover that deficit?"

And the answer is:

"Well, it was in my plan to recover that very quickly and I now recognise that that was an error because I used fifth normal number 18 to correct the deficit, and I shouldn't have."

Now, there are two things going on in that answer, but -- sorry, I go on to say that. Just to make sure that you have Dr Taylor's evidence fairly before you, I say:

"Firstly, why was it in your plan to recover a deficit of something between 300 to 500 ml very quickly? Why did that have to be recovered very quickly?"

And so the answer is:

"I can't remember, but I think there were multiple reasons for that. Primarily, it was the fluid balance, [the fast], the fact that he normally got 1,500 ml of fluid overnight and the fluid balance sheet shows that he got 970 ml of fluid prior to his transplant and therefore a very simplistic calculation, I accept, he was in deficit of approximately 500 ml."

And then we go on.

MR UBEROI: I think the word was intended to be "fast". You said "the fact", but I think it was "the fast".

MS ANYADIKE-DANES: I beg your pardon. "Fast". And then to line 8 when he's pressed about that, why he formed the view that such a deficit needed to be removed very quickly, and he says in answer at line 8:

"Because I felt that I had to prepare Adam in a short time for the process of implanting a kidney."

And then he goes on to elaborate on that:

"It's a different process from any other operation because it's a process where we deliberately expand the patient's circulation and make sure that there are no other fluid deficits going on."

And then I ask him:

"That being the case, how quickly did you think a deficit of 300 to 500 ml had to, in the case of Adam, be recovered and why."

And then he explains that he miscalculated Adam's urinary losses and had assumed, for whatever reason, that he was passing up to 200 ml. That was an error. And therefore, he felt:

"I was now in a position [line 23] that I had to make up the losses that I had miscalculated for his urine losses and that was the reason I rapidly infused

the solution of what I thought to be the replacement for his dilute urinary losses."

So if one unpacks that into two bits, first of all. The first is that he thought that he had a deficit of 300 to 500 ml. Can I ask you just simply, how quickly do you think such a deficit needs to be recovered?

A. A patient like Adam, where you know that there are going to be ongoing fluid losses, blood loss from surgery, you would want that replaced -- I would want that replaced before the commencement of the surgery.

Q. Sorry, just what would that mean?

A. Between 15 to 30 minutes from when you got intravenous access, so fairly quickly.

Q. So you'd want 500 ml to be replaced within in 15 --

A. If you decided that the deficit was 300 ml, which in Adam's case is 15 ml per kilogram body weight, I would be keen myself to ensure that that was replaced fairly quickly within 10/15 minutes. I would be reluctant to replace the whole 500 ml within that space of time because you would know that your calculation might have been wrong and you would want to have an assessment of Adam's clinical state, and you wouldn't want to give him too much fluid too quickly. Equally, you'd want to give him the right amount.

Q. If we pause there. If the plan is we infuse him with

that and recover that -- say recover 300 over 15 to 20 minutes and then your going to assess him because you're not sure whether in fact you need to recover ultimately 500, you don't know, what is the assessment you carry out at that stage?

A. You can look at his peripheral perfusion, you can --

Q. Not what you can do. What does one do?

A. I'll rephrase that. You would look -- one looks at the peripheral perfusion, and by that I mean the briskness of capillary refill, the temperature gradient between the core and the peripheries. You would -- I'm sure we'll come to this presently -- look at clinical examination of the venous system, in particular the central venous system, as to whether there's an index that is circulation, which, you have to remember, going right back to the beginning of today, is only a small percentage of total body water, but it is critically important.

Q. I understand. So what you're trying to do is to satisfy yourself that you haven't unbalanced anything by infusing that amount in that period and, if you need still to carry on addressing a deficit which may be larger than 300 ml. Is that correct?

A. Absolutely.

Q. And all that is done before surgery?

A. That would be done in the case of Adam when you're preparing for a lengthy major operation whilst you are doing the other things that you --

Q. Would you tell the surgeon you'd done that?

A. Not unless he asked.

Q. Okay. So you do that. And then Dr Taylor had another reason for wanting to infuse fluids. That other reason was actually -- he's admitted it was an error, but for the purposes of his thinking, as I understand it, he thought that Adam passed 200 ml an hour. So that was another reason. And, of course, he wanted to ensure that there was a sufficient fluid because he was going into -- or Adam was going into a renal transplant. What's your observations on that and how quickly, therefore, you would have had to be putting further fluids in over and above that to correct the estimated 300 ml deficit?

A. If you say or if you make -- the assumption is made that the urine losses were 200 ml per hour, regardless of everything else, you would want to replace that volume at a rate of 200 ml per hour plus any other losses that you'd be allowing for.

Q. So assuming that, which we know he didn't, but say he was right about all these figures, he's right about the deficit, he's right about the urine output, what

does that mean, so far as you're concerned, about the rate of infusion and the volume of fluids that should have been going in in the first, say, half hour up to hour and a half? We can look at the anaesthetic record. I think that might help. I think it's 058-005-003.

There we are. We can see, if one looks by the one-fifth saline solution row, what was actually put in. So I'm just pulling this up to help you with your explanation.

If Dr Taylor had been right about a deficit of 300 ml, he came in with, and he passed 200 ml an hour, what would that imply as to what he should have been administering?

A. If he came with a deficit of 300 ml and he passed 200 ml per hour, that would mean that in the first hour, regardless of any other fluid losses, you are looking at a requirement for 500 ml of fluid to be given.

Q. In fact, 500 ml was given in the first half hour.

A. Yes.

MR UBEROI: Sir, I'm rising for accuracy. The deficit under discussion was 300 to 500 and it's been alighted upon as being 300.

MS ANYADIKE-DANES: Yes, sorry.

A. So if we say --

THE CHAIRMAN: Take it to the first hour then. If the

deficit is between 300 and 500 and there's an output of 200, then the input should be between 500 and 700 in the first hour, when in fact the input was 1000?

A. Yes.

THE CHAIRMAN: Followed by another 500.

MS ANYADIKE-DANES: Yes. Now, in fact, Dr Taylor goes on to explain the fluid that he infused and why.

If what he actually infused was hypotonic fluids, the number 18 solution, if he hadn't, if he had infused, say, isotonic, he'd done it at that volume and at that rate over that period, but instead of the number 18 he'd used isotonic fluids, what is the difference in what would have happened to Adam?

A. If he'd had isotonic fluids administered, which would have been either Hartmann's solution, which has a sodium concentration of 132 millimoles of sodium per litre, or normal saline, which is called normal, it would have a sodium concentration of 150 millimoles per litre, the sodium present in Adam's circulation would not have been diluted so much.

Q. And what would that mean for Adam?

A. That would mean that had normal saline been used for that 1000 ml of fluid given in the first two hours, that it is unlikely that his -- that the sodium concentration in his serum would have been diluted or would have

fallen.

Q. I appreciate that. Remembering the explanation you gave as to how the fluid in the body, the water, changes from high density to low density, I appreciate all of that, but if you can just answer this. If that's what he had done and, therefore, you say his sodium levels had not been diluted in that way, what would have been the effect for Adam?

A. Ultimately?

Q. Yes.

A. It is my opinion that he would probably have survived.

THE CHAIRMAN: So distinguishing between important factors, the critical is the type of solution given?

A. Yes.

THE CHAIRMAN: Aggravated by the volume and the rate?

A. Yes. We've already seen that there's an evolving range in terms of fluid balance.

If I could follow this through with a hypothetical situation. If Adam had been given this volume of fluid as either Hartmann's solution, 0.9 per cent saline, or plasma protein solution, then if there'd been the correct volume of fluid, then nothing would have happened.

THE CHAIRMAN: By definition?

A. Yes. If it had been too much volume but of an

appropriate fluid, it is likely that he would have developed pulmonary oedema, which would have been manifest by difficulty oxygenating him whilst he was being ventilated for the surgery, which at that point would not have been fatal and could have been reversible.

If it had been too little fluid of the right kind, again there would have been difficulties with maintaining blood pressure, particularly in the face of general and epidural anaesthesia, and it would have been clinically apparent that he needed more fluid. So the worst that could have happened, had he been given this volume of either Hartmann's or 0.9 per cent saline, is that he could have developed an easily reversible condition or a relatively easily reversible condition.

MS ANYADIKE-DANES: Thank you.

You started the explanation of the fluid chart by explaining that you were making assumptions as to what his actual urine output was. And we've heard a little bit about his urine output and what it may or may not have been and how it may or may not have been affected by the surgery itself.

You also have expressed the view that Adam should have had a urinary catheter inserted. Dr Taylor's practice, he gave in evidence, was to request the

surgeon to insert a catheter. He said that in Northern Ireland -- well, in his hospital, to be fair to him, I think is what he said literally, the surgeon would do that. That isn't what an anaesthetist would do. And I think he indicated that you might feel more comfortable doing that because of your cardiac practice.

MR FORTUNE: Sir, I hesitate to rise. Bearing in mind we've been going for well over 1 hour and 20 minutes; is it not time for a break for the stenographer?

THE CHAIRMAN: You're very kind. Let's do the urinary catheter and then we'll take a break.

MS ANYADIKE-DANES: What is your view on that, that somehow -- not that somehow, that you would feel more comfortable or able to insert a urinary catheter as an anaesthetist because of the particular nature of your practice?

A. No, that's not the case. I think Dr Taylor, as we've heard earlier, worked in the paediatric intensive care unit, and implicit in paediatric intensive care is careful assessment of fluid balance, which in a ventilated child invariably requires urinary catheterisation. And if he was a responsible consultant for that, either he should have been able to do it or should have been able to oversee others doing it. And certainly in my non-cardiac practice, the urinary

catheter is put in children of all ages by anyone who is competent to do it, and that may be myself, it may be one of the surgical team or it may be a member of one of the nursing team.

MR UBEROI: I'm just concerned that there's unintentionally been a misquoting really of Dr Taylor's evidence. I don't believe the sting of Dr Taylor's evidence on this went to the capability of inserting the catheter. Page 49, please.

MS ANYADIKE-DANES: Can we start at page 47, please, line 10.

MR UBEROI: The evidence that Dr Taylor gave was that the decision to insert a urinary catheter is a surgical decision. But picking up on what the witness was being asked to speak about there, on to 49, please. The relevant extract starts at line 19 of page 49. What he's saying --

MR MILLAR: I can't see -- I'm not sure what's happening.

THE CHAIRMAN: I think that's because we're still arguing what page we're looking at. If you give us one moment, Mr Millar, to let the argument subside.

MS ANYADIKE-DANES: Nobody's looking at it, Mr Millar. It's the transcript of 20 April, page 49. And literally, it starts at line 21 where, in answer, Dr Taylor is saying:

> "I do not know if he has [that is you, Dr Haynes]

taken his practice in the paediatric surgical anaesthesia department and maybe applied it to the complexities of urological paediatric surgery and perhaps -- you'll have to ask him. All I'm highlighting is that he works in the paediatric cardiac surgical unit, whose patients don't necessarily have paediatric urological conditions, and he maybe is seeing his practice where he inserts, clearly, urinary catheters as part of the preparation of an infant and child for cardiac surgery, where it is certainly important to monitor the urinary output as a measure of cardiac function during and after cardiac bypass and cardiac procedures. I don't know if that's helpful but I just wanted possibly to help the inquiry to see some differences between experts."

That was what I was putting to you. I probably incorrectly summarised it, but it was the nature of your cardiac practice that allowed you to express the view that you would do that, and what Dr Taylor was saying is that's not what would happen in his hospital.

So I wonder if you can maybe comment, now that you've had it read out and you've seen it, on how he has put it, that you were able to make those comments about inserting a urinary catheter because that's what you do as part of your cardiac practice.

A. Maybe it means that I do it more frequently than colleagues in other situations do, but I would still hold by my view that Dr Taylor worked in the paediatric intensive care unit where he would be called upon from time to time to do that and should feel comfortable in doing it.

THE CHAIRMAN: I think Mr Uberoi's intervention was that Dr Taylor wasn't saying he couldn't do it, right? It was he was saying it was his practice not to do it in surgery, and that was a matter for the surgeon instead. Is that right?

MR UBEROI: Yes, sir.

THE CHAIRMAN: So Dr Taylor is saying: yes, I could do it, but typically in surgery I would leave it for the surgeon to do.

A. I accept that. But there's times ... When there's an indication for a urinary catheter, the importance is that it's safely inserted by someone who's capable of doing that, whoever that may be.

THE CHAIRMAN: If the surgeon doesn't want it, and Mr Keane has said he didn't want to use it in this case, but if Dr Taylor thought it was necessary, should he insist on it?

A. In Adam's case, I think there is a strong indication, but not an absolute indication, for urinary

catheterisation.

THE CHAIRMAN: Okay.

A. I think it would have been appropriate for Dr Taylor to have made a simple annotation somewhere, along the lines of "urinary catheter inserted" from the surgical team decision, and not to insert it for surgical reasons, or something like that.

THE CHAIRMAN: He says he now does make a note. His subsequent practice has been, I'll be corrected if I am wrong, that he does ask for it, and if the surgeon chooses not to insert a urinary catheter, he notes the fact that it was requested and the reason for it not being inserted; isn't that right?

MR UBEROI: Yes.

MS ANYADIKE-DANES: Yes.

THE CHAIRMAN: So that's --

A. That seems perfectly reasonable, yes.

THE CHAIRMAN: But going back to 1995, you think there was a strong but not absolute indication for it?

A. Yes. The indication for Adam for a urinary catheter was twofold for the two different stages of the operation. One was to monitor the volume of urine, fluid lost, and the other was at the end of the operation to ensure that the bladder was empty and that there was drainage of the urine produced by the transplanted kidney. That need

not be by a urethral catheter, but it may well have been by a suprapubic surgically inserted catheter during the course of the actual transplant operation.

THE CHAIRMAN: Both one and two or just two for suprapubic?

A. Two.

THE CHAIRMAN: Just two. You're saying there were two stages -- [OVERSPEAKING].

A. Yes. One is to know what Adam's -- or to have guidance as to what Adam's fluid balance state was during the first part of the procedure.

MS ANYADIKE-DANES: Which catheter achieves that?

A. Urethral.

Q. Thank you?

A. The second part is to ensure that there's urine drainage from the bladder at the end of the transplant, whether that is by pre-existing urethral catheter or a suprapubic surgically inserted catheter.

Q. Yes, and in fact they did insert a suprapubic catheter in Adam for that purpose?

A. Yes.

Q. So just because you mention it and you can have the record of it, it's page 52, it starts at line 7, and then it culminates in the part where he says:

"I would record the reason why ..."

That's at line 12:

"I would record the reason why if it wasn't inserted."

That's what he says.

But what I'm seeking to address with you is Dr Keane's evidence, from a surgical point of view, and somebody I'm sure will correct me if I've misrepresented him, was that he didn't think it was necessary. Ultimately, he said he thought it was his decision, but he didn't really think it was necessary. And the reason, not only that, but he actually wanted to allow the bladder to distend with the use of urine and so on and so forth, although he did accept there are other means by which you can achieve that.

He then went on to say that if Dr Taylor had asked him for an urethral catheter, then a urethral catheter could have, if Dr Taylor thought it was important, been inserted. And I think his evidence was that Dr Taylor didn't ask him that. Somebody will correct me if I'm wrong. I think that's the tenor of it.

So where we are, if one cuts through all of that, is that I think your view is that it was important, although not absolutely mandatory, it was important to have a means of monitoring how much urine, if any, Adam was actually producing through his native kidneys for the purposes of fluid management during the surgery?

A. Yes.

MR UBEROI: I only rise -- I don't wish to correct any of the characterisation of Dr Keane's evidence. But so far as the proper characterisation of Dr Taylor's evidence goes, he can't remember whether he asked or not, but his evidence was that it would have been his usual practice to do so.

MS ANYADIKE-DANES: Sorry. There we are.

Anyway, that would be the purpose of it, and I suppose what I'm trying to ask you is how important was it, so far as you're concerned, that that was addressed and recorded one way or another?

A. I think it would be important to either have had a catheter inserted and no one would have thought to return to the subject to examine it further, or if not a simple annotation somewhere, either in the case notes or the anaesthetic chart, saying: urinary catheter not inserted because -- for whatever reason.

Q. Just so that we have your views on this, if we pick up the discussion of the experts' meeting in Newcastle at 307-008-166. I think it starts at line 16 and 20. This is you:

"Another issue which I would like to be documented at this point is it would have been helpful if a urinary catheter had been inserted as soon as Adam was

anaesthetised to give an index of urine volume that was being produced. If it wasn't done for a good reason, a brief comment in the medical notes should have been made in my opinion."

So that is following on with your view that that is something, as I take it, that you believed that the anaesthetist should have inserted because he's the person who's there as Adam is being anaesthetised?

A. Not necessarily the anaesthetist, but it should have been --

Q. Sorry.

A. Whether he inserted it himself or he requested and ensured its placement is his responsibility.

Q. I see.

A. The surgeon would have been present. He could have been or maybe he was asked by Dr Taylor to insert one. I don't know. But the responsibility is of the anaesthetist to do the best he can for the patient in terms of evaluating fluid balance, which means observing hour by hour the volume of urine lost.

Q. One final question and then we leave the issue of urinary catheters. I asked you to express a view as to how significant it was to be able to do that. In fairness, Dr Taylor has also expressed his view, which is on that page 52, which I had referred you to,

Mr Chairman, at line 7:

"So although the catheter is important [which he's acknowledging] I don't think in my experience since then it would be a show-stopper."

And then he goes on in the way that I had indicate. And by that, because that expression has been used before, "show-stopper" means without it I don't think the surgery should proceed. Can you comment on his view there?

A. I think that that is a reasonable statement to make.

Q. Thank you.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: I'm very, very conscious of the time, Mr Chairman. There is one point I have been directed to in terms of the catheter. Maybe we could leave that until after the break.

THE CHAIRMAN: Okay. Could you liaise in the break about how long we can continue for this afternoon and the progress we have to make.

MS ANYADIKE-DANES: Yes, of course.

(3.41 pm)

(A short break)

(4.05 pm)

THE CHAIRMAN: I understand there's a consensus of 5 o'clock, is there?

MR MILLAR: The consensus was 4.30. I don't know how it could have been conveyed as 5 o'clock.

THE CHAIRMAN: I understood there were different views. The stenographer is available until 5.30. That's later than I would want to go.

I'm anxious, Mr Millar, to get Dr Haynes finished by lunchtime tomorrow. We've got Professor Risdon tomorrow morning, who I understand is unlikely to take very long, but it's essential to get Dr Haynes finished because, with all due respect to him, we then have Messrs Forsythe and Rigg to give evidence. If we can get well into them tomorrow, through tomorrow afternoon, it means that they will be finished on Friday.

MR MILLAR: I understand all that, sir, it's just that I have clients who are from England I've put back until 5.30 in the reasonable expectation that I might be away from here at, say, 4.45, and it just does get very, very difficult. But I appreciate your difficulties.

THE CHAIRMAN: Let's see how far we can get by 4.45, okay?

MS ANYADIKE-DANES: Right. Thank you.

I didn't mean to convey it as a consensus, but anyway I thank you for your views.

Can we quickly go to your most recent report, Dr Haynes, which is 204-014-003. I just want to briefly ask you to explain. We have been dealing with urinary

catheters from the point of view -- or you have been, from the point of view of monitoring, measuring urine, and so forth. You, I think, at this paragraph 2, insertion of urinary catheter, seem to give a different -- or not seem to, do give a different reason for doing that.

Can you just briefly explain the significance of this?

A. I presume you're referring to --

Q. The insertion of a urinary catheter in relation to an epidural.

A. Yes. If epidural anaesthesia or analgesia is used to provide pain relief into the post-operative period, there's an element of uncertainty as to the extent of the areas which will have sensation diminished or lost altogether whilst the effect continues. An epidural placed in the lumbar region would have targeted local anaesthetic drug in the epidural space fairly precisely to cover the site of Adam's surgical incision, which would be innovated by the lower thoracic and upper lumbar dermatomes.

However, there is inevitable spread of local anaesthetic, both up and down the epidural space, and it is particularly common for bladder sensation to be either diminished or lost in the post-operative period

while an epidural infusion continues. And it is for this reason that when an epidural catheter is utilised to provide post-operative analgesia for either an abdominal operation or a lower limb operation, that the bladder is drained and catheterised.

Now, this correlates well with the need to provide urinary drainage after a renal transplant.

Q. Yes. Can I just ask you a very quick question about that. If you were inserting a urinary catheter like that to, firstly, monitor the urine production, whatever it may be, during the surgery, and also to provide urinary drainage after the surgery, how long does a catheter remain in for that purpose?

A. Post-operatively, there would be two possible reasons to leave a urinary catheter in place. One is the need for ongoing precision regarding hour-to-hour assessment of fluid balance, which would be particularly relevant in terms of looking at the function of a transplanted kidney.

Secondly, if it is put in -- if you put the operation of renal transplantation to one side, if a urinary catheter is put in place because somebody has had an abdominal operation for another reason, the urinary catheter would be left in place as long as the epidural analgesic is infused, which would be typically

approximately 48 hours following the operation.

Q. Would you need that post-operatively if you've already got a suprapubic catheter in?

A. No.

Q. So in other words, that's a substitute for having the suprapubic catheter, and the reason that you would be advocating a urethral catheter for Adam would actually be because you would want his urine output to be monitored during surgery?

A. Correct.

Q. Thank you very much. If we then move on, I wonder if we can just very quickly deal with an issue to do with the minimum requirements of, let's call it the anaesthetic team, if I can put it that way. In your report of 204-004-147, you said that the anaesthetic team required for a renal transplant:

"Is the same as for any major operation in a child. Two people are required, a consultant anaesthetist and a clearly identified, suitably skilled anaesthetic nurse or ODP at all times."

Then I think you say:

"The anaesthetic assistant must not have other concurrent duties. A trainee anaesthetist may be present if available but it is not essential. In practice, the anaesthetic nurse may have had suitable

in-house training."

And we don't need to go on with that.

What we're trying to actually identify is what you think is the minimum size of the team and who they need to be, and you will know that there is an issue in this case as to the team that Dr Taylor had. We know he started off with Dr Montague as an anaesthetic assistant up until some point in time. We believe that there was a medical technical officer, there was a scrub nurse, a circulating nurse, and there is an issue as to whether Dr Taylor also had available to him an anaesthetic nurse and a replacement for Dr Montague in the form of an anaesthetic trainee.

So if you can just help us, what do you think is the minimum anaesthetic team, if you like, that should have been there for Adam's transplant surgery?

A. The minimum absolute requirement is an anaesthetist of suitable experience, and Dr Taylor certainly fulfils that criterion. And the other absolute is there must be a clearly identified assistant to the anaesthetist, not a medical, not an anaesthetic trainee, but someone appointed by the hospital to assist anaesthetists of whatever grade.

Q. And could that be an anaesthetic nurse?

A. That could be a registered nurse who is employed as an

anaesthetic nurse. It could be an operating department practitioner.

Q. Let's go back to 1995 when you say --

A. Yes, that's why I hesitated.

Q. I understand that. When you say an anaesthetic nurse, let's just be careful about that because the evidence we've had is there actually weren't people with that -- that was a function rather than a title, if I can put it that way. So you have cast the anaesthetic nurse as somebody who could have had in-house training and been competent even though they hadn't completed either the ENB 182 or a postgraduate course. So does that mean anybody with experience in the operating theatre acting as an assistant to the consultant paediatric anaesthetist could have assisted Dr Taylor, and that would have been sufficient?

A. Yes, but that person would have to have been identified and nominated as such.

Q. What does that mean?

A. That would mean that your surgical nursing team would comprise a minimum of two individuals. There'd be one nurse who would be scrubbed wearing a sterile gown, gloves and assisting with the --

Q. Surgeon?

A. Yes. And there would be another individual variously

called floor nurse, runner.

Q. We understand.

A. Whose duty it would be to perform the non-sterile tasks while the operation was taking place.

Q. Yes.

A. And that person is there to assist the surgical team and should have no role in terms of helping the anaesthetic management of the patient.

Q. Yes.

A. There should be a third non-medical person present in that operating theatre. In perhaps a slightly idealised world that person would have one of the two qualifications mentioned in my report. In a pragmatic world, that person is very often a registered nurse, member of the operating theatre staff, who either is employed purely as an anaesthetic nurse or in some hospitals they work on a rotational basis where one day the same nurse may be a scrub nurse, but --

Q. Yes, I --

A. -- defined duties, and on the next day may be defined as an anaesthetic nurse who is designated to help the anaesthetist.

Q. I understand. Can I put it in this way: if Dr Montague had stayed for the entire duration of the surgery, would Dr Taylor have required his anaesthetic nurse?

A. Yes.
Q. He still would have?
A. Absolutely.
Q. Okay.
THE CHAIRMAN: But if Dr Montague was there to start and left, then it was safe to continue with Dr Taylor and a nurse who was identified as fulfilling the role of an anaesthetic nurse?
A. Yes. Providing that nurse had no other distracting duties.
THE CHAIRMAN: Sorry, I don't quite understand. If Dr Montague had stayed and was filling the role of assisting Dr Taylor, why would an anaesthetic nurse still be required? Does that --
A. No, there's a very simple answer to that. The anaesthetic assistant will help with preparation of equipment, duties such as collecting blood from the blood transfusion department, administrative duties such as checking the patient into the operating theatre. That anaesthetic assistant will know the infrastructure or the microscopic infrastructure, if you like, of that operating theatre suite, will know where things are kept, will know what is meant when a certain item is asked for.
THE CHAIRMAN: Whereas a registrar --

A. Whereas the registrar may have arrived yesterday and not know what is kept where, how a hospital works.

THE CHAIRMAN: Okay. The evidence is a bit unsatisfactory, but the gist of it seems to be that the nurses say they wouldn't have done this without three nurses. The trouble is there's a missing rota, it's a long time ago, and we cannot say who the third nurse was, but the nursing evidence is that there would have been a third nurse. If there was a third nurse and if she was assigned as the anaesthetic nurse, then her presence with Dr Taylor, even after the departure of Dr Montague, would have been satisfactory?

A. Yes, that's correct.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: Thank you.

You have referred to the ODP. I take it that's different from the medical technical officer, which is the MTO, and that was Peter Shaw?

A. Yes. I must admit that led to a little bit of confusion when I was preparing my report. The term "medical technical officer", in my understanding, referred to the National Health Service pay scale on which a wide variety of individuals were employed at this point in time. At one end of it, you could have extremely experienced and skilled individuals, and at the other

end of it, you could have people with minimal training performing simple tasks.

When I prepared my initial report, I have to admit, and I stated in my subsequent report, that I confused the term with physiological measurement technician, who is someone who would have been employed on the MTO scale. That person would have a role in many operating theatre departments in terms of maintaining, preparing, monitoring equipment, helping perhaps with some of the investigative procedures that are carried out in some operating theatres, and I remain a little unsure as to what the precise role of a medical technical officer was in Belfast Children's Hospital.

Q. I understand. But you didn't have that kind of person in your experience in England?

A. No.

Q. Right. That's --

A. We have worked in places where there's a physiological measurement technician who was paid on that scale, but it's not a -- I've had some difficulty in disentangling exactly what the medical technical officer's duties were.

Q. Understood. I wonder if we can move on to an issue that's related to this question of the anaesthetic team. That's the replacement of Dr Montague by the trainee

anaesthetist.

Dr Montague's evidence, as you probably know, is that he didn't stay there for the entire operation, he left at some stage, which is not entirely clear, somewhere between maybe 9/9.15, somewhere around then. The evidence is that -- at least coming back from Dr Taylor as to how would you get a replacement. Dr Taylor's evidence is absolutely clear. He would not have allowed Dr Montague to leave unless he was replaced. Now, he want actually remember who he was replaced by but he's quite clear that he wouldn't have allowed him to go unless there was a replacement.

In answer to how that would actually work, the replacement, if one goes to the transcript of 20 April, to page 66. The question starts for context at line 4:

"If there was going to be an anaesthetist other than Dr Montague, how was that going to be arranged? If Dr Montague is not to go stay for the duration of a four-hour operation, or whatever it was assumed it would be when you initially were speaking to him, what arrangements were made as to who would replace him?

"Answer: Well, he would have to talk to one of the other trainees coming on and say to them: I need to go home, Dr Taylor will let me go home if you will come and help."

So he agrees that the arrangement for the replacement is something that Dr Montague would have to handle.

What I'm inviting you to comment on is, if it's the case that the assistant, for whatever reason, is not able to stay for the length of the surgery, in your experience how is that organised so that there is an adequate replacement?

THE CHAIRMAN: Well, curiously, I think, you don't think this is necessary at all?

A. I don't think it is necessary. My interpretation is -- and again, it is an interpretation --

MR UBEROI: Precisely because of your point, sir, we're going into the witness being asked to comment on the arrangement between Dr Taylor and Dr Montague and how it worked with registrars at that hospital, when in fact what he said is it doesn't matter if he was replaced. But that's a slightly different issue. But in terms of asking him to comment on this point, I'm not really sure it's a matter for expert opinion.

MS ANYADIKE-DANES: Well, I think in terms of since he's in charge of the anaesthetic team, the anaesthetist, it's an issue as to how he ensures that he has whatever he perceives is necessary. Now, as a matter of evidence, this expert doesn't feel that actually Dr Montague

required to be replaced, which is interesting. But clearly, Dr Taylor did think that. So what I'm putting to him is --

MR UBEROI: No, if I may say, that's not what Dr Taylor's position is. Dr Taylor's position has been his consistent factual recollection as to whether or not in fact Dr Montague was replaced.

MS ANYADIKE-DANES: No, I'm sorry, he gave evidence to say that he would not have allowed Dr Montague to go home unless he was going to be replaced, and we'll find it in the transcript.

THE CHAIRMAN: Let me cut through this.

MR FORTUNE: The reference is page 65 at line 21.

THE CHAIRMAN: Could you put up page 65 alongside 66? Thank you. Yes, thank you:

"It's not my practice to allow a trainee or to dismiss a trainee even after a night's on call unless there's a suitable replacement."

So in --

MS ANYADIKE-DANES: Sorry, sir, he pus it in stronger terms he said:

"I would say only when there is a suitable replacement."

It goes over the page.

THE CHAIRMAN: In a sense, you think this is some curious

twist, but you think this is something of a luxury for Dr Taylor to insist on a replacement for the registrar, even if he has an anaesthetic nurse?

A. I --

THE CHAIRMAN: That doesn't mean it's a bad thing obviously.

A. No. I wonder if Dr Taylor's need for a trainee anaesthetist to be present reflects any possible inadequacy of the ancillary support in terms of anaesthetic nursing or operating department practitioner -- [OVERSPEAKING].

MR UBEROI: I object to that comment, really. I'm not sure if the witness has had a chance to read all the nursing evidence or is up to speed with it. It's not matters that have been dealt with with him. As earlier, when the comment begins "I wonder", I think that's a wholly inappropriate observation to stay on the record.

THE CHAIRMAN: I'm not sure that this issue needs to be developed further than it has been. I'm content with the evidence which I have to date.

MR UBEROI: I agree, I'm grateful, sir.

MS ANYADIKE-DANES: Then that issue actually goes into the question of the theatre log. And if we could have 204-009-366.

I should just say, sir, it may well be that how these things are arranged and whether they are best

arranged in the interests of the patient may well be an issue that we revisit in governance, but I can see the force of not putting those particular arrangements of which Dr Haynes can have no knowledge to him now.

THE CHAIRMAN: We'll see. I'm beginning to get worried about just how many issues are being put back to governance, but we can look at that.

MS ANYADIKE-DANES: Yes, I appreciate that.

So what you were doing was actually producing a theatre log from the relevant period so one can see how the people in the theatre are identified to the extent that they are. And what you say is:

"The name of the anaesthetic nurse is usually but not reliably noted. In the example I've provided, the anaesthetic nurse details often either initials or first name are entered into the column labelled packs or drains. Later logbooks include a column identifying anaesthetic nurse involvement. I would not expect a replacement trainee anaesthetist to be included in the details of the logbook. It would be unusual therefore for the name or for that of an anonymous trainee ..."

I think the name in the context was actually Dr Campbell if she had come into the operating theatre:

"... or for that of the anonymous trainee to be included in the theatre log for Adam's transplant."

Can I ask you just very briefly, what is the purpose of the theatre log in terms of identifying people? What's its purpose?

A. The theatre log's purpose is primarily to identify those patients who are operated on, by whom, and by whom they were anaesthetised for purposes such as this, for looking retrospectively at events. It has become helpful and convenient to identify all staff involved or certainly the nursing staff and anaesthetic assistants at the time, again, if a situation needs to be revisited retrospectively.

Q. Yes. You started that with "It has become helpful", for 1995 purposes was it routine or common practice that those who replaced the first identified individuals had their names recorded as well?

A. No.

MR FORTUNE: Sir, there must also have been a prospective use for the theatre log to tell people what is expected to happen in any particular theatre on a chosen date and who is to be staffing that particular theatre.

THE CHAIRMAN: Do you agree?

A. No. There's a little bit of confusion here. The theatre log is a formally a bound ledger which sits usually in the anaesthetic room in a prominent place, which is filled in when the patient is in the operating

theatre. Other information is made available in terms of operating lists or schedules for each operating theatre, and separate to that are staffing allocations, be they medical or nursing.

THE CHAIRMAN: Right. So the other documents are like rotas? Who's due to be on?

A. Yes.

THE CHAIRMAN: One of the problems here is that it's precisely the rota which we're missing.

A. Yes.

THE CHAIRMAN: Which makes it impossible for us to identify who the third nurse was.

A. Yes.

THE CHAIRMAN: You don't draw a distinction with Mr Fortune's point about the purpose of the theatre log as opposed to the rotas and schedules?

A. Yes, they're two separate things.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: So the theatre log is historical, it's telling you who was operated on by whom, where, what the surgery was and so forth?

A. Yes, that is correct.

Q. I wonder if we could move to the question of the central line placement. One finds that being dealt with in the evidence on 20 April at page 87. It starts at line 8,

really, just to preface it.

Dr Taylor is dealing with the two types of central line. This is all an issue, as I'm sure you'll know, as to whether anybody should have appreciated, and indeed whether it was the case, that an internal jugular had been ligated, and then for the implications of that, if that had been appreciated.

He goes on to describe two types of central line, one of which retains its patency and another does not.

At 10 he says:

"The surgical line known as a Broviac line is often a surgically placed line."

And he describes how that is dealt with.

Then that culminates in line 23 where he says:

"So that is -- that vessel is then often lost to future patency, it loses its patency, it's blocked off."

Then over the page he says:

"But by and large, I would say the Broviac line, when it's placed, causes the vessel to be lost to future use at that point."

Then he distinguishes that from an anaesthetic line or the line he says he would put in, a percutaneous line, and he describes that. Then he ends up at line 14, saying:

"It's not always lost to future use."

And then he goes on to discuss the scar that he sees on Adam's neck and says:

"If a patient has a scar on their neck and they've had a history of Broviac line there, with a scar, I would assume that at that point that vessel had been ligated, tied off, and really it's unlikely that vessel can be used again."

Then I put to him:

"Did you identify any of that in your examination of Adam before you started?

"Answer: Yes.

"Question: Did you believe there were ligated veins?

"Answer: That's right, at certain points in his neck."

So the point that I wanted to put to you, because I'm not sure that you have commented on it in quite that way in your reports is: is your view as to the two forms of central line placement and their implications for patency -- what is your view of what Dr Taylor has said there.

A. The implications for patency depends on various factors. There are, broadly speaking, short-term means of central venous access and longer-term. The longer-term variety, Broviac or a Hickman line, is usually inserted in

children surgically by open dissection, visualisation of the vessel, and it differs in that the entry point in the skin is at some distance to where it enters the circulation, thus providing a significant degree of protection against infection or invasion of the bloodstream by skin organisms.

This kind of line is inserted when it is known that a patient is going to need long-term venous access. Typically, this would be a patient who is receiving chemotherapy, or Adam had one in place for a significant period of time without incident to allow --

MS ANYADIKE-DANES: Can you just pause there, because there has been some comment in the medical notes, and I think some of the statements, as to the length of time that last Broviac line was in Adam, since 1992 to 1995. Does that surprise you?

A. No, that is quite a reasonable expectation. He was perhaps luckier than some in that he was able to sustain it without infection for that duration, but I think as a testament to the quality of care that Adam received by all looking after him that it did not become infected.

Q. What I'm seeking to ascertain from you is whether you accept the patency consequences of using one in this case, a Broviac line, as opposed to the other, which is the percutaneous line.

A. Yes. There are two reasons why the patency of the venous system, draining the head and neck, may be compromised in the face of -- we'll call it a Broviac line. It's a trade name, but it's well used. One is the fact that you have an in-dwelling foreign object in a vein for a period of time, which will cause an abnormal pattern of flow and thus increase the likelihood of thrombus or clot formation in that vein around that line.

The other is the manner in which it is inserted. And I've seen from the various pieces of evidence presented to me that there is some discussion as to in which vein Adam had his inserted.

Q. Mm-hm.

A. The Broviac line may be inserted -- or when a Broviac line is inserted surgically, some surgeons may choose to completely ligate or occlude the vein above the point of insertion into the vein. Others may make a small incision and insert it through that and tie a small suture around it to seal the entry point. And the dispute as far as -- or the uncertainty in Adam's case is to in which vein Adam had this line inserted.

Q. But irrespective of the vein, if you do one rather than the other, does that affect the issue of patency or it's just a matter of approach?

A. If you insert a long-term tunnelled central venous catheter, a Broviac line, and in the process of doing so you ligate the vein draining into the point of insertion, ie above it, then that vein is no longer patent.
Q. If you make the insertion, as you described it, and you put it through that and put in a suture, what's the effect of that on patency?
A. Again, you have lost the smoothness of the vessel wall and there's an increased likelihood of thrombus and ultimate scarring of that vein.
Q. But --
A. In the longer term.
Q. But have you lost its use?
A. The extent to which it may be blocked or occluded is unpredictable and variable. You may have lost its use.
Q. So not necessarily?
A. Not necessarily.
Q. Is it an important factor to know once you've identified that there has been a central line put in, is it important to know how it was put in so that you can try and ascertain its likely effects?
A. Yes. Be it a temporary central line or a tunnelled Broviac-type catheter, regardless of which, they are all going to alter the pattern of blood flow in the vein,

and whether it's short term or particularly long term there's an increased likelihood of narrowing or abnormality of venous drainage in those veins, but it's not an absolutely yes or no, there's various shades of grey in between.

Q. I understand that. For completeness, as for the percutaneous line, am I right in thinking that doesn't necessarily affect patency?

A. It may.

Q. Oh, it may.

A. It may, because again you're inserting a foreign body, a piece of plastic, into a patient's vein, which is going to alter the pattern of flow of blood within that vein, and in doing so increase the likelihood of thrombus clot formation. Equally, if you are putting it into a patient who is acutely unwell for any reason, who, for example, has a bloodstream infection, that patient's blood may be more likely to clot for a given stimulus than a patient in good health.

Q. Thank you. Just one final question on that. Leaving aside the situation where it's completely ligated and, therefore, there's going to be no blood passing through it at all, but in the other two scenarios that you discussed, is a mere fact of having had a line in there at all, once you take it out -- is it possible that the

body has responded in some way to that line having been in there, which may affect the pattern of blood flow?

A. Yes.

Q. Thank you. I wonder if we can just move on to CVP issues. If we can go to the transcript for the 19th and go to page 82. It starts at line 1.

Here Dr Taylor is being asked as to what he should have done now that he recognises that the CVP values he was receiving are values that he shouldn't have relied on. I think in fairness to him, he has accepted that he shouldn't rely on them. And the issue is, well, if he had reached that appreciation during the surgery, or rather right at the beginning when he was setting it up, the CVP monitor, then what should he have done.

The answer is in this. He says:

"This means I shouldn't have relied on that line at all. And I thought about either replacing it in a different site as one of the experts had said, using the femoral veins, for instance, or discussing with the nephrologist and the surgeon the possibility that Adam's transplant should not proceed. In other words, this potentially should have been a show-stopper."

Now, just to orientate you, at some point Dr Taylor thought not that he could ever use a CVP measurement as an absolute measure but he could use it for relative

change. He has since in his statement realised he couldn't even use for that, it was just thoroughly untrustworthy and he just shouldn't have used it.

And what he's really saying is that if he had got to that stage, then he should have discussed it or could have discussed it with a nephrologist and surgeon, and depending on what the outcome of all that was, this issue he regarded as sufficiently serious to constitute what he called a show-stopper.

In your view, how serious was the fact that they did not have a value for Adam's CVP?

A. I think what is more serious is that the value they had was used -- was over-interpreted.

Q. I understand that. If we can put that point to one side, because Dr Taylor is in a different place now. He is saying, "I recognise I shouldn't have done it and if I was there again and realised that, then I'd have those discussions, and potentially it's so serious that it might mean that we couldn't continue if it could not be resolved", if I can put it that way. So I'm asking you to comment on that observation of his.

A. I think that is a sensible observation to make.

Q. Do you agree with it?

A. Largely. It would certainly -- if I can elaborate on that.

Q. Yes.
A. In my opinion, it should have provoked a discussion with Mr Keane, the surgeon, saying, "I'm having a problem here, what shall we do?" There's already pressure of time and we've got the added pressure -- or Dr Taylor had the added pressure of having difficulty getting a meaningful central venous pressure and the correctly placed central venous line. And at that point, I believe that they were faced with the option of either proceeding with the transplant without a central venous line and no measure of pressure, no means of giving drugs into the central venous compartment, or saying, "This is a problem. We have to resolve it. How are we going to solve it? Bearing in mind it would take probably at least another 30 or 40 minutes to rectify it."
Q. When you say rectify, what do you mean by that?
A. If you are talking about -- if the suggestion between them at the time or conclusion was that the direction they should follow is to do a surgical cutdown to insert a central venous catheter, by the time the preparations were made for that and it was carried out, that would have taken another 30 minutes or so.
Q. Yes. So if that's -- there's another scenario, but if that scenario is facing you, what is your observation on

Dr Taylor's comment?

A. I think it's a sensible comment.

Q. Now, the other thing he went on to say -- and this is where I'm going to take you to now -- is that your suggestion, if I can put it that way, in your report was that you could have at that stage got a sense of where Adam's central venous pressures were by performing what I think he called a femoral cutdown.

Now, Dr Taylor has expressed the view that he would be unhappy about doing that. We can find it in, I think, two places. I'm going to see if we start with the transcript from the 19th at page 93.

It starts at line 9, but just in fairness, so that we have the context of it, if we go back to 91. Dr Taylor's answer starts at line 7, and he is debating this very point as to what he should have done in those circumstances:

"I felt that the CVP in the state it was in and reading the expert opinions should have made me discuss in greater detail."

We've had that point. So he says:

"And caused me -- lead me to the question whether we should continue. So in terms of donor kidney sitting there, clearly there was -- I failed to, apparently, have a discussion with the nephrologist and the surgeon

about whether we should proceed with the transplant at all and went on because the donor kidney was -- well, because of the cold ischaemic time."

Then he goes on at page 92. I say:

"What I'm going to ask you is: if you had taken that option ..."

And that option is the femoral cutdown that I just put to you, and this is me posing the question at line 14:

"... which you acknowledged yourself you could have done, what would you have considered to have been the delaying factor in doing that?

"Answer: Well, I have experience of doing femoral central venous lines and they don't necessarily have to be cut downs."

Then he goes on, and this is where I was really starting with his point that I want you to address, line 21:

"I understand that this was an option raised by one of the experts, but I personally would not feel a femoral line would give me a true reading of a central venous pressure in a patient who's receiving abdominal surgery because the tip of the femoral line will lie in the iliac or inferior vena cava vessels and that could be subject to some pressure by the intraabdominal

contents, particularly in this case with a large adult kidney being placed ..."

Well, there is an issue, you know, as to whether it's an adult or adolescent, but in any event:

"... with a large adult kidney being placed around the area of an inferior vena cava."

Then he goes on to say:

"I don't know what the views of my colleagues would you be, but my view at the time [that's 1995] and now is that a femoral line, femoral access line -- and I know this is probably the first time this has been raised with the inquiry, but to me a femoral line would not have provided a reliable central venous pressure in a renal transplantation child."

Now, that's really the point that I want you to address. Do you accept that, and if you don't accept that, why not?

A. I agree broadly with all that he's said. But it would have been a preferable option -- it -- what Dr Taylor is elaborating on is that if the venous catheter is inserted into the femoral vein, its tip, where the pressure is being measured, is in the veins within the abdominal cavity. And during any abdominal operation, the pressure is going to vary, depending on what's been done on the pathology, and it is not going to be as

reliable an indicator of the filling pressure over the right atrium, which is what central venous pressure ultimately aims to measure, is. So it is not going to be as accurate as one placed with the tip more or less in the right atrium as --

Q. Is it, nonetheless, useful to have if that's all you've got?

A. It would be far preferable -- in my opinion, it was a far preferable option to have pursued, rather than the line which he quite correctly identified as giving an unusual reading in a very unusual position.

Q. Ah, now that's a different position.

THE CHAIRMAN: As I understand it, you say that if there was a femoral cut down he would have got a sense of Adam's CVP. His concern is how reliable would that sense have been. You say, "I understand that up to a point, but it was better than what he continued to do instead"?

A. It was much better than what he continued to use instead.

MS ANYADIKE-DANES: Is the deficiencies in that such that the real option is just not to proceed?

A. There's these two options. If you were to ask me what would I have done either in 1995 or in 2012 --

Q. Let's do 1995.

A. I would have proceeded with a femoral venous line.

Q. I see.
A. And I'd have said "This is the situation, please interpret these figures with some caution. I will do the best I can to utilise them to the best of my abilities".
Q. Before you did that, would you have a discussion with the surgeon and seek his input into that decision?
A. For this particular operation, very much so. The reason being that I have already talked at some length about a foreign body in the venous system promoting abnormal flow and an increased tendency for blood to clot around the tip of the plastic catheter. If you insert a catheter into a femoral vein, its tip will lie in the iliac vein. If you're going to do that, you have to, at a minimum, ensure that it is not on the same side that the transplanted kidney is going to be inserted because there will -- or because transplanted kidneys -- and a transplant surgeon will give you a better exposé of this than I can, but one of the reasons why a transplanted kidney may fail is because of failure either of venous drainage or failure of arterial blood supply. If you place the tip of a plastic catheter in proximity to the same system as your transplanted kidney, you are adding a risk factor to the procedure.
Q. Thank you. One final point I'd like to ask you about,

but not on that. I'm afraid I don't have the reference number for this, but I think everybody has received it, which is an article called "how to guides" and it deals with blood gas analysis.

THE CHAIRMAN: It's given out this morning, I think, 306-037-001.

MS ANYADIKE-DANES: Thank you very much indeed, Mr Chairman. I have a copy but I didn't have one with pagination. Thank you.

Now, Dr Haynes, you've seen that, have you?

A. Yes.

Q. And you've also seen, just so that we have it, a witness statement by David Wheeler, who's the critical care and clinical chemistry business manager of Instrumentation Laboratories, who provided or who manufacture the blood gas machine. His statement is to be found at -- at least the substantive part of it is 180/1, and the relevant bit is page 3. If we have that bit first. Can we call that up? Yes. If we just go to the top there:

"The likely effect of sodium heparin on the results produced by the machine in 1995 for serum sodium levels --

The machine we're talking about is the blood gas analyser that was used to produce the serum sodium level of 123 millimoles at 9.32 in Adam's surgery.

The answer is given below that, but if we just look at the conclusion of it, which is (ii):

"IL [Instrumentation Laboratories] does not recommend the use of sodium heparin as an anticoagulant because doing so will increase sodium levels measured by 1 to 3 millimoles even in the presence of the correct proportion of heparin and blood."

So in other words, one way of interpreting that is that the level that you've got, the true serum sodium level, might be taken, if one looks at it from that point of view, as actually being lower than the value you're receiving. That's one way of looking at it. In other words, 123, the true value of that could actually have been slightly lower than 123.

Then if one sees the article that has been provided, the blood gas analysis, and this is an article that, so far as I understand it, goes back to -- we can see it:

"Care of the Critically Ill. 1995."

I'm not entirely clear, this may also be a manufacturer's piece, so we've got one manufacturer giving evidence on another manufacturer's piece, I don't know.

MR UBEROI: [Inaudible: no microphone]

THE CHAIRMAN: Sorry, I didn't catch that. What did you say?

MR UBEROI: It was a bi-monthly journal.

MS ANYADIKE-DANES: Then if one looks under "anticoagulant" and the effect -- you've had an opportunity to read this, I take it?

A. Yes.

Q. It's indicated there just by the brackets. So what it's really saying is that if you look at plasma as opposed to the whole blood, if I can put it that way:

"Constituents which can easily pass into the red blood cells such as carbon dioxide will be reduced by about 5 per cent. However, since the dilution of the plasma component will be about 9 per cent, plasma constituents which do not enter red blood cells easily will be more profoundly affected. Thus a normal plasma sodium result of 140 millimoles will be reduced to 128 millimoles."

In other words, this article is positing the reverse consequence. So if you have used the sodium heparin as a way of flushing through your line, the effect of doing that may be, when you receive your value, in fact it may be showing you incorrectly too low a value. Quite the reverse to what David Wheeler said.

Can you comment at all on the effect of the use of sodium heparin in these lines and their effect on the serum sodium values?

MR UBEROI: Just for completeness, so the witness's answer is in full context, that Dr Taylor has accepted he should have reacted to the result he got at 9.32. This really is a question of whether it raises or lowers.

MS ANYADIKE-DANES: I apologise, I should have said that. He has said that on a number of occasions in his statement and during evidence, that he should have responded to that.

A. Okay. Can I also refer the inquiry to a document I gave as a reference, which begins at 204-004-230?

Q. Yes.

A. It really runs along very similar lines, but it's slightly more extensive, and this is a manufacturer's document. I think it's very important that before we go on to the blood gas -- or the measurement, the biochemical measurement at 9.32 that morning, that I can share with you my knowledge of how to interpret electrolyte measurements using a blood gas machine in circumstances such as we're examining. So please forgive me if I go on at some length.

The very first thing to say is that electrolytes are measured by a blood gas machine or point of care testing because, as time has gone by, they've become capable of measuring it more and more -- they are not as accurate as a serum level measured in a biochemistry laboratory.

The advantage is that in point of care testing, you will receive an answer very quickly, within 2, 3, 5 minutes.

A laboratory specimen, by the time it is transported there, analysed and reported back, a minimum of 20 or 30 minutes, more likely 40 minutes to 1 hour. And that would be the same pretty much throughout any hospital in Europe, I think. So the advantage of point of care testing is immediacy of answer, first of all.

The second caveat of point of care testing is you're not actually measuring the same thing as you are when you measure serum sodium in the biochemistry laboratory. The machine, because it doesn't take the time to separate the cellular and plasma components, measures sodium concentration in whole blood. And because of the differing proportions in differing individuals because of the relative proportion of the cellular components to the fluid components of blood, this will have a slightly variable effect.

I would like to bring something to the inquiry, which I haven't done to date, which is a result of something that has resulted of my curiosity being aroused by the whole process, if I may, chairman. Because this discussion has gone on over the last several months, I undertook in the trust where I work, in working with the point of care testing supervisor,

coordinator for the laboratory services, to examine this very question. And to provide the answer concisely, we looked at samples of blood that had been taken from children, and the same sample had been divided into two, for perfectly valid clinical reasons.

Part of the sample was sent to the laboratory for formal biochemistry testing and the other part was sent -- sorry, for serum electrolyte assay. The other part was used to obtain the blood gases and other values made available by the point of care testing equipment in the intensive care unit. We looked at 100 samples treated as such and the average difference between the two was just under 4 millimoles per litre.

Q. Sorry, differences between the two groups?

A. Yes, the same sample looked at in different ways. The point of care approach gave an average of -- I can't remember the exact figure, but it was just under 4 difference. So the -- if a measurement --

Q. Higher or lower?

A. Lower. So say the measurement on the unit was 120, the average difference would be 124 with the same sample measured using serum in the lab, so there is a difference. However, I would then wish to identify the benefit of immediate point of care testing when it comes to identifying a potentially dangerous trend. And

perhaps the easiest way to summarise the utility of this is to look at two things: one is the blood gas or the point of care testing result obtained by Dr Taylor on 27 November, which is 058-003-003. We'll see that the sodium concentration there is 123 millimoles per litre.

Q. Yes.

A. Okay? If we then move to -- bring up page 057 --

Q. Would you like that alongside?

A. Please. 057-007-008.

Q. Can you increase that a little bit?

A. Yeah, blow that up a little bit.

Q. I don't think it's going to work. Maybe we'll show them one after the other. Perhaps we can --

A. So that was a sample --

Q. There we are.

A. So the 123 was obtained at 9.30 in the morning. Now, that is a low value by any index, whether it's 123 or whether it's 127 or even 130. It is different from the value obtained the previous night. And although Adam's electrolyte concentration wasn't measured that morning, it's significantly lower than the level that one would have expected it to have been.

Q. Yes.

A. So I put it to you that the use of the point of care testing in 1995 would have alerted those present to the

fact that something wasn't right, it needed attention.

Q. Mm-hm.

A. And so if we then look at the second reference, which you've kindly brought up, this is a tabulation of laboratory results from Adam when he was in the intensive care unit following his surgery. And if we look at the second one down, which is 27 November at 1 pm.

Q. Yes.

A. Which would have been between one and two hours after he completed his surgery. If we look at the third value down, that says 119, I think.

Q. Yes, it does.

A. So that really highlights the fact that the sodium was low. Quite how low one can assign a margin of error, but when the subsequent sample at 1 pm was taken and Adam returned to the intensive care unit, it was beyond doubt very low. So I think that illustrates very well the utility of point of care assay for giving you a rapid indication that all may not be well and that you need to take further corrective and investigative action.

Q. Can I ask just one question about that because you have said that even when you did your own study, you did it in-house, so there was a range which you have said

averaged out at 4 millimoles. Can you use it for trends? So could you do fairly regular point of care just to see where you were going?

A. Yes.

Q. While you were waiting, if I can put it that way, for your laboratory result to take its 40 minutes to one hour?

A. Yes.

Q. Is it useful for that purpose?

A. Yes.

Q. And if it shows a trend in almost any direction, is that a trend that you would put any reliance on?

A. Yes, very much so.

THE CHAIRMAN: Because it alerts you to whether there is anything potentially adverse to which you need to react?

A. Yes. If you have a low sodium assay, as in the case in this here, it would make the anaesthetist -- would make me want to say, first of all, "Is this real?" And it would only take another five minutes to get a similar sample. And then the second thing to do is to accept that it is real, that it is significantly different from the measure a fairly short time previously, and institute some therapeutic action.

THE CHAIRMAN: Okay. Thank you very much.

MS ANYADIKE-DANES: Mr Chairman, I have reached --

five minutes longer than I wanted to be and I apologise for that, but I've reached roughly where I wanted to be. Perhaps it might assist if I indicated the issues that I would to take up tomorrow.

THE CHAIRMAN: Please do.

MS ANYADIKE-DANES: I would like Dr Haynes to address the issue of atracurium; the lightening of anaesthesia; the diagnosis of brainstem death; the time of brainstem death; and one issue that somebody specifically wanted me to address, and I haven't, so I might carry that over, which is to do with blood loss, but it's a fairly net point in relation to that. Then I might ask Dr Haynes for an overview, once we have all his evidence on those points, as to his position. Sir, although they are significant issues, they're fairly well circumscribed and they're all dealing with a very similar area.

THE CHAIRMAN: That's very helpful because, if I may say so, while Dr Haynes' evidence is important, I think it's somewhat less controversial in light of the new line taken by Dr Taylor the week before last. There is more controversy, I think, potentially at least, about the evidence of Messrs Forsythe and Rigg. The end result of this will be that you know that we have Professor Risdon by video link tomorrow morning. That line will be up

and checked from about 9.30, so the target is to start with Professor Risdon at about 9.45 after we confirm that the link is working. We'll do him. That should certainly not take all of the morning. And in light of what you've just said, Ms Anyadike-Danes, we should fairly comfortably be able to finish Dr Haynes by lunchtime tomorrow.

MS ANYADIKE-DANES: I would certainly hope to.

THE CHAIRMAN: I'd like to get well into the evidence of Mr Forsythe and Mr Rigg. How will they give evidence? Are they going to sit on each other's knee or something?

MS ANYADIKE-DANES: I hope that's not being recorded! They're going to give evidence together with no particular style being prescribed in the witness box.

THE CHAIRMAN: Is everyone content? They don't need to be called consecutively. Are you content for them to be called together?

MS ANYADIKE-DANES: I can help a little about that. Mr Forsythe's practice was very much concerned with paediatric renal transplants before and at the time of Adam's transplant. Mr Rigg has continued to do those and continues to do them to this day, whereas Mr Forsythe has gone off -- his career path has gone slightly differently. But the reason for having him is because of the extent of his knowledge before and around

the time of Adam and we wanted to ensure that there was somebody who was still carrying out to some degree paediatric renal transplants now, in case, sir, it would be helpful for you to have some contrast between the 1995 position and now. That's why they've produced a joint report.

THE CHAIRMAN: So Mr Forsythe speaks primarily to what would have been going on.

MS ANYADIKE-DANES: Yes.

THE CHAIRMAN: Or what he says should have been going on in 1995.

MS ANYADIKE-DANES: Yes. It may be that Mr Rigg can do the same, but primarily it'll be Mr Forsythe for that period.

THE CHAIRMAN: Okay.

Dr Haynes, thank you for today. We'll break until about 9.45 tomorrow morning.

MS ANYADIKE-DANES: Mr Chairman, can I just ask that -- I recognise that everybody got the most recent documents, Dr Haynes' report, very late, and also Dr Taylor's statement. If there is anything that anybody wants me to add or a particular way they want me to look at those issues that I'm going to deal with, if they could communicate with me and we'll try and do that in a coordinated way.

THE CHAIRMAN: Yes. Thank you very much.

(5.10 pm)

(The hearing adjourned until 9.45 am the following day)

I N D E X