

19 June 2024

Dr Ravi Jayaram (continued)

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Wednesday, 19 June 2024

(10.30 am)

(In the absence of the jury)

Housekeeping

MR JUSTICE GOSS: Mr Johnson and Mr Myers, you've seen the note from the transcriber.

MR JOHNSON: Yes.

MR JUSTICE GOSS: I was very conscious, actually, yesterday, and on a previous day, the speed at which some of the witnesses were speaking. I shall say to Dr Jayaram when we start that he's to slow down. If he doesn't, I shall just interrupt him and slow him down, and we will have a mid-morning break as requested.

MR JOHNSON: Yes, thank you.

MR MYERS: My Lord, yes.

(In the presence of the jury)

DR RAVI JAYARAM (continued)

Examination-in-chief by MR JOHNSON (continued)

MR JUSTICE GOSS: Just for your information, members of the jury, we will have a break at a convenient point around 11.45, for the main reason that there is a stenographer, someone who is actually noting down everything that is said, and you'll appreciate that's very tiring, particularly Dr Jayaram, because, like others, you speak very quickly indeed. So please slow down, bear in mind someone is -- they are speed writers and they can write incredibly quickly, but just bear in mind that that is taking place.

JAYARAM: Yes.

MR JUSTICE GOSS: If you do go too quickly I shall just ask you to slow down again. I know it's difficult.

Thank you.

Mr Johnson, or if you have concluded your examination-in-chief, Mr Myers, but if not, you choose what you consider to be an appropriate point around the mid-morning session.

MR JOHNSON: Certainly.

Dr Jayaram, we'd dealt with the position in the chronology up to about the point at which [Baby K] was physically transferred from the delivery suite to the neonatal unit.

JAYARAM: Yes.

JOHNSON: We'd taken you through your notes relating to the delivery and we had taken you through the pro forma neonatal unit admission document, all of which the jury have -- well, they certainly have the admission document.

I think at one point when you were being questioned by the police about what it was you had seen, you marked a plan, a floor plan, of the neonatal unit, denoting the point at which [Baby K] had been put into an incubator.

Do you remember doing that?

JAYARAM: I remember pointing out on a plan the incubator space that [Baby K] was in, yes.

JOHNSON: Yes, all right. We're going to show that on the screen now and I'll produce it formally as an exhibit.

Just to orientate us -- if we could come out a little bit, thank you, perfect -- we can see the delivery suite, can't we, or at least part of it, at the bottom right-hand corner of the screen at the moment?

JAYARAM: Yes.

JOHNSON: And do you go through those locked doors into the neonatal unit that are shown --

JAYARAM: Yes. The doors where the cursor is at the moment are the doors between the neonatal unit and the delivery suite. They're swipe controlled, so if we are bringing a baby back from the delivery suite to the neonatal unit we would come down the corridor, through those doors, into the neonatal unit.

JOHNSON: Yes. What you've done, this is your -- you physically wrote on this, didn't you? Do you remember?

JAYARAM: I did.

JOHNSON: And you have written an A and a B in nursery 1. Do either of those letters denote the point at which [Baby K] took up residence?

JAYARAM: A is the space where the incubator that [Baby K] was transferred into was sitting.

JOHNSON: And does B become relevant at a later stage?

JAYARAM: B is relevant later on.

JOHNSON: Okay. We will return to this document and it will be on the iPads, my Lord, for the jury reference from this point onwards.

MR JUSTICE GOSS: From now? At the break? So when we need to look at it, if we need to look at it, before the break, it'll just come up on the screen?

MR JOHNSON: It will.

MR JUSTICE GOSS: Thank you.

MR JOHNSON: Dr Jayaram, with Mr Murphy's help, I would like to go to tile 89, please. Having stabilised [Baby K], what was your next priority?

JAYARAM: The main priorities in this situation, once a baby is stable, is to arrange transfer out. Ideally, if we can anticipate delivery, we actually try and inform the transport team beforehand, but once a baby is born, once they are stable, the next priority is to contact the transport team, because it takes them time to organise themselves to actually come down.

In that period when we speak to the transport team, they'll advise on care, if there's anything else they want us to do, and I think you'll recall that they'd advised that they would like us, pending their arrival, to try and get umbilical venous and arterial lines in.

And then we have to make sure the baby remains stable pending the arrival of the transport team.

JOHNSON: This is the first record that we have available from the transport team records. Actually, that may not be right. I

think tile 75 may be the first one. Yes. If we could just go back to 5, please, that was my mistake, taking us to 89. Tile 75.

So this is almost exactly an hour, to be precise an hour and 3 minutes, after [Baby K]'s birth. Is a telephone call or record of a telephone call being made by you? If we could just go to the original, please, Mr Murphy.

Is any of this your writing, first of all?

JAYARAM: No, this looks like the record that would have been made by the transport team from the information that I would have given them whilst I was speaking to them on the phone.

JOHNSON: Yes, okay. Let's just run through it, please. We can see the date underneath the redacted part, which is the address and postcode of [Baby K]'s parents, we have the date of the telephone call as the 17th, the time 03.15, the accepting hospital, Arrowe Park.

If we scroll down, is that the corresponding phone numbers of Chester and Arrowe Park?

JAYARAM: That's the Chester neonatal unit phone number. I'm assuming that's the Arrowe Park phone number.

JOHNSON: Yes. Is what we can see on the screen, in effect, information that was given by you to them?

JAYARAM: Yes. Anything on here would have been what I'd told the team.

JOHNSON: So can we scroll down, Mr Murphy? I'm sure we don't need to go through it line by line because we've already got all this information. Can we go down again, please?

So type of transfer, whether that's unplanned or time critical, it's one or the other:

"Level of care: intensive. Clinical reason: medical. Operational reason..."

The person to whom the call was made by you, where they were. And then we have -- is that "spontaneous rupture of membranes"?

JAYARAM: Yes. Just reading it:

"Spontaneous rupture of membranes 48 hours. Steroids x2 doses."

A summary of the resuscitation:

"Inflation breaths x2. IPPV till intubated at 18 to 20 minutes."

MR JUSTICE GOSS: Slow down.

JAYARAM: "Surfactant at 35 minutes of age and a breech presentation."

MR JOHNSON: Okay. So the 18 to 20 minutes of life being the point at which [Baby K] was intubated, is that information you were giving at this point to the transport team?

JAYARAM: If they've written it there it must have been what I told the transport team.

JOHNSON: Okay. Breech presentation at the bottom and then just to make sure -- there we are:

"Needs of the parents or safeguarding: nothing known."

All right.

Moving on to the next -- so that's the transport services first and then the transport team at the same time on the same day. If we could just go to that, please, Mr Murphy. That speaks for itself.

Then we go to 89, please. So we're now 16 minutes on from the call that you made. This appears to be a note that's internal to the transport team in the sense that it doesn't involve you.

JAYARAM: No, I have not -- I wasn't aware of this and I have not seen this before.

JOHNSON: Okay. So this is somebody on the transport team calling Arrowe Park to check that there's a cot space, and we can see the information and the jury have already heard about this so I'm not going to linger over it.

Can we move on to tile 90, please? This is a message from the transport team registrar to the person that's coordinating this exercise to pass information back to you; is that right?

JAYARAM: Yes. So this wasn't information that was given to me at this point, this looks like it was the advice from the transport registrar to feed back to us.

JOHNSON: And if we go to tile 95 we see the record of that information being fed back to you?

JAYARAM: Yes.

JOHNSON: "Called Dr Jayaram back with the above plan and he was agreeable totally with all of the above."

If we click on the original, please, Mr Murphy. We just scroll up a little bit. We see that this, in effect, has the appearance of being a running log; is that right?

JAYARAM: It looks like it, yes.

JOHNSON: So the 3.35 message appears there where the cursor is now, the 03.41 message being the call back to you, the point to which the cursor has just moved; okay?

JAYARAM: Yes.

JOHNSON: All right. Where were you taking and/or making calls that we've just dealt with?

JAYARAM: I don't know if it's easier to go back to that plan of the neonatal unit to help me describe.

JOHNSON: Yes.

JAYARAM: So where the words "neonatal unit" are, if you just move slightly to the left where it says "room 008" and move the cursor just above there, there was a desk there, which was facing to the left of the diagram, with a seat there, the phone was there (indicating) and that's where I was sitting making those calls.

JOHNSON: Okay. If we go just to tile 36, please, Mr Murphy.

This information is in other locations as well but tile 36 is slightly better from this point of view.

If we enlarge the area to the left of nursery 1, please, Mr Murphy. Is that possible? Okay.

So we see the words "nurses' station" have been put in.

JAYARAM: Yes.

JOHNSON: And is that the location --

JAYARAM: Yes. There's the vertical grey rectangle which is the desk and two smaller grey ones which represent seats.

I can't remember whether I would have been sitting with the one more on to the left of the desk or the right of the desk but I was sitting at one of those seats.

JOHNSON: Okay. The jury have that in hard copy, my Lord, at divider 4 of the white file as well.

If you would look behind divider 5, please, doctor, in the bottom left-hand corner, if we put it into landscape rather than portrait, it's photograph 1, which counter-intuitively is in the bottom left-hand corner of the page. Does that show the area that you're talking about?

JAYARAM: Yes, it does.

JOHNSON: So if you were sitting at one of the two chairs that are behind the desk, your back would have been to the wall of nursery 1; is that right?

JAYARAM: That's correct, yes.

JOHNSON: Would you have a view through that wall?

JAYARAM: No, because there's no window through there, it was a solid wall.

JOHNSON: Okay. I just want to deal with one more piece of information before we come to what are in effect the central events of the night. If, Mr Murphy, please, you'd go to tile 85.

Here we have a chart that's completed by or normally completed by the designated nurse; is that right?

JAYARAM: That's correct, yes.

JOHNSON: So do we have readings which are timed as having been taken at 02.45, which is fairly soon after [Baby K] was set up in nursery 1?

JAYARAM: That's correct.

JOHNSON: Followed by readings at 03.30?

JAYARAM: Yes.

JOHNSON: Which is just before the events we're about to investigate. But scrolling down, please, Mr Murphy, the respirations, which we've already been told, the cross in the circle denotes the fact that [Baby K] was being ventilated?

JAYARAM: That's correct, at a rate of 50 breaths per minute.

JOHNSON: And then temperature.

JAYARAM: Which is 37.2.

JOHNSON: Yes. And then we have saturations, is that right, further down?

JAYARAM: So moving down, would you like -- shall I talk through each one in turn?

JOHNSON: Yes.

JAYARAM: Moving down, that's the incubator temperature at 36.5.

The humidity, that's -- we humidify the atmosphere inside the incubator because it helps to preserve heat, it's good for the baby's skin. Oxygen saturation of 94%, which means that 94% of [Baby K]'s circulating red blood cells, haemoglobin, had oxygen bound, so that's a good saturation. And that's in where it says -- does that say 49 -- 49% oxygen. So she was needing more oxygen than would be in ambient air, as would be expected in a premature baby with surfactant-deficient lung disease.

JOHNSON: Yes, okay. Moving on to the next tile, please, tile 86.

If the jury want a hard copy of this it's behind 6E of the paper bundle.

There are no readings on the left-hand side or indeed the right-hand side of this chart for 02.45?

JAYARAM: No.

JOHNSON: The first set of readings is at 03.30. The jury have had these explained to them already. I'm not going to ask you to get involved in this, save for in one respect. On the left-hand side of the chart are ventilator settings; is that right?

JAYARAM: That's correct, yes.

JOHNSON: What we see, looking from the bottom, starting at the bottom, is the humidifier temperature, then SaO2 -- that's the saturations; is that right?

JAYARAM: That's correct.

JOHNSON: So that's the same figure that we saw in the previous chart, 94, 94%?

JAYARAM: That's correct.

JOHNSON: Then moving up six lines in the same column, we have a line that's called leak and then a number, 94.

JAYARAM: That's correct.

JOHNSON: Immediately above that, VTE?

JAYARAM: Which is the tidal volume, so it's the amount of air being put into the lungs.

JOHNSON: Do you remember being aware of those figures at the time?

JAYARAM: No, I wasn't aware of those figures at the time. Can I give a little bit of explanation about what the relevance of these is?

JOHNSON: Yes. What the jury know, they've heard about leaks, which is air escaping essentially. But you give, slowly please, the explanation.

JAYARAM: I'll try. Please slow me down if I get too fast.

MR JUSTICE GOSS: I will, don't worry.

JAYARAM: Those numbers, the VTE, the expiratory tidal volume, and the leak, are values calculated by the ventilator. So the ventilator knows how much gas is being put into the baby's lungs and it measures -- there's a flow sensor that measures how much gas comes back out of the tube during the breathing out phase. And it measures -- looks at the difference between the two and what a leak means is that there is gas that is coming out around the sides of the tube rather than up the tube.

What does that mean? Well, it's important to have some degree of leak because if there's no leak the tube is too tight and you can potentially cause damage to the airway.

Now, is a leak significant in terms of ventilation?

It's important to remember that what we are trying to do with ventilation is to inflate the lungs and deflate the lungs and get oxygen in and carbon dioxide out.

So we know from the fact that [Baby K]'s not needing particularly high pressure ventilation, needing about 49/50% oxygen, and knowing that her oxygen saturations were good, we know that ventilation was adequate. Now, what therefore is the significance of the leak? What that tells me is that the numbers in terms of the tidal volume are probably not reflective of what's going in because the tidal volume is measured on what's coming back out of the tube. So some is coming out so the sensor doesn't measure it.

Why is the leak there? It's important to know about a leak because this was a size 2 rather than a 2.5 tube.

If we were having difficulties with ventilation, so if we'd been seeing that [Baby K] was needing more and more oxygen, if we'd been seeing that her chest movement was getting worse, if we were needing to increase the pressures, then actually we would have electively changed to a larger size tube. Intubation itself is not without risk and in this situation she was ventilating well and her respiratory status was stable. So the leak itself in isolation is not clinically significant in terms of [Baby K]'s ventilation.

Does that -- I'm sorry, I've tried to make it as comprehensible as possible.

JOHNSON: I'm sure the jury have understood what you say.

JAYARAM: The important thing is that the leak itself is a value that's calculated by the ventilator. It's a useful piece in the jigsaw, but it's a value that -- we wouldn't specifically look at the percentage leak and act on it if all else was actually stable.

JOHNSON: Yes. Are you saying, in effect, if things weren't stable, it might be a clue as to why things weren't stable?

JAYARAM: Yes, it would certainly be something, in looking at reasons why things might have been deteriorating, to address. At this point, if I was aware of it, I don't know, I don't normally look at the leak, to be honest, unless there's an issue with ventilation.

JOHNSON: At the same time, or at least a document that has the same time on it, if we go back to 84, please, Mr Murphy, and could we go to the original, please? You can see there -- well, if we can take in the top of the page first.

This is from the controlled drugs register, I believe; is that right?

JAYARAM: Yes, that's correct.

JOHNSON: It's headed "Morphine 40" -- is that micrograms?

JAYARAM: 40 micrograms per millilitre in 10% glucose syringes.

JOHNSON: We can see that the form itself goes back to December 2015, no doubt for other patients, scrolling down, and the other patients' names have all been redacted from the document.

If we go to the first unredacted line, we see that that is 03.30 on 17 February:

"Female infant [Surname of Baby K]: 1x 50ml."

That's the syringe. And Joanne Williams and Lucy Letby' signatures.

JAYARAM: Yes.

JOHNSON: It's the time that I'm interested in here, Dr Jayaram.

Does that help you to remember what was going on at about 03.30?

JAYARAM: In terms of the controlled drugs register, any controlled drug, by the nature of the fact it's a drug that needs to be restricted, has to be signed out from the cupboard. This is something that is generally, nearly all the time, done by the nursing staff. They wouldn't have signed it out usually unless a prescription for it had been written. We know in premature babies, such as [Baby K], we would usually commence a morphine infusion just to sort of sedate them and for comfort as well.

Experienced neonatal nurses may well anticipate that morphine is required and they might sign it out of the controlled drugs cupboard before the prescription is done. I don't know whether that 3.30 represents the time it was signed out of the cupboard or the time that the infusion was commenced, and I suspect you'd probably have to ask Nurse Williams. But it's standard procedure that a time is there, but as I say, it's usually nearly always signed out by the nursing staff.

JOHNSON: We know as a fact that a morphine infusion and a bolus, and we'll see this in a moment, were given to [Baby K].

What was the purpose of giving morphine in this context?

JAYARAM: At the time an infusion was written up -- in an intubated baby we would want to give the morphine really more for comfort and analgesia for the baby. It's uncomfortable to have a tube down and we know that by giving morphine we can actually make things more comfortable for the babies and make them less -- reduce the risk of them becoming more agitated.

JOHNSON: Thank you.

JAYARAM: And we do that electively rather than in response to a baby being agitated, so we do it as a matter of routine.

JOHNSON: Thank you.

You know that one of the principal reasons for your presence here concerns a desaturation that [Baby K] had shortly after the time we are now talking about. I want to ask you to recall, if you can, where you were in the unit immediately before something happened.

JAYARAM: Do you want to refer back to the...?

JOHNSON: The plan would be very good, yes.

JAYARAM: Sorry, was it number 5?

JOHNSON: It was divider 4 and the second page behind divider 4 may be the best one to use for these purposes.

MR JUSTICE GOSS: I think that's the enlarged version.

MR JOHNSON: Yes.

JAYARAM: So I was sitting at the desk where it says "nurses' station" --

JOHNSON: Yes.

JAYARAM: -- facing with my back to the wall.

JOHNSON: Yes.

JAYARAM: Joanne Williams, her nurse, had told me she was going to update [Baby K]'s parents. I can't remember exactly, but looking at the timings I probably just had spoken to the transport team and she was going to update them with where [Baby K] was going to go.

Joanne told me that Lucy Letby was -- we use the term babysitting. So it's when the named nurse is called away, another nurse goes to supervise. At this time, February 2016, we had had a number of unusual incidents with babies, and a number of colleagues, and myself, had noted the association with Lucy Letby being present at these things.

At this stage we'd had a thematic review, an external review, which hadn't found any other obvious factors. I was sitting and I -- I'll be very honest, I felt very uncomfortable. Objectively you could say that was completely irrational, but I just had a feeling, because of knowing what had happened before, and my internal dialogue was very much: stop being stupid, get on with your work.

I needed to just go in just to reassure myself that everything was okay and then I knew I could just get on with doing things. And it was around 2.5 to 3 minutes maybe --

JOHNSON: 2.5 to 3 minutes what, sorry?

JAYARAM: From Joanne telling me that she was going to talk to [Baby K]'s parents that I stood up and walked in. So I stood up from where I was sitting and went through the doorway that's not labelled number 1.

JOHNSON: Okay. I think that's nursery 1 rather than --

JAYARAM: Yes, sorry, nursery 1, but the entrance closest to the nursing station.

JOHNSON: Yes. So where the cursor is on the screen at the moment, I think, doctor.

JAYARAM: Yes.

JOHNSON: So is [Baby K]'s incubator -- we've already shown the jury, and we will show again in a moment, the plan. If we could put that plan up, please.

MR JUSTICE GOSS: Do we need to? Sorry, if we look at this plan.

MR JOHNSON: Because there's another letter on it which becomes relevant, my Lord.

MR JUSTICE GOSS: All right, sorry.

JAYARAM: I came through that door (indicating) --

MR JOHNSON: Hold on a second, let's take it stage by stage.

The door isn't marked on this version of the plan first of all. This is J16955. We know that there was a door there. You came through the door and what did you see as you came in?

JAYARAM: I came through the door. There's a little wall that's demonstrated sort of halfway down. That probably goes out a little further. So I came round that wall and walked towards the incubator.

MR JUSTICE GOSS: Have you got access to the cursor? Is the cursor working? No, it's not. Don't worry. Wishful thinking.

JAYARAM: I suppose if you move the cursor just slightly upwards, as I was walking to the right, the first thing I did was look up at the monitors and --

MR JOHNSON: Where are the monitors?

JAYARAM: So the monitors -- where the letter A is, the monitors are sort of above the incubator on the wall there.

JOHNSON: Are they pointing towards --

JAYARAM: They're pointing outwards, so to the left of the diagram. So basically as I walked in that direction I could see the screens in front of me.

JOHNSON: Yes. And what did you see on the screens?

JAYARAM: What I saw on the screens was that [Baby K]'s oxygen saturations were dropping, they were in the low 80s and going downwards. Next to the incubator, so sort of around where -- just to the top of the A, is where the ventilator sits and the pumps to give intravenous fluids and Lucy Letby was standing at point B next to the incubator.

She wasn't looking at me, she didn't have hands in the incubator --

JOHNSON: Let's take this very slowly: did she have her back towards the direction you were coming from?

JAYARAM: No, she definitely was facing in my direction. I can't remember whether she was directly face on or slightly angled towards the incubator, but she wasn't looking at the monitor. And as I approached, I looked up and I can't remember my exact words, I just said, "What's happening?" And Lucy looked up and said, "Oh, it looks like she's desaturating". What was of note is usually the monitors are set to alarm if the saturations drop, usually below a level of 90% and they alarm immediately.

I didn't look to see whether the button that cause the alarms to be suspended was pressed but the saturations were going down and continued to go down.

JOHNSON: Was there the sound of the alarm?

JAYARAM: No. There was no alarm. Had an alarm gone off, that would have been my prompt to walk in -- and although -- if you look at the layout of the unit, the alarms are loud and where I was sitting, had an alarm gone off, I would have heard it.

JOHNSON: Let's take this stage by stage: did you look at [Baby K] herself?

JAYARAM: Yes. The important thing is not to treat numbers on a screen, it's important to look at the baby. The monitors are there to help to guide us. So the first thing to do when I see an abnormal reading on a monitor is to actually look at the baby. What I saw when I looked at [Baby K] was that, whereas previously her chest had been moving up and down, her chest was not moving well.

So in that situation you then have to think, we've got a situation where nothing's changed in terms of the ventilator, the ventilator was still working and delivering breaths, [Baby K] was desaturating, her chest wasn't moving as it should have done. I took a stethoscope and had a listen on each side and whereas previously I could hear air going in and out, obviously on each side, there was very poor air entry. So there was a change in the sounds of her breath.

We work through a kind of process in this situation of working through the things that could be going on and systematically from the top you think is it a problem with the airway, is it a breathing problem, so is it a lung problem, or could it be a circulatory problem.

It's usually going to be airway or breathing.

So the first thing you then have to do --

JOHNSON: You're going a bit too quickly. Let's go through the order in which you are considering issues, please, first of all. Is there an acronym for it?

JAYARAM: ABC. So if we think about airway, we know [Baby K] was intubated and she was being ventilated through an endotracheal tube. So the first thing: is there a problem with the ventilator? The ventilator was working, it was still doing what it should do, you could see on the screens it was delivering breaths, it was making the noise that ventilators make. So the first thing then to consider is the airway and, given that she had an endotracheal tube, you then have to consider is the endotracheal tube doing the job that it should be doing.

JOHNSON: What are the potential reasons for why the ET tube wouldn't be doing the job that it should have been doing?

JAYARAM: If an ET tube is not working, it can either be that it can become blocked with secretions. That usually doesn't happen suddenly, you will see a gradual deterioration.

JOHNSON: A gradual deterioration, usually over what sort of period of time?

JAYARAM: It won't be seconds, it would usually be minutes --

JOHNSON: Okay.

JAYARAM: -- it could be longer. But it's not something that is an acute "you're absolutely stable and then you're not".

JOHNSON: Right.

JAYARAM: The other thing that could happen with an endotracheal tube is: has its position migrated? So could it have gone down too far, potentially down into one lung, usually the right side? In that situation, when you examine, you'd usually see that one side of the chest moving and you'd hear air entry on that side but not on the other. Or has the ET tube actually become dislodged and is no longer between the vocal cords in the trachea?

So essentially it's just sitting -- is it just sitting in the back of the throat?

The way to assess that first of all is to disconnect the baby from the ventilator and use a T-piece bag and mask system.

JOHNSON: Just pausing there again, so you literally unplug the tube?

JAYARAM: The ventilator has tubing coming out of it which has an adaptor that clips on to the top of the endotracheal tube. So we take that adaptor off and put on the hand ventilation system, the T-piece, and ventilate through the T-piece.

JOHNSON: So that's rather like the Neopuff?

JAYARAM: Yes, analogous to the Neopuff. If it's a problem with the ventilator, then actually using the T-piece you should see things turn round and the chest move, but with the T-piece she didn't pick up and the chest didn't move either.

The other thing we do is that we use what's called a colorimeter. There's a device that changes colour when it detects carbon dioxide. So you could see this situation with -- we're moving on to B before A -- but if you have quite a significant deterioration of the underlying lung disease and the lungs are so stiff and collapsed down that you're not ventilating and you're not getting air in and out, and you're not getting enough carbon dioxide coming out, but again that's something that happens over time, you would see a gradual increase in the requirement of oxygen needed.

You would see a gradual sort of deterioration in gases if you were doing them. She'd been stable in about 49% oxygen to that point.

When we put the colorimeter on, and again used the T-piece, we didn't see a colour change and that would indicate that there's not carbon dioxide being detected --

JOHNSON: Okay.

JAYARAM: -- which suggests then that the issue is with the tube.

JOHNSON: Just pausing there, just so that we have a reasonable degree of consistency about the terms we're using, I think other witnesses have used the term capnograph.

JAYARAM: Yes.

JOHNSON: Is that the same as a colorimeter?

JAYARAM: It's the same thing. A capnograph actually gives you -- it's a more sophisticated device that gives you a readout on a screen of how much carbon dioxide there is. So CO2 detector or a capnograph, but the technique is called capnography. This is very much -- it tells you whether it's there or not rather than amounts.

JOHNSON: Explaining that and your reasons for what you were doing has taken a significant period of time. As you were there, how long did it take to go through that process that you've just explained?

JAYARAM: That process is almost sort of a reflex, really, it's a bit like doing an emergency stop in your car. The process of actually taking the -- disconnecting the ventilator, putting the hand ventilator on a T-piece would probably taken, what, 20 seconds or so, because all the equipment is right by the incubator.

JOHNSON: Was there any evidence there of Lucy Letby having done anything like that before you had come in?

JAYARAM: I wouldn't say there was.

JOHNSON: No. All right.

JAYARAM: I wasn't looking but there wasn't any obvious evidence of that.

JOHNSON: And it would possibly be inconsistent with what she said to you. But moving on, what happened next?

JAYARAM: So having established that there was an issue with the tube, I removed the tube, so basically took the tube out of [Baby K]'s mouth, connected the T-piece to a small mask, which I then put over [Baby K]'s nose and mouth and ventilated through the mask. She picked up extremely quickly. Within a few breaths her colour improved, her saturations improved, and I could see that her chest was moving normally.

So that was, number 1, a relief and, number 2, it wasn't suggestive that this had been a significant deterioration in her lung disease because she picked up extremely quickly with hand ventilation.

JOHNSON: Yes. Now, given the level at which you saw the saturations, [Baby K]'s saturations as you walked in, and the speed with which they were declining, how long before you walked in, in your estimate, was it that there had been a significant ventilation problem?

JAYARAM: So generally, if you have a problem with your airway and your oxygen saturations are normal, your oxygen saturations will probably stay in the normal range for at least 30 seconds. We use this when we actually go through the process of intubation. If it takes longer than 30 seconds to get a tube down, we stop the process and re-ventilate to get the oxygen saturations back on up.

So I would have said it would have been -- it had to be longer than 30 seconds, probably 30 to 60 seconds, seeing as they were in the 80s.

JOHNSON: Yes.

JAYARAM: There's no sort of hard science on it, there's no standard sort of rate of desaturation.

JOHNSON: No, but [Baby K]'s heart level, for example -- you have told us of the saturations, but was her heart level relatively normal?

JAYARAM: It was normal. So if you continue with a prolonged desaturations, eventually your heart muscle doesn't get oxygen supply to it and the heart will slow down as well. We picked this up quite early and there wasn't a period where her heart rate dropped to a significantly low level.

JOHNSON: So taking the heart rate in conjunction with diminishing saturations, does that affect in any way the time estimate that you have given the jury?

JAYARAM: Yes, I think so. I think we're looking at no longer than 2 minutes. Again it's not hard and fast science, some babies may tolerate periods of low oxygen saturations before their heart rates drop more than others.

JOHNSON: So at least 30 seconds and no longer than --

JAYARAM: I would say so, yes.

JOHNSON: That's before you had come into the room?

JAYARAM: Yes.

JOHNSON: You told us or you -- I don't whether you were quoting directly or paraphrasing what it was Lucy Letby had said to you when you questioned her as to what was going on.

Do you remember her precise words now?

JAYARAM: I don't remember the precise words. It was along the lines of, "She's desaturating", but there was nothing specific that I can remember.

JOHNSON: Okay. You have told us that it wasn't an issue with the ventilator for the reasons you've explained. What other potential causes for the issue that you identified did you investigate?

JAYARAM: I didn't investigate because the priority was stabilising [Baby K].

JOHNSON: I think you misunderstood my question. It's my fault.

Were you looking for other possible causes at the time?

JAYARAM: Well, we go through the ABC sequence. This was clearly an A issue. What I found suggested that this was an issue with the tube. The tube -- and again, the thing to think about is had the tube blocked, it is sometimes hard to spot. There weren't a huge amount of secretions around when we intubated [Baby K] and there was no reason to consider that tube blockage would have been an issue.

And as I discussed, the suddenness of the deterioration would go against a tube blockage. I can't remember exactly what the tube looked like at the time.

But it certainly -- at a glance, there wasn't a massive plug of mucus in it.

JOHNSON: Is it possible for children of this age and the condition that [Baby K] was in to move their own tubes?

JAYARAM: It's a possibility. I have to say I have never seen it in babies of this gestation. Given that [Baby K] had had a very difficult delivery, she was quite stunned(?), she wasn't particularly overactive. The tubes are secured in a fairly robust way with both a clip that holds it in place with a rubber flange and tape around them -- sorry, and tied in as well. So it would be difficult to move.

If we had the tube in at -- I think it was 6.5 centimetres at the lips, although we hadn't X-rayed at this time, we'd X-rayed down the line and actually you can see that the tube was not just through the vocal cords, it was a good way into the trachea, so it would take quite a lot of movement from a baby to dislodge a tube.

JOHNSON: Does the fact that this was a 2mm tube rather than a 2.5mm tube have a bearing on the ease with which a tube could be dislodged?

JAYARAM: No, the diameter of a tube would have no bearing on how easily it could be dislodged.

JOHNSON: The high leak, is that a potential credible explanation for this deterioration?

JAYARAM: As I mentioned earlier with the leak, the leak gives us an idea of how much of what's coming out of the ventilator is reaching the lungs. We knew, in spite of the leak, that [Baby K] was ventilating well, her chest was moving up and down, her oxygen saturations were good, and she had not had a sort of steady deterioration over those minutes with an increase in oxygen requirements. So no, I don't believe that the leak itself is significant at all with regards to this deterioration.

JOHNSON: Did you hear, while you were either sitting at the nurses' station or your progress into nursery 1, any call for help from Lucy Letby?

JAYARAM: No. Not at all. I was surprised that the alarm wasn't going off, although my priority was [Baby K] and I didn't question it at the time, and in retrospect I was -- I'm surprised that help hadn't been called given that [Baby K] was a 25-week gestation baby and her saturations were dropping.

JOHNSON: Do you remember now, during your treatment of [Baby K] in the immediate aftermath of this desaturation, the point at which Joanne Williams reappeared?

JAYARAM: I can't remember exactly when. I think it was while I was bagging [Baby K] and her saturations had picked up, but I couldn't say for sure. I may have mentioned it in the statement previously, but I can't remember at this moment in time.

JOHNSON: Don't worry. I'd like to go to your notes, please, Dr Jayaram, which are at tile 100. We'll deal with the originals, please, Mr Murphy.

I think we dealt with what's on the top of the page yesterday. We'd got towards the bottom. So I would like to do this the same way as we did before, please, you actually to read your own handwriting and then I'll ask you some questions if that's all right.

JAYARAM: Sure:

"At 0350 hours sudden deterioration. Saturations dropped to less than 40%."

JOHNSON: So that's not an equals, it's a less than?

JAYARAM: That's a less than.

JOHNSON: Just scrolling up to the top of the page to remind ourselves when you wrote this, please.

JAYARAM: It was at 04.50.

JOHNSON: It's the previous page. We won't worry about that, we've already established that. So this is all part of the same note.

What had you written through after the word "at"

that was crossed through?

JAYARAM: I'd written, I think, 3.30.

JOHNSON: Yes. Was there, when you were writing this up, any doubt in your mind as to the time, was it --

JAYARAM: It wasn't as early as 03.30.

JOHNSON: No. So:

"Sudden deterioration."

Then:

"O2 sats dropped to less than 40."

Is that a life-threatening level?

JAYARAM: If it's not dealt with quickly, because if you leave it there eventually the heart rate is going to slow down, then circulation of blood through the lungs slows down, so you get into a vicious circle of deterioration.

JOHNSON: Yes.

JAYARAM: So they weren't that low when I walked in, but they dropped quite rapidly.

JOHNSON: Yes. The next line, please.

JAYARAM: "Bagged via the ET tube with Neopuff."

The CO2 monitor, that's the thing that changes colour, wasn't changing colour, and there was poor chest movement.

Where it says "cold light normal" -- so one thing that can happen to cause acute deteriorations is a thing called a pneumothorax, so the lung develops a leak and the air that goes into the lung comes out of the lung and accumulates in the pleural space, the space between the chest wall and the lung, and causes the lung to collapse down. In small babies when you put a fibre optic light on, if you have a pneumothorax, it lights up -- people say like a Hallowe'en pumpkin. So we do that as a very rapid screening tool and there was no evidence of a pneumothorax.

JOHNSON: And indeed there were subsequent X-rays which didn't show any sign --

JAYARAM: Which didn't show a pneumothorax.

JOHNSON: This shows what you were doing at the time.

Moving down then, please, Mr Murphy. So this is the ET tube you're talking about here, is it?

JAYARAM: Yes, the ET tube was removed, she was bagged via a face mask, and her saturations recovered quickly. Then she had an re-intubation, which Dr Smith the registrar did.

JOHNSON: Could you read the actual words?

JAYARAM: "Re-intubated by Dr Smith after a bolus of 100 micrograms per kilogram of morphine."

JOHNSON: Okay. So the re-intubation preceded, what, was preceded by a bolus of morphine?

JAYARAM: We gave a bolus of morphine. So rather than an infusion this is because we know we're going to be doing an instrumented, unpleasant procedure, we give the baby a little bit more analgesia so they tolerate the procedure better and it makes it a bit easier for the operator to do the procedure as well.

JOHNSON: Whilst that bolus is being prepared and delivered, how was [Baby K] being ventilated?

JAYARAM: She'll have been being hand ventilated with the T-piece until such time as we were ready to intubate.

JOHNSON: And the next line verbatim, please?

JAYARAM: "A size 2.5 ET tube was placed at 6.5 centimetres at the lips."

JOHNSON: Is that the same distance at the lips as the previous?

JAYARAM: It's the same distance at the lips, it's the wider bore tube, we were doing this in more controlled circumstances, and we had more time, so we put -- given the tube was out, we took the opportunity to put a wider bore tube in.

JOHNSON: Yes.

JAYARAM: "Following that, good air entry plus left and right."

So when we put the tube in, obviously we want to know that we haven't got it in too far. So the fact that there's good air entry both sides means that the tube is in a good position, it hasn't gone down one side. Then I've said:

"Vent settings as previously."

So the amount of help that [Baby K] needed from the ventilator after this event and after she was re-intubated was exactly the same as it had been before, which suggests that the degrees of lung disease she had at that time in terms of the progression of the problems caused by surfactant deficiency hadn't significantly changed.

Then:

"Plan: await line placement then contact the transport team. Parents have visited baby on the unit and have been updated."

JOHNSON: Thank you. So that's by 04.50, which is when you're writing this note?

JAYARAM: Yes.

JOHNSON: So having stabilised [Baby K], or Dr Smith having re-intubated her, what did you do next?

JAYARAM: The next thing was to establish umbilical venous and arterial access if possible, which Dr Smith undertook.

He managed to place an umbilical venous line, he wasn't able to place an umbilical arterial line. These are things that help, they're not things that cause trouble if they're not achieved.

JOHNSON: I'd like to go, please -- I'd like you to give us an estimate, first of all, as to how long the episode between you walking into nursery 1, and take that as a start of the period, and the end of period, being when [Baby K] had been re-stabilised and was in a position to be left unprodded by either medical staff or nursing staff.

JAYARAM: In terms of when we'd re-intubated her (overspeaking) -
-

JOHNSON: Yes. How long did it take from the moment you walked in, at whatever time that was, to when it was hands off so far as the staff were concerned with [Baby K]?

JAYARAM: I can't remember. Can you tell me what time the morphine bolus was given? Is that written up?

JOHNSON: 03.50 is when that is recorded, I think. Let's go to the documents. Tile 102, please.

JAYARAM: Because that would really help in terms of answering that question.

JOHNSON: So this is behind divider 6A of the jury bundle. This is the electronic record. If you look for the red numbers in the bottom right-hand corner, it's 17058, I think.

(Pause)

JAYARAM: 04.20, so yes, the whole episode then -- once the tube was in, which would have been shortly after that morphine was given, that's probably when we re-stabilised her. We then had to move on and do other interventions such as lines. So I would say from that particular episode, if the morphine was given at that time, probably about sort of 5 minutes after that time.

JOHNSON: Well, there is a handwritten prescription for the morphine at 03.50.

JAYARAM: Okay. What I don't know, and again you will probably have to discuss with the nurses, is when it says the administration time, my interpretation of that would be that that was the time it was given, but what I don't know is if this was done retrospectively and that was actually the time that it was recorded.

JOHNSON: Yes.

JAYARAM: If it had been earlier then that whole process would have finished earlier.

JOHNSON: But roughly, from beginning to end, so from your discovery and seeing [Baby K]'s sats decreasing to hands off, roughly how long?

JAYARAM: I'd say no more than 30 minutes, probably shorter.

JOHNSON: Can I just take you to 6C and page 17074? That should be tile 103 if my note is correct. Yes, it is.

JAYARAM: So that is the prescription for the morphine infusion.

JOHNSON: Yes. We see there's a time on it.

JAYARAM: Yes. That's the time -- it says "time started". So that is written by me.

JOHNSON: Is the date your writing?

JAYARAM: So the demographic details on the top left aren't my writing. Allergies aren't my writing. Weight isn't my writing. Consultant Gibbs is my writings. The starting rate is my writing. There's my signature.

JOHNSON: Can we just deal with the rate because this may help us with the chronology in due course or the time of the thing. 0.34ml per hour is that?

JAYARAM: Yes, that's correct.

JOHNSON: Which is 20ml per kilo --

JAYARAM: 20 micrograms of morphine per kilogram per hour. So we work out the dose based on weight and express it in micrograms per kilogram per hour.

JOHNSON: Yes. So the daily dose divided by 24?

JAYARAM: Yes.

JOHNSON: So 0.34 micrograms?

JAYARAM: 0.34ml per hour of this pre-made solution of 40 micrograms per millilitre.

JOHNSON: Thank you.

JAYARAM: To give 20 micrograms per kilogram per hour of morphine calculates at 0.34ml per hour of that particular preparation.

JOHNSON: Thank you. Then your signature --

JAYARAM: That's my signature.

JOHNSON: -- for the prescription? And then the date and time, are they your writing?

JAYARAM: Those are my writing, yes.

JOHNSON: The rate, which replicates what's above in the starting rate, 0.34?

JAYARAM: That's correct.

JOHNSON: The dose is the same as earlier?

JAYARAM: Yes.

JOHNSON: Your signature, the same?

JAYARAM: That's my signature.

JOHNSON: And then the nurse's signatures?

JAYARAM: That's correct.

JOHNSON: Thank you. So was the morphine bolus given before the infusion was started?

JAYARAM: Usually, with boluses, if a baby is on an infusion, it would be given as pressing a button on the pump to give a larger amount through -- I can't remember whether the infusion was running and the bolus was given as part of the infusion or whether the bolus was given and then we started the infusion afterwards.

JOHNSON: Right, thank you. Now, your next appearance in the sequence, doctor, is at tile 118, please. This is at 04.39.

We've discovered that in the database at the hospital this door was -- the door was correctly described but the direction of travel was incorrectly described. Okay? So this is you going from the labour ward into the maternity -- sorry, into the neonatal unit. Do you understand?

JAYARAM: Yes.

JOHNSON: That description on the screen is what the data says --

JAYARAM: Okay.

JOHNSON: -- but the description in the data is incorrect. So it's confusing.

JAYARAM: This is me going from the labour ward back to the neonatal unit?

JOHNSON: Correct. And we know that was at 04.39. We are now superimposing your time frame of collapse to hands off.

Can you remember why you would have been in the labour ward?

JAYARAM: I would have gone back across to the labour ward to update [Baby K]'s parents with events and where we were up to and the ongoing plan. There wouldn't really have been any other reason why I would have gone back to labour ward.

JOHNSON: Okay. Do you recall any other children in the unit that required your assistance that night?

JAYARAM: No, neither on the neonatal unit nor on the paediatric ward.

MR JUSTICE GOSS: Sorry, just to be clear, because the question was can you recall, are you saying that there were none?

JAYARAM: I don't remember any. Usually, if they are bad enough to need my input in the middle of the night I'd usually remember and I think that night I didn't have any other focus that night other than [Baby K].

MR JOHNSON: And this was -- [Baby K] was the reason you'd been called out in the first place?

JAYARAM: That's correct.

JOHNSON: Thank you. The next tile is 125, please. This is simply the time at which you wrote up the notes that we've already referred to; is that right?

JAYARAM: Yes, I think so, yes.

JOHNSON: There is a bit more, of course, because if we click on to it, so there, on the first page, is what we've already dealt with.

JAYARAM: Yes.

JOHNSON: The second page, I think, we've already dealt with.

Sorry, just -- yes, sorry, we've dealt with that.

The third page, we've already dealt with all that material at the top. Then there is a record of a further batch of Curosurf being given to --

JAYARAM: That's the original Curosurf. That was just documented in the notes retrospectively.

JOHNSON: So that's what you were doing at 04.50, in effect writing up that two and two-thirds pages of notes?

JAYARAM: That's correct.

JOHNSON: Thank you.

Tile 143, please. This is an hour after the notes you wrote. If we go to the original, please. So this is not your record, is it?

JAYARAM: No, this looks like it's a record from the transport service when I spoke with them.

JOHNSON: So we see there at the top in the centre of the page:

"Handover taken from Dr Jayaram at 05.50..."

No, there's a full stop after Jayaram and:

"At 5.50 discussion over time of..."

Is that "retrieval"?

JAYARAM: I think it says retrieval.

JOHNSON: "Night/day team. Dr Jayaram keen not to miss window of opportunity whilst baby stable. Dr Sanjeev, transport consultant, contacted. Happy for day team to go first thing."

So does that jog your memory as to the conversation that you had?

JAYARAM: Yes. I mean, given that we'd had this deterioration of [Baby K], she was in a stable condition, I was quite keen for her to be transferred to the level 3 unit sooner rather than later. We often have an issue with the transport team where it might trip over their handovers from night team to day team and it looks like I was trying to say to them that I really would like you to get her sooner rather than later. But the transport team consultant, given the history, he made an assessment that it was okay for the day team to come so she could stay with us a little bit longer.

JOHNSON: When it says handover taken --

JAYARAM: When they say taken it's usually written by the person I have been talking to, so the person receiving my handover will document it as handover taken.

JOHNSON: It doesn't mean literally handing the baby over?

JAYARAM: No, that's just a verbal communication.

JOHNSON: That's fine. Just in case there's a question.

Tile 145, please. This is timed at 05.55, so five minutes to six. If we go to the original again, please, just in case there's a mistype:

"05.55, call received from Dr Jayaram. Baby dislodged the tube and had to be re-intubated. Now size 2.5mm at 6.5 centimetres at the lips."

Is that the information that you gave?

JAYARAM: I probably framed it as the tube was dislodged.

JOHNSON: Yes:

"They have now a UVC..."

JAYARAM: Umbilical venous catheter, yes.

JOHNSON: "... in situ but no UAC."

JAYARAM: That's correct, no umbilical arterial catheter.

JOHNSON: "Pressure" -- is that "pressures of ventilator"?

JAYARAM: "Pressures of ventilator, 23/5."

JOHNSON: Is that slightly --

JAYARAM: Slightly higher than previously, still not excessively high for a 25-week gestation baby. And FiO2 55-60%, so slightly higher than that was.

JOHNSON: So slightly more oxygen in the gas that is being ventilated?

JAYARAM: Yes, which one would anticipate in the picture of respiratory distress syndrome caused by surfactant deficiency; it gets worse before it gets better.

JOHNSON: This presumably is the person making the note:

"Informed Dr Rebecca Kettle of the above and she was going to call Dr Jayaram. In the meantime I called Dr Sanjeev Rath, on call consultant for transport, as it was already after 6 and the day team starting at 7. He said it was okay for the day team to do the transfer and he was going to call Dr Jayaram at Chester and discuss with him."

Do you recall that at all?

JAYARAM: I don't recall the conversation at all, I'll be honest.

Although it's clear he talked to me, I don't remember.

I have no recollection of that conversation.

JOHNSON: We can see recounted in the words there that the X-ray hadn't been -- "Still not X-rayed", just where the cursor is now.

We will come to a second desaturation. If we go to tile 154, please. Before we click on it, do you have any independent recollection of this second event?

JAYARAM: Not as clearly as the first event independently.

JOHNSON: All right. What can you now -- we'll go to your notes in a second. But what can you now remember independently of the notes of the second event?

JAYARAM: What I do remember is that, again there was a desaturation. In terms of assessing why, we wondered whether the tube might have migrated too far down. We tried withdrawing it a little bit and it didn't help.

And I think in the end we ended up pulling the tube out and re-intubating.

JOHNSON: So let's look at your notes then, please. Can we do as before? This is a note you wrote at 7.50 that morning; is that right?

JAYARAM: That's correct.

JOHNSON: Could you read verbatim what it actually says?

JAYARAM: So:

"UVC inserted by Dr Smith, 9cm" --

JOHNSON: Sorry, the bit above.

JAYARAM: "Jayaram (cons paed)."

JOHNSON: So your name and consultant paediatrics.

JAYARAM: "UVC inserted by Dr Smith. 9 centimetres at the cord."

So we have a formula to calculate how far in an umbilical venous catheter should go and we measure -- again, the catheter has gradations on it and it's 9 centimetres at the umbilical cord:

"The umbilical arterial catheter would not pass so that wasn't inserted, and an X-ray was done."

What I have said is the UVC, the umbilical venous catheter, is in the IVC, the inferior vena cava, which is the big vein that carries blood back up to the heart, and I commented that the left lung looked hazy on the X-ray.

JOHNSON: Yes. You then write?

JAYARAM: "At 06.15 began to have lower [saturation]s and the tidal volume was down to 2.5ml."

JOHNSON: I just want to ask you a question which may be important. We can see that you put a specific time in for the drop in saturations as 6.15. But before that, the immediately preceding line on which you have recorded information, you record the words:

"Left lung hazy."

JAYARAM: That's correct.

JOHNSON: Where did you get that information from, left lung hazy?

JAYARAM: I must have looked at the chest X-ray because that's just description of what the chest X-ray looked like.

JOHNSON: Exactly. So does it follow that the chest X-ray was taken before the desaturation, which you have timed as being at 6.15?

JAYARAM: That's how I'd interpret this. I'd have to look at the time on the chest X-ray.

JOHNSON: Yes. Well, the time is before, but we also have evidence that it's not necessarily a completely accurate time. So that's why I haven't shown it to you. All right? But I will show it to you now.

JAYARAM: Sure.

JOHNSON: It's tile 149, please. Forget about the report of Dr Wright and go to the X-ray itself because you wouldn't have Dr Wright's report at the time.

JAYARAM: No, the reports come quite a long time later.

JOHNSON: Let's explain that to the jury because this is material they have. You have quite a lot of experience of looking at X-rays; is that right?

JAYARAM: Yes.

JOHNSON: And perhaps a good working knowledge, but you are not a specialist?

JAYARAM: No. With any X-ray, we have radiologists who are doctors who are specifically trained in imaging so looking at X-rays, looking at scans of various descriptions and reporting them. Those reports are usually not done urgently unless we really want an urgent report so we're not quite sure how to interpret things. For X-rays in neonates, as paediatricians, we are pretty good at interpreting them and the comment I made on this X-ray was, looking at the lungs -- can the jury see?

JOHNSON: Yes, they see exactly what you see.

JAYARAM: If you look at the right lung, which is actually the left of the picture, and if you look at the lung field, the white lines are the ribs, you can see the lung looks more black. That suggests there's good aeration. If you look at the lung on the left, so if -- where the cursor is at the moment on the heart shadow. If you move the cursor to the right of the picture, that's the lung field, it looks slightly more hazy, it is not quite as black. That has to be interpreted with the

proviso it is quite a rotated X-ray as well. So if you look at the length of the ribs on both sides, so the baby wasn't completely straight on, but there's a difference between the two sides.

The significance of that? It could be -- as I have mentioned yesterday, we have to consider infection, we have to consider again surfactant-deficient lung disease as well. But you can see a difference between the two sides. The next thing to look at when you see that is to look at the position of the endotracheal tube.

JOHNSON: You're going a bit -- slow down.

JAYARAM: The next thing to look at is the position of the endotracheal tube. If you can move the cursor slightly down, about an inch, a fraction lower. That's the tip of the endotracheal tube (indicating).

JOHNSON: If we pause there. If we follow -- we can see the outline of the tube going up and to the right of the picture, can't we?

JAYARAM: Yes, there's a line that shows up on X-rays on the tube and you can follow that line down and where the line stops is where the tube sits. You can see that is sitting above where the trachea, the windpipe, divides into two.

You can see a darker shadow just parallel to the line with the tube and it splits about a centimetre below the cursor to the left and the right. This was with the tube at 6.5 centimetres at the lips, so we can see it's well into the trachea, but it hasn't gone down one lung.

JOHNSON: So far as the umbilical venous catheter is concerned is that the tube we see curling --

JAYARAM: Yes, there's a tube at the bottom left of the picture that arcs round and then comes up, so it kind of goes the other way from the way the cursor is going.

JOHNSON: Which part of that tube is outside the body?

JAYARAM: Where the cursor is now is outside the body and where it comes down to the bottom of the screen and loops upwards, probably about where the cursor is now, is going into the umbilical cord.

JOHNSON: So from that point on heading up --

JAYARAM: It is inside the inferior vena cava.

JOHNSON: Which is one of the major levels of the body, isn't it?

JAYARAM: That's correct.

JOHNSON: Returning, if we may, with all that information from the X-ray now, you have told us that the desaturation happened after this X-ray. That's your interpretation of your notes. Can you just repeat what it was that actually happened so far as you remember?

JAYARAM: Only really from what I saw in the notes, but the saturations dropped at 6.15 quite suddenly.

JOHNSON: Can you remember when you were called into the room?

JAYARAM: I can't remember whether I was in the room or whether I was called in, but I was on the unit so I wasn't far away. What we did, thinking, well, why has this desaturation happened, even though I can see the tube is in a good position, I pulled it back slightly to see if it made a difference, which it didn't. I'd need to look at my notes to remember what happened when we tried ventilating through the T-piece.

JOHNSON: The only note we have, I think, is at tile 154, so if we go back to that, please, Mr Murphy.

JAYARAM: So we did a capillary gas.

JOHNSON: Is that "cap gas"?

JAYARAM: "Cap gas." So this suggests -- I mentioned that the level of carbon dioxide gives us a -- in the blood gives us an indication of how well we're ventilating. This gas suggests that actually the carbon dioxide level has climbed. So this, unlike the earlier deterioration, would certainly fit with an issue with how well we were ventilating.

The other thing you have to consider with desaturations is, even if you're ventilating well, if the baby has a relatively low blood pressure and the lungs are relatively stiff, the blood pressure in the lungs is higher than the baby's blood pressure, blood can then bypass the lungs and, even if you're getting oxygen in, it's not being picked up.

That explains -- so when I go through this -- PCO₂, the carbon dioxide partial pressure, was 12.8, which is higher than I'd expect. The pH was 7.07, so the baby's acid levels are up, which fits with the high level of carbon dioxide. Base excess is a reflection of the bicarbonate level. That gives you an idea of whether your body is relying on anaerobic --

MR JUSTICE GOSS: Slow down a bit.

JAYARAM: Sorry. The base excess is a reflection of the body's bicarbonate levels and that gives you a reflection of whether the baby is having to rely on anaerobic respiration and that was actually okay. So this suggested that at this point there was an issue with ventilation of the baby.

"Given 20ml per kilogram saline bolus as mean BP 20."

So blood pressures in babies are difficult to measure. But we generally want a blood pressure, a mean average blood pressure, in a premature baby to be sitting around whatever their gestational age was. So for [Baby K], born at 25 weeks, we would want to aim for a mean blood pressure of around 25. So if a blood pressure is low one of the first responses is we give a fluid bolus. So we give saline, salty water basically, to bolster up the circulation to try and increase the blood pressure.

I did that at this point thinking, well, could this be a situation where [Baby K]'s body blood pressure had dropped lower than the lung blood pressure, to see if that made a difference. But in spite of this, her saturations continued to drop. So I pulled the tube back slightly, again even though I knew from the X-ray the tube was in a good position. I thought pulling it back, will it make a difference, and she responded to bagging at this point.

Now -- sorry, the saturations continued to drop so we pulled the tube out and again just put a mask on with a T-piece and she responded well to bagging back up.

MR JOHNSON: That's bagging without any tube in?

JAYARAM: That's without the tube in. So:

"Tube pulled back to 6cm. Sats dropped further therefore extubated. Responded to bagging. And then was re-intubated with a size 2.5 endotracheal tube by Dr Smith, again 6.5 centimetres at the lips."

And she settled for the next 35 minutes.

Now, at this point --

MR JUSTICE GOSS: Is it 30 or 35?

JAYARAM: Sorry, 30 minutes, sorry.

This particular deterioration, I felt, I remember at the time, was clinically explainable because we'd seen some haziness on one lung field, which suggests that the alveoli were not inflated as well as they should have been. We could see on the gas evidence of a respiratory acidosis, that means the acid levels had gone higher, suggesting -- and with a high carbon dioxide, suggesting it was because we weren't ventilating as well as we could. And then by bagging her back up and re-intubating she then became stable.

That can happen because of issues with the tube blocking, it can happen because of increasing lung disease as well.

And then she was stable for the next 30 minutes.

MR JOHNSON: It's not quite finished, but if we're going to have a break.

MR JUSTICE GOSS: I think we should have a break because Dr Jayaram was speaking more quickly. We'll have a ten-minute break then, members of the jury.

(11.57 am)

(A short break)

(12.09 pm)

MR JOHNSON: Dr Jayaram, we had dealt with the second desaturation and I'd like to turn to the third, but just before we do, if we could go to tile 171, please.

This is door swipe data, which may help you to remember where you were just before this incident. At 07.19 -- do you understand that description?

JAYARAM: Are these in the right order?

JOHNSON: This is, yes.

JAYARAM: So the Longhouse is the building just next to the women's and children's block where our offices are situated.

JOHNSON: Right, thank you.

MR JUSTICE GOSS: So you're leaving maternity to go to the office?

JAYARAM: Yes. My inference from that is at 7.19 I went there because I felt that things were stable and under control. It was 7.19 in the morning. I had a day of work ahead of me. I wasn't

going to go home, so I probably went back to the office just to start cracking on with stuff.

MR JOHNSON: Just before you try to recall what you were doing, if we look at 172 and then 173, we'll see you going through other doors.

So within the same minute, maternity side exit to ops internal door out, and then the next one, please, tile 173, 2 minutes later, back into the neonatal unit.

Okay?

JAYARAM: Yes.

JOHNSON: So with those three recorded movements in mind, does that bring back anything to mind?

JAYARAM: It doesn't, but it would look like I didn't get to the office for very long before I was called back.

JOHNSON: So we come to the third desaturation. Again, first of all, we'll go to the detail of your note at tile 175, but independently of the note what do you remember?

JAYARAM: I have no recollection.

JOHNSON: Okay. Let's look at your note then. There at 7.25, so slowly, please.

JAYARAM: "07.25, mean BP [mean blood pressure] dropped to 14. Given a further bolus of 10ml per kilogram of [intravenous saline] IV saline. After this, saturations increased to 94%."

That would suggest that one of the things behind [Baby K]'s saturations dropping was the fact that her systemic blood pressure was low and by supporting this it took her systemic blood pressure above her lung blood pressure and allowed her and allowed her lungs to be perfused with blood to pick up oxygen to carry back to the heart to take around the body:

"Then a sudden drop in saturations and heart rate dropped to less than 100."

JOHNSON: So less than 100 is not good?

JAYARAM: No:

"Switched to IPPV [intermittent positive pressure ventilation] via the Neopuff."

Now, when the heart rate drops below 100, even though the heart is beating, it's not going to be pumping adequately to get the blood around the body and that's why, as well as starting hand ventilations, taking her off the ventilator, we started cardiac compressions as well. That is to support the circulation and allow blood to get to the lungs and get to the body.

It was noted at this point that the tube, having been 6.5 centimetres at the lips, had moved to 8 centimetres from the lips. So it migrated further down around 1.5 -- well, 1.5 centimetres. We pulled the tube back and the heart rate picked up immediately. So on this situation we didn't withdraw the tube, we ventilated through the tube rather than taking the tube out and using a mask. When we moved the tube back to the position that it had been secured in, the heart rate picked up immediately. That would suggest that if the tube was at 8 centimetres it may well have just gone down one lung and therefore we weren't oxygenating as well as we could have done, and the act of pulling the tube back stabilised things.

JOHNSON: So other than that note, as I understand your evidence, you do not remember anything about this incident?

JAYARAM: At this stage, no.

JOHNSON: Well, I won't ask you further questions because I can't suggest things to you.

If we go to tile 183, please. This is a note made at 7.50, so during the nursing staff's handover; is that right?

JAYARAM: I'd have to take your word, I can't remember exactly what time the nursing staff hand over.

JOHNSON: 7.30 to 8.

JAYARAM: So it would have been during their handover time.

JOHNSON: If we look at the note, please. If we scroll down.

It's the same note but inserted -- a bit further, please. This is the time the note is written then, is it, 7.50?

JAYARAM: I think that will have been the time I wrote it.

Usually, my habit is to put down the time that -- I usually would document "written at", but if I put 7.50 that would have been the time I started writing the note.

JOHNSON: Yes. 17037 is where the -- it's the bottom of page 17037 where we get the time, I think.

JAYARAM: Yes, I've actually said "written at 7.50".

JOHNSON: We did deal with that before the break which is probably why you and I have forgotten. Going back to the note itself then and finishing off a bit further down:

"Stable..."

JAYARAM: "Current situation."

JOHNSON: Is that --

JAYARAM: That would have been at 7.50:

"Ventilation pressures 23/5."

Which is where they were sitting before:

"Inspiratory time 0.4. Rate 50."

But the oxygen requirement had gone up to 70%.

I've said there was good chest wall movement and air entry good, left and right, which suggests the tube was now in a position that there was gas getting into both lungs.

JOHNSON: Yes.

JAYARAM: "Fluids: 10% dextrose, 60 ml per kilogram per day."

Medications, ben pen is benzylpenicillin, which is one of the antibiotics, gent is short for gentamicin, which is the second antibiotic that we give, D1 is day 1:

"Morphine at 20 micrograms per kilogram per hour."

And I said:

"To commence dopamine at 10 micrograms per kilogram per minute."

So dopamine is a drug --

MR JUSTICE GOSS: You're racing again ahead and these aren't simple words. All right?

JAYARAM: All right. Dopamine is a drug from a group of drugs called inotropes. They work to help the heart to pump more strongly and help to maintain blood pressure.

Dopamine is used exactly to do that and in this situation, because [Baby K]'s blood pressure had been lower than I would have liked it to have been, I felt she had needed to have further pharmacological support to help to maintain a good blood pressure and to keep it above the pressures in her lungs to allow the lungs to be perfused with blood.

MR JOHNSON: Okay. Inotropes is a --

JAYARAM: Inotropes is just a -- they are basically drugs that help the heart muscle to pump more strongly.

JOHNSON: Is this the first point at which inotropes are being introduced?

JAYARAM: This is the first point that we've used any kind of inotropic drug. Ordinarily, we would give fluid boluses, as we had done, but if they only give you temporary respite and you deteriorate again then we'll move up to inotropic drugs.

JOHNSON: The next underlined word is what, please?

JAYARAM: "Results."

JOHNSON: Yes.

JAYARAM: "CRP less than 1."

So CRP stands for C-reactive protein. This is a protein produced by the liver in response to infection and it's one of the indirect markers of infection that we look for. A CRP of less than 1 in the first day of life doesn't mean there's not infection around because the response can lag behind. A CRP that's high in the first day of life certainly suggests infection.

So that doesn't mean there was no infection and we could stop considering infection, but it suggested there was nothing at the moment that gave us that information that there definitely was:

"Hb 175."

So haemoglobin, that's the red cell count, and in newborns usually between 160 and 200 is normal. So the baby had enough circulating haemoglobin, there was no evidence of any anaemia, no indication to give a blood transfusion.

JOHNSON: And the relevance of haemoglobin in this context is that it is the oxygen-carrying --

JAYARAM: It carries oxygen around the body.

PLTS, platelets. Platelets are cells in the blood that help the blood-clotting mechanism and a platelet count of 129 is well within the normal range. In overwhelming infection you can get low platelet counts, but the absence of a low platelet count doesn't mean infection isn't around.

And the white cell count is 10.4. White cells are the blood cells that fight off infection and 10.4 is in the normal range. In newborns they can sometimes have a high white cell count with infection, they can sometimes have a low white cell count with infection, and sometimes it can be in the normal range. So it's important to look at but there wasn't anything there that caused alarm.

The next line says "lines". So a peripheral line in the right arm, that was a normal venous cannula that was in the right arm, and the UVC. So that's around venous access.

At the point I wrote this, in terms of CVS, her cardiovascular system, her blood pressure measured on her leg had a mean blood pressure of 25 millimetres of mercury.

Her capillary refill --

MR JUSTICE GOSS: Just pausing there, does it say "leg cuff"?

JAYARAM: Leg cuff.

MR JUSTICE GOSS: So it's done by a cuff?

JAYARAM: It's a cuff because we didn't have an umbilical arterial catheter in.

Capillary refill, that is where we push over the sternum for 5 seconds, and take our finger away and see how long it takes for the colour to come back, and that was less than 2 seconds.

Heart rate is 130 and "reg" is regular.

MR JOHNSON: The next page then, please, Mr Murphy.

Scrolling down.

JAYARAM: "Abdomen soft."

JOHNSON: That's a positive sign?

JAYARAM: Yes, it's a positive sign.

Chest X-ray, I have commented the tube position was good, the left lung field was hazy, as had I documented before, and I updated the transport team.

JOHNSON: Is that P for plan?

JAYARAM: Sorry, it says "awaited", sorry:

"Plan: transport team awaited, due 0830 hours."

And then my signature and role.

JOHNSON: Thank you. The next tile on which you feature is tile 190, please. This is just door swipe data which shows you going -- this is the one that's the wrong way round -- back into the neonatal unit at 8.29.

JAYARAM: Okay.

MR JUSTICE GOSS: No, is that right? If these are the wrong way round, into the maternity ward from the neonatal unit.

MR JOHNSON: Sorry.

JAYARAM: So maternity ward 29 is actually the children's outpatients department, which is adjacent to the neonatal unit, and there's a swipe door that goes through. So I would probably have gone that way to walk through back to the Longhouse --

JOHNSON: Yes.

JAYARAM: -- at 8.29.

JOHNSON: Yes.

MR JUSTICE GOSS: So whatever it is, you're leaving the neonatal unit?

JAYARAM: That's me leaving the neonatal unit.

MR JOHNSON: Sorry.

At tile 200, according to the neonatal transport team, they were at the Countess of Chester Hospital and you were handing over?

JAYARAM: That's correct.

JOHNSON: Does that involve a face-to-face --

JAYARAM: It's usually a face-to-face discussion and it would have been on this occasion.

JOHNSON: You documented that yourself at tile 203. So that's what we've just looked at at the top of the page. 9.15.

Could you read again please your writing?

JAYARAM: "Seen with Dr Anand, transport team consultant."

He'd suggested for dobutamine, 10 micrograms per kilogram per minute, in addition to dopamine; that's a second inotropic drug.

JOHNSON: So this is to support --

JAYARAM: To support the blood pressure, to support heart function. He'd suggested giving a second dose of Curosurf, and increasing the total fluid volume to 100ml per kilogram per day from 60ml per kilogram per day, and for a peripheral arterial line.

So we talked about the umbilical arterial catheter that was difficult to access. He'd suggested that a peripheral arterial line, which is usually put in to the wrist, so the pulse you can feel at your wrist, the radial pulse, and that's a cannula that goes in there that can then be used for blood gas sampling and direct monitoring of blood pressure.

JOHNSON: Just two questions while you're here to answer them.

Just about an inch or two above where the cursor is at the moment -- no, down a bit, please. Down and to the right. That is an upward arrow, is it?

JAYARAM: Yes, representing increase. It's an upward arrow.

JOHNSON: Thank you. And the squiggle, top left?

JAYARAM: I have -- that's me being tired after being up all night.

JOHNSON: That's all right.

JAYARAM: It's of no significance at all.

JOHNSON: Just from experience, if we don't deal with these things, someone may ask, so while you're here we ask you. So that's that tile.

I think you wrote then a prescription for the surfactant at 205 and 206. I don't think we need to click on that. The jury have that information.

With that as my final question, would you remain there, please, Dr Jayaram, for some further questions from my learned friend? Thank you.

Cross-examination by MR MYERS

MR MYERS: Dr Jayaram, you are a paediatric consultant, aren't you?

JAYARAM: That's correct, yes.

MYERS: Have you worked at the Countess of Chester Hospital since December 2004?

JAYARAM: That's correct, yes.

MYERS: Have you been the lead clinician there since April 2009?

JAYARAM: I took over as lead clinician -- it was called at the time clinical director -- in April 2009, and relinquished that role, I think, in December 2018.

MYERS: So you were the lead clinician at the time of the events in February 2016?

JAYARAM: That's correct.

MYERS: And in fact over the period of 2015 and 2016?

JAYARAM: That's correct.

MYERS: The lead clinician is a role occupied by a senior consultant within the paediatric department, isn't it?

JAYARAM: The role of the lead clinician is very much a managerial role. It doesn't indicate experience or status in terms of our clinical roles; we do our jobs and we are all equal. What it means is that the lead clinician gets involved with discussions with management around staffing, funding, processes, and brings back and discusses management plans with the clinicians.

I was the lead clinician for the paediatric unit and another colleague of mine was the specific lead clinician for the neonatal unit.

MYERS: The lead clinician for the neonatal unit was Dr Stephen Brearey; is that right?

JAYARAM: That's correct.

MYERS: As lead clinician in your role, you were essentially the admin lead for the department, weren't you?

JAYARAM: It's a managerial role as a lead clinician.

MYERS: That means the lead clinician covering also the neonatal unit, doesn't it?

JAYARAM: Ultimately, yes. The role of the neonatal lead had exponentially increased in workload and Dr Brearey and I, as peers, worked together. Nominally, on paper, Dr Brearey reported to me.

MYERS: As lead clinician the type of things you might have responsibility for were funding?

JAYARAM: Funding, issues around guidelines, governance, investigating incidents, making business cases for expanding parts of the service, making sure that we could, with our managers, balance budgets. A lot of stuff, a lot of jobs.

MYERS: Investigating incidents, you say?

JAYARAM: Ultimately, things would come to me, but we have -- in the neonatal unit Dr Brearey, as neonatal lead, was responsible for incident management and I had a colleague who was responsible for incident management on the children's ward. Ultimate responsibility would stop with me.

MYERS: I only identify that because that's something you said, you volunteered that, Dr Jayaram.

JAYARAM: It's nominally as head of department the buck stops with you.

MYERS: And risk management as well?

JAYARAM: The buck stops, yes.

MYERS: With you?

JAYARAM: With me -- well, at departmental level, but it would go further up the trust hierarchy.

MYERS: Can we put up tile 49, please? These are your clinical notes or some of them. Can we go behind the slide to the papers?

You've been through these with us in detail, Dr Jayaram, and the members of the jury and all of us have seen them quite a few times now. So I'm going to go down, please, to the bottom of the page. Thank you.

Was Dr Smith intubating [Baby K] under your guidance?

JAYARAM: He was, yes.

MYERS: And you started with a 2.5mm ETT, didn't you?

JAYARAM: That's correct.

MYERS: You started with the one that you believed would be the optimal one to use, didn't you?

JAYARAM: It would be the ideal one, yes.

MYERS: The ideal one. Why is a 2.5 better than a 2? Why is it ideal (overspeaking) --

JAYARAM: Ideally you want as wide a bore a tube to ventilate through as you can. Obviously, if it's too wide you run the risks of actually sort of causing compression complex of the airway and causing damage. If it's too small then it's difficult to ventilate through it.

Given that the initial attempts couldn't get a 2.5 down we don't know -- it's difficult to know why that was. It makes sense, when you're trying to intubate, to try a slightly smaller tube because one of the problems might be that the tube could be too wide, hence the decision ultimately to switch to a size 2 at the third attempt.

MYERS: (Overspeaking) --

JAYARAM: A size 2 in a baby of this age should be adequate to ventilate through however.

MYERS: If the tube is too small does that, amongst other things, increase the risk of having, for example, an air leak on the ventilator?

JAYARAM: Well, the air leak on the ventilator, as I discussed, is a calculated value. It obviously makes sense, from the point of view of the mechanics of it, that if you've got a tube in a hole and the tube is smaller there's a wider gap around the tube and therefore there's more likely to be a leak. But the leak itself is a calculated value.

It means that there's potentially increasing -- it could be potentially more difficult to ventilate with a smaller tube. But as discussed, with [Baby K], even with a size 2 tube, her ventilatory requirements were not excessive and were stable.

MYERS: Sorry, Dr Jayaram, it may be me but I just want to ask the question so I can hear the exact answer: if the tube is too small, does that increase the risk of a leak?

JAYARAM: It does.

MYERS: It does. When you were trying to use a 2.5, do you recall how many efforts there were to use the 2.5 before you switched to the 2?

JAYARAM: I can't remember whether we switched at the second or third attempt.

MYERS: If the 2.5 is ideal, why didn't you take over and do it instead of Dr Smith?

JAYARAM: A couple of reasons, really. Dr Smith is an experienced trainee. It is important, as part of what we do in our role, to support our trainees to gain skills. In this situation, because [Baby K] had been successfully resuscitated, she was oxygenating adequately with T-piece ventilation, this wasn't an urgent procedure.

The reason that I let James continue -- and I always discussed this with the trainees, I always say, "Do you want me to continue", or if I feel that the trainee is clearly not going to be able to do it, I will take over, or if the baby is unstable and deteriorating, I will take over. I have to make a judgement.

One of the reasons for going for a 2 and letting James Smith do it is the fact that with a 2.5, it made just have been at that time that a 2.5 for [Baby K] would have been too big and not able to pass through the cords. That was the rationale for carrying on with the 2. I could have taken over and I might have had the same issue at that time with the 2.5.

We know subsequently with when she was re-intubated we managed to get a 2.5 in, but at that time, because obviously I can't see what the intubator can see down the laryngoscope, and if it's not going through the cords it makes sense to try a smaller tube.

I certainly agree that I could have taken over, I might well have had the same issue of getting a 2.5 down as well and ended up putting a size 2 down. What's important is with the size 2 we managed to ventilate her.

MYERS: The tissues in the area of the throat, the trachea where the ETT goes, are very delicate in a neonate, aren't they?

JAYARAM: That's correct.

MYERS: And there has to be particular care not to cause any trauma, doesn't there?

JAYARAM: That's correct.

MYERS: And trauma, by which I mean maybe only minor injury, can easily occur, can't it?

JAYARAM: It can.

MYERS: And that can lead to bleedings -- bleeding in that area?

JAYARAM: It can.

MYERS: And secretion?

JAYARAM: It has the potential to cause bleeding. If we use a laryngoscope correctly then the risk of trauma is minimal. There didn't seem to be anything here that suggested any trauma, there was certainly no bleeding noted.

MYERS: Well, there's no bleeding --

JAYARAM: And at subsequent intubations, it was not difficult to intubate -- because if you've caused trauma you'll generally get swelling of the tissues around there and intubations will become difficult.

MYERS: There's no bleeding noted anywhere in the clinical notes, is there?

JAYARAM: No.

MYERS: I'm going to ask about surfactant, Dr Jayaram.

Surfactant should be given to a premature neonate like [Baby K] as soon as possible, shouldn't it?

JAYARAM: Ideally.

MYERS: Ideally. Certainly within about 5 minutes, if you (overspeaking) --

JAYARAM: I would disagree with that. I think ideally in the first half hour. I think [Baby K] got this at 35 minutes.

So it doesn't have to be within the first 5 minutes at all.

MYERS: Don't you think that at the latest it should be within 5 minutes of intubation?

JAYARAM: No, I wouldn't say -- as soon as possible, ideally, but it depends on the circumstances. And actually what's important in this situation, given the condition [Baby K] was in when she was born, was actually resuscitating her and establishing her circulation and establishing her respirations.

MYERS: I just want to be clear --

JAYARAM: Surfactant certainly could have been given earlier but if the implication that you're leading to, Mr Myers, is that surfactant being given at 35 minutes had an impact on subsequent events, I'm not sure that I would agree with that.

MYERS: I just want to check something and I'm going to ask if -- there's a record of the evidence that was given on the last occasion that you gave evidence, Dr Jayaram.

We can go to that if, it helps perhaps prompt you or our recollection, and it's something that in the first instance, you'll be able to see and his Lordship and the lawyers -- it's your evidence that matters, so ladies and gentlemen, you don't get that, you get to hear what Dr Jayaram says about it. Sometimes you may see it, but normally it's for the witness to see, just to refresh their memory.

I'm going to ask if you could be shown page 141 from Day 79. I think this is the first trip to the transcripts for you, Mr Murphy. This is for his Lordship, the lawyers and Dr Jayaram.

28 February 2023.

(Pause)

Dr Jayaram, can you see typescript on the screen?

JAYARAM: I can, yes.

MYERS: I'm going to ask if we can go down. There's line numbers on the left-hand side. There is on my copy, there isn't on yours, I see. Can we go down towards the bottom part of the page?

(Pause)

Is this the transcript for 28 February, Day 79?

(Pause)

We'll check. It isn't in fact. I don't know how it comes to be this. Take that down. I'll simply put to you the question and

answer and remove the mystery, my Lord, and we'll check this afterwards. It's probably not the last time we'll go to the transcripts.

MR JUSTICE GOSS: I've got access to it but not presently because I don't have my laptop.

MR MYERS: The question I asked you on that occasion was:

"Surfactant should be delivered within certainly, at the latest, 5 minutes of intubation, shouldn't it?"

Your answer was:

"Ideally, yes."

JAYARAM: I said ideally, but it doesn't have to be. Ideally.

MYERS: And you agree, ideally, it should be as soon as possible, shouldn't it?

JAYARAM: In an ideal world. You can't give it unless you've got a tube down.

MYERS: In your clinical notes, and we're going to tile 55, please -- if we can go back to T49, please. Down to the second page. Scroll down, please.

Pause there. We can see you've got surfactant at 2.45, haven't you, Dr Jayaram?

JAYARAM: That's correct.

MYERS: Now, we know, as it happens, we've got two times for intubation we've seen. In the nursing notes it says intubation at 12 minutes and in your notes, the ones you have seen, it says at 20 minutes. If surfactant is at 2.45, that means it's at least 13 minutes after intubation and maybe 20 minutes after intubation.

JAYARAM: Yes.

MYERS: For a baby like this, where respiration is difficult, that is sub-optimal, isn't it?

JAYARAM: It's not ideal. But we also had a situation where, even before surfactant, we weren't needing high pressure ventilation, we were in 50 to 60% oxygen, which is high but manageable, and if we'd had difficulty with ventilation and she was, for example, needing 100% oxygen, we'd have probably given the surfactant sooner.

It is better to do these in an elective planned way.

Now in an ideal world you'd have the surfactant ready at delivery, get the tube down, give it.

[Baby K] came out quite suddenly and, I wouldn't disagree, we could have given it earlier. What I would disagree with is that it had an impact on outcome because, at latest, it was given at 33 minutes old.

MYERS: According to your note, we have it at 02.45; is that right?

JAYARAM: That's correct.

MYERS: We know this note was written up at about 4.50 that morning, wasn't it?

JAYARAM: Yes.

MYERS: And is 02.45, as far as you can tell, an accurate time?

JAYARAM: Yes. That's probably -- I wouldn't have written there.

MYERS: I'm going to ask, just to help us with this, can we go to tile 62, which is the formal prescription record for surfactant. Tile 62. If we go into that, please, Mr Murphy. We can see at the top of this page, this is the reference to the surfactant.

JAYARAM: Yes.

MYERS: We can see it's for [Baby K].

JAYARAM: Yes.

MYERS: I just want to scroll down to the administration history detail. If we look in that section there, we can see it says "administered"; can you see?

JAYARAM: Yes.

MYERS: It says "17 February, 03.00".

JAYARAM: I can see that.

MYERS: We can see the user is WILLJ.N and that's Nurse Joanne Williams?

JAYARAM: Yes.

MYERS: And also co-signed by Dr Lo?

JAYARAM: Yes.

MYERS: Are you familiar with how these prescriptions are completed on the system?

JAYARAM: Well, looking at the way it looks, this looks like it was entered -- and I have to say I'm not familiar with how the Meditech system works, but where it says 05.44, that looks like the time it was actually entered on to the system. So I think that that time of 03.00 hours was probably entered at that time, which is after I'd written my notes.

MYERS: If I suggest 03.00 is the time at which that is populated, it's populated as the medication is administered, would you disagree with that?

JAYARAM: Well, I just don't understand why it says scheduled at 05.44 if that's when it was populated. And again, I...

That, to me, suggests that the electronic prescription was done at 05.44 retrospectively, and that ties in with the note in the notes of the surfactant being given as well.

MYERS: Which notes?

JAYARAM: In the clinical notes there's a comment -- I don't think it was written by me -- that retrospectively documents the surfactant being given. I think that was written later on as well.

MYERS: Let's just be clear. If we go to tile 154, so the jury can see what you're talking about, Dr Jayaram. Can we just scroll down? That's what you're referencing to?

JAYARAM: Yes.

MYERS: You see that, 05.40?

JAYARAM: Yes.

MYERS: So you're raising whether or not that prescription was actually entered retrospectively?

JAYARAM: Yes.

MYERS: 03.00 is approximate?

JAYARAM: That's what I'm suggesting, yes.

MYERS: All right.

JAYARAM: I guess you'd probably have to ask one of the nurses because they put those entries in.

MYERS: Yes.

MR JUSTICE GOSS: Sorry, can we just look at this?

Obviously you have no direct knowledge of this, you're just looking at a note like we are. Left-hand side:

"Written in retrospect, 05.40."

Then the Curosurf, the batch number -- two batch numbers.

JAYARAM: It looks like they spilt one of them.

MR JUSTICE GOSS: One was spilt, so that's why there are two, all right. There's no note of actually when it was given?

JAYARAM: No.

MR JUSTICE GOSS: But there is on the typed --

JAYARAM: Yes. Looking at the screens we were looking at before, and again I don't know, because I'm not that familiar with how that system works for the nurses putting it in, it would suggest to me it was put on to the system at around this time and then the time of administration was put in. So I wrote 2.45 in my notes that I wrote at 4.50, which was written before this, but again I couldn't say for sure.

MR MYERS: Right. Can we put up tile 86, please, Mr Murphy?

We'll go into this to look at the IC chart and we're looking at the question of the air leak, Dr Jayaram.

JAYARAM: Yes.

MYERS: We're looking at the left-hand side of the chart. We've all seen this a number of times now. We can enlarge it so you can see it and we can all follow it.

Just looking where it says "leak 94", do you see that?

JAYARAM: Yes.

MYERS: Looking at that as it presents, that is a high leak, isn't it?

JAYARAM: As discussed before, it's a high leak. That's a calculated value. It tells you that were we having difficulty with ventilation, an option that should be undertaken would be to put a wider bore tube in. Having said that, as I discussed earlier, at this stage [Baby K]'s ventilator settings were 21/5, her chest was moving well, she had good air entry and she was oxygenating well. So actually, the purpose of the tube is to help get gas in and out of the lungs and deliver pressure to the lungs. What was coming out of the end of the tube was enough to do the job we needed to do.

I would never just treat a number given that intubation is a procedure that has risks as well as benefits. I would not have felt, and I still feel, it would not have been appropriate at that moment in time, given the wider clinical picture, to electively re-intubate with a bigger tube.

Had there been a different clinical situation, absolutely, that would have been something to consider and do. But at that point the benefits of doing it I wouldn't feel were particularly great.

MYERS: A high leak may indicate that you need a larger tube?

JAYARAM: That's what we've just said. It might indicate you might need a larger tube, but the tube that was in was doing exactly the job that it needed to do.

MYERS: Of course you need to look at the whole clinical picture, don't you, to assess?

JAYARAM: Yes, that's correct.

MYERS: As it happens you didn't look at this clinical picture at the time, did you?

JAYARAM: Well, the baby was stable, so I knew that the ventilator settings were where they were, I knew the saturations were good, I knew that if there was any deteriorations the nurses would flag it up -- actually, when you look at the rest of the observations at this time there wasn't really anything to suggest anything of concern.

MYERS: Was the leak brought to your attention, Dr Jayaram?

JAYARAM: I can't remember.

MYERS: Does it appear --

JAYARAM: It may have been. If it was I would have probably said, given the reasoning, exactly as I have done now, not to electively do anything.

MYERS: There's no reference to it in your notes, is there?

JAYARAM: No, it's not something that I would have considered important, even if it was brought to my attention.

MYERS: You wouldn't have considered it important?

JAYARAM: Well, because the baby was stable. If I'd been called at 3.30 because, for example, chest movement wasn't good or oxygenation was going up or we were having difficulty with the ventilation, it would absolutely be something to consider, or if we were having to get higher and higher pressures needed to ventilate without the chest moving, then clearly it's important. But actually we don't treat numbers, we treat the whole baby. And all of these observations -- any single one clinical observation, any single one finding has to be put in the bigger context.

MYERS: Breaking this down, we've been through your notes, haven't we, in detail? We can agree there's no reference to an air leak in there, is there?

JAYARAM: No, and I think if you look at clinical notes for most babies we wouldn't really talk about a leak -- and I wouldn't call it an air leak, air leak is a term we use in medicine to refer to a hole in the lung causing a pneumothorax. I would say it is a sort of air leak around the tube.

MYERS: And you have no recollection of inspecting the machine or [Baby K]'s condition with regard to this, do you?

JAYARAM: No, because there wouldn't be an indication just because there was a leak. I would have inspected her condition if it had been flagged up to me that there was anything untowards by the nurses.

MYERS: And we know, when we look at the next set of readings for 4.30, by that time [Baby K] had been fitted with a larger, wider ETT, hadn't she?

JAYARAM: That's correct.

MYERS: And there is no leak at that time?

JAYARAM: There's no leak, but interestingly she's on exactly the same ventilator settings as she had been previously, which suggests that actually the size 2 tube was actually good enough

to deliver what was needed into her lungs. The only thing that's changed by increasing the diameter of the tube is the leak has decreased, we have a smaller number on a page. The only advantage of that is that also then in terms of measuring the expired tidal volume we had a more accurate reflection but, again, in terms of -- clinically, in terms of her clinical condition, changing to a bigger tube hasn't actually reduced her ventilatory requirements, so in the sense, if the tube was causing a problem, you'd anticipate that if you put a bigger tube in, assuming her lung condition had stayed the same, you wouldn't need to give as much pressure down the tube because more would be getting to the lungs. So in this situation, I think you're absolutely right, there's a bigger tube and no leak, but clinically I don't believe that's relevant.

MYERS: In between where we have leak 94 with a 2mm tube and no such leak when we have a 2.5mm tube in, between that there was instability wasn't there?

JAYARAM: There was the acute deterioration, yes.

MYERS: Yes. Which was corrected, amongst other things, after the tube had been changed to a 2.5cm (sic) tube?

JAYARAM: That's correct.

MYERS: So in fact what we do have -- you've said repeatedly, "Well, if things are stable there's no need to change anything", as it happens there was instability (overspeaking) --

JAYARAM: It was a very acute instability and this is the difference. We talk about stability -- generally, if a baby is deteriorating to the point where something acute happens, you will see trends beforehand. You will have seen a gradually increasing oxygen requirement, reducing chest movement, increasing ventilatory requirements. In this situation, up until the point of the desaturation, there had not been anything flagged up. And actually, the nurse looking after the baby, Jo Williams, was comfortable that [Baby K] was stable enough to actually go and talk to her parents next door.

She hadn't flagged up to me any concerns about instability.

Obviously, when something acute happens clearly that's not stability, but we're talking about the events leading up to things. There was nothing here that would have suggested that that event was likely to happen at that time. Whereas other times -- so if there'd been a history, for example, of increasing oxygen requirements, reducing saturations over a longer period of time then, absolutely, that would have been a consideration.

MYERS: Do you agree that if [Baby K]'s actually doing work for breathing herself, that may keep her oxygen levels high even if not all the air is getting through that should?

JAYARAM: I'm sorry, can you rephrase? I didn't understand the scientific principle.

MYERS: Do you agree if [Baby K] is actually breathing for herself along with being ventilated, her efforts to breathe may actually be getting air in that keeps her blood saturated?

JAYARAM: I don't think that's correct, to be honest. [Baby K] will have had potentially some breathing for herself but in a poorly 25-week gestation baby, her ventilation was being done by herself -- I don't believe that she would have been breathing on top of that herself, particularly with a rate of 50 from the ventilator to support what was coming through the ventilator.

MYERS: If she was having to do work self-ventilating, that would add strain to her body, wouldn't it?

JAYARAM: But she wasn't having to, so I don't really understand your question.

MYERS: I wonder if you could just answer it. If she was having to do work for herself to self-ventilate, that would add strain to her body, wouldn't it?

JAYARAM: Yes, and that's why we ventilate babies so they don't have to do that.

MYERS: When do you say, if you can, that morphine was first given to [Baby K]?

JAYARAM: I was originally under the impression that she'd already started a morphine infusion at the time of the acute desaturation. Having been through the notes and seen other charts, I know it was written up and I know it was taken out of the cupboard at 3.30 and it was -- I put the time started at 3.50 on the charts, which was after the initial desaturation. I don't know whether it was started before or after. Initially I thought it had been.

MYERS: Do you agree that when you made your first statement about this to the police --

JAYARAM: I agree, I know the question. So when I made my initial statement --

MYERS: Just to makes sure there's no misunderstanding, could I have a chance of asking it?

JAYARAM: Go on.

MYERS: When you made the statement on 17 April 2018 to the police, at that point you were suggesting, weren't you, that she was sedated and that made it less likely that she could have moved and dislodged the tube? That's what you were suggesting then, wasn't it?

JAYARAM: That's correct. At that time, when I made that statement, I was of the belief that she was already on a morphine infusion.

MYERS: Yes, and that belief was part of what you relied upon in saying to the police why it was that you believed maybe the tube had been interfered with by someone else?

JAYARAM: That was partially one of the contributions to that.

However, in my experience, and given the tube we know was in a very good position, even in a very active 25-week gestation baby, which [Baby K] wasn't, the chances of a baby -- with a well-secured tube, the chances of a baby dislodging a tube spontaneously are minimal.

They are even less with sedation, but 25-week gestation babies are small and fragile and not particularly strong.

MYERS: I'm doing it step by step, Dr Jayaram, dealing with the morphine bit at the moment.

Let me ask you this: you said that whatever you initially said in your statement, you then had seen the papers or the records; yes?

JAYARAM: Yes, that's correct.

MYERS: Seeing them raises a question mark, doesn't it, over whether she actually was sedated --

JAYARAM: That's correct.

MYERS: -- at the time of that first intubation?

JAYARAM: That's correct.

MYERS: I want to ask you something about one of -- what your, as he was at the time, more junior colleagues said about this, not because I'm asking you to comment on his evidence, but on a

matter of clinical practice. I'm talking about Dr Smith and I want to see if this is your understanding. Dealing with the question of whether [Baby K] would have been given pain relief before intubation, sedative pain relief, the explanation we have is that:

"A neonate like this would not, as a rule, get that before intubation."

That's yesterday's LiveNote, page 32. First of all, is Dr Smith right about that? I'm not asking you to comment on his evidence, it's the clinical practice.

JAYARAM: It's clinical judgement. It's absolutely clinical judgement. At the initial intubation immediately after birth at resuscitation, we would never consider that.

In a baby who is on the unit having subsequent intubations -- certainly when I first started in neonatology in 1992, when I first started neonatology, we never used intubation drugs at all and we just put the laryngoscope down and let the baby struggle.

More and more practice now is towards thinking about the overall well-being of the baby and it's accepted practice that even in a more premature baby with a semi-elective or semi-urgent intubation we would consider, unless it was a life-or-death situation, where if you couldn't get a tube in, you didn't have an airway, we would consider it best practice to give some kind of sedation -- and sometimes we use muscle relaxant medication as well.

MR MYERS: Just pausing, my Lord, I'd be grateful if I can finish this topic. It'll probably take several minutes.

MR JUSTICE GOSS: We'll adjust the lunch break accordingly.

MR MYERS: Thank you.

So I want to be clear about this: is this right, as of 2016, with a neonate like [Baby K], you don't give medications before intubation? It's different from adults in the sense because adult intubation or child intubation you're always going to give medication to relax, like a muscle relaxant or morphine for pain relief, but in an initial resuscitation intubation you don't give medication, you just intubate?

JAYARAM: In initial resuscitation, so absolutely correct.

I agree with Dr Smith that when the baby has been delivered and you're in the delivery room and you need to intubate, we wouldn't use any medication. If the baby was vigorous enough to

fight intubation you could probably defer intubation until you were on the unit and then think about medications to sedate and/or muscle relax them as well. So absolutely correct. On an initial intubation at delivery we wouldn't consider using any kind of drugs, any subsequent intubation, unless it was in a situation where you needed to secure an airway ASAP and usually in those babies they would be moribund and you wouldn't need to give anything to sedate them anyway. It is best practice all round to actually give something to make the process less unpleasant for the baby.

MYERS: And that is certainly what you were conveying to the police in that initial account in April 2018, wasn't it?

JAYARAM: Yes.

MYERS: Yes. Can we go to your prescription document at tile 104, please, Dr Jayaram. Can we go to the actual document, please, Mr Murphy?

We've looked at this several times so I'll go straight to the point. Do you agree that that would suggest that this infusion starts at 03.50?

JAYARAM: That's correct.

MYERS: So that would appear to be the time that it begins?

JAYARAM: Yes. It was somewhere between 3.30 and 3.50, no later than 3.50. But it says "time started", so I'm guessing that's when the nurses put it up from what I've written.

MYERS: Again we'll deal with the transcript over lunchtime if we go, but for everyone's record at page 81, the same record of evidence on 28 February last year, dealing with this, you were taken to this chart and this was said to you:

"Question: We can see there the date, the time, the rate. Can you see your signature?

"Answer: I can see my signature, yes.

"Question: Are those details in your hand?

"Answer: That's my writing, yes, absolutely."

"Question: So that would have been the infusion, the time that you understand the infusion to have started?

"Answer: Looking at that, yes, absolutely."

And your answer was, "Yes, absolutely", to the question about the time the infusion would have started.

JAYARAM: Yes.

MYERS: And that is what that shows, isn't it?

JAYARAM: The only reason I'm casting some doubt on that is there was a 3.30 stated as well, but I think that was probably the time that it was taken and signed out of the controlled drugs cupboard. Just thinking through the timeline, that 3.30 was before the acute desaturation, the 3.50 was just after that, so --

MYERS: We can assist with that. We've seen what you said about that, about it being the time it started, "Yes absolutely". Now let's, to complete this, look at tile 84, which is the control book. Pop into that, please.

We can see there -- do you see the first line that isn't redacted:

"03.30, FI [Surname of Baby K]"?

JAYARAM: Yes.

MYERS: You have seen this, haven't you? You've been asked about this?

JAYARAM: That's correct.

MYERS: And shown this by the police taking another statement, haven't you?

JAYARAM: Recently, yes.

MYERS: Yes, recently. With regard to that your opinion is this, isn't it, Dr Jayaram, looking at that, it appears the morphine was signed out from the storage at 03.30 and the infusion was commenced at 03.50; that's what you can see, isn't it?

JAYARAM: Yes.

MYERS: That's what you say?

JAYARAM: Yes.

MR MYERS: We can stop there, my Lord. I apologise for running just over lunchtime.

MR JUSTICE GOSS: That's fine. Thank you very much. We'll break off. The usual rule applies, to which I referred yesterday afternoon when we had the overnight break.

Could you be ready, please, to continue at 2.15, members of the jury? Thank you. Remember your responsibilities as jurors: no research, no communication by any means about anything to do with this case.

(In the absence of the jury)

MR JOHNSON: Your Lordship will know from the running order that we have two further witnesses slated for today, but we're going to dispose or put over to tomorrow one of them because we don't think --

MR JUSTICE GOSS: Discuss it with Mr Myers.

MR JOHNSON: We have.

MR JUSTICE GOSS: All right. I was anticipating there might be some adjustment. Thank you very much.

(1.06 pm)

(The short adjournment)

(2.15 pm)

(In the presence of the jury)

MR MYERS: Dr Jayaram, today in your evidence you've suggested it might take up to 2 minutes for a baby to desaturate to the point at which you say [Baby K] was desaturating when you entered the nursery, don't you?

JAYARAM: Yes.

MYERS: I'm going to suggest to you that is an exaggeration on how long it's likely to take; do you agree or disagree?

JAYARAM: Well, as I said earlier, we know that when we intubate for safe intubation, we stop the procedure after 30 seconds because from that time you are likely to desaturate. Depending on how well oxygenated you were to start with will depend on how long it takes to desaturate.

MYERS: Do you agree that you previously put the period as at least 30, at least 60 seconds, but not given any higher value?

JAYARAM: Sorry?

MYERS: Okay. Could we just show you the relevant page from your interview with the police as a witness on 4 April 2018. It's page K9662. Let's have a look at this. It'll come up on the screen for his Lordship, for the lawyers and for you, Dr Jayaram.

This is a page from longer interview on 4 April 2018 when you were setting out your account. I'm going to ask you just to look at the passage there from the centre of the page.

JAYARAM: I have said:

"I would say it had to be at least (inaudible) symptom, probably at least 60 seconds before I walked in."

MYERS: All right. So there you were saying at least 30, at least 60; yes?

JAYARAM: Minimum.

MYERS: All right. We can take that down. Starting at the higher end of the equation, nowhere there are you talking about up to 2 minutes, are you? Nothing like that?

JAYARAM: Because it was unlikely -- the question I was asked by the prosecution barrister was a sort of absolute maximum. It would usually be 30 to 60 seconds.

MYERS: You've reached for 2 minutes, I'm going to suggest, as a way of deliberately exaggerating a detail to the detriment of Ms Letby.

JAYARAM: That is your opinion, Mr Myers. I would disagree with that.

MYERS: A desaturation to the mid or even the low 80s can happen in seconds, can't it?

JAYARAM: Well, it depends what you mean by "in seconds". It has to happen after a period of not enough oxygen getting into the lungs. So if you have enough oxygen getting into the lungs then, assuming the desaturation is due to hypoxia, you won't desaturate. If oxygen stops getting into the lungs or into the lung circulation around the body, you have a period where you will maintain your oxygen saturations and when they drop, they drop slowly and they drop increasingly rapidly.

MYERS: (Overspeaking).

JAYARAM: So yes, at the point that they drop they can drop quite quickly.

MYERS: The observable readings on the monitor may indicate a drop from an acceptable level to the mid to low 80s within seconds and by that I am meaning certainly less than 20, less than 15.

JAYARAM: I'd accept that, depending on at what point not enough oxygen started getting into the lungs.

MYERS: If you accept that, why in your evidence to the prosecution did you go for figures like 30 seconds, 60 seconds or not longer than 2 minutes?

JAYARAM: Because when I walked in and the saturations were down, it means that there must have been a period of at least 30 seconds, at an absolute minimum, of ventilation not happening, of oxygen not getting into the lungs, because you don't see the desaturation immediately. Hence that timing of 30 seconds -- if that desaturation had happened the moment the tube had come out -- if I'd walked in the moment the tube was misplaced, if it had happened say 10 seconds, 20 seconds, 30 seconds after that time, I wouldn't have seen desaturation at that point, so the tube must have been out for a longer period before I walked in for the desaturation to happen.

From the point you start desaturating, absolutely, I wouldn't disagree it happens quite quickly, but you wouldn't see a desaturation starting the moment that the tube was dislodged or blocked or whatever else happened with ventilation.

MYERS: Whether or not the tube is dislodged, or whatever is an issue in this, Dr Jayaram, you know that, so let's look at the question of what can cause desaturation.

I am going to suggest some options and you tell me if these are correct.

JAYARAM: Okay.

MYERS: Lung disease can cause a baby to desaturate?

JAYARAM: Yes, we know that with surfactant deficiency respiratory distress syndrome, the basic problem is that the alveoli collapse down and exchange of gas in the airways, so exchanges of oxygen into the bloodstream in the lungs and carbon dioxide out, is impaired. So lung disease absolutely can cause low oxygen saturations.

However, surfactant deficiency lung disease in itself shouldn't cause a very rapid desaturation.

You will see, over a period of time, as lung disease develops, that the oxygen requirement needed to maintain saturations will gradually increase, which didn't appear to have been the case in this situation.

MYERS: I'm simply asking you what the options are at the moment.

JAYARAM: Yes, I'd agree that is an option.

MYERS: I'll make it plain if I'm giving any suggestions to you.

JAYARAM: I just wanted to give a little bit of context.

MYERS: RDS is that respiratory (overspeaking) --

JAYARAM: Respiratory distress syndrome.

MYERS: That can be a cause of desaturation, can't it?

JAYARAM: That's pretty much what you asked before: respiratory distress syndrome is the condition that premature babies have due to surfactant deficiency and, similarly, with respiratory distress syndrome, if it's not treated, you get low oxygen saturations.

Evolving respiratory distress syndrome will cause lower saturations as evidenced by the need for a higher oxygen requirement in ventilation. But again, it would be unlikely and very unusual for respiratory distress syndrome, as it's evolving, to cause a sudden drop in oxygen saturations in isolation.

MYERS: If you're going through possibilities, then I'm not suggesting this one, to make it plain, that infection can lead to desaturation and I am not suggesting that, Dr Jayaram (overspeaking) --

JAYARAM: No, infection in a baby can cause a number of symptoms, and it can cause infection -- sorry, it can cause desaturation by a number of mechanisms in a baby. It can cause a baby to have apnoeas, where they stop breathing. In this situation [Baby K] was ventilated, we were doing her breathing for her. If you have infection causing lung disease, which can be difficult to tell on X-rays from RDS, the same principle applies, you have less area of lung available for gas exchange, it can also cause desaturation by affecting the circulation and causing a drop in blood pressure as well, so blood doesn't flow to the lungs, so yes, infection can certainly cause desaturation.

MYERS: Blockage of the tube (overspeaking) --

JAYARAM: Blockage of the tube can.

MYERS: The tube not being fitted properly and air not passing through it correctly can cause desaturation?

JAYARAM: Can you clarify what you mean by "not fitted properly"?

MYERS: For example too thin a tube.

JAYARAM: If a tube was too thin that could cause difficulties ventilating, so as discussed earlier we wouldn't see the chest moving. We'd see difficulties with the excretion of carbon dioxide and we might see desaturation, but in this situation, up until this point, oxygenation had been taking place and the chest was moving.

MYERS: (Overspeaking) --

JAYARAM: You're right, if a tube is too small, you won't be able to ventilate through it.

MYERS: And a tube being dislodged or becoming dislodged can also cause desaturation?

JAYARAM: That's correct.

MYERS: I asked you earlier on, dealing with the question of blockage, about how delicate the tissues are inside the throat, for instance, of a newborn baby and they are very delicate, aren't they?

JAYARAM: That's correct.

MYERS: I'm going to ask if we can look at the nursing note at T132 because although there's no reference in the clinical notes to blockage, I want to go to where there is reference to blockage. We are going to go to the nursing note of Joanne Williams who was [Baby K]'s designated nurse.

Top left to start with, so we can get our eye in.

This is a note made by Joanne Williams, Dr Jayaram, between 4.48 and 5.07 on the morning. Can you see that?

JAYARAM: Yes.

MYERS: The note contains various details within it. I'll read through, since we've not looked in detail yet, but I'm going to come to the point we want:

"Baby girl born at 25+1 gestation. Footling breech delivery. Baby born in fair condition; please see medical notes for full resus detail at resus. Intubated at approx 12 minutes of age [that's where the 12 minutes from the nursing note comes from] with size 2 ETT. Curosurf given. Brought through to unit and placed in humidified incubator. Weight 692g. Commenced ventilation [the figures are here]. High leak noted."

It says that in the nursing notes:

"Approximately 45 minutes later began to desat to 80s. Dr Jayaram in attendance and on examination colour loss visible and no colour change on CO2 detector relevant [query] ETT dislodged. Removed and re-intubated on second attempt by Registrar Smith with 2.5 ETT measuring 6.5 centimetres at the lips. Air entry clear and equal."

Then this:

"Large amount of bloodstained oral secretions."

So you can see that, Dr Jayaram?

JAYARAM: Yes.

MYERS: Pausing there, those are identified after that first desaturation in the note; do you see that?

JAYARAM: Yes.

MYERS: And seems to be in association also with the second attempt by Registrar Smith to put in the 2.5 ETT?

JAYARAM: Yes.

MYERS: No reference, as we've seen, in the clinical notes to a large amount of bloodstained oral secretion, is there?

JAYARAM: No.

MYERS: But a large amount of bloodstained oral secretion is capable of blocking an ETT, isn't it?

JAYARAM: It depends where the secretions are coming from.

Because you have to remember that the tip of the endotracheal tube is sitting in the trachea below the vocal cords. In RDS, in

severe RDS, severe surfactant deficiency, you can get a situation where you can develop what's called a pulmonary haemorrhage, so you can get bleeding from the lower regions of the lungs and that comes up. You identify it, because blood comes up through the ET tube, and it comes up through the windpipe into the trachea. This usually happens in babies who have very severe RDS who have very high ventilatory requirements, who are hypotensive.

So bloodstained oral secretions may well be from some local trauma during intubation. Now, those secretions in terms of to block a tube, bear in mind these were noted at the re-intubation, it doesn't really follow that these bloodstained secretions could have been blocking the tube, because the end of the tube is actually sitting in the trachea.

The only way you could get bloodstained secretions blocking a tube -- and the other end of the tube, of course, is attached to the ventilator, so the only way you could get bloodstained secretions entering the tube would be either for them to have gone into the trachea and come out again, but we would have spotted those before, or for a pulmonary haemorrhage to happen.

Again, I think the comment here was made this is after the second intubation, so I'm not -- I can't really see any evidence to say that a tube blockage was caused by any bleeding from the lungs initially.

MYERS: It's entirely possible for there to have been bleeding from the tissues as a result of intubation and that creating secretions that block an ETT, isn't it?

JAYARAM: I'm trying to understand your proposed mechanism for this happening, Mr Myers, because for the secretions to actually block an endotracheal tube, they have to have a way of entering the endotracheal tube. If there are enough ET secretions around from the initial intubation they would have been seen and actually it's not uncommon to have a little bit of local trauma. So yes, if there's enough blood around in the trachea or coming from the lungs upwards it could block an endotracheal tube. This doesn't really fit with that hypothesis.

MYERS: You say "if there's enough blood around", what's the obvious way of checking whether there is a blockage?

What does a doctor do to see if there's a blockage?

JAYARAM: Of the endotracheal tube?

MYERS: Mm.

JAYARAM: As I discussed, if you suspect there's a blockage of the endotracheal tube acutely, you look at the baby, is the chest moving, you listen, is there gas going in, you put capnography on, and you take off the ventilator, you see if there's any CO2 coming out, and then at that point you have to assume that the tube is not functioning and you remove it. You can do an X-ray to check a tube position, but in acute deterioration that's not a viable option because it can take too long to actually get the X-ray.

MYERS: What do you do with the tube if you want to know if it's blocked? What do you do?

JAYARAM: You'd look at it.

MYERS: Yes. You told the jury:

"I had a glance, not a massive plug of mucus."

JAYARAM: No.

MYERS: That's what you said in your evidence this morning, wasn't it?

JAYARAM: You would normally sort of glance --

MYERS: Yes --

JAYARAM: Usually if there's a blockage you'd notice it.

MYERS: Yes.

JAYARAM: I didn't document it. And the other thing about a blockage is that again, in this situation, blockages don't happen acutely. You'd have again started seeing a deterioration before this rather than it happening quite acutely.

MYERS: The obvious thing to do is to at least check the tube, isn't it?

JAYARAM: Yes.

MYERS: Yes. Now, can we just go please to what you said in your --

MR JOHNSON: I'm sorry, my Lord, but that whole line of questioning was prefaced with this statement:

"I'm going to ask if we can look at the nursing note at T132 because although there's no reference in the clinical notes to blockage I want to go to where there is reference to blockage."

If that is being put to the witness would my learned friend please point out where in that note it says that?

MR MYERS: I'm pointing out where it says in the nursing note:

"Large amount of bloodstained oral secretions."

MR JOHNSON: It's a reference to blockage, that's the proposition.

MR MYERS: When we've considered that blockage is one reason for a desaturation, I'm going through what a doctor does to see if there is a blockage. We had got to the point where Dr Jayaram has said -- and really this is implicit in an answer he gave earlier -- that a doctor would check the ETT. So that is what I am asking about now.

JAYARAM: The priority really is looking after the baby and actually resuscitating the baby and making sure that you can actually get their lungs inflated again. Generally if the tube is blocked you'd notice it straightaway -- certainly if it was blocked with bloodstained secretions it would have been obvious. I agree I didn't comment on it.

The fact -- and, again, this is inference -- the fact that I didn't comment on it probably was because I didn't glance and see it was full of blood.

MYERS: No.

JAYARAM: The other reason is why would it have been full of blood at that point? Because there was no evidence of any pulmonary haemorrhage and actually there wasn't any evidence of pulmonary haemorrhage happening at any point during this process.

So if the inference is that bloodstained secretions were blocking the tube I'm struggling to understand where you're suggesting these bloodstained secretions had come from at that point blocking the tube. I'm not denying that tube blockage can cause desaturation, but I'm really struggling to understand the mechanism that you're proposing of where the bloodstained secretions blocking the tube came from.

MYERS: I am going to suggest -- this is very simple, Dr Jayaram. I am asking you: how do you check if a tube is blocked? Do you understand that question? How do you check?

JAYARAM: Yes.

MYERS: Right, how do you check with a tube whether it's blocked?

JAYARAM: The other thing --

MYERS: What do you do with the tube, Dr Jayaram?

JAYARAM: Well, you'd look at it --

MYERS: Right.

JAYARAM: -- but what's important is resuscitating the baby. In many ways, once the tube's out, the priority is getting the baby sorted out.

MR MYERS: I have made my question very clear, my Lord, as to what that is and I asked the question because of an answer given in evidence earlier that you had a glance you said and not a massive plug of mucus. You said:

"I had a glance, not a massive plug of mucus."

The relevance of you saying "I had a glance" this morning is that's you acknowledging you check the tube, don't you?

JAYARAM: Yes.

MYERS: Yes (overspeaking) --

JAYARAM: You don't generally pick it up -- if there'd been anything obvious there you would pick it up and look more closely.

MYERS: When you -- I want you look at your answer on this topic when you were asked about this by the police on 26 May 2021. It's at page 12612.

I'll let you have a look at this first, Dr Jayaram, and his Lordship and the lawyers. We're looking at this large block and you'll see an R in the centre. If you go right to the R, down from the initials RDS, you'll see a sentence about three lines below the R that starts "Now obviously". I want you to read that to yourself.

(Pause)

Despite what you said this morning about, "I had a glance, not a massive plug of mucus", you didn't even check the tube, did you? You didn't check the tube?

JAYARAM: I didn't formally check it. When I said here I recall looking to see if there is a blockage, we didn't -- I meant we

didn't pick it up and have a look because had I seen anything I would have done.

MYERS: (Overspeaking) --

JAYARAM: And in many ways, Mr Myers, I'm not sure even if -- what you're trying to suggest, I think, is that this tube was blocked by some bloodstained secretions. Regardless of whether I checked or not, I'm struggling to understand the mechanism of how that could happen.

MYERS: One of the things we've been told doctors check when there's a desaturation is blockage, yes, of the tube; correct?

JAYARAM: Yes.

MYERS: As it happens, there were secretions seen in the throat.

JAYARAM: Post the second intubation.

MYERS: Now, with or without those secretions, let's look at what you said. You said:

"Obviously we don't look down to see whether it was obviously blocked or whether it was in the wrong place, I didn't -- I didn't -- we don't -- I don't recall looking at the tube to see if there was a blockage in it."

That's what you said in April 2018, isn't it?

JAYARAM: I think so, yes. It's there.

MYERS: First of all, insofar as a doctor should simply look at the tube to see if there's a blockage, you didn't, did you?

JAYARAM: No.

MYERS: When you --

JAYARAM: Not formally.

MYERS: And when you said this morning, "I had a glance, there wasn't a massive plug of mucus", that's not right, is it?

JAYARAM: Well, I would have looked but not formally. So in the context of this statement, what I was saying was we didn't pick up it and stare at it. But generally, if you spot something, you'll see it. I appreciate the contradiction (overspeaking) --

MYERS: You've changed your position, Dr Jayaram (overspeaking) from what you said in 2021, haven't you? You have changed your position; yes?

JAYARAM: Well, I don't think so. I think this is nuance.

MYERS: You just said it seems that way, didn't you?

JAYARAM: It appears that way, I think it's nuance, but also I'm still -- were the tube blocked, what would the mechanism have been?

MYERS: Tube dislodgement I'm going to ask you about next, Dr Jayaram.

First of all, whatever's happening with morphine, a baby that's had morphine can still dislodge a tube by his or her movement, can't they?

JAYARAM: They can.

MYERS: If they'd been sedated with morphine that is less likely, isn't it?

JAYARAM: It makes it less likely.

MYERS: But morphine doesn't paralyse them from movement, does it?

JAYARAM: No.

MYERS: A baby, let's say for this point, that isn't on morphine can be active, she can be active, can't she?

JAYARAM: They can be active.

MYERS: Even newborn babies can jerk their limbs about?

JAYARAM: Yes.

MYERS: An extremely premature baby can also be active?

JAYARAM: They can.

MYERS: And a baby like that is capable of dislodging a tube by her movements?

JAYARAM: It is possible, but improbable. The reason I say that with respect to [Baby K] particularly is (1) the condition she was born in, she was quite floppy, she came back, we planned to

give her morphine -- generally, if a baby is very agitated and active, we expedite starting the morphine.

The second situation -- the second thing is that a baby of [Baby K]'s size is not particularly strong, the tube is secured as securely as we can, and if we know that the tube was at 6.5 centimetres at the lips, it was a reasonable way down, it would take a big effort to get the tube out with the movements of the baby themselves.

Bigger babies can do this, it would take quite a lot of strength.

It can happen sometimes that if a baby is being handled for cares, a tube can dislodge. I've never in my career known a baby of this gestation, sedated or not, dislodge a tube spontaneously. That's not to say it can't happen, but it is absolutely a possibility, I can't say it isn't a possibility.

MYERS: I'm going to ask you now some questions about what you have said about what happened. When I do that, so you understand why I'm asking the questions, this isn't the first time you've been asked, is it?

JAYARAM: No.

MYERS: That's obvious. I want to make this clear and it's for the assistance of everyone with regard to the questions.

I'm going to suggest to you that whatever happened with [Baby K], you did not regard that as suspicious at the time. I'm not asking you to agree or disagree.

This is so we can understand where the questions are coming from.

JAYARAM: At that moment in time my priority was [Baby K]'s clinical condition.

MYERS: There will be plenty of time to answer the questions When I come to them, Dr Jayaram. I am letting you know, for the assistance of you and the jury and his Lordship and everyone what the purposes of the questions is.

I should start by saying, first of all, the defendant's case, Ms Letby's case, is she does not recall this. I'm not asking you to comment on that.

Secondly, what I have just said, I suggest that whatever happened with regard to [Baby K], you did not regard this as

suspicious at the time. Okay? I'm not asking you to comment because we're going to get to questions.

Thirdly, whatever did or didn't happen, you have added details to make this sound suspicious. That's where I'm coming from. That's so you understand it and everybody else does.

You may well disagree and that's why we're going to go to the questions now.

I want to think back to the position regarding your view, so your state of mind on this issue, on 17 February 2016. There have been a series of deaths on the unit, haven't there; yes?

JAYARAM: Yes, that's correct.

MYERS: And collapses as well?

JAYARAM: That's correct.

MYERS: We've seen -- put up tile 1, please, Mr Murphy. Go into tile 1, sorry, I should have said.

Scroll down here. We have a series of incidents in the black bars, the death of [Baby A] on 8 June. The collapse of [Baby B] on 10 June. The death of [Baby C] on 14 June. The death of [Baby D] on 22 June. So pause there.

After the death of [Baby D], you and Dr Brearey conducted a review into these events, didn't you?

JAYARAM: Dr Brearey conducted it.

MYERS: He conducted it but you were part of it with him?

JAYARAM: Yes, I was aware of it.

MYERS: And you identified, certainly the two of you, Ms Letby as present on each of those occasions, didn't you?

JAYARAM: It was noted, yes.

MYERS: It was noted. It was noted as a potentially relevant association, wasn't it?

JAYARAM: At that time there was no -- we were really just trying to wonder what was going on. We were not considering anything other than natural events, but it was noted that Lucy Letby was the nurse that was there.

MYERS: Yes. As we go in the months that follow there were further incidents, weren't there?

JAYARAM: That's correct.

MYERS: If we can just scroll, please, or go, if we could, please, to tile 2. This is just to follow what we have here, Dr Jayaram, the death of [Baby E] on 4 August and an event -- this may not have been apparent at the time, but concerning [Baby F] on 5 August.

Certainly the death of [Baby E] on 4 August was something that was noted, wasn't it, obviously?

JAYARAM: Yes.

MYERS: Very sad and very significant, as they all are.

Moving on, if we could, go to tile 3, please, Mr Murphy. Events concerning [Baby G] in September 2015.

And then the death -- events concerning [Baby I] throughout that summer and into the autumn and her death in October 2015; do you see that?

JAYARAM: Yes.

MYERS: We can take those down, please, Mr Murphy.

By the time we get to the beginning of February 2018 (sic) there was a clear association between deaths or collapses and Lucy Letby, wasn't there?

JAYARAM: There seemed to be, yes.

MYERS: And that's when you mentioned a thematic review that was conducted?

JAYARAM: That's correct.

MYERS: That was you and Dr Brearey and one doctor from another hospital?

JAYARAM: Dr Brearey asked one of the neonatologists from Liverpool Women's Hospital, one of the tertiary centres, to comment and conduct a review of the case notes of these comments and unusual collapses.

MYERS: That review was conducted on or around 8 February?

JAYARAM: That's correct. I wasn't actually part of that review meeting.

MYERS: No, but you were aware of it, weren't you?

JAYARAM: Absolutely, yes.

MYERS: And by this time there was a concern amongst -- certainly between you and Dr Brearey that Ms Letby may have been associated with these events as responsible for them?

JAYARAM: Not just myself and Dr Brearey, but other clinical colleagues as well.

MYERS: Right. I'm asking about your state of mind though for where we're going. By the time we get to 17 February, the thought had crossed your mind, hadn't it, that she may be deliberately harming babies?

JAYARAM: Unfortunately, that unthinkable thought had crossed my mind and other colleagues' minds as well.

MYERS: That's why you tell us you were feeling uncomfortable that morning and why you went into nursery 1 --

JAYARAM: That's correct.

MYERS: -- because you wanted to see whether she could have been causing harm, whether there was anything that's consistent with that?

JAYARAM: I wanted to reassure myself, because at this stage, although we were thinking the unthinkable, we didn't really want to believe that. I actually went in there to reassure myself, basically, to use a colloquialism, give my head a wobble and then go back and sit down and carry on doing what I was doing.

MYERS: There had been quite a lot of time spent looking at what had gone on in your reviews with you and Dr Brearey, hadn't there?

JAYARAM: Yes.

MYERS: You'd looked closely at this?

JAYARAM: Yes.

MYERS: And as you said, the belief was that maybe she was deliberately harming babies?

JAYARAM: That was one of the possibilities that we'd started to consider at that point. It absolutely wasn't a fixed belief, it must be that, but we'd pretty much looked at all of the other possibilities and couldn't identify any common themes.

MYERS: Right, so a high possibility that was what she was doing? And indeed a high possibility, given what you had looked at, that she was killing them?

JAYARAM: Yes.

MYERS: Right.

The incident that took place on this morning, the first incident we are looking at, is around about 3.45 to 3.50. It's difficult to be precise.

JAYARAM: Yes.

MYERS: You agree around about that?

JAYARAM: I agree.

MYERS: We're going to hear from Joanne Williams and so perhaps we're best dealing with what time she left the unit when she said she left it. But we know -- I'm going to suggest it's around 3.30, by the way, but we have to hear from her for that. We know you were on the telephone around about 3.41. If we could put up tile 76, please. Have a look at that just for the timings. Go behind that, please, Mr Murphy.

If you look there, scroll down, we can see 03.41:

"Called Dr Jayaram back with the above plan."

Do you see that?

JAYARAM: Yes.

MYERS: So 3.41 you're on the phone making arrangements for [Baby K]?

JAYARAM: Yes.

MYERS: We know, as it happens, that Nurse Williams comes back on to the unit at 3.47. We know that from tile 98.

Could we put tile 98 up, please, and go behind that to see the timing. We have it there:

"Maternity neonatal to labour ward."

What's happened since the last trial, what we've identified, Dr Jayaram, is this has been reversed --

JAYARAM: Yes.

MYERS: -- it's actually labour ward into the maternity unit.

You said last time it proceeded on the basis that Joanne Williams had left the unit at 3.47, didn't it --

JAYARAM: Yes.

MYERS: -- when you gave evidence last time? This was said to be evidence of that. And your evidence was that, last time, that you had gone in about 2 to 2.5 minutes after Joanne Williams left. Yes? That's what your evidence was, wasn't it?

JAYARAM: That's what I remember because I remember Joanne told me that she was going to talk to the parents and she had left Lucy Letby with the baby.

MYERS: Just to be clear about this, when you originally spoke to the police on 4 April 2018, I'm going to suggest you told them then you couldn't remember how long Joanne Williams had gone for; do you agree with that?

JAYARAM: We had this discussion last time and you suggested that I had access to swipe data, which I hadn't. That initial statement in 2018 was part of a much wider overarching statement, I think.

MYERS: However we get there, last time you gave evidence you said it was about 2 to 2.5 minutes after she'd left that you went out. That was when we believed that she left at 3.47, wasn't it?

JAYARAM: That's my recollection. But she came back in at --

MYERS: We actually know she came back in at 3.47.

JAYARAM: Yes.

MYERS: And I'm going to suggest she left round about 3.30 in fact.

JAYARAM: I don't think it was that long because I don't think she'd been gone for that long. I remember -- because I remember distinctly when Joanne told me she was going immediate -- my immediate discomfort. I don't think it was as long as that that I took to walk in there.

MYERS: That is the point, isn't it? Because it would be strange -- it would be strange, given what you have said, if she left at about 3.30 and you didn't go in for the next 10 or 12 minutes.

JAYARAM: And it looks like I was on the phone at 3.41.

MYERS: Yes. So if she left at 3.30, you wouldn't have gone, if you are right, until about 3.42/3.43?

JAYARAM: That would be about right.

MYERS: And that would be a gap of about between 10 and 13 minutes, wouldn't it?

JAYARAM: Yes.

MYERS: If you really -- if this was really the situation as you are describing it, you'd have gone in there very quickly indeed, wouldn't you?

JAYARAM: I think from the time -- my recollection of my discomfort was that it was a relatively short period of time.

MYERS: As it happens, if you're this worried about Ms Letby, why weren't you in and out of all those nurseries checking what she was doing, if you're this worried?

JAYARAM: So it's a really good question. And it's very difficult to answer that because, as I mentioned before, we are -- I mentioned in previous trials, we are taught to think within the box and we know common things happen commonly. If we're not sure what's going on we think to the edges of the box. We know things that can happen commonly, we know things that happen less commonly, and we try and make things fit with what we know and initially that's what we were trying to do. By this stage we were thinking right to the edges of the box and nothing seemed to fit natural causes.

Now, the thought had occurred to many of us about the possibility of unnatural events and it's an uncomfortable thought, it's an element of -- you don't really want it to be there and it's easy to bury your head in the sand. I'll be honest, I didn't want it to be that. And the only reason I walked into the room at whatever time it was, was actually to prove to myself that I was being ridiculous.

Why didn't I follow her around? Why didn't anyone follow her around? (1) it's impractical to do that.

(2) the possibility of this had already been discussed -- as a cause had been discussed with Lucy's managers and discussions were taking place as to how to take this forwards and how to manage it. It's practically impossible to follow everyone around all the time.

So in answer to the question, why didn't I follow her around everywhere, it is just the practicalities of doing that and it wasn't my job to do that. It's our job to flag this up to the people on the ward, so Lucy's immediate managers, and to come up with a strategy for how to work out how you can do things, but at that time essentially the feeling from those of us outside our group of consultants is that we were probably just being irrational.

MYERS: Well, let's hold the thought. You've established that certainly you believed she may be deliberately harming or killing babies; yes?

JAYARAM: That's correct.

MYERS: Right. Going in and finding this was -- you've got her, haven't you?

JAYARAM: Not really because, as I say, there's a number of reasons why these things can happen. But what -- after the event, when I had time to reflect and made me think, was that this little baby, [Baby K], up until that point, although poorly, had been stable, by which I mean there had not been any steady deterioration in her ventilatory requirements, steady increase in her oxygen requirements at all. At the moment I walked in, she was desaturating and that may have been because of tube dislodgement or it may have been because of tube blockage.

Why at that moment in time -- (1) up until that point she'd been stable, (2) the alarms didn't sound, (3) I hadn't actually been called or nobody had actually been called to come and look at the baby.

That's the thing that on reflection afterwards -- at the time the important thing is to deal with the baby.

MYERS: Surely, presented with what you saw, believing that she may have been killing or hurting babies, it must have been shocking what you spotted in that room?

JAYARAM: At that time, yes.

MYERS: Yes. And you were presented, really, with -- or presented with the fact it had been -- the tube had been dislodged deliberately?

JAYARAM: That was one of the possibilities, yes.

MYERS: That was the conclusion, surely, you must have drawn, that was it?

JAYARAM: That was my conclusion.

MYERS: Yes, the only possibility. Of huge impact because this went to show the suspicions were accurate, didn't it, and you were horrified by what you'd witnessed?

JAYARAM: I was extremely uncomfortable by what I had witnessed - - now bear in mind I didn't witness the tube being dislodged.

MYERS: I'm going to ask you just to look at footage of you giving this account, Dr Jayaram, so we can hold this in our minds when we come to look at what follows. So I'm going to ask if Mr Murphy would play this. It's been provided to us, we're grateful. It's 1 minute and 40 seconds and it just deals with your account of this.

If you'd pause for one moment, please, Mr Murphy.

(Pause)

Let's watch this through because this is the account you give and then we can take it on from here.

(Video played to the court)

MR MYERS: Thank you. Dr Jayaram, the only possibility of the tube dislodged deliberately; yes?

JAYARAM: Bear in mind this interview was a long way after the events.

MYERS: You're telling the truth?

JAYARAM: And at that time we also knew Lucy Letby had been convicted of several charges of murder and attempted murder.

MYERS: We all know that, but you said the only possibility -- you're talking about that night, yes -- the only possibility is the tube must have been dislodged deliberately. So you'd got her, yes, hadn't you?

Hadn't you? You'd walked in on her, hadn't you?

JAYARAM: Well, I walked in and there were a number of things that should have been happening that didn't happen that weren't happening, yes.

MYERS: You caught her as good as red-handed, didn't you?

JAYARAM: I think we had this discussion last time, Mr Myers --

MYERS: I didn't use the expression "red-handed". If I remember -- maybe I did, I don't recall.

JAYARAM: I think maybe you did and I think one of the questions, and you may ask it, I'm sorry for anticipating it, is why didn't I just pick up the phone to the police.

MYERS: We'll get there, don't worry, Dr Jayaram, because the question a lot of people might ask you -- I'll tell you what, let's go there.

JAYARAM: I think if people weren't aware before, people are probably more than aware now because of events since August of the culture in the NHS of clinicians who raise concerns. We were already, by this time, and having seen documentation subsequently, there was a strategy really to sort of keep us quiet. People didn't really want to listen to us, to acknowledge problems.

Now, I can tell you what would have happened had I picked up the phone to the police. They would have got in touch with the trust, spoken to the medical director and the chief executive, who would have said, "Just ignore them, they're just a bunch of complaining paediatricians".

The problem with this is that's a reflection of the hierarchies and the culture of the NHS, but that's the reason I wouldn't have just picked up the phone. And actually, do you know, in answer to the question why didn't I, if I knew then what I knew now, we would have found different ways to escalate these things. We spent a long time as a group trying to escalate our concerns and spent a long time running into walls.

MYERS: (Inaudible).

JAYARAM: So to the point that we only realise now the risk we were putting ourselves in in terms of our professions, our careers, our lives, by continuing to raise concerns -- so actually, you're right, had I had more courage, maybe I would have picked up the phone to the police.

MYERS: The easiest thing to do, Dr Jayaram, is to say you have a nurse on the unit killing babies. You could have done that, couldn't you?

JAYARAM: I could have done that.

MYERS: What actually stopped you from doing that? What stopped you from doing that?

JAYARAM: Adherence to process, systems. We'd already raised concerns, we added this to the list of our concerns. At this time, since the thematic review that had taken place just a week before, my colleague Dr Brearey, our neonatal lead, had made communication with the medical director of the hospital and the nursing director of the hospital to discuss our findings and our concerns with them and this was added to the list. Unfortunately, that meeting didn't take place for another 3 months. We had faith in the system, actually, at the time doing the right thing.

The NHS also has systems in place for, as we have discovered subsequently, for when there are concerns for escalating these things to the police. And we, I guess, put faith in our medical leaders at senior executive level to do the right thing. It is a matter of enormous regret to me that I didn't handle this differently at the time.

MYERS: Dr Jayaram, that is just a desperate attempt by you to explain away the obvious omission and the obvious failure to call the police when you know you should have done.

JAYARAM: I disagree. I absolutely disagree that it would have been appropriate. Because I know what would have happened, they wouldn't have talked to me.

MYERS: You began yesterday, almost the first things you said in your evidence was patient safety is paramount; yes?

JAYARAM: Absolutely.

MYERS: A nurse killing or attacking babies on the unit is an issue of patient safety, isn't it?

JAYARAM: Absolutely, which is why we were trying to raise concerns to the people running the hospital. We don't have any training in how to deal with these situations --

MYERS: You could phone up and ring the police. It doesn't take training, Dr Jayaram. To ring the police doesn't take training.

JAYARAM: If I'd rung the police, as I'd said, what would have happened is they would have got in touch with the hospital executives, who would have actually basically told them, "Don't worry about these people, we've got it in hand". We were already raising this internally as a concern and it was one of the possibilities and all we were asking of our leaders was to advise us as to how to do the right thing. It's not a case of just picking up the phone and ringing 999, although Mr Myers might disagree.

MYERS: If you thought someone, let me ask you this, had tried to kill or harm a member of your family, if you believed they had, if you caught them red-handed or practically red-handed would you tell the police?

JAYARAM: Absolutely I would.

MYERS: If you thought the same person had already killed or tried to kill other members of your family, and you caught them practically red-handed, would you tell the police?

JAYARAM: We would -- I would.

MYERS: If you thought they may go on doing the same thing if they're not stopped, would you want to get them stopped?

JAYARAM: Yes.

MYERS: Would you call the police?

JAYARAM: Yes.

MYERS: This is your unit, isn't it, Dr Jayaram?

JAYARAM: Yes.

MYERS: Your babies; yes?

JAYARAM: Yes.

MYERS: Patient care is paramount. You didn't call the police because you didn't see anything worthy of calling the police about at this time.

JAYARAM: I disagree.

MYERS: That's the truth, isn't it?

JAYARAM: I disagree. I think there was the element of denial, absolutely, because it was there in front of me and I didn't want to believe it. There was the element of fear of retribution

from the people above. We were -- in subsequent weeks and months we were actually actively told it would be inappropriate to involve the police.

This was even from June 2016 when the unit was downgraded and Ms Letby was moved from clinical duties.

We were still told at that time -- so we were being advised from the start the police would be the wrong thing.

And the trouble -- and again it is a matter of infinite regret, and my colleagues would agree -- if we'd actually not had faith in those who were supposed to be guiding us, we would have acted differently.

You are correct in retrospect, yes. So I think I'm trying to work out where you're getting to because I don't disagree that in retrospect it would have been the right thing to do.

MYERS: I'm getting behind the fact that I am suggesting to you you are coming up with an excuse to try to get away from the fact you didn't call the police because it didn't happen as you're describing.

JAYARAM: I would have to respectfully disagree, Mr Myers.

MYERS: And if it had done, given your responsibilities and who and what you are, you would have got the police in if there was no reaction from anyone else. If it really happened, Dr Jayaram, there is no way you would have hesitated to do that.

JAYARAM: I have given my reasons as to why. We will have to agree to differ.

MR JUSTICE GOSS: I'm sorry, there are noises coming from somewhere. I was just asking the clerk of the court to investigate. Can you mute everyone? I don't want there to be a mystery about this. There are quite a lot of people in other places who are following these proceedings remotely. They should all be muted.

You will know what it's like, I'm sure you've done Teams meetings and things like that. It's the same principle.

You all get muted. Right. It won't happen anymore.

MR MYERS: Thank you, my Lord.

Dr Jayaram, if we can be clear, your position was you believed this nurse may have been killing babies?

JAYARAM: It was a possibility.

MYERS: Yes. You went in and found the situation which left you satisfied that the tube had been dislodged deliberately?

JAYARAM: The tube was dislodged.

MYERS: No, you said in that interview dislodged deliberately.

JAYARAM: In retrospect knowing, as I say, what I knew at the time of that interview, then clearly that made more sense; at the time the tube had been dislodged. As I said there was the possibility that the baby either being moved or the baby moving herself could have dislodged the tube, but knowing what we know now, I still find it beyond coincidence, and coincidence happens, that at the moment that I walked in, at the time that [Baby K] had been stable, I found her in this situation, I found her with the alarms not going off and Lucy Letby standing there.

And however much differently or better we could have done other things in terms of tube sizes or surfactant or anything else, it still strikes me that for that to have happened at that moment in time and the fact that after using the T-piece to bag her back up and very easily and putting her back on a ventilator, she was back on the same settings. That doesn't suggest that there was a lung disease problem.

So it's -- I guess a matter of speculation. It could entirely have been coincidental, I don't know.

It's not for me to think.

MYERS: So we can be clear, we've listened to your interview and we have heard what you said about the "only possibility"

was the tube to have been dislodged deliberately and you agreed with that, Dr Jayaram.

JAYARAM: At the time of the interview, yes, because I knew what we -- we know what we know now.

MYERS: That isn't the way you gave the account but I'm not going to go back through the interview. I've asked you about that.

In fact, you didn't raise the issue about [Baby K] until an interview with the police on 14 June 2017, did you?

JAYARAM: Not in terms of the police. It was discussed with -- I discussed it with colleagues and it was added to our list of concerns.

MYERS: Discussed and added to a list. You didn't raise this with the police until 14 June 2017, did you? That's when you were interviewed --

JAYARAM: Yes (overspeaking) --

MYERS: So 14 months later.

JAYARAM: That's when the police investigation started.

MYERS: And you are saying, so I can be clear before I move away from the police, your explanation for not calling them is that it would have been difficult because of the situation with your managers? Is that what you're saying?

JAYARAM: Can you frame that -- rephrase that?

MYERS: Why were you prepared to allow this nurse to potentially go on killing given what you knew?

JAYARAM: None of us were prepared to do that at all. But we were in uncharted territory. There is absolutely no precedent or training for knowing how to deal with this.

As I say, we were meeting big resistance from the people at the top and again, knowing what I know now, I would challenge that hierarchy. Unfortunately, then I didn't.

MYERS: You didn't go to any management saying to them, "I've caught Lucy Letby red-handed, the only possibility is she's dislodged a tube deliberately"? You didn't say that to anyone, did you?

JAYARAM: Because at that time it was one of the possibilities.

Now, I mean, in the context of what we know...

MYERS: The only possibility -- carry on, Dr Jayaram.

JAYARAM: No, it's all right.

MYERS: You didn't go and make that report to anybody, did you?

JAYARAM: Not formally, no.

MYERS: And you didn't make that report because it didn't happen the way that you're saying, Dr Jayaram.

JAYARAM: How are you proposing it did happen, Mr Myers?

MYERS: (Overspeaking) set out --

JAYARAM: I would like your hypothesis of what you think happened --

MYERS: What I'm suggesting is (overspeaking) --

JAYARAM: -- and why you're suggesting that I'm saying something different happened.

MYERS: It's not for me to make suggestions about you or your motivation, however tempting that may be or otherwise.

That's not my role. What I'm suggesting to you, I've made it very clear, is you have said things to create something and put in details to create suspicion where it did not exist. If you had seen anything like you're suggesting you would have raised that with either the police or even gone to your management and said to them, "This nurse, I believe, is killing babies", and you didn't, did you?

JAYARAM: This discussion actually took place a few weeks afterwards with my colleague Dr Brearey discussing concerns explicitly about deliberate harm with the neonatal unit ward manager.

MYERS: During that time you were okay for things to go on in the unit after what you say you'd seen? That was all right, was it?

JAYARAM: No, it wasn't all right?

MYERS: Okay.

JAYARAM: But we were aware of it and monitoring it. No, I agree.

MYERS: What happened to patient safety being paramount?

JAYARAM: Patient safety is paramount, absolutely.

MYERS: What about you investigating incidents?

JAYARAM: I sit on what's called the governance board, so we rubber-stamp things, investigate them, and investigations take place. Dr Brearey ran the investigations.

MYERS: Dr Smith came into the room and said, "What's happened, what's going on?" He told us about that. Why didn't you say to him, "You're not going to believe it, I've just seen Ms Letby in there, she's dislodged a tube, it's the only possibility. That's what's happened"? Why didn't you say that to him (overspeaking) --

JAYARAM: Because it wouldn't have been appropriate to say it to him. What has happened is that the baby --

MYERS: Your explanation for not saying anything is it's inappropriate to tell your registrar there may be a nurse killing babies? That's inappropriate?

JAYARAM: At that moment in time I can't just go throwing accusations out like that.

MYERS: I suppose you arranged for her to be taken off the unit immediately; yes?

JAYARAM: Sorry?

MYERS: I suppose you arranged for her to be taken off the unit immediately?

JAYARAM: No.

MYERS: Oh. You would have done if you thought she was killing babies, wouldn't you?

JAYARAM: I mentioned before about thinking the unthinkable and cognitive dissonance. We don't believe that people who work in healthcare go to work to cause harm and I think I was a victim of my own cognitive dissonance. It was there nagging at me. You're absolutely right, Mr Myers, that in retrospect that would have been the thing to do.

But it was also knowing that I probably wasn't going to be believed because we'd already had issues with not being believed at this stage.

MYERS: You didn't even say a word to her, did you?

JAYARAM: Not to her.

MYERS: You didn't even say to her, "What are you doing not responding to what's happening"?

JAYARAM: No, I didn't really want to engage in that conversation with her.

MYERS: In fact, if what you're saying is right, and I make it plain to you I suggest it is not, you just left her working there for another 4.5 hours that morning; yes?

JAYARAM: She finished her shift and Jo Williams came back --

MYERS: So you allowed her to finish her shift even though you she was a risk to life and limb?

JAYARAM: But I knew she wasn't working in isolation because I knew Jo Williams was back and other nurses were back.

MYERS: Can we put up tile 118, please. Just look at this.

We've got you coming back on the unit at 4.39.

Do you see that?

JAYARAM: Yes.

MYERS: So you've even walked off the unit at some point; yes?

JAYARAM: I went to talk to [Baby K]'s parents.

MYERS: Put aside one minute what you're saying about you just didn't have the training for the police, ringing them or you were worried about the trust, how could you just walk off a unit if there's a nurse who you believe may have been killing babies and you have just seen her and the only possibility (overspeaking) --

JAYARAM: Because I knew that other people were in that room with her.

MYERS: You haven't told anyone, have you?

JAYARAM: What am I going to say to people? As I say, this is something that added to our concerns.

MYERS: You don't know what you're going to say to people?

That's your evidence on that, you wouldn't know what to say about this?

JAYARAM: How do you mean? "Hey, everybody, I think this is what I think is going on"? That's not the time or place (overspeaking).

MYERS: Well, it would have been a start, wouldn't it, Dr Jayaram?

JAYARAM: It's not the time and place to do it.

MYERS: When is the time and place to make a complaint, for instance, to the police about a murderer?

JAYARAM: As soon as you have a strong suspicion.

MYERS: Yes, and you didn't.

Can we look at your clinical notes again, tile 49, please.

If we just look at the bottom here and keep going down to the entry. This is where the desaturation is described. If you carry on down a little further.

We've got "successfully intubated". Scroll down, please. The bottom of the page. You can see the entry where you describe the desaturation, don't you?

JAYARAM: Yes.

MYERS: One moment. If we go to tile 100, please, just to go across from what we have there, and pop into that. And have a look at the rest of the note for that entry. It describes the tube being removed and bagged and what have you. Looking at that, as far as I can see, nowhere in that note does it even suggest the tube had been dislodged, does it?

JAYARAM: It was a record of what was happening with the baby and, as I say, at the time the priority was stabilising [Baby K]. It wasn't to sort of have a discussion of what's happened. We knew that the tube wasn't working.

MYERS: But even if you feel you're not able to call the police, I'm not accepting that, but even if you do, and even if there's some sort of issue with the trust, you don't even record the dislodgement, do you, what you say is the dislodgement?

JAYARAM: If you can go back to the line up, it's sort of implicit, really, that if there's no significant colour change -
-

MYERS: No.

JAYARAM: -- and no air entry and the chest is not moving --

MYERS: If you have seen a nurse in a situation where you believe she's deliberately dislodged it, you might at least makes reference to the tube having been dislodged in your notes (overspeaking) --

JAYARAM: Because at the time I wrote these notes that wasn't at the forefront of my mind, the forefront was sorting [Baby K] out and there were other things going on as well.

MYERS: You did the notes about an hour or so later, didn't you?

JAYARAM: Yes.

MYERS: You had time to think about it, didn't you?

JAYARAM: But it's not something that I have written in the notes.

MYERS: No, it's not. We've gone through -- you've done a detailed account of everything that took place, haven't you? You have included vitamin K, stuff like that?

JAYARAM: Yes.

MYERS: You just happened to miss out a dislodgement that you went on to say was deliberate.

JAYARAM: If you look at the conversation I had with the transport team, I think they recorded it as me saying to them as the baby dislodged the tube, and I mentioned earlier -- and I probably framed that actually as the tube was dislodged. So I have mentioned it to them so I have written it in here.

MYERS: We will get there. We're going to the clinical notes first. Nothing in the notes about dislodgement, is there?

JAYARAM: Not written, no.

MR JUSTICE GOSS: Mr Myers, we're going to have a break.

I don't know whether that's a good time or not or if you want to choose one a little bit later. But we've been going over an hour now. I'm thinking of the stenographer.

MR MYERS: In which case a break is appropriate, of course.

MR JUSTICE GOSS: A ten-minute break, please.

(3.19 pm)

(A short break)

(3.30 pm)

MR MYERS: Dr Jayaram, this morning when you gave evidence you told the jury that when you went into the room there was no alarm, there was no sound.

JAYARAM: That's correct.

MYERS: Whatever was taking place at the time that [Baby K] desaturated, are you quite sure about that detail?

JAYARAM: Absolutely certain, yes.

MYERS: I'd just like you to look at the interview you had with the police on 4 April 2018 at page 6957. It's for you and his Lordship. Just look at the top. It says, a question from the officer:

"So you walk in, what alarms are sounding when you walk in?"

Can you see that?

JAYARAM: Yes.

MYERS: I'm going to ask you again: you told us this morning there was no alarm and no sound and you just said, when I asked you, you were absolutely certain about that.

What did you say to the police?

JAYARAM: I said then I can't remember.

MYERS: Yes.

JAYARAM: But actually even when I said that -- this is a transcript of a conversation, I guess, but actually, I don't know why I said that because I'm pretty certain the alarms weren't going off because, had the alarms been going off, they would have been what alerted me to walking into the room.

MYERS: You say it's a transcript of a conversation. This is on 4 April 2018.

JAYARAM: Yes.

MYERS: It's with a police officer investigating potentially serious allegations, isn't it?

JAYARAM: Yes.

MYERS: You knew you were going in to assist them with your account, weren't you?

JAYARAM: Yes.

MYERS: It's introduced at Blacon Police Station and you're introduced formally in the timings and it was a police officer who is interviewing you about all of this; yes?

JAYARAM: Yes.

MYERS: And you were able to give the account as you wished to?

JAYARAM: Yes.

MYERS: You weren't a suspect?

JAYARAM: No, no.

MYERS: And you were going through the order in which events happened, weren't you?

JAYARAM: Yes.

MYERS: And so there's no mystery about it, dealing with the bit where you walk in, the officer says:

"So you walk in, what alarms were sounding when you walked in?"

And you said:

"I can't remember, I can't remember, but I did look up and I can't remember whether alarms are sounding but I looked up and I saw the saturations were low. That's what I do remember and I watched them drop down."

Now, lest it be thought that was just a slip of the tongue, if we go over to page 6958 and we carry on with the same questioning. You say:

"I would imagine it should have alarmed as well -- I mean, we generally set them to alarm below about 90 so it should have alarmed. I can't remember whether it was alarmed. Usually it is alarming."

So you say you can't remember if it is alarming for a second time, don't you?

JAYARAM: I do.

MYERS: If we go down to the bottom of the lower paragraph as you carry on talking about this and what might have happened, you conclude by saying:

"I went in spontaneously -- and at that time the saturations were dropping. I can't remember whether an alarm was going off or not."

You said that for a third time.

JAYARAM: Yes.

MYERS: You, making a point of saying there was no alarm now, it's a detail that's been put in to make this look more suspicious than it is, isn't it, Dr Jayaram?

JAYARAM: What I can say, with absolute certainty, is that it was not an alarm sounding that prompted me to go into the room.

MYERS: When Joanne Williams came back, you were actually asking her -- you asked her who was in the room when the alarm went off. Do you remember asking her anything like that?

JAYARAM: No.

MYERS: Do you remember asking her what had happened when she got back, you asking her what had happened?

JAYARAM: No, I think she asked me. I don't think I asked her because she wasn't in the room.

MYERS: I said to you or asked you a little earlier about not putting any reference to anything you said about dislodgement or suspicions or anything like that in the clinical note. All right? I'm saying that because Dr Jayaram, whatever else happened on that shift, on this morning you did not see something that was a nightmare, did you? Do you remember you said in that interview, which was to ITV on 18 August 2023, you said:

"That night is etched in my memory. It'll be in my nightmares forever."

JAYARAM: It will. It will be in my nightmares because I only wish (1) my documentation had had more information.

I only wish that I'd had the courage, as Mr Myers said, to escalate in a different way. I only wish that I'd had the courage to do that. That's why it's going to be in my nightmares forever.

MYERS: No. You weren't saying it was in your nightmares forever because you did nothing. Do you want to hear the clip again so we can hear how you put it? You said:

"This is a night that is etched on my memory and will be in my nightmares forever."

That is what you said at the beginning of that interview, isn't it, Dr Jayaram --

JAYARAM: That's correct.

MYERS: -- describing, as I asked you, the impact of this on you? Yes? To be clear, I've already made the point, I suggest to you, if it had anything like that impact, if you'd seen anything in the way you describe it, you would have acted. And you disagree.

JAYARAM: I say I should have acted.

MYERS: Right.

Can we go to what I was going to ask you. Can we go to tile 145, please, which is the transport note at 05.55. If we go behind that, please. Would you like to scroll down, if we could, to the entry at 05.55:

"Call received from Dr Jayaram. Baby dislodged the tube and had to be re-intubated."

First of all, that's, so far as we can find, and you correct me if I'm wrong, the only written reference of any purported conversation with you about dislodgement.

JAYARAM: Yes.

MYERS: That's right, isn't it?

JAYARAM: That's correct.

MYERS: There is a call received at 5.55 by the transport network, isn't there?

JAYARAM: That's correct, to update them.

MYERS: You have told them that the baby dislodged the tube?

JAYARAM: I would have framed it as the tube was dislodged.

MYERS: First of all, I'm going to suggest to you, Dr Jayaram, it records accurately what you said. Do you disagree with that?

JAYARAM: I can't remember what I said, so --

MYERS: Well, this morning we looked at a number of other notes.

If we just look at T75, please. This is one that we looked at this morning. Do you remember, we looked at the initial contact with the networks?

JAYARAM: That's correct, yes.

MYERS: Yes. This is a note that you didn't fill in, did you?

JAYARAM: No.

MYERS: This is being put in from what you're saying to the person at the other end, isn't it?

JAYARAM: That's correct, yes.

MYERS: If we scroll down we see the details. You provided these details, haven't you?

JAYARAM: That's correct.

MYERS: And we can go down to the third page, because there's three pages here, we see "Resuscitation measure/current problems". Can you see that, Dr Jayaram?

JAYARAM: Yes.

MYERS: When you were asked about this, you said this morning as to this:

"Anything on here is what I told the team."

JAYARAM: Yes.

MYERS: You don't have a problem with their accuracy here, do you?

JAYARAM: No.

MYERS: No, right. Can we go to tile 143, please. This is another one that we looked at. We looked at the entry at the top where it says:

"Handover taken from Dr Jayaram, 05.50. Discussion over time of retrieval, night/day team. Dr Jayaram keen not to miss window of opportunity whilst baby stable. Dr Sanjeev..."

Could you read the rest of that, please?

JAYARAM: "Dr Sanjeev, transport consultant, contacted. Happy for the day team to go first thing."

MYERS: Yes. And no criticism that the details are wrong there?

JAYARAM: No.

MYERS: So they're able to write down accurately what you have told them; yes?

JAYARAM: Yes.

MYERS: As it happens by the way, it seems you were happy to wait for the team to come and collect --

JAYARAM: I would have preferred that they'd have come sooner.

MYERS: You were desperate to get her off (overspeaking) --

JAYARAM: The ultimate decision is up to the transport team.

MYERS: You'd have been desperate to get her off the unit, wouldn't you, Dr Jayaram?

JAYARAM: I think there was a window of opportunity where she was stable and, given everything else, the sooner she was moved the better.

MYERS: And can we go back please to tile 145, Mr Murphy. Sorry for the jumping --

MR JUSTICE GOSS: I'm sorry, can we go back to that?

I wasn't concentrating because I was reading what was said there. Are you suggesting that it was Dr Jayaram who said --

JAYARAM: It would have been Dr Sanjeev who made that call, the "Happy for the day team to go first thing". It's very difficult, once the senior consultant from the transport team has made a call on the information available that they are happy to delay it slightly, to go over that.

MR JUSTICE GOSS: Are you suggesting who it was was happy for the day team to go first thing?

JAYARAM: I think Dr Sanjeev suggested that that's what they would like to do and I was --

MR MYERS: Two things following from that. First of all, the detail of what you have had to say there, you agree is accurate, don't you?

JAYARAM: I think so, yes.

MYERS: Right. Secondly, nowhere do we see you saying anything like "We need to get her off urgently now"?

JAYARAM: No, that's correct.

MYERS: In fact, Ms Letby continued caring for her on a number of occasions that morning didn't she?

JAYARAM: I can't recall. I assume so. I know that Nurse Williams was the main nurse.

MYERS: Can we go back please to tile 145 then and go into that.

Can we just go to the top? You agree, where we have the 17 February 16 at 03.15, the details there, you've accepted they are accurate, aren't they?

JAYARAM: Yes.

MYERS: You don't make the call at 03.31 or 03.35:

"03.41. Called Dr Jayaram back with the above plan. He was agreeable totally with all the above."

You have agreed that's what took place in that call, isn't it?

JAYARAM: Yes.

MYERS: 05.55:

"Call received from Dr Jayaram. Baby dislodged the tube and had to be re-intubated."

That one you pick out as being wrong; is that right?

JAYARAM: I'm not saying it's wrong, it's their interpretation of what I said.

MYERS: That is what you said, isn't it?

JAYARAM: I presume that's what I said to them at that time.

MYERS: If you had seen somebody deliberately dislodging a tube with murderous intent I'm going to suggest, whatever else happened, the last thing you would have said is the baby dislodged the tube, Dr Jayaram.

JAYARAM: I think this just comes back again to the -- I'm trying to think of the best way to frame this. The absolute sort of denial of not wanting to believe it could be that, and as I said, it's the same as the reasoning behind why I didn't pick up the phone and call 999.

It's that -- I just didn't want to believe it, even though it was nagging, so --

MYERS: This is not just not saying it, Dr Jayaram, this is you proposing a reason for why the tube was dislodged, isn't it?

JAYARAM: As I say, we like to think within the box and think within natural causes.

MYERS: And you gave that reason because at the time that was what you thought had happened, isn't it?

JAYARAM: It's what I would have really liked to have believed had happened, but I had the nagging suspicion because it didn't really, and the more I thought about it subsequently, make sense for the baby to have dislodged it.

It's very difficult to put into words the -- dealing with the discomfort of thinking the unthinkable, really.

MR MYERS: Thank you, Dr Jayaram.

MR JUSTICE GOSS: Thank you.

MR JOHNSON: There's a matter of law I would like to raise before I ask any further questions, please, my Lord.

MR JUSTICE GOSS: Yes.

As you know, matters of law are for me, members of the jury, and you have to leave the courtroom. It's another break for you. About how long do you anticipate?

MR JOHNSON: Oh, not very long, 5 minutes.

MR JUSTICE GOSS: Five to 10 minutes then.

(In the absence of the jury)

MR JUSTICE GOSS: Should the witness withdraw?

MR JOHNSON: Sorry, yes, the witness should withdraw.

(The witness withdrew)

MR JOHNSON: It's been put both directly and insinuated repeatedly that if Dr Jayaram really believed that Lucy Letby was killing babies he wouldn't have acted the way he did following this incident. It's a matter of record that the consultants were having these discussions, Dr Jayaram has said, and that they were saying that they thought that Lucy Letby was responsible, so I would like to take Dr Jayaram through the chronology because if I don't do it with him I'll have to call another consultant from the hospital to deal with this discrete issue. It's a matter of record.

There is a document in the unused -- it's a witness statement of Dr Brearey, which I can email, and if I put that on the screens for the lawyers and the witness, I can take Dr Jayaram through it to establish the facts that, we submit, now require to be established.

MR MYERS: My Lord, we disagree. There's been no challenge to the background. We went through the background and what was said with regard to Dr Jayaram's colleagues.

It was made abundantly clear to him, in fact prefacing the cross-examination, that the questions were directed at this incident and deliberate attempts to increase a sense of suspicion about this. None of the questioning has suggested that across the board this was groundless or that the doctors didn't consider that there was cause of complaint. Quite to the contrary, the basis to the questioning was: at this time you believed she may have deliberately been hurting or killing babies. That's all clear.

There is no basis, therefore, to start drawing in evidence from other witnesses, for whatever purpose, because there is no impression that's being suggested that other doctors did not think this. It's directed specifically at Dr Jayaram as to why he did not take direct action as a result of this particular incident and there is no proper basis therefore to seek to introduce the material the prosecution seek to introduce.

MR JOHNSON: Well, why didn't you ring 999? Answer: because we had no confidence in the hierarchy. It's the basis for the lack of confidence in the hierarchy --

MR JUSTICE GOSS: I am satisfied, in fact, that in the light of the matters that were put in cross-examination and answers that were given -- indeed, there was one question I was going to ask, because if I correctly heard the witness when he was being cross-examined, he did say that he specifically raised concerns before this with Dr Brearey. So it's come in that way in any event.

MR JOHNSON: Yes.

MR JUSTICE GOSS: So I think you are entitled to adduce evidence in relation to concerns that were raised with colleagues.

Mr Myers, I take your point, you can argue it, that --

MR MYERS: My Lord, of course. But there has been -- the basis for this was that in some way this is necessary to correct a suggestion that, for instance, the doctors did not think this at the time. That's the purpose of it.

There has been no suggestion -- and the criticism was why Dr Jayaram did not ring 999 because of this.

And in fact, he even went to the point of going to the interview he went to to deal with other matters and that this is the time that he formally raised this, I wasn't suggesting that there hadn't been contact beforehand.

I can understand why the prosecution would like to enlarge the area here, but that's simply done to support the credibility of the witness more generally.

I'm compelled to observe, there has been no suggestion that it was not discussed with the other doctors or the history of the matter.

MR JUSTICE GOSS: I think that what was discussed, because it arose directly as a result of the cross-examination, can be -- I don't think we need to go through the full history, Mr Johnson.

MR JOHNSON: Right. I'll try and deal with it in a limited way.

MR JUSTICE GOSS: I think if you could deal with it in a limited way.

MR JOHNSON: The other thing I would like to raise is I'm not clear, it may be that the jury are not clear, it may just be me, whether the defendant's case is she was in the room or she wasn't in the room.

MR JUSTICE GOSS: Well, I think, as I understand it, she has no recollection about any event like this, which I am taking to be that she has no recollection of an incident of any kind taking place. Is that right, Mr Myers?

MR MYERS: My Lord, first of all, the position hasn't changed from the last trial and many weeks were spent cross-examining the defendant, so it's surprising if my learned friend doesn't know what the case is. It is that she has no recollection, she cannot say what she was or wasn't doing, but she was not doing something designed deliberately to harm this baby. And those details, which we say were included to create that impression, have been included inaccurately. That's why the credibility of Dr Jayaram is in dispute.

But as to any positive account of what she did or didn't do, she cannot say and has never sought to do so.

MR JUSTICE GOSS: Because she has no recollection?

MR MYERS: Because she has no recollection. I do emphasise, it's important to emphasise, that is not the same as accepting that events that he says took place took place. That will become apparent.

MR JUSTICE GOSS: I didn't take it that there was any acceptance.

MR MYERS: I know your Lordship doesn't.

MR JUSTICE GOSS: So there you have it, Mr Johnson.

MR JOHNSON: Thank you.

MR JUSTICE GOSS: Right, thank you very much. Witness back in, please.

(The witness returned to the witness box)

(In the presence of the jury)

MR JUSTICE GOSS: Yes, Mr Johnson.

Re-examination by MR JOHNSON

MR JOHNSON: Dr Jayaram, one of the areas you were questioned about was why you didn't ring the police and part of your explanation concerned the lack of confidence that you had in the hospital management.

JAYARAM: That's correct.

JOHNSON: If Mr Murphy would help us with the chronology here, please, by putting up tile number 1. I think Mr Myers showed you part of this.

JAYARAM: He did, yes.

JOHNSON: [Baby A]. That's when he died, on 8 June, and Lucy Letby has been convicted of his murder.

JAYARAM: Yes.

JOHNSON: [Baby B] had a dramatic collapse the following night, in effect, and Lucy Letby has been convicted of her attempted murder.

[Baby C], on 14 June, died and Lucy Letby has been convicted of his murder.

Finally on that screen, [Baby D] died on 22 June and Lucy Letby has been convicted of her murder.

Did those events cause you and your colleagues to raise concerns with management?

JAYARAM: At that time the cluster of events in that short period of time was noted. Dr Brearey, at that stage, actually raised the fact that there'd been in cluster of events with senior management at that time.

JOHNSON: Moving on, please, to tile 2.

[Baby E] died in the early hours of Tuesday, 4 August, and Lucy Letby has been convicted of his murder. Did that further event cause you and your colleagues to raise further concerns?

JAYARAM: Not specifically at that time from what I recall.

JOHNSON: No. Moving on to tile 3, [Baby G], on 7 September and 21 September, had two very serious collapses.

Lucy Letby has been convicted of attempting to murder her twice.

[Baby I] then collapsed several times, as we see, on 30 September, 13 October, 14 October and 23 October, when she died. Lucy Letby has been convicted of [Baby I]'s murder. As these events unfolded in the NNU, did you and your colleagues express any further concerns?

JAYARAM: Yes. Following this cluster of events, I can't remember whether it was after 23 October, but it was between late September and some time in mid to late October, Dr Brearey, as neonatal lead, again escalated concerns to senior managers.

JOHNSON: And did senior managers take your complaints seriously?

JAYARAM: Senior management's response was just watch and see.

JOHNSON: What did you understand, from your perspective, was the correct way to deal with these issues?

JAYARAM: We didn't really know what the correct way to deal with these issues was. We wondered should we be ringing the police and we also knew that that might just get turned back against us. We escalated these things up the hierarchy to senior level/executive level management on the understanding that they would know how to -- would listen to our concerns and help us together to work out the best way forward to explore these concerns.

It was frustrating that -- and bear in mind by this stage the thought of -- the association with Lucy Letby had been noted. By

this stage nobody was really thinking the unthinkable, the unthinkable was there, but the kind of first thought is: surely it can't be that.

But we were frustrated that it was still being put down to just bad luck, coincidence, at that stage.

JOHNSON: Subsequent to these events, at tile 301, please, the twins [Babies L & M] had events, each on 9 April, which have resulted in Lucy Letby being convicted of attempting to murder them.

On Friday, 3 June, [Baby N], an event which resulted in Lucy Letby's conviction of attempted murder.

Thursday the 23rd and Friday, 24 June, [Babies O & P], who were brothers, were both murdered and Lucy Letby has been convicted.

Following those events, was Lucy Letby removed from the unit?

JAYARAM: So after the thematic review with the external neonatologists from Liverpool, in early February, Dr Brearey again asked for an urgent meeting with the medical director of the hospital and the director of nursing to discuss that we'd had the thematic review, we couldn't find any common themes, and to express that as a group of consultants we had concerns at this stage about the potential deliberate harm being caused and how could they help us investigate it. There was no response to that request for a meeting until, I think, late May. I can't give you the exact dates.

The conclusion of that meeting was, again, no action needed from our point of view, from a management point of view.

JOHNSON: Yes.

JAYARAM: What then happened, after [Babies O & P], was that the following week, we as a group of consultants met and said, we really have significant concerns, we need to do something, and the decision was taken that we would make representations to the executive board, that we'd take a number of actions until we knew further about what was going on.

One of those actions was to reduce the status of the unit, so we were what was called a level 2 unit, we look babies down to -- I can't remember whether it was 27 or 28 weeks -- and we said we would stop taking them below 32 weeks, and we also said we wanted to express our discomfort about Lucy Letby working on the unit looking after babies under our names as their responsible clinicians.

That meeting took place about 10 days after [Babies O & P] and we were told specifically at that meeting when we were discussing how it should be handled --

MR JUSTICE GOSS: I think, Mr Johnson, I'm going to cut this short because we are really only concerned with events up to February.

MR JOHNSON: Very well, yes.

Can I put it this way: did you receive support from management so far as the concerns that you were articulating to them about Lucy Letby?

JAYARAM: We were explicitly told that at that stage it would be absolutely the wrong thing to go to the police because it would be bad for the reputation of the trust and there would be blue and white tape everywhere. That's what we were told at that time.

JOHNSON: All right. Tile 145, please. When you were directed to this, you were specifically directed to the entry regarding the tube, and it's just further down a bit, at 05.55. Do you know, as a matter of fact, who it was that wrote this note?

JAYARAM: No, I don't know who wrote the note. I don't recall to whom I was specifically speaking.

JOHNSON: Okay. Well, is the person who wrote the note medically qualified, do you know that?

JAYARAM: I don't know. Usually, when we ring the transport team, we will give the initial details to somebody on the phone who I don't think is usually a doctor, I don't know whether they have a nursing background or whether they just have an administrative background.

JOHNSON: All right. I think initially you said that you didn't -- your recollection was that you hadn't actually said that the baby had dislodged the tube.

JAYARAM: I honestly can't remember. I thought -- I wonder whether I framed it in a more passive way as in the tube was dislodged.

JOHNSON: What passive way were you suggesting you might have framed it?

JAYARAM: It would either be "the baby's dislodged the tube" or "the tube was dislodged", "the tube became dislodged".

JOHNSON: If you said to somebody that understood the basic concepts that we're dealing with, "The tube dislodged", what are the possibilities of how the tube dislodged?

JAYARAM: A tube would dislodge, thinking through things that happen more normally, either during handling of the baby, so if the baby was being handled for cares to be moved, but that would be spotted fairly quickly by the person handling the baby.

JOHNSON: Yes.

JAYARAM: The baby could be very active and agitated and have an arm in the wrong place and pull it, but that would usually be spotted, and if the baby had been that active it would have been documented. Apart from those two, those would be the common causes.

JOHNSON: Would it occur to anyone in your field unless it was specifically said that someone had deliberately dislodged --

JAYARAM: Thinking about it, it should raise a question of how a 25-week gestation baby who's intubated managed to dislodge a tube spontaneously.

JOHNSON: Can we go to tile 101 now, please. This is the nursing note, all right? It was suggested to you before you were shown this that this had written in it that the tube was blocked. Okay? I want to go to the original text and read it all and see if what you were told was in here is actually in there.

Starting at the top:

"Baby girl born at 25 plus 1 gestation. Footling breech delivery. Baby born in fair condition (please see medical notes for full resus details resus) [as read]."

This is written by Joanne Williams, isn't it, on the face of it; do you agree?

JAYARAM: I believe so, yes.

JOHNSON: "Intubated at approximately 12 minutes of age with size 2 ETT. Curosurf given [with a quantity]. Brought through to unit and placed in humidified incubator.

Weight 692 grams. Commenced SIMV 21/5. Rate 50 in 50% oxygen. High leak noted. Approximately 45 minutes later began to desat to 80s. Dr Jayaram in attendance and on examination colour loss visible and no colour change on CO2 detector. [Question mark] ETT dislodged."

It doesn't say "blocked", does it?

JAYARAM: No.

JOHNSON: No. Where would Joanne Williams get that information, "ETT dislodged"?

JAYARAM: She's either heard me suggest it or she's looked at the clinical picture and made a diagnosis that that's what's happened.

JOHNSON: As the designated nurse, was she in a position to look at the tube?

JAYARAM: She'd have been more likely to look at the tube than me.

JOHNSON: Why would she be looking at the tube?

JAYARAM: (1) because I was busy resuscitating the baby and preparing for re-intubation and, again, she'd have been the one that would have picked it up to put in the bin basically, so she would have looked at it more closely.

JOHNSON: Yes.

JAYARAM: I would have thought if she'd seen it was blocked, she would have documented it, but I can't say that for sure.

JOHNSON: We'll ask her, but it might be surprising if she wrote "ETT dislodged" if she saw that it was blocked.

MR JUSTICE GOSS: That's a comment.

MR JOHNSON: Yes.

You were asked about what you had said in interview -- when I say interview, I mean when the police were in effect getting your account of what had happened. Do you remember that?

JAYARAM: Yes.

JOHNSON: You were asked specifically about something that you said in an interview on 26 May 2021. Do you remember?

JAYARAM: Was that around the alarms?

JOHNSON: Yes. You were actually interviewed a long time before that, weren't you, in 2018?

JAYARAM: Yes.

JOHNSON: Do you remember that?

JAYARAM: Yes.

JOHNSON: If Mr Murphy can help us with 4 April 2018 at page K9647, please. What I'm interested in is the blocking of the tubes; do you remember? It's not the alarms, it's the same point about the tube. It was pointed out to you that in 2021 you said that you couldn't remember --

JAYARAM: Yes.

JOHNSON: -- or whether you'd looked or you hadn't looked or glanced or not glanced. What I'm more interested in is what you said 3 years earlier on 4 April. All right?

So you're talking about the relative calibres of the tubes.

JAYARAM: Yes.

JOHNSON: If Mr Murphy just scrolls up a bit so we get the beginning of the answer. You say:

"The numbers 2, 2.5 [it says 5.3 there] is to do with the calibre of the tube, the diameter" --

MR JUSTICE GOSS: I think it's probably 2, 2.5, 3.

JAYARAM: It should be 2 or 2.5 or 3.

JOHNSON: Yes:

"... and obviously the wider the tube you can get in, the easier the ventilation is. But the wider it is, the harder it is to get it through the vocal cords, and if you put it in too wide, a tube, you can potentially cause damage. So in this sort of size of a baby, a 2 to 2.5 would be ideal. Obviously, what's important is whether you can actually ventilate the baby through the tube."

And so on. And you then say:

"And in this situation with a size 2, on initial settings of 21/5..."

Which is the ventilator pressure, isn't it?

JAYARAM: Yes, that's correct.

JOHNSON: "... we were managing to ventilate the baby without any difficulty."

Then what did you tell the police in April 2018, 3 years before the bit that was quoted to you from a different interview?

JAYARAM: And it wasn't a situation -- is this the 2018?

JOHNSON: Yes.

JAYARAM: "The tube was blocked. You can see if a tube is blocked you can actually see if a tube is blocked and a smaller tube is more likely to get blocked, but this tube wasn't blocked. If you blocked it when you take it out, you can see that that's there, you can see plugs of mucus or anything in there."

JOHNSON: Yes. Were you there telling the police a couple of years after the event, 3 years before the interview that's been quoted to you --

JAYARAM: Yes.

JOHNSON: -- that this tube was not blocked?

JAYARAM: Yes.

MR JOHNSON: Does your Lordship have any questions?

MR JUSTICE GOSS: No, thank you.

Dr Jayaram, that completes your evidence. Thank you for coming and giving it. You know the rules: you must not speak to anyone who's going to be a witness about this case until they have given their evidence.

JAYARAM: Absolutely.

MR JUSTICE GOSS: Thank you very much. You are free to go.

JAYARAM: Thank you very much indeed, my Lord.

(The witness withdrew)

MR JUSTICE GOSS: That's it for today, members of the jury.

A bit late yesterday, a bit earlier today. Can you be ready, please, to continue at 10.30 tomorrow morning?

Please remember your responsibilities as jurors: you must not conduct any research by any means about anything or anyone to do

with this case and you must not communicate with anyone by any means about anyone or anything to do with this case. Thank you.

(In the absence of the jury)

MR JUSTICE GOSS: Do you want to go down?

MR MYERS: I'd be grateful if we could, my Lord.

MR JUSTICE GOSS: Could you keep the defendant here until counsel have been down to see her? Thank you very much.

(4.15 pm)

(The court adjourned until 10.30 am on Thursday, 20 June 2024)