

18 November 2022

Baby E

DR DEWI EVANS (recalled)
Examination-in-chief by MR JOHNSON
Cross-examination by MR MYERS
Re-examination by MR JOHNSON

DR SANDIE BOHIN (recalled)
Examination-in-chief by MR JOHNSON
Cross-examination by MR MYERS
Re-examination by MR JOHNSON
Questions from THE JUDGE

MRS CLAIRE HOCKNELL (recalled)
Examination-in-chief by MR JOHNSON

Summary of interview with LUCY LETBY re [Baby E] (read)

Friday, 18 November 2022
(10.30 am)

(In the presence of the jury)

MR JUSTICE GOSS: Mr Johnson.

MR JOHNSON: My Lord, Dr Dewi Evans, please.

DR DEWI EVANS (recalled)

Examination-in-chief by MR JOHNSON

MR JOHNSON: Welcome back, Dr Evans. For the recording would you identify yourself, please?

EVANS: Yes: Dr Dewi Evans.

JOHNSON: Thank you. Have you written several reports bearing on the case of [Baby E]?

EVANS: I have.

JOHNSON: Was your initial sift report dated 7 November 2017?

EVANS: Correct.

JOHNSON: Your more substantive report, dated 31 May 2018?

EVANS: Yes.

JOHNSON: And did you then provide three further statements or reports, dated 24 January 2019, first of all?

EVANS: March, 24 March.

JOHNSON: I beg your pardon, 24 March.

EVANS: Yes.

JOHNSON: 2019. Did that deal -- well, I'll deal with the material in a moment.

Was there then a statement dated 15 October 2021?

EVANS: Yes, there was a little one on 24 June 2021 -- 15 October 2021, yes.

JOHNSON: Thank you. The one I had finally was -- the version I have doesn't bear the date, but that's the June 2021 statement.

EVANS: Yes.

JOHNSON: All right. Can we deal first with the material that you received. As in other cases, did you receive from the police medical records from the Countess of Chester Hospital?

EVANS: I did.

JOHNSON: A selection of which the jury has seen as the evidence has been deployed?

EVANS: Yes.

JOHNSON: Did you also receive material from Alder Hey?

EVANS: I did.

JOHNSON: Some photographs?

EVANS: Yes.

JOHNSON: And radiographs?

EVANS: Yes.

JOHNSON: At a later stage, in 2019, when you made your statement in 2019, were you sent extracts from witness statements that had been made by some of the witnesses?

EVANS: I did, yes.

JOHNSON: And in particular, were you sent an extract from [Mother of Babies E & F]'s witness statement --

EVANS: Yes.

JOHNSON: -- concerning the events that she told the jury about in evidence on Monday of this week?

EVANS: I was, yes.

JOHNSON: Thank you. Has all that material been brought to bear so far as your opinion in this case is concerned?

EVANS: Yes, it has.

JOHNSON: Thank you. I'm going to start, if we may, with your report of 31 May 2018. Within the body of the report and at the beginning of that report do you summarise the time of [Baby E]'s birth, his birth weight, the gestation at the time of his birth, and the date of his death?

EVANS: Yes.

JOHNSON: I'm just going to run through quickly some of the tiles to put all this into context if we may. If Mr Murphy would help, please. Starting with tile number 5, does that record the circumstances of [Baby E]'s birth on 29 July, the material behind that tile?

EVANS: Well, I don't know what's behind it.

JOHNSON: It's all right, don't worry. I'm just going to wait for Mr Murphy to click on the tile for me. If you don't mind waiting a second.

(Pause)

I think that --

EVANS: Yes. I can't read the small print, but yes, I'm familiar with that page.

JOHNSON: So this deals with the admission of [Baby E] to the neonatal unit --

EVANS: Yes.

JOHNSON: -- which we've heard was shortly after his birth?

EVANS: Yes.

JOHNSON: And there within your report, I think you have noted his heart rate, his sats, the fact that he was in air, and his temperature?

EVANS: Yes.

JOHNSON: Is that right? Okay.

EVANS: That's correct, yes.

JOHNSON: Did you observe that the emergency delivery of [Babies E & F] was due to in utero growth retardation?

EVANS: That was the information at the time, yes.

JOHNSON: And did you note the fact that the Apgar score for [Baby E] was 7 at 1 minute and 9 at 9 or 10 minutes?

EVANS: Yes, that is correct, yes.

JOHNSON: Thank you. Did you record the fact that at 22.40 on the 29th, [Baby E] was recorded as "desaturating on handling"?

EVANS: Yes.

JOHNSON: And that an umbilical venous catheter had been passed?

EVANS: Yes.

JOHNSON: If we just come out of that screen, please, if we could, for a moment.

So far as your summary was concerned, Dr Evans, did you move from the 29th to the 30th?

EVANS: I did.

JOHNSON: Did you record the fact that [Baby E] at 9.30 that morning, on the 30th, was on CPAP in air?

EVANS: Correct.

JOHNSON: Did you record various other findings from some sort of blood analysis?

EVANS: Yes. His CRP, which is a marker of inflammation, was low, was 1, which is normal. His haemoglobin was fine.

His white cells were a normal range. And also that his oxygen saturations were 100% in air. In other words, as stable as you can get.

JOHNSON: Yes. Did you record the fact that later that morning, a long line had been inserted into his left saphenous vein?

EVANS: Yes.

JOHNSON: And where is the saphenous vein?

EVANS: In the leg, inside of the leg.

JOHNSON: Thank you. Did you then observe the blood gas findings or readings at 18.21, later that day?

EVANS: I did and they were all very satisfactory results.

JOHNSON: Moving on to day 3 of [Baby E]'s life, 31 July 2015, did you note the fact that it had been recorded in the notes that [Baby E] had been off CPAP since midday the previous day?

EVANS: I did.

JOHNSON: That his blood gases were excellent?

EVANS: Correct.

JOHNSON: That he was receiving liquid feed through a line?

EVANS: Yes, intravenous fluid, yes.

JOHNSON: You recorded his urine output?

EVANS: Yes, which was very satisfactory, within the normal range.

JOHNSON: And what did you observe so far as his breathing was concerned?

EVANS: Again, his oxygen saturation was 100% in air. So he was not requiring additional oxygen. His respiratory rate was 70, and he was active and pink, so all was satisfactory.

JOHNSON: Did you record the fact that because [Baby E]'s glucose was raised on 31 July, he had started to receive insulin intravenously?

EVANS: I did.

JOHNSON: Was that -- do you know between what times the insulin was being received by [Baby E]?

EVANS: Yes. Now, he had insulin on and off, if I could put it that way, over the next few days. So he was started on insulin at about 6.45 in the morning because his glucose values were increased. His sugar level dropped to low volumes, so it was stopped, and then over the next few days his insulin was restarted, stopped again, restarted and stopped again. So I can go through the times when it was started, stopped, started, stopped. But on the whole, his glucose values were above the normal range during his next few days, yes.

JOHNSON: All right. If anyone wants to make a note of it, the prescription for insulin, I think, is at tile 94, isn't it?

EVANS: Yes.

JOHNSON: Perhaps we can stick with your summary for now and if any further detail is required it can be adduced in due course.

The total time that [Baby E] received insulin, was it just over about 3 hours that day?

EVANS: Initially, yes.

JOHNSON: So that's 31 July. Moving on to day 4 for [Baby E], which was 1 August, again how was [Baby E]'s breathing on day 4?

EVANS: Again, what I've entered from 11 am is:

"Well. Good gases. No increased work of breathing."

So therefore stable respiratory condition and he was still having a small dose of insulin from 7.30 pm on that day.

JOHNSON: Again, if the precise time at which [Baby E] received insulin is relevant, that is recorded at tile 94, I think, or at least the prescription --

EVANS: Yes.

JOHNSON: -- is there recorded. So that's day 4. Day 5 of [Baby E]'s life was 2 August.

EVANS: Yes. Again, he is stable. He is now on 23% oxygen.

Air is 21% oxygen, so he's on a tiny amount of oxygen and it records that his saturations were varying between the high 80s and the low 90s, which is why he would have been given a bit of oxygen in the first place to sustain satisfactory oxygen levels. The only other comment I noted was of mild recession, in other words you could see the ribs moving during his breathing. But that's pretty common in little babies anyway so that's okay.

JOHNSON: Is this what has been referred to by some of the treating professionals as subcostal recession?

EVANS: Yes, yes, yes, yes.

JOHNSON: Did you note the record of how [Baby E] was handling?

EVANS: Yes. This was a good marker, again, of well-being and they'd recorded he was moving well on handling, so that's a good sign again.

JOHNSON: I'm sure the jury now are reasonably familiar with this point, but what is the point here about how babies behave when they're being handled by medical professionals or their parents?

EVANS: Premature babies particularly, if they're handled and they're not very stable, they're not very well, dislike handling and it could lead to irregularities of breathing, stopping breathing, increased or decreased heart rate, a drop in oxygen saturation. In other words, all these are markers of babies not being as well as you'd like and therefore -- which is why you need to handle them as little as possible, so therefore if they're moving well on handling and they're "handling well", which is the term used, if they're handling well it means that they don't have any of these markers that suggest that there is something wrong with them or something unwell with them, I should say.

JOHNSON: Okay. Can we move, please, Mr Murphy, to tile 56.

Could we go to the original document, please?

As I think everybody in this room understands, this is a document that covers a 24-hour period.

EVANS: Yes.

JOHNSON: From 18.00 hours on 2 August to 17.00 hours on 3 August?

EVANS: Yes.

JOHNSON: If we could just scroll down a little, please, so that we can get all three lines plotted within view.

Thank you.

What does this tell us, if anything, Dr Evans?

EVANS: This is an extremely satisfactory pattern of well-being.

The top line measures heart rate and the heart rate is -- it's a snapshot every hour of the heart rate.

[Baby E] would be on continuous heart rate monitoring.

But this is the snapshot taken by the nursing staff every hour and all heart rate values are normal, they're around about 140, one or two go up to 150, but this is a very, very stable pattern.

The second one relates to his respiratory rate.

Initially, it was 70, which is at the top end of the normal range. You know, above 60 is -- sorry, up to 60 is considered the normal range. But it settles down very, very quickly and his respiratory rate is around about 50 for most of that day. Then his temperature is within the normal range. So in other words, that's fine.

JOHNSON: So that's the 24 hours approaching the night shift on which he died?

EVANS: Yes.

JOHNSON: Can we just look at tile 71 as well, which deals with -- if we just hold that for a second, just to put this into context. We can see 10 o'clock, 10 am, on the 3rd marked there, can't we, Dr Evans?

EVANS: 10 o'clock, yes.

JOHNSON: That column that's being highlighted now by, very helpfully, by Mr Murphy. Just to take an example of something else going on at the same time, if we can go to tile 71, please.

If we look to the right-hand side of that document, we see:

"Kangaroo care for mum and dad."

EVANS: Yes.

JOHNSON: For 3 hours as recorded from 10 am, so that takes us from 10 until 1 pm.

EVANS: Yes.

JOHNSON: We've heard direct evidence from [Nurse B] about that, so you told us what the charts show us. The charts in conjunction with the evidence given by [Nurse B], what does that show us?

EVANS: This is the kangaroo care record. Kangaroo care is where the baby's brought out and nursed, held by its mum. And again, you'd only consider kangaroo care once the baby is stable because, as we've heard, if babies are handled and they're unwell they don't -- they can deteriorate. Therefore the presence of kangaroo care and that he was coping with kangaroo care meant that he was a very stable, well little baby.

JOHNSON: Yes, thank you. Tile 78, if we could move on to that and look at a different source of information during this three-hour period from 10 until 1.

At 11.45 we have Dr Ventress' notes from the ward round. She told us, I believe, in evidence that [Baby E] was having skin-to-skin with [Mother of Babies E & F] at this stage.

EVANS: Yes. Well, it's not on the note, but yes.

JOHNSON: Yes, that was the evidence.

EVANS: Yes, yes.

JOHNSON: If you remember --

EVANS: Ah yes, thank you.

JOHNSON: -- the other doctor who came later, the blonde lady whose name I've temporarily forgotten, told us that she examined [Baby E] later because there hadn't been an examination at this stage.

EVANS: He was having cuddles with mum.

JOHNSON: Exactly. This note also shows, I believe, that [Baby E] was spontaneously ventilating in 25% oxygen?

EVANS: Yes.

JOHNSON: So again, is that a sign of well-being?

EVANS: Very well, he's breathing without support, needing little whiff of oxygen. That's fine.

JOHNSON: Moving on to tile 86, please. This is the lady whose name I'd forgotten, Dr Thomas. Her examination at 14.10. We can see the fact that there was a physical examination is there recorded by her.

EVANS: Yes.

JOHNSON: "No suspicious aspirates, abdomen not distended, and handling appropriately throughout the day with no increased work of breathing."

EVANS: Correct.

JOHNSON: That's recorded by Dr Thomas. So this is just after the three-hour period of kangaroo care recorded by [Nurse B].

EVANS: Yes.

JOHNSON: So again, what does this source of information reveal?

EVANS: Again, he's coped with his kangaroo care, he's coped with the handling involved with kangaroo care, his condition is extremely stable, his heart rate findings are normal, his oxygen saturations are satisfactory and there aren't any abdominal concerns -- you know, there's no abdominal distension, bowels not opened yet, pretty much -- quite common in little babies. But he's got "BS present", bowel sounds present, so a good sign, normal sign, and no suspicious aspirates, which relate to -- if a baby's intestines aren't working very well, you'll get aspirates up the nasogastric tube.

So a very, very stable little baby and AF, anterior fontanelle, soft, ie normal.

JOHNSON: We can see in Dr Thomas' plan that because the abdominal examination had been normal, the feeds could be increased?

EVANS: Yes.

JOHNSON: "Can go up on feeds."

EVANS: Yes.

JOHNSON: Thank you. Moving on to tile 90, please. Actually, I think it's there, I think it's on this piece of paper as well, so rather than... Yes, just looking at this, we can see at the bottom that the blood sugar was elevated at 18.4?

EVANS: Yes.

JOHNSON: And therefore the plan was to restart insulin?

EVANS: Yes.

JOHNSON: A very small dose because one of the previous doses had had significant results?

EVANS: Well, previously his initial -- the first time he was started on insulin, his glucose value dropped quite quickly. So therefore this is a tiny dose. [Baby E]'s own insulin had not kicked in, obviously -- not unusual in little babies, prem babies -- so therefore, he was given, correctly, top-up insulin intravenously by infusion.

JOHNSON: Thank you.

EVANS: Yes.

JOHNSON: Anything concerning so far as your opinion is concerned, doctor?

EVANS: No, by this time he was well. He needed insulin to control his glucose values, that is fine, that's what neonatal units are for. So that was the -- so that's fine.

JOHNSON: Thank you. I'm going to move on to after 6 pm, so approaching the night shift. I'm going to move to tile 106, please. This is the chart for the next 24 hours.

EVANS: Yes.

JOHNSON: It's J2685 if anyone wants to make a note.

Here we see, Dr Evans, the time parameters set out along the top row: 18.00 hours to 00.15, rolling over into 4 August.

EVANS: Yes.

JOHNSON: Just in general terms for now, if you would, please, what does that -- what does the data on that chart show?

EVANS: Right. The top record is the heart rate and it's a continuation of the chart we saw a few minutes ago.

So from 18.00 hours until 21.00 hours, heart rate remains nice and stable at around 140. Similarly for his respiratory rate from 18.00 hours to 21.00 hours, a nice and stable respiratory rate, 40 to 50 per minute, and temperature normal. So therefore, during the first part of the evening, we've got very stable results.

JOHNSON: Yes. Thank you. Can we go next, please, to tile 128.

Here we have, first of all, Dr Thomas' notes made just before the shift handover.

EVANS: Yes.

JOHNSON: Is there anything at all concerning in Dr Thomas' notes?

EVANS: Right. From the top, no is the answer, because -- right, his CRP is less than 1. It tends to -- which is a very encouraging finding. His white cells, again, 3.6 from 6.3. Both of those values are within normal values.

BM is now settling. The BM is the glucose value, so it's 12.1, 12.8, so above the normal range, but a value of 12 would be satisfactory. It's not going to cause the baby any harm. The plan was to repeat the glucose in 4 hours. That's fine.

These results show that they were planning to stop the antibiotics at 36 hours because he was improving.

No -- I can't read that, something CRP. And the blood cultures were negative to date. In other words that's

"BC negative to date", that's blood culture, and blood cultures, you check every baby for infection, so the blood cultures were negative, which is excellent, and so yes, all well.

JOHNSON: Okay. Can we move next to the fluid balance chart at tile 121, which is J2720.

If we highlight, please, Mr Murphy, the columns 20.15 to 22.00 hours.

Just looking back along the feeds row or rows, please, Dr Evans, do we see that [Baby E] was being fed via his nasogastric tube?

EVANS: Yes.

JOHNSON: Initially, from 01.00 hours up to and including 13.00 hours, so in other words, a 12-hour period?

EVANS: Yes.

JOHNSON: Was he receiving a single millilitre of breast milk every 2 hours?

EVANS: Correct.

JOHNSON: From 15.00 hours do we see those feeds, those bihourly feeds, being increased or doubled to 2ml every 2 hours?

EVANS: From 13.00 hours, actually, yes, it went up to 2ml two-hourly.

JOHNSON: I think it's actually, with respect, I think it's 15.00.

EVANS: Oh it is, sorry, yes. Apologies. I can't read that.

Yes, sorry.

JOHNSON: Don't worry. Then we see that, according to Lucy Letby's note, that feed was omitted at 21.00 hours and we have various notes relating to a "mucky 16ml", the word "discarded", and then in the 22.00 hours section we can see "6ml blood" written in.

EVANS: It's 15ml fresh blood and 6ml blood, yes.

JOHNSON: Yes, thank you. We know from the evidence of Dr Harkness that he was called to see [Baby E].

EVANS: Yes.

JOHNSON: That information is recorded in his notes at tile 124, if we could go there, please. So this is the bottom half of the same page we were looking at earlier:

"[Attend] to see patient re gastric bleed."

And we heard the evidence that he gave yesterday.

EVANS: Yes, we did.

JOHNSON: [Baby E] was treated with ranitidine --

EVANS: Yes.

JOHNSON: -- which is designed to deal with stomach acid problems; is that right?

EVANS: Correct.

JOHNSON: And with an antibiotic, is it metronidazole?

EVANS: Metronidazole, yes. Yes, it's a specialist antibiotic, yes.

JOHNSON: That particular antibiotic, he told us, is designed to deal with what?

EVANS: It deals with what we call anaerobic organisms and you introduce metronidazole if you suspect necrotising enterocolitis.

JOHNSON: Those were the events at 22.10. At tile 140 we have Dr Harkness' notes dealing with the blood loss at 23.00 hours.

EVANS: Yes.

JOHNSON: If we could just look at that, please. It's the one further down the page, I'm sorry. 23.00 hours, please.

Do we there see Dr Harkness' record of the events about which he told us yesterday?

EVANS: Yes.

JOHNSON: We see towards the middle of that entry:

"Saturates remained 60 to 70% in 100% oxygen."

EVANS: Yes.

JOHNSON: But underneath that, the line:

"Making good respiratory effort. Crying."

EVANS: Yes.

JOHNSON: We'll come back to that when we come to your opinions, Dr Evans, if we may.

Moving on to tile 199 next, please. Do we there have -- I think these are the consultant's records; is that right?

EVANS: I think so, yes.

JOHNSON: Do we there see a record of [Baby E]'s collapse?

EVANS: We do.

JOHNSON: "Gastrointestinal haemorrhage. Discoloured abdomen."

EVANS: Yes.

JOHNSON: And the material that we were told about in evidence over the last couple of days?

EVANS: Yes.

JOHNSON: I'd like to move on to your observations, please, Dr Evans, which are set out from paragraph 14 onwards of your report.

EVANS: Yes.

JOHNSON: We've heard something of the circumstances which led to [Mother of Babies E & F] receiving a caesarean section at Chester.

EVANS: Yes.

JOHNSON: The particular problems or prenatal problems that [Baby E], taken as an individual, had suffered, what would they have had on his lungs?

EVANS: Right. [Baby E] was one of twins, so therefore he had to share with his twin. But the antenatal records had recorded this phenomenon of absent or reverse end-diastolic flow, which is a marker of placental insufficiency.

JOHNSON: Just to stop you there, I'm sorry. What does placental insufficiency mean?

EVANS: Placental insufficiency means that the baby is not -- is at risk because if the placenta isn't working very well, then there is a risk that the baby is compromised and not receiving adequate oxygenation.

JOHNSON: Right. So that's the potential problem that's been flagged?

EVANS: Yes.

JOHNSON: And what do those circumstances -- what impact do they have on a baby's lungs and their capacity to breathe when born?

EVANS: Perversely, this will stress the baby and this leads to improving the baby's lungs to breathe out of utero. In other words, it's nature's way of preparing the baby to breathe outside the womb, I suppose, in a simple way.

Therefore you can often find that babies who have evidence of end-diastolic flow abnormality, in other words placenta not quite working as well as it should be, remarkably they tend to do quite well breathing-wise once they are born, which is what happened to [Baby E].

He required hardly any breathing support at all.

JOHNSON: Yes.

EVANS: So that's -- which is great.

JOHNSON: Yes. So what one might expect from this particular set of circumstances in fact materialised as reflected in the

evidence of those who cared for [Baby E] between 29 July and 3 August?

EVANS: That's right, that's right. In other words, they will be prepared to -- sorry, they would anticipate that if [Baby E] had significant breathing problems then you might require CPAP and if CPAP was insufficient, more oxygen, and if that -- sorry, if that was insufficient you'd require ventilatory support. In other words, the baby would be placed on a breathing machine, on a ventilator.

None of this was required, which is great, which is very satisfactory.

JOHNSON: You have touched on this to a degree already, but [Baby E]'s high blood sugar, what was the cause of that, first of all?

EVANS: Right. A straightforward cause of [Baby E]'s blood sugar is that his insulin production, his own insulin production, had not kicked in. In other words, you need to produce insulin from the pancreas to regulate glucose values or sugar values. So he's a prem baby, so [Baby E]'s particular problem was that his own insulin had not -- was insufficient to stabilise his glucose values and therefore he required top-up insulin intravenously.

JOHNSON: We've heard that [Dr C], the consultant, ultimately took the view at the time that [Baby E] suffered with or from NEC.

EVANS: Yes.

JOHNSON: First of all, is that a problem that is associated with the circumstances that faced [Baby E]?

EVANS: Yes, it is.

JOHNSON: Why is that?

EVANS: He's at increased risk of NEC. I said earlier that the placental insufficiency had a beneficial effect regarding his breathing, but it has an increased risk of him developing necrotising enterocolitis, which is this condition that affects the small intestine and causes abdominal tenderness, bleeding from the bowel, you know, and in serious cases can cause perforation of the bowel.

Therefore he was at increased risk of necrotising enterocolitis and therefore what the department did was keep a very careful eye on his abdominal status and one of the things they did was hold off giving oral feeds for the first few days. So therefore

he was at increased risk of NEC and, given what we know, he did not develop NEC.

JOHNSON: If a baby has NEC to any significant degree, how does that usually present itself?

EVANS: What you find is that the baby becomes sort of gradually unwell. You might find a bit of abdominal distension.

If you place your hand on the baby's abdomen, he would -- you might detect that -- tenderness.

JOHNSON: How does a baby, given that the baby can't speak, inform you that it's tender when you put your hand on the abdomen?

EVANS: His heart rate might go up, his respiratory rate might go up, his oxygen might drop. Those are the usual markers. We've mentioned handling earlier. He would not have coped with handling in any way. So therefore those are the initial markers of NEC. They are pretty non-specific, but, you know, if you're used to dealing with premature babies you would pick up these signs of early NEC, yes.

JOHNSON: On a slightly -- on the same point about NEC, is abdominal distension a well-known symptom of NEC?

EVANS: Yes, it is.

JOHNSON: Would you expect all medical professionals from the most senior consultant to the most junior neonatal nurse to know that?

EVANS: Yes.

JOHNSON: In an aspirate taken from a baby with NEC, what might one expect to find?

EVANS: You might expect to find bile in the aspirate and you might expect an increasing amount of aspirate. So instead of finding, you know, half a millilitre or something, which is usually of no significance, you might find 1 or 2ml and an increasing amount of aspirate from the NG tube.

JOHNSON: Might the aspirate contain anything in addition to bile if a baby had NEC?

EVANS: On the whole, no. On the whole, no. No, it's usually bile and, you know, juices, watery juices.

JOHNSON: Do you, having considered all the available evidence, consider that NEC is a viable explanation for what happened to [Baby E]?

EVANS: No, no. No, I've dealt with NEC on a number of occasions. [Baby E], in my opinion, did not have clinical features consistent with NEC.

JOHNSON: I want to move next, in dealing with what was or were the cause or the causes of [Baby E]'s premature demise, to turn to what you were told about what witnesses had seen.

EVANS: Yes.

JOHNSON: So for your assistance, Dr Evans, I'm going to turn to your witness statement of 24 -- in the version I have it says January, but I think you told us it's March 2019 --

EVANS: Yes.

JOHNSON: -- which deals with descriptions given by [Mother of Babies E & F] --

EVANS: Yes.

JOHNSON: -- and by Dr Harkness.

EVANS: Yes.

JOHNSON: So here, to summarise the position for the jury, we're dealing with events that [Mother of Babies E & F] says happened at about 9 pm --

EVANS: Yes.

JOHNSON: -- and which Dr Harkness tells us happened after 10 or 11 pm when he told the jury he saw this discolouration on [Baby E]'s abdomen.

EVANS: Yes.

JOHNSON: So dealing with [Mother of Babies E & F]'s description, first of all, of seeing blood on [Baby E] -- I'm very much summarising now her evidence, but you as, we did, heard what she had to say about seeing blood around her son's mouth --

EVANS: I did.

JOHNSON: -- and hearing noises being made by her son.

EVANS: Yes.

JOHNSON: What, if any, conclusion did you draw from the description given by [Mother of Babies E & F]?

EVANS: Well, this would have been completely unexpected given [Baby E]'s condition, stable condition, previously. It really would be difficult to explain how a baby has stabilised out for several days and has now got blood from its mouth and was making what we heard the other day was this horrendous noise. So this was -- it's not something I think I've seen, actually, other than this case.

JOHNSON: Dr Harkness, as we've seen in the notes, as we've gone through, speaks of blood coming up the NG tube --

EVANS: Yes.

JOHNSON: -- and he speaks of skin discolouration, purple patches --

EVANS: Yes.

JOHNSON: -- on [Baby E]'s abdomen.

EVANS: Yes.

JOHNSON: Are those findings, to your mind, relevant in the context of the reason for [Baby E]'s death?

EVANS: Yes, they are. Yes, they are.

JOHNSON: What conclusions have you come to as to why it was [Baby E] died when he did?

EVANS: Well, I think there were two major issues here. The first was significant haemorrhage from the upper gastrointestinal tract. By that I mean somewhere between the mouth and the stomach, because of the description of what was described as fresh blood. So therefore something had caused this significant haemorrhage. [Baby E] lost a lot of blood in a short period of time, sufficient to destabilise him generally.

Then in relation to the discolouration, I heard Dr Harkness' evidence yesterday, and again, as he said, this is something that he'd seen before. It's this very, very unusual pattern of patches, and he said they turned up in one part of the abdomen, then they were somewhere else and on his chest, and again this is a very, very peculiar form of discolouration which I have seen only in literature presentations other than in this series of cases.

So having seen this, I thought that [Baby E] had now been subjected to -- sorry, was suffering from an air embolus. And the discolouration of the abdomen and other parts of the body is a marker of an air embolus.

So I think he had two major problems: the gastric haemorrhage or the upper GI haemorrhage, to be more specific, and an air embolus. This is why resuscitation was not successful.

JOHNSON: I'm looking at paragraph 9 of the report now. Is the passage of a nasogastric tube and irritation caused by the tube a credible explanation for blood round a baby's mouth?

EVANS: Right. This was my initial thought, that there had been some sort of trauma due to an NG tube. This was my initial thought. At the time I did not have any copies of the bits of equipment that were used at the baby unit. Various tubes come in different sizes, different thicknesses and different levels of rigidity. It's only recently that I saw which type of nasogastric tube was used at the hospital in 2015 or currently and the tube that they did use is very small and very flexible. So having seen that, I don't think it's that kind of nasogastric tube that would have caused -- well, any trauma, really. So therefore my initial thought, it was a nasogastric tube. Having seen the tube they used, it was not due to a nasogastric tube.

JOHNSON: So in your clinical opinion, Dr Evans, looking at all the evidence, what is the explanation for [Baby E]'s premature death?

EVANS: I think that he suffered trauma from some other form of injury. There are a number of bits of equipment on neonatal units that are relatively rigid. Plastic tubes used for suction, for instance, are much firmer than a nasogastric tube, so it could have been interference with that. In my last report I noted the -- something called an introducer. An introducer is a thin wire surrounded by plastic, which one uses to intubate a baby. That would be more than sufficient to cause trauma if it was used inappropriately.

So I cannot be 100% certain about what caused the trauma to his system, but it had to be some kind of relatively stiff something that was sufficient to cause this extraordinary bleeding.

JOHNSON: Well, whatever the cause was or may have been, in your view is there a potential "innocent" explanation for this degree of bleeding?

EVANS: No, no. The other option is that this was an ulcer, a bleeding ulcer. I have never seen a bleeding ulcer causing this sort of presentation. When he was born, there were stress issues

in relation to [Baby E]. All of those markers had long gone. In other words he was a stable baby by -- just before all of this occurred.

So therefore whatever stresses he had experienced because of placenta not working properly and being preterm, you know, those are in themselves stress factors, all of those factors had stabilised out and were not -- and showed that he was not a baby at that time experiencing stress.

MR JOHNSON: Wait there just a second. Those are all the questions I have for you. Thank you, Dr Evans. If you'd remain there, please.

Cross-examination by MR MYERS

MR MYERS: Dr Evans, do you agree that [Baby E]'s antenatal condition meant that he did have the potential to deteriorate suddenly and dramatically?

EVANS: No.

MYERS: Have you seen additional material from Liverpool Women's Hospital, received in the last couple of days, bearing upon his birth condition?

EVANS: Yes.

MYERS: Have you seen within that reference, after a scan on 29 July, to dilatation of twin 1's bowel?

EVANS: Yes.

MYERS: Query, hypoxia?

EVANS: That's what it said.

MYERS: That's what it says. In other words, lack of oxygen getting to twin 1's bowel?

EVANS: Yes.

MYERS: You have seen that?

EVANS: Yes.

MYERS: That may be relevant to the condition of twin 1's bowel post-birth, mightn't it?

EVANS: Immediately post-birth, yes. Five days later, no.

MYERS: May that be relevant to the question of a gastric bleed in due course?

EVANS: No.

MYERS: The glucose position indicated, this is in [Baby E], an underlying problem, didn't it?

EVANS: His insulin, his own insulin, had not kicked in satisfactorily.

MYERS: But if the insulin is not at the right level and requires treatment, something is causing that to happen, isn't it?

EVANS: Yes. He's not producing his own insulin.

MYERS: Or physical stress in the baby's body leads to more blood sugar than there should normally be in the blood?

EVANS: If there was physical stress leading to his glucose values going up, then naturally his own insulin -- he would produce more insulin. Therefore the fact that -- so there were no markers of what I would call physical stress in [Baby E] during the last few days of his life.

MYERS: Physical stress can lead to increase in acid content in the stomach, can't it?

EVANS: Um... I'm not sure what you mean by physical stress.

MYERS: If the baby is labouring under some sort of stress, the acidity of the stomach might increase, mightn't it?

EVANS: There was no evidence of stress.

MYERS: I'm suggesting the glucose levels are or are capable of being evidence of stress, Dr Evans. They are, aren't they, or they can be?

EVANS: Whether they can be or not, [Baby E]'s raised glucose was a result of his own body not producing sufficient insulin.

MYERS: If there is an increase in the acid of the stomach, that can create a risk of ulceration or erosion of some part of the stomach lining or vessels, can't it?

EVANS: Not particularly.

MYERS: But it can do, can't it?

EVANS: The stomach acid -- sorry, the stomach content is normally acidic so -- and babies do not get ulcerations as a result of that. Therefore stomach acid -- sorry, the presence of acid in the stomach is a normal, natural phenomenon. It does not cause ulceration.

MYERS: If there is an abnormal level of acid or acidity in the stomach --

EVANS: No.

MYERS: -- if there is, that can cause bleeding, can't it?

EVANS: Well, no evidence there was.

MYERS: Well, if there was, that could cause bleeding, couldn't it?

EVANS: Hypothetical.

MYERS: I'm asking you to consider the hypotheticals, Dr Evans.

It could, couldn't it?

EVANS: No evidence of increased acid in this baby.

MYERS: You've also described that absent or reverse end-diastolic flow may put stress on the baby in utero.

EVANS: Yes.

MYERS: So the baby may be born then in a more stressed condition than had that not been the birth condition?

EVANS: Yes.

MYERS: That may play a part in physical stress in the baby post-birth, mightn't it?

EVANS: Post-birth, immediately post-birth, yes. But not 4 days later or 5 days later.

MYERS: Right.

EVANS: You do not get delayed stress turning up out of the blue at day 5 or day 6.

MYERS: The haemorrhage that [Baby E] experienced on the 3rd into 4 August could be due to some form of ulceration or bleed from the stomach by natural causes, albeit ones that are not normal?

EVANS: I don't think so.

MYERS: The initial reports that you provided, Dr Evans, and you can look at them if it helps, you've got your report of 7 November 2017, followed by the report of 31 May 2018.

EVANS: Yes.

MYERS: And most of the evidence that you gave came from the report of 31 May 2018, although there were some parts from other reports that I'll go to.

Let me just ask you about your opinion at the end of the first report that you wrote. So this is the report of 7 November 2017.

EVANS: Yes.

MYERS: At this time you'd had medical records and clinical records, hadn't you?

EVANS: I did.

MYERS: Your conclusion, paragraph 17, page 1474, my Lord, was:

"[Baby E]'s sudden demise is the result of an acute gastrointestinal haemorrhage. I am at a loss to explain the cause of his haemorrhage. In my opinion, this is not typical of NEC. In the absence of a post-mortem, it is not possible to say whether [Baby E] suffered trauma to his upper gastrointestinal system."

That was the opinion at the conclusion of that report, wasn't it?

EVANS: That was, yes.

MYERS: And no suggestion of deliberate harm is made there, is it?

EVANS: That's the only information I had at the time.

MYERS: We come then to the second report and the one that formed a proportion of your evidence today. That's the report of 31 May 2018. You reviewed the available material that you had then and your conclusion at paragraph 18 was this, page 1484 of the statements:

"[Baby E]'s sudden demise is the result of an acute gastrointestinal haemorrhage. I am at a loss to explain the cause of this haemorrhage. This is not typical of NEC. In the

absence of a post-mortem, it is not possible to say whether [Baby E] sustained trauma to his upper gastrointestinal system."

That was the concluding opinion then, wasn't it?

EVANS: It was.

MYERS: Up to that point, there had been no suggestion by you of an air embolus, had there?

EVANS: That's correct.

MYERS: You had written both of those reports in possession of the clinical notes that we have seen in evidence, didn't you?

EVANS: Yes.

MYERS: We only come to a suggestion of air embolus when we come to your third report, which was written on 24 -- it's dated 24 January, but it may not matter, you say 24 March 2019. That's correct, isn't it?

EVANS: That's correct, yes.

MYERS: In that report, paragraph 12, page 1490, you draw attention to the discolouration of [Baby E]'s body or abdomen as described by Dr Harkness, don't you?

EVANS: Yes, I do.

MYERS: But in particular, what has changed is by that point you have been given a copy of Dr Harkness' witness statement, haven't you?

EVANS: Yes.

MYERS: Provided with a copy of Dr Harkness' witness statement, you then conclude that air embolus is something that has happened or could have happened?

EVANS: Yes.

MYERS: That conclusion is not based upon the contents of any clinical record that was made at the time, is it?

EVANS: That's correct.

MYERS: But for that description, there is no basis for claiming air embolus in that case, is there?

EVANS: This is the main piece of evidence I have relied on to form my opinion, yes.

MYERS: All right. I'm going to ask you something about what you've said about crying. Also at the time you wrote the report where you had received the statement from Dr Harkness, this is the report of 24 January or March 2019, you had received the statement from [Mother of Babies E & F], hadn't you?

EVANS: I did.

MYERS: Before we consider what you say about this, do you accept a baby may cry for all sorts of reasons?

EVANS: Correct.

MYERS: And it may sometimes be very loud crying for many different reasons, mightn't it?

EVANS: It's all very variable, yes.

MYERS: You cannot establish a cause of crying from the crying alone, can you?

EVANS: It depends, actually, is the not very satisfactory answer to that. If a cry is exceptional, in other words something that one doesn't normally hear as a nurse, a doctor or a parent, then that is something you would take into consideration, yes.

MYERS: So to that extent that depends upon the accuracy or what it is that the witness says about the cry?

EVANS: Yes. Yes, of course it does.

MYERS: And its impact upon them?

EVANS: Yes.

MYERS: In the first two reports that you made, I took you to the opinion you reached in the conclusion of those reports, Dr Evans, and you'd said in both of them that the sudden demise was the result of an acute gastrointestinal haemorrhage, but you were at a loss to explain the cause of that.

EVANS: That is correct.

MYERS: The suggestion that something had been done or used to cause that haemorrhage came in that third report in 2019, didn't it?

EVANS: Yes, it did.

MYERS: What you said there was that -- it's what you said was your starting point in your evidence, you thought that an NG tube could have been thrust into [Baby E]'s stomach with inappropriate force?

EVANS: Yes.

MYERS: That's at paragraph 11, I should say.

You must know, Dr Evans, that an NG tube used on a baby the size of [Baby E] could never be thrust so as to cause damage like that, could it?

EVANS: I have since seen the NG tube. That could not have been thrust.

MYERS: But the suggestion that it could have been done with an NG tube at all was, I'm going to suggest, unrealistic, Dr Evans. It simply never could have been done with the type that would be used on a baby like this?

EVANS: I hadn't seen the tube before this year and I agree, having seen the tube, it could not have been -- whatever caused the bleeding was not the NG tube.

MYERS: Well --

EVANS: Not the NG tube that I saw this year.

MYERS: I do suggest that in your proposing an NG tube in that report, you were looking for something that could possibly provide support to an allegation of deliberate harm that you must have known was not realistic.

EVANS: I disagree.

MYERS: You've proposed today that there are other items that could have been used to cause that sort of damage.

EVANS: Yes.

MYERS: That's not anything that you have proposed in either of the first two reports, is it?

EVANS: No.

MYERS: Nor is it anything as an alternative to an NGT that you proposed in your third report? You didn't suggest anything else, did you?

EVANS: No.

MYERS: And I suggest to you, Dr Evans, that you are looking for possible items just to support the allegation rather than simply looking at the available facts.

EVANS: No, no. I'm a clinician, we base our opinions on the information available to us. The information available to me initially was less than what I've heard since, so everything I've heard since adds to my initial opinion that [Baby E] was subject to trauma.

MYERS: Well, you understand the suggestion I'm making is you're taking a rather more active role in this than that and you are actively trying to find things that would support this allegation, even where there is no evidential allegation for that?

EVANS: [Baby E] had a massive haemorrhage from his upper GI system. And this is not something that occurs as a result of some kind of natural phenomenon.

MYERS: Well, when you came to make your statement, the most recent one on 13 September 2022 -- I'd like you to go to that, please, it's the second page.

EVANS: Sorry, which statement is this?

MYERS: It's 13 September 2022.

EVANS: Okay, got it.

MYERS: So far as statements are concerned, up to this point we'd had the first two statements where you'd had the clinical notes and you'd concluded that you could not explain the cause of the haemorrhage and, in the absence of a post-mortem, it wasn't possible to say whether he had sustained trauma. You'd already said that.

We then, in March 2019, had the proposal that an NG tube could have been used. When we get to this report on 13 September 2022, you begin with this at paragraph 6, page 5400:

"In an earlier statement I queried whether [Baby E]'s haemorrhage was the result of trauma caused by inappropriate handling from a nasogastric tube, but later dismissed this suggestion as the nasogastric tubes in use are too soft to cause damage to tissue."

That's what you say, isn't it?

EVANS: That is absolutely correct, yes.

MYERS: You then turned your mind to consider something that had been brought to you by the police shortly before you wrote this report; that's right, isn't it?

EVANS: Yes.

MYERS: It's referred to in paragraphs 2 and 3.

EVANS: Yes.

MYERS: But in early October, the police brought to you something called a tracheal intubation stylet, didn't they?

EVANS: Yes.

MYERS: That's a very narrow device that's used to help insert a tube, isn't it?

EVANS: Correct.

MYERS: Sometimes caused an introducer; is that correct?

EVANS: Correct.

MYERS: And you said this at paragraph 7, that you remained of the view that [Baby E]'s massive haemorrhage could be due to trauma but you were unable to reach a view regarding a potential cause.

EVANS: Correct.

MYERS: You then said:

"[You] have now received a tracheal intubation stylet."

And you describe it. You say:

"It is used as an introducer when a baby requires endotracheal intubation. It consists of a stiff but flexible wire coated in plastic. For intubation purposes it is inserted inside an endotracheal tube creating sufficient rigidity to allow the successful insertion of nan endotracheal tube through the vocal cords. It is then withdrawn and discarded."

EVANS: Yes.

MYERS: Paragraph 8 you said this:

"An introducer of this nature is sufficiently rigid to traumatise a small baby's upper gastrointestinal system."

EVANS: That is correct.

MYERS: You then said:

"I remain of the view [Baby E]'s demise was the result of a combination of an air embolus and acute gastrointestinal haemorrhage. I am also of the view the haemorrhage may be the result of some sort of trauma to his upper gastrointestinal system."

EVANS: Yes.

MYERS: I have put all of that in so we have everything you have said. But I want to come to the paragraph I want to ask you about, Dr Evans, given my questions. You said:

"I have not seen any statement noting the presence of an introducer. Therefore my opinion regarding a potential cause of his trauma must remain speculative."

EVANS: Yes.

MYERS: "I believe it is reasonable to contemplate the possibility if a member of staff recalls that a redundant introducer was present around the time of [Baby E]'s haemorrhage. I believe it is an option that is worth exploring."

First of all, there's absolutely no evidential basis for what you've said there, is there, in terms of the use of an introducer, from what we know at that time?

EVANS: I wasn't there. It was something -- it could have been an introducer, it could have been some other form of reasonably rigid piece of plastic available on a neonatal unit. So an introducer is one option. I've not gone further than discussing it as a possibility.

If it's not an introducer, it could have been a suction tube. I can't take it any further than that.

MYERS: The only thing you're talking about at that time is an introducer, isn't it? This is a couple of weeks before this trial started.

EVANS: Yes, yes, I'm fully aware of that. That is what I received. I only received them on 2 September. So yes, just before this trial.

MYERS: You were aware of the possible things that could be used from the outset of these reports, weren't you?

EVANS: No, I had no idea what was -- I'm familiar obviously with what are used, but, you know, as to what caused this trauma, what kind of instrument, let's call it this trauma, my opinion was that [Baby E]'s bleeding was due to trauma, but I could not explain how.

MYERS: At this point, a few weeks before the trial, coming up with this statement, you were then beginning to engage in speculation as to what has happened, weren't you?

EVANS: No, no, my role is to form an opinion as to what could have caused the bleeding. I changed my mind about the NG tube, having seen one, and introduced the suggestion with the introducer, and mentioned earlier other items that are fairly rigid and plastic. So those are the options. Those are the -- sorry, those are the possibilities.

MYERS: You start on that paragraph, I'll remind you, by saying:

"I have not seen any statement noting the presence of an introducer, therefore my opinion regarding a potential cause of his trauma must remain speculative."

That's what you said, isn't it?

EVANS: Yes.

MYERS: And rather than engaging in presenting an objective independent view on the facts we have, you are beginning to speculate with this, aren't you?

EVANS: No, no, I am trying to assist the court in giving an opinion as to what could have caused a massive haemorrhage in a little baby who up until then was nice and stable.

MYERS: You said, and I'll remind us because I have only read it once:

"If a member of staff recalls that a redundant introducer was present around the time of [Baby E]'s haemorrhage, I believe it is an option that's worth exploring."

EVANS: Absolutely.

MYERS: "If a member of staff recalls..."

Is that suggesting an enquiry that could be made to go around members of staff just to see if anyone can recall it?

EVANS: No, no. The police are responsible for this investigation, not me.

MYERS: Well, what was the point of saying:

"If a member of staff recalls that an introducer was present"?

What was that aimed at?

EVANS: Because people recall these things.

MYERS: Followed by:

"I believe it is an option that is worth exploring"?

EVANS: Yes.

MYERS: You were just suggesting speculative enquiries to hunt around for something to support your theory?

EVANS: It's not a theory. What we need to do is to form an opinion, the members of the jury need to form an opinion, what on earth caused this massive haemorrhage in this little baby.

MYERS: When you say --

EVANS: Sorry, 5 years ago to this month, I raised the issue that his bleed may be the result of trauma; okay?

That's where I was then.

MYERS: When you say:

"I believe it is an option that is worth exploring."

You are stepping outside the active facts, Dr Evans, and you are beginning to propose means of enquiry or investigation to support an allegation, aren't you?

EVANS: No, I disagree.

MYERS: Whose idea was it that you should have this introducer?

EVANS: I asked for the -- to see the bits of equipment.

MYERS: So you asked for it. Having received it, you then say to the prosecution, in the first instance, that this could be an option worth exploring; yes?

EVANS: It is, that is my view, yes.

MYERS: And you, in doing that, Dr Evans, are involved in seeking to pursue aspects of an investigation rather than simply giving an independent opinion, aren't you?

EVANS: I disagree.

MYERS: You agree, as you said in the first two reports, do you still, that the cause of death was acute gastrointestinal haemorrhage?

EVANS: I think it is a significant contributory factor. But if one accepts the evidence of Dr Harkness yesterday, I think air embolus was an even more significant factor and it is what precipitated his final demise.

MYERS: And that depends upon, of course, the situation and the view taken of what he said in his statement some years after the clinical notes, doesn't it?

EVANS: It's what he said yesterday and it's what he said in his statement.

MYERS: But not what he said in his clinical notes?

EVANS: That's correct.

MYERS: Yes. The absence of a post-mortem is a serious failing in this case, isn't it?

EVANS: Yes, it is.

MYERS: And the fact remains that in the absence of a post-mortem, it cannot be said what the cause of the gastrointestinal haemorrhage was, can it?

EVANS: Correct.

MR MYERS: Thank you, Dr Evans.

Re-examination by MR JOHNSON

MR JOHNSON: Whilst you cannot say what the cause of the GI haemorrhage was, is there any evidence that you have seen to suggest it was a natural cause?

EVANS: There is no evidence at all that this was a natural phenomenon. It is not something I have ever seen in my decades of neonatology and hands-on clinical practice.

MR JOHNSON: Thank you very much. Does your Lordship have any questions.

MR JUSTICE GOSS: I don't. Thank you very much.

Thank you, Dr Evans. That completes your evidence in relation to this part of the case. And of course you'll remember what --

EVANS: Yes. Thank you, my Lord.

MR JUSTICE GOSS: And you have heard me say to other witnesses, don't look at any news feeds or anything about what others -- you will be hearing what others say in any event.

EVANS: I understand that.

MR JUSTICE GOSS: Yes. That's a good point to have a break.

Five past then. Ten minutes, please, five past midday.

(11.55 am)

(A short break)

(12.05 pm)

MR JOHNSON: Dr Sandie Bohin, please.

DR SANDIE BOHIN (recalled)

Examination-in-chief by MR JOHNSON

MR JOHNSON: Welcome back, Dr Bohin. Would you, for formality's sake, identify yourself, please.

BOHIN: Yes, my name is Dr Sandie Bohin.

JOHNSON: Thank you. Dr Bohin, were you instructed to peer-review the reports of Dr Evans?

BOHIN: Yes, I was.

JOHNSON: Can you remember now when that was that you received those instructions?

BOHIN: I would have to refer to my report. My report is dated November 2020, so it would have been just prior to that.

JOHNSON: Yes, thank you. I'd just like to take you through things chronologically, please, if I may, by reference to your

report and by reference to paragraph 2.3. Did you receive quite a lot of information from diverse sources?

BOHIN: Yes, I did.

JOHNSON: Did those sources include the medical records of [Baby E] from the Countess of Chester Hospital?

BOHIN: Yes.

JOHNSON: X-rays from the Countess?

BOHIN: Yes.

JOHNSON: Material from Alder Hey Children's Hospital in Liverpool?

BOHIN: Yes.

JOHNSON: The coroner's report?

BOHIN: Yes.

JOHNSON: Some photographs?

BOHIN: Yes.

JOHNSON: A statement of Dr Owen Arthurs, dated 19 May 2020?

BOHIN: Yes.

JOHNSON: A statement from Dr Andreas Marnerides, a pathologist?

BOHIN: Yes.

JOHNSON: Three statements from Dr Evans, his initial sift report of November 2017, his second report of May 2018, and the supplementary report of January 2019?

BOHIN: Yes.

JOHNSON: Thank you. I'll just summarise the chronology, if I may, looking at paragraph 4 of your report.

Did you record the birth and the relevant circumstances of [Baby E]'s birth at the Countess of Chester on 29 July?

BOHIN: Yes, I did.

JOHNSON: I should ask you, actually, just on that subject. Have you recently seen some obstetric records relating to [Mother of Babies E & F]?

BOHIN: Yes, I have.

JOHNSON: Thank you.

MR JUSTICE GOSS: Those are the ones from Alder Hey?

MR JOHNSON: No, Liverpool Women's Hospital.

MR JUSTICE GOSS: Right.

BOHIN: Yes, I have.

MR JOHNSON: Did you refer to [Baby E] being growth restricted or that being the prognosis before birth?

BOHIN: Yes, I did, on the information that was initially available to me.

JOHNSON: As a matter of fact, was he growth restricted when he arrested?

BOHIN: No, he wasn't. His birth weight at 1,327 grams, if you plot that on a neonatal growth chart, he does not fulfil the criteria of being a growth-restricted baby.

JOHNSON: So that was the prognosis from the scans, but the actuality was rather different?

BOHIN: The foetal scans always predict an estimated foetal weight and on this occasion, with respect to [Baby E], that weight was significantly out.

JOHNSON: Yes, in his favour?

BOHIN: Yes.

JOHNSON: Did you record the absent end-diastolic flow?

BOHIN: Yes.

JOHNSON: Were there any other issues?

BOHIN: He was known to have oligohydramnios, which is the fancy term for saying there was less fluid around him in his amniotic sac than there should be.

JOHNSON: Did you record [Baby E]'s birth, the fact that he cried at birth, he had a good heart rate and was given five inflation breaths?

BOHIN: Yes.

JOHNSON: And that his oxygen requirement dropped fairly soon after birth and his saturations were good?

BOHIN: Yes, they were 100%.

JOHNSON: Yes. Thereafter, I'm looking to paragraph 4.7 of your report, did you record that on 29 July, there were some desaturations which resulted in [Baby E] being started on CPAP?

BOHIN: Yes, that's correct.

JOHNSON: And that was subsequently discontinued the next day?

BOHIN: Yes.

JOHNSON: Was a nasogastric tube inserted into [Baby E]'s left nostril on 29 July?

BOHIN: According to the nursing records, yes.

JOHNSON: In the nursing notes or indeed in any other notes, could you find any evidence of there being a subsequent insertion of a nasogastric tube, in other words at any time after 29 July?

BOHIN: No new nasogastric tube, although the nursing records state that they were unable to insert a tube into the right nostril, so I can assume that they must have tried to do that first, were unsuccessful, and therefore at the same time inserted one into the left nostril, but I can't find any record of a second nasogastric tube ever being inserted.

JOHNSON: So putting that in rather more straightforward terms, there is nothing in the records to suggest any tube, for example, being inserted on 3 August?

BOHIN: Oh no, no. No.

JOHNSON: It was the original tube so far as the records suggest --

BOHIN: Yes.

JOHNSON: -- dating from 29 July?

BOHIN: Yes.

JOHNSON: I don't think any of this material is controversial in the light of the cross-examination of Dr Evans, so I'll summarise it, if I may. Did you record the insertion of a line, a long line, into [Baby E]'s left long saphenous vein on 30 July?

BOHIN: Yes.

JOHNSON: That was withdrawn by 3 centimetres following an X-ray?

BOHIN: Yes.

JOHNSON: You record parenteral nutrition being given to [Baby E] to feed him?

BOHIN: Yes.

JOHNSON: And the reason for that was what?

BOHIN: He was given intravenous nutrition because of the absent end-diastolic flow, which we know can be associated with the risk of necrotising enterocolitis, so it's standard practice to give the gut a rest for a few days, and then to very slowly introduce feeds thereafter if the baby's clinical condition permits.

JOHNSON: Have you recently gone back to the insulin records to establish with as much certainty as possible when and how much insulin [Baby E] was given?

BOHIN: Yes, I have, because the other day, during other witnesses' evidence, it became a bit confusing as to when the insulin was started and stopped and the infusions, unfortunately, are on a variety of charts throughout the bundle, so just for clarity in my own mind I went back to have a look at when the insulin was started and stopped.

JOHNSON: For clarity can we deal with that slowly, please, and can you tell us when, between what times, and how much insulin was being given to [Baby E]?

BOHIN: I haven't actually got that document in front of me, but I know that when insulin was first started on [Baby E] on 31 July, it was given between 07.00 hours and it was stopped at 10.10 in the morning. So just for a few hours and that initial dose was a standard dose of 0.5 units per kilogram per hour. That would be a standard dose. That seemed to be a bit too much for [Baby E] actually -- premature babies can be very sensitive to insulin, and that led to his blood sugar falling quite

quickly, which is why the insulin was stopped 3 hours later. And when he subsequently had insulin it was a much lower dose because he was very sensitive to it.

JOHNSON: Yes. So that was 31 July. Was the second occasion [Baby E] was given insulin on 1 August?

BOHIN: The 1st and it ran over into 2 August, yes.

JOHNSON: Yes. So from 4pm on the 1st to 7 am on the 2nd?

BOHIN: That's correct. That dose was 0.02 units, so less than half of the dose that he'd been given before.

JOHNSON: And on 3 August, was [Baby E] given insulin from 15.30 hours to some time shortly before his death in the early hours of the 4th?

BOHIN: That's correct.

JOHNSON: Was that also 0.2 (sic) units per kilogram per hour?

BOHIN: 0.02.

JOHNSON: Sorry, I beg your pardon. 0.02 units per kilogram per hour?

BOHIN: Yes.

JOHNSON: All right. So far as particularly relevantly in the context of potential NEC, did you examine the feeding chart for [Baby E]?

BOHIN: Yes, I did.

JOHNSON: And did you establish that he was given half of 1ml every 2 hours of milk from the night of 31 July?

BOHIN: Yes.

JOHNSON: If anybody wants to look at the feeding charts, which set out precisely what he was given and when, they are set out at J2718 to 2720; is that right?

BOHIN: Yes.

JOHNSON: Thank you. On 2 August, at about 9.30 am, did [Baby E] develop a mild oxygen requirement?

BOHIN: Yes, he did.

JOHNSON: What does that mean, please?

BOHIN: It was a very mild oxygen requirement, in fact, because he'd been in air, which is 21%, and he developed an oxygen requirement of 24%. But that represented a change and clearly, the clinical team were concerned that he might be developing an infection and as normal practice, he had what was regarded as a partial septic screen, so that means taking blood tests, and a blood culture to look to see if there are any bugs in the blood. It's a partial septic screen because it didn't include a lumbar puncture, which is a test that would look for meningitis. They clearly didn't think he was that unwell to need a lumbar puncture, but he was -- the clinical condition has changed sufficiently for him to warrant a partial septic screen and starting on antibiotics just in case he was showing early signs of an infection.

JOHNSON: So he was started on, I think, is it cefotaxime?

BOHIN: Cefotaxime.

JOHNSON: Were his blood gases normal and there was no increased work of breathing?

BOHIN: That's correct.

JOHNSON: Those circumstances, I don't think, are actually recorded in the sequence of events, but for the sake of completeness.

At 9 am on 2 August, were [Baby E]'s feeds increased to 1ml every two hours?

BOHIN: Yes.

JOHNSON: Was his abdomen described as "full but soft"?

BOHIN: Yes.

JOHNSON: And at that stage, his bowels had not opened?

BOHIN: That's correct.

JOHNSON: Were those feeds increased, as we saw earlier with Dr Evans, at 15.00 hours on 3 August?

BOHIN: Yes.

JOHNSON: And that material is at tile 92 if anybody wants to refer to it.

On 3 August, was [Baby E] fed 2ml of milk at 15.17 and 19.00 hours?

BOHIN: Yes.

JOHNSON: The chart, I think, suggests that the feed at 21.00 hours was omitted, to use the word recorded.

BOHIN: Yes. That is correct.

JOHNSON: Next in the chronology, do you refer to the material at tile 126, which is the nursing record at 22.00 hours, recording a large vomit of fresh blood?

BOHIN: Yes.

JOHNSON: And 14ml of fresh blood being aspirated up the NGT?

BOHIN: Yes.

JOHNSON: Do you record Dr Harkness' observations at tile 128, which the jury have seen?

BOHIN: Yes.

JOHNSON: And the fact that the blood gas results at that stage were normal?

BOHIN: Yes, they were.

JOHNSON: Perhaps more relevantly, do you record that an examination of [Baby E] at that stage by Dr Harkness revealed a soft, non-tender, non-distended abdomen with normal bowel sounds?

BOHIN: Yes.

JOHNSON: Dr Harkness prescribed a bolus of sodium chloride, a dose of ranitidine and an injection of an antibiotic that I can't pronounce.

BOHIN: Metronidazole, yes.

JOHNSON: Thank you. At 22.21 you record the blood gas results. They are those that appear at tile 130.

BOHIN: Yes.

JOHNSON: Do they show any abnormalities?

BOHIN: They show signs of a respiratory acidosis, so the pH is low, lower than it had been, the CO₂ is raised, the metabolic component, ie the base excess, is normal. The glucose is up a little bit at 10.6 but not anything really to worry about. And the lactate is normal. At that stage there's a haemoglobin on the gas, which is 185 grams, which is normal.

JOHNSON: So just as a word of explanation, because we've come across these terms before. In terms of acidosis, that's an increased acidity in the body; is that right?

BOHIN: An increased acidity, yes, and a reduction in the pH.

JOHNSON: So the lower the pH, the more acid, the higher the pH, the more alkaline?

BOHIN: Yes.

JOHNSON: What's the difference between a metabolic and a respiratory acidosis?

BOHIN: A respiratory acidosis means there's something going on with your breathing and in order to get a rise in CO₂, that means that you're not getting rid of waste gases in the way you should have. So for some reason your breathing is compromised and that allows the waste gas to build up. And if that builds up, that causes a respiratory acidosis.

A metabolic acidosis is anything other than a non-respiratory cause. There are lots of potential causes of metabolic acidosis, none of them [Baby E] had.

JOHNSON: I think you record, as did Dr Evans, the fact that [Baby E] was noted to be crying at 11 pm; is that right?

BOHIN: Yes.

JOHNSON: I'm moving on to your paragraph 4.23 now, please, Dr Bohin. Do you record that at 23.40, there was a sudden deterioration in [Baby E]?

BOHIN: Yes.

JOHNSON: If the jury want the reference for this, this is tile 149. The heart rate was low, a bradycardia between 80 and 90 beats per minute?

BOHIN: Yes.

JOHNSON: And low saturations of 60%?

BOHIN: Yes.

JOHNSON: And at that stage, [Baby E]'s perfusion was poor, so he wasn't a pink baby, putting it in perhaps everyday terms, and his abdomen developed what Dr Harkness was telling us about yesterday in terms of discolouration?

BOHIN: That's correct.

JOHNSON: Thank you. As a result of that, we have the information contained at tile 150, which is Dr Harkness intubating [Baby E] with a tube?

BOHIN: Yes.

JOHNSON: I think he told us, did Dr Harkness, that this was at 23.45. [Baby E] was being ventilated in 100% oxygen, he was given further saline, and blood was taken for a clotting screen and a cross-match.

BOHIN: That's correct.

JOHNSON: In terms of a clotting screen, if we can deal with that now, please, and if Mr Murphy would help me by putting up J2704. Are these the results of that screen?

BOHIN: Yes, they are.

JOHNSON: I am sure the jury know this without any explanation, but the tests being undertaken are those in the left-hand column, aren't they, PT and APTT?

BOHIN: Yes.

JOHNSON: The results are the next figures across as we read across?

BOHIN: Yes.

JOHNSON: And then the ranges on the right-hand side are those that are given by the lab for the "normal" ranges, is that right?

BOHIN: Each hospital has potentially a slightly different normal range, although they are around the same, but they may not be exact and may vary from hospital to hospital, but the hospital normal ranges tend to be adult normal ranges and, for some tests, children and neonates have a different normal range. But hospitals report an adult normal range, which is what this is.

JOHNSON: I think Dr Harkness yesterday made reference to this, didn't he, although he wasn't able authoritatively at least to give us the normal ranges. I think you have again helped us by just researching that point; is that right?

BOHIN: Yes. This is a common problem and because of that, the Royal College of Paediatrics and Child Health have published normal reference ranges for children and neonates. Sometimes the ranges for some tests vary according to age. Sometimes they vary according to gestation and sometimes they may be exactly the same as the adult range. So in order to help paediatricians, there is a published normal range and clotting studies feature in that. And the normal ranges for babies of gestation of between 30 and 36 weeks' gestation are given. I realised that [Baby E] was below 30 weeks' gestation, but there isn't a normal range for that, so I can only use the 30 to 36 week gestation range. And they also give a range from 0 to 7 days of life and from 7 days to 3 months of life, I think, and then from 3 months on. So there's a variety of different ranges of clotting values, depending on age and gestation.

JOHNSON: All right. Just dealing with these specific figures then. PT. What does --

BOHIN: That stands for prothrombin time. And obviously, in [Baby E], here it says 19.5. The upper limit of normal for his gestation and age produced by the Royal College I think from memory now is 18.1. So it's a little bit over, but... But not staggeringly so.

Would you like me to go on?

JOHNSON: Well, yes. Let me -- you're clearly working from memory and I don't want to introduce errors. So your statement says that PT, prothrombin time, in preterm babies between 30 and 36 weeks at age 0 to 3 months is 8.5 to 17.

BOHIN: Okay, thank you.

JOHNSON: That's quite all right. You haven't got the paper in front of you. So what degree of elevation is the difference between 17 and 19.5 given those --

BOHIN: I'd say it's marginal.

JOHNSON: So far as the APTT, which I think is the -- go on, you say it.

BOHIN: It's easier to say PTT. It's the activated partial thromboplastin time. These two tests look at different parts of the clotting system and in [Baby E]'s case his result was 53.6

and, again, working from memory, but I'm sure you'll correct me, I think it's about 75.

JOHNSON: Correct, well done.

BOHIN: So he's well within the range for his age and gestation.

JOHNSON: So just going back to the chronology if we may, [Dr C], we know, arrived at 00.25.

BOHIN: Yes.

JOHNSON: That's what she records in the notes. And by 11 minutes later, at 00.36, no cardiac output could be detected from [Baby E] and his saturations were 50 to 60% in 100% oxygen and therefore full CPR was commenced.

BOHIN: That's correct.

JOHNSON: We then know from Dr Wood's list precisely what was given and when in terms of resuscitation drugs.

BOHIN: Yes.

JOHNSON: You have recorded at 01.05 the information from [Baby E]'s blood gases, which is contained at tile 188; is that right?

BOHIN: That's correct.

JOHNSON: And you have also recorded that tragically [Baby E] didn't respond to resuscitation, resuscitative efforts were stopped at 01.23, and he was pronounced deceased at 01.40.

BOHIN: That's correct.

JOHNSON: A post-mortem was not carried out. Do you have a view as to the advisability of that decision?

BOHIN: Yes, I do. I think that was a poor decision.

Post-mortems are carried out either when the clinician, in conjunction with the parents, agree that that is something that might be helpful to establish a cause of death or may add information to what the clinician believes is a cause of death and that requires the parents to give consent. But where one can't actually give a cause of death as a doctor you can't then sign a death certificate. So the case is referred to His Majesty's Coroner, who then decides whether a post-mortem should be carried out. And this was referred to His Majesty's Coroner. Unfortunately, a post-mortem wasn't carried out and I think that that was the wrong decision.

MR JUSTICE GOSS: Whose decision is it? Is it the coroner's?

BOHIN: It's the coroner's decision.

MR JOHNSON: I think you next refer to [Mother of Babies E & F]'s statement, in which [Mother of Babies E & F] recorded what she told us in effect, that at 9 pm she had seen her son in a distressed state.

BOHIN: Yes.

JOHNSON: And also that she had seen blood around his mouth.

BOHIN: Yes.

JOHNSON: You refer to the fact of her making a telephone call at 21.11 hours --

BOHIN: Yes.

JOHNSON: -- and the absence of that material from the nursing record.

BOHIN: That's correct.

JOHNSON: You also refer to Dr Harkness' statement about being called to review [Baby E] because of a dirty aspirate.

BOHIN: That's correct.

JOHNSON: And the fact that Dr Harkness had made an entry in the notes at 22.10, which we have now seen many times.

BOHIN: Yes.

JOHNSON: Taking all that information into account together with the evidence that you have heard over the last few days, did you reach a conclusion as to the condition of [Baby E] between his birth on 29 July and the time of the handover on the nursing shift at about 8 pm on the evening of 3 August?

BOHIN: Yes, he was incredibly stable. He was fed, he was having skin-to-skin, he was incredibly stable and his blood tests accorded with that.

JOHNSON: Given the issues surrounding [Mother of Babies E & F]'s pregnancy, was [Baby E] at increased risk of NEC?

BOHIN: Yes, he was, because of the absent end-diastolic flow.

JOHNSON: Was his treatment managed appropriately following his birth at the Countess of Chester?

BOHIN: Yes, it was.

JOHNSON: In your experience, how does NEC present?

BOHIN: It has no single presenting feature, but it can present with feeding tolerance, it can present with temperature instability -- and some of these are very non-specific things, so they're not diagnostic of NEC. It can present with abdominal distension, abdominal pain if it's more severe. It can present with bloody stools.

It can present with a gastric perforation. So anything from very mild non-specific signs to -- if left untreated it goes on to be much more serious and then the signs and symptoms are more dramatic.

JOHNSON: Do babies go from being well one minute to very, very unwell within a matter of minutes or even a couple of hours?

BOHIN: Not in my experience if they've got NEC, no.

JOHNSON: You record at your paragraph 5.4 that the signs of NEC, which you have described, were not present in [Baby E]'s case; is that right?

BOHIN: That's correct.

JOHNSON: You record that [Baby E] had been tolerating his feeds?

BOHIN: Yes.

JOHNSON: And that he had passed meconium for the first time on 3 August?

BOHIN: Yes, that's correct.

JOHNSON: I think we have encountered meconium before, but could you just remind us what that means, please?

BOHIN: Meconium is the first faeces that babies pass in the first few days of life. It's slightly different from normal stool in that it's kind of black and tarry.

JOHNSON: You record the fact that in all the examinations, so far as you could tell at the material time, [Baby E]'s abdomen was not tender, nor was it distended, and the two X-rays that were taken of him, of that area of him, showed no features of NEC.

BOHIN: That's correct.

JOHNSON: Therefore, so far as the putative diagnosis of NEC was concerned, what view did you arrive at?

BOHIN: In my opinion, he did not have NEC.

JOHNSON: Turning to what was recorded, your paragraph 6, in the time -- at 17.00 and 19.00 hours on 3 August, when [Baby E] was fed 2ml of milk, the aspirates were recorded as minimal.

BOHIN: That's correct.

JOHNSON: Prior to the 21.00 hours feed, as the jury know, and they've seen this chart many times, on the fluid chart there is a 16 ml "mucky aspirate" aspirated from the nasogastric tube. In your experience, what does mucky aspirate mean?

BOHIN: It usually refers to a sort of brownish-green aspirate, so that's stomach juices plus any milk that may have been in the abdomen with -- maybe containing bile and sometimes containing flecks of blood. Altered blood goes brown, so it makes it kind of brown, I guess that's why it's termed "dirty" on occasion.

JOHNSON: In the context of a baby who'd been fed twice at 5 and 7 pm, had been fed 2ml and on each occasion there had been a minimal aspirate, what view did you take of this record that at 9 pm, before he'd been fed, there'd been a 16ml aspirate?

BOHIN: It just struck me as being really odd and out of keeping with what had gone before. Clearly, you don't just take the volume of aspirate in isolation, you have to link it to his clinical condition, which had been fine, and he'd shown no signs of any gastrointestinal disturbance.

He had tolerated those feeds up until that point and had had no aspirate at all. So I was just at a loss to explain where this 16ml had come from, having had no aspirate before and having had nothing in his tummy for 2 hours.

JOHNSON: On the subject of bleeding being caused by a nasogastric tube, what is your experience -- I'm thinking now of the conversation that [Mother of Babies E & F] told us about with Lucy Letby. What is your experience of bleeding being caused by NGTs?

BOHIN: As Dr Evans previously stated, these tubes are very fine and they're very soft and they're very flexible.

I could see that at least two attempts were made to put a nasogastric tube down, they were unsuccessful putting it into one nostril, but successfully put it into the other nostril. The fact of trying to place that tube in the nose can sometimes cause minor trauma to the delicate lining of the nose and you sometimes very get some very minor bleeding, very minor. I have never seen a baby haemorrhage or have blood around the mouth as a result of a nasogastric tube insertion, ever.

JOHNSON: Looking at your paragraph 12, what view did you take as to the characterisation of the upper GI haemorrhage that [Baby E] exhibited at around 22.00 hours?

BOHIN: Characterisation in terms of volume?

JOHNSON: Yes.

BOHIN: Oh, well, it appeared that he had a huge amount of haemorrhage at that point. Obviously, he vomited fresh blood and so we don't know the volume of that. But that's an extremely unusual feature, to vomit fresh blood. And then had an additional 14ml of fresh blood in the syringe attached to the nasogastric tube. And the combination of the previous volumes and this represents a substantial amount of this baby's blood volume.

JOHNSON: I think there was the further 13ml recorded at 23.00 hours; is that right?

BOHIN: That's correct. There was a further 13ml. If you add all that up, and I felt that was likely to be an underestimate because we don't know the volume of blood vomited or blood plus gastric content vomited, that represented over 25% of his blood volume.

JOHNSON: I think you're aware that at least one other expert in blood-related matters has considered whether or not [Baby E] had some sort of predisposition to bleeding; is that right?

BOHIN: Yes, I'm aware of that.

JOHNSON: And do you defer to her view so far as that is concerned?

BOHIN: Yes.

JOHNSON: But in the absence of there being an "innocent" explanation for this bleeding, did you draw any conclusions?

BOHIN: Haemorrhage of this magnitude in neonates is vanishingly rare. I have never seen a baby haemorrhage, have a gastric haemorrhage, in this way. Babies do sometimes have gastric erosion and ulceration but it does not result in haemorrhage of this fashion. Nothing like losing 25% of your blood volume. So I was then trying to look for other possible causes for what I had never seen before and, on reviewing the literature, I came up with something very odd, of which there were only six recorded cases in neonates and obviously in the absence of a post-mortem I have no idea. But the world literature only has six cases.

JOHNSON: Is that six cases in Chester or...?

BOHIN: World literature.

JOHNSON: In the world?

BOHIN: In the world ever recorded since it was first labelled in 1968.

JOHNSON: Just for our general education, what's that particular phenomenon known as?

BOHIN: It's called Dieulafoy's lesion, and what is suggested is that it is a cause of -- can be a cause of major intestinal haemorrhage. Again the literature relates to adult practice rather than children's, but even then it's very rare and it's where there is an artery within the stomach wall, which is normally placed, but which has an increased calibre and therefore spontaneously haemorrhages as a result of some trauma, usually, or gastric erosion, so some sort of inflammatory process in the gut wall causes that artery to bleed and then there's catastrophic haemorrhage.

I think really, I was clutching at straws because I reviewed the literature looking for something that could account for the extraordinary circumstance of this haemorrhage.

JOHNSON: You say clutching at straws, were you trying to establish a malevolent cause or an innocent cause?

BOHIN: I was just trying to establish an innocent cause, a pathological cause for this, because I've never seen it in my experience of neonatology.

JOHNSON: You remark next on the abdominal discolouration recorded or described by Dr Harkness.

BOHIN: Yes.

JOHNSON: Taking all those factors into account, did you reach an opinion as to why [Baby E] died when he did?

BOHIN: I think [Baby E] died because of an air embolus. On that day he had the discolouration that was described by Dr Harkness, he suddenly collapsed where his previous clinical condition was not one where that was expected, and he did not respond to what was standard resuscitation. So on the basis of those things, on balance I thought he had an air embolus.

JOHNSON: In your view, did the bleeding contribute to his death?

BOHIN: I think the bleeding made him unstable, but I don't think that was what caused his death.

JOHNSON: And do you reject as a proposition the idea that [Baby E] had NEC?

BOHIN: I do. [Baby E] didn't have NEC.

MR JOHNSON: Would you wait there, please, Dr Bohin?

Cross-examination by MR MYERS

MR MYERS: Dr Bohin, you were provided with Dr Evans' reports in this case from the outset of your involvement, weren't you?

BOHIN: Yes.

MYERS: You've explained or been asked to explain that you're involved in something that's called a peer review; is that correct?

BOHIN: Yes.

MYERS: In other words, almost a second opinion on what Dr Evans says?

BOHIN: It's reviewing what Dr Evans has said and then forming my own opinion.

MYERS: I'm not going to disagree that there are things Dr Evans has said that you have not followed or endeavoured to follow, but I do suggest to you that you are prepared to support him in his conclusions where you feel you can, and that is your attitude. Do you agree or disagree with that?

BOHIN: I totally disagree with that. I form my own opinions and I'm not simply going along with Dr Evans' opinions.

MYERS: I suggest if Dr Evans had not -- if you hadn't received a report from Dr Evans suggesting air embolus in the case of [Baby E], you would never have come to a conclusion that that had anything to do with what took place, would you?

BOHIN: I disagree.

MYERS: [Baby E], quite patently, died because of a catastrophic bleed, whatever the cause was. That was the cause of his death, wasn't it?

BOHIN: I don't believe so. I think he died of an air embolus.

MYERS: We've heard that from your evidence he had lost about 25% of his blood volume at a point before CPR had even commenced.

BOHIN: That's correct.

MYERS: We've heard that when CPR did commence, the blood was, to use the words employed, pouring out of him.

BOHIN: That's correct.

MYERS: All of which may have been or could have been a cause of his death, couldn't it?

BOHIN: I'm not disputing the fact that he had a catastrophic haemorrhage, but I don't think that was what caused him to collapse and require CPR.

MYERS: From the clinical evidence that we have seen, the clinical notes, I suggest to you there is nothing in those that would have led you to conclude air embolus had Dr Evans not put that out there in the first place.

BOHIN: I reviewed the notes and came to my own conclusions.

MYERS: What we've seen in the notes in terms of discolouration is a reference to purple patches on the abdomen, isn't it?

BOHIN: Yes.

MYERS: And also, separately, a reference to poor perfusion?

BOHIN: Yes.

MYERS: Poor perfusion is what we might expect if a patient is hypoxic, in other words if there's been a decrease of oxygen, do you agree?

BOHIN: Yes.

MYERS: And there are a number of reasons why there may be poor perfusion, aren't there?

BOHIN: Yes.

MYERS: And bleeding is one of them, isn't it?

BOHIN: But he had maintained his blood pressure at that point, so bleeding can be, but you wouldn't take that in isolation, you would look at the other parameters and actually his blood pressure was maintained, so that alone wouldn't have accounted for the poor perfusion in a child with a normal blood pressure.

MYERS: As I asked Dr Harkness yesterday, blood pressure actually is the last sign to go, isn't it, in fact?

BOHIN: Yes, it is, but it was normal.

MYERS: A colour change where it simply says "purple patches on abdomen" may have any number of explanations, mightn't it?

BOHIN: Yes, but I can't think of other explanations that will fit with this clinical picture.

MYERS: In terms of the collapse at 23.40, [Baby E] was stabilised within a relatively short period of time, wasn't he?

BOHIN: Yes.

MYERS: And indeed, any discolouration at all had gone by the time [Dr C] attended, the consultant?

BOHIN: She didn't note it, so yes, I suppose it must have gone. She didn't record it if it was present.

MYERS: And in her view, it seemed that [Baby E] was stable at that point when she was there?

BOHIN: Yes.

MYERS: So we have [Baby E] stable at some point around about 00.25, don't we?

BOHIN: Yes.

MYERS: And then, according to the evidence of Dr Harkness, right in front of their eyes, some time after that, [Baby E] collapsed again?

BOHIN: Yes.

MYERS: That collapse doesn't involve any question of discolouration, does it?

BOHIN: No.

MYERS: That collapse is when blood began to pour out of him when CPR was performed upon him, wasn't it?

BOHIN: Blood came out because CPR was being performed, because he had an ongoing gastrointestinal haemorrhage, and if that's the case and you're performing chest compressions by definition you will cause blood to leave the stomach and come out of the nose and mouth.

MYERS: So in other words, at the time of that collapse, there must have been quite profuse bleeding inside him, that second collapse?

BOHIN: I... I don't think -- we don't know the volume, so I have no idea of knowing because I don't know the volume. But blood was coming out of his nose and mouth is all we know.

MYERS: It was described as "pouring out of him" as they were doing chest compressions?

BOHIN: Yes.

MYERS: And that must be from a bleed inside him, mustn't it?

BOHIN: Yes, he had an ongoing gastrointestinal haemorrhage, yes.

MYERS: You mentioned you received the report of Owen Arthurs, the paediatric radiologist, didn't you?

BOHIN: Yes.

MYERS: The surefire way of identifying an air embolus in life would be to be able to see the air in the heart, wouldn't it, or around the region of the heart, don't you agree?

BOHIN: Not always. It depends on the volume.

MYERS: But a surefire way of doing so would be that, wouldn't it?

BOHIN: No, it depends on the volume.

MYERS: If we saw it there, we would know there was an air embolus?

BOHIN: If you saw it there, you would know there's an air embolus. If you didn't see it that does not exclude an air embolus because it depends on the volume of air in the embolus as to whether you see it on X-ray.

MYERS: Potentially it's the most direct evidence we could have, isn't it, because it would be a view of it in life?

BOHIN: Not necessarily, no.

MYERS: So you would say a chest X-ray would not be potentially the best source of identifying air?

BOHIN: It's a source.

MYERS: And you will know that in Dr Owen Arthurs' report, we'll hear from him, but you have made reference to it, he was provided with the X-ray that was taken on 4 August at 00.24 hours, wasn't he?

BOHIN: Yes, he was.

MYERS: And he saw no significant abnormalities on that X-ray, did he?

BOHIN: That's what he reported.

MYERS: You've been ready to accept what he said elsewhere, haven't, you Dr Bohin?

BOHIN: Yes, but I think he will probably speak for himself.

MYERS: I suggest to you that where you are forming the view there was an air embolus, you're following Dr Evans' lead. You disagree. That's the suggestion I made.

I want to ask you about nasogastric tubes next, please. When you wrote your report of 27 November 2020, page 1522, and it's the concluding paragraph, you set out what you did and didn't agree with Dr Evans upon.

It starts at 5.22, Dr Bohin, page 1521.

BOHIN: 5.2?

MYERS: 5.22. It's the back of the report. The last page of the text.

BOHIN: Yes.

MYERS: You said:

"I do not agree with Dr Evans that a potential cause for the gastric haemorrhage was direct trauma secondary to forceful insertion of a nasogastric tube."

That's what you said, isn't it?

BOHIN: Yes.

MYERS: And that's because, not to put too fine a point on it, because that is a ridiculous suggestion in the first place by Dr Evans, isn't it?

BOHIN: That's up for Dr Evans to... to comment on.

MYERS: You follow it by saying:

"In the whole of my career, looking after thousands of neonates, I have never seen this complication or anything approaching it."

BOHIN: That's correct.

MYERS: I'll put the whole of that paragraph:

"I do not agree with Dr Evans that a potential cause for the gastric haemorrhage was direct trauma secondary to forceful insertion of an NGT. In the whole of my career, looking after thousands of neonates, I have never seen this complication or anything approaching it."

That's what you say?

BOHIN: That's my opinion, yes.

MYERS: Well, in your capacity as a peer-reviewer of Dr Evans, don't you find it extraordinary that a consultant paediatrician of his experience should make such a suggestion?

BOHIN: I think Dr Evans is allowed to make any suggestion he likes. My role was to review the evidence and comment on whether I agreed or disagreed with him, and on this point I disagreed with him.

MYERS: You have explained, it's been asked every time you have given evidence, you're here to peer-review?

BOHIN: Yes.

MYERS: In your experience, do you agree it would be an extraordinary suggestion to make that an NGT could be used to cause that sort of harm?

BOHIN: No, because Dr Evans may have experience of using different sorts of nasogastric tube to the ones that were used in the Countess of Chester. And as he previously said in his evidence, once he saw the type of tube that was used, he changed his view.

MYERS: Anyone with experience of premature babies will know that a 1.3-kilogram neonate is going to be having a nasogastric tube of tiny proportions. That's obvious, isn't it?

BOHIN: I can only say that's Dr Evans' opinion. That isn't my opinion and I peer-reviewed it and I came to a different conclusion. I disagreed with Dr Evans.

MR MYERS: My Lord, it's exactly 1 o'clock.

MR JUSTICE GOSS: Yes.

MR MYERS: I have a little further to go. I wonder if this would be a suitable time to break.

MR JUSTICE GOSS: Certainly. We'll break off now and resume at 2.05 then, members of the jury. Thank you.

(1.00 pm)

(The short adjournment)

(2.03 pm)

MR MYERS: Dr Bohin, do you agree that [Baby E] was at a higher risk of mortality than other babies who were not born as a premature twin with his health complications?

BOHIN: Yes.

MYERS: Do you agree, putting aside mortality, that he was at a higher risk of deterioration after birth as a result of being a premature twin with his health complications?

BOHIN: No.

MYERS: You don't think that being a premature baby, first of all, put him at a higher risk of deterioration than a non-premature baby?

BOHIN: They put him at risk -- being born at 29 plus 5 weeks' gestation put him at risk of possible complications and health concerns. But that it put him at risk, that didn't mean it was going to happen.

MYERS: No, I'm asking about risk. Do you agree that having twin-to-twin transfusion syndrome in utero, after he was born, put him at increased risk of a deterioration or a health complication?

BOHIN: The twin-to-twin transfusion syndrome doesn't occur after birth, it occurs before birth, and he had -- he and his twin had -- the mildest form of that, which required no treatment, and therefore I don't think makes any difference to his life after delivery.

MYERS: I wasn't suggesting it happens after birth. Quite patently it happens before birth because it is in utero, isn't it?

BOHIN: Yes.

MYERS: And when we dealt with this earlier, we looked at the fact there is a donor twin and a recipient twin.

BOHIN: I didn't --

MYERS: As a general rule; that's right, isn't it?

BOHIN: It is, though I didn't say that, I wasn't asked about that.

MYERS: No, no, you weren't. But when you said, oh, it doesn't add any other complications, there are complications that a newborn baby or a twin who has had twin-to-twin transfusion syndrome may face after birth, aren't there?

BOHIN: There are, if you have the most serious form of twin-to-twin transfusion syndrome. Clearly, I'm not an obstetrician, but I have dealt with children who have suffered with twin-to-twin transfusion syndrome and these twins had the mildest form which didn't require any treatment.

MYERS: But it may have consequential difficulties in due course, mightn't it?

BOHIN: Not that I'm aware of, no.

MYERS: And being born with absent or reverse end-diastolic flow or rather having had that in utero has particular health risks associated with it, doesn't it?

BOHIN: It puts the baby at increased risk of NEC.

MYERS: There may be other issues, other abdominal issues, in association with it, may there not?

BOHIN: Not that I'm aware of.

MYERS: And if there is a potential to deteriorate -- I'm suggesting there is a potential -- should that happen, it could happen within hours, couldn't it?

BOHIN: Babies may develop complications, but the deterioration does not usually occur within hours. It's a sudden insidious onset rather than a sudden catastrophic collapse.

MYERS: It may not usually happen within hours, but it can, can't it?

BOHIN: I have not seen it.

MYERS: It must be within the range of your experience, Dr Bohin, that you have been with a premature baby with pre-existing potential complications who has deteriorated very quickly?

BOHIN: Yes, they have deteriorated very quickly, with a known cause. So yes, they have deteriorated very quickly, but not in this set of circumstances.

MYERS: All right. We'll come to cause in due course.

So far as reverse end-diastolic flow is concerned, Dr Evans made the observation this morning that it can increase stress on the baby in utero; is that correct?

BOHIN: Yes.

MYERS: If the baby is under stress, the consequences of that stress won't simply vanish with the moment of birth, will they?

BOHIN: Yes, because you have taken away the placenta so the baby isn't reliant on the placenta anymore.

MYERS: But if that stress has put the baby under some consequential condition because of being in stress in utero, that won't simply vanish, will it?

BOHIN: Yes, I think it does.

MYERS: Blood glucose remaining high is an indicator of the baby being under some kind of stress, isn't it, potentially?

BOHIN: There are lots of causes for high blood glucose and stress is one of those but it is not the only cause.

MYERS: No. But it is a cause, isn't it?

BOHIN: Yes.

MYERS: And that may indicate some underlying problem; do you agree?

BOHIN: Not necessarily because in premature babies the commonest cause for a high glucose level is the fact that their own insulin production has not started or is not as good as it should be, therefore their sugar regulation isn't as good.

MYERS: So I take it from your answer that begins with the words "not necessarily", that means it may?

BOHIN: Yes, it may.

MYERS: Stress is capable of raising acidity within the stomach, isn't it, even in a neonate, physical stress?

BOHIN: [Baby E] wasn't under any physical stress. I'm not aware that stress can increase acidity in the stomach.

MYERS: When I say physical stress, I mean whatever it is that leads to the increase in blood glucose, if it's a stressor, that may increase acidity, gastric acidity, mightn't it?

BOHIN: I don't know, I don't know that.

MYERS: Increased acidity in the stomach can cause erosion or ulceration of the stomach lining, can't it?

BOHIN: The stomach is acid in any case. So I'm not sure how one can measure increased acidity. But regardless of the cause, babies can have erosions in their stomach.

MYERS: Right. But as it happens, do you agree, as a general principle, increased stomach acid can cause a bleed?

BOHIN: I have not seen that.

MYERS: Isn't that why Dr Harkness prescribed ranitidine after there had been the bleed?

BOHIN: Lots of things we do in medicine are as a preventative measure. So Dr Harkness recognised that there had been a GI

bleed, he didn't know the cause, and therefore he covered the options that were in his differential diagnosis and that included prescribing ranitidine in case there had been increased gastric acidity, and it also included prescribing metronidazole in case there was necrotising enterocolitis. It was done as a preventative measure rather than as a treatment measure.

MYERS: But it wouldn't be done if there wasn't any known or established medical link between acid and bleeding, would it?

BOHIN: You don't -- you don't necessarily have to have a massive haemorrhage in order to prescribe ranitidine.

Sorry, I may have misunderstood the question.

MYERS: I'll go back and go through this. I've been asking you whether increased acidity in the stomach could cause a bleed.

BOHIN: It may cause a minor degree of irritation. In my experience it does not cause major haemorrhage.

MYERS: And then I asked you this, or rather drew this to your attention: Dr Harkness, after the first significant bleed he identified, prescribed ranitidine?

BOHIN: Yes.

MYERS: Ranitidine is an antacid, isn't it?

BOHIN: Yes.

MYERS: And he prescribed that because he had diagnosed a gastric bleed and so he was wanting to bring the acidity down. That's what he was doing, wasn't it?

BOHIN: He did it as a matter of routine because he didn't have a cause for the haemorrhage. So, yes, he prescribed both ranitidine and metronidazole to cover two different diagnoses because he had no cause for the bleed and that was a reasonable course of action.

MYERS: Do you understand the link I'm suggesting to you, that he prescribed an antacid because there's a link between high acid and a gastric bleed, whatever the cause?

BOHIN: I don't know of that link. You'd have to ask him why he did it. I don't know of that link.

MYERS: I did and he said it's an antacid and that's why.

BOHIN: It is an antacid.

MYERS: As an independent, objective witness, your evidence on this, when I suggest to you that ranitidine is prescribed because the cause of a bleed may be the increase in the acidity, is that you don't know?

BOHIN: No, what I'm saying is, as a matter of course, any child who had a gastric bleed you would prescribe ranitidine whether you knew the cause or not. I also said I haven't seen a child have a catastrophic haemorrhage as a result of increased gastric acid secretion.

MYERS: Causes of a haemorrhage like this, natural causes, do include gastric erosions or ulceration, don't they?

BOHIN: No.

MYERS: I'm looking at your report. Could you look at paragraph 5.14, Dr Bohin? You say in your report, 27 November 2020:

"Haemorrhage of this magnitude is very rare in neonates. Causes include..."

And the first one you put is gastric erosions/ulceration.

BOHIN: Causes of haemorrhage, not causes of haemorrhage of this magnitude. So causes of haemorrhage can be gastric ulceration or erosions.

MYERS: Well, the wording of that, so everyone's quite clear, is:

"Haemorrhage of this magnitude is very rare in neonates. Causes include gastric erosions/ulceration..."

BOHIN: Yes. Causes of haemorrhage.

MYERS: Well, forgive me for that, but it says "haemorrhage of this magnitude" in your report, doesn't it?

BOHIN: Yes. Then:

"[Full stop] Causes include..."

So:

"Causes [of haemorrhage] include gastric erosions/ulceration, haemangiomatosis and coagulation disorders."

MYERS: Certainly I'm going to suggest in the report there you're talking about causes of haemorrhage of this magnitude.

BOHIN: That wasn't what was intended.

MYERS: You understood the seriousness of this matter when you wrote that report, didn't you?

BOHIN: Yes, of course.

MYERS: And you have gone through it in some detail, cataloguing the amount of blood that was lost?

BOHIN: Yes.

MYERS: And when you used the expression "haemorrhage of this magnitude", you knew precisely what you were talking about, didn't you?

BOHIN: Yes.

MYERS: And you were also addressing the question of cause in the report, weren't you?

BOHIN: Yes.

MYERS: And in that context, that is where you said, "The causes include gastric erosions", isn't it?

BOHIN: The cause of haemorrhage include gastric erosions and the other things I have out on that list, yes.

MYERS: Does it say "the cause of haemorrhage"?

BOHIN: It says "the causes":

"Causes include..."

MYERS: Again, is this you being objective and independent in giving as much assistance as you can, Dr Bohin?

BOHIN: I believe so, yes.

MYERS: The purpose of a post-mortem is to investigate cause where it's unknown or there is uncertainty, isn't it?

BOHIN: Yes.

MYERS: I want to ask you this: you were asked a question about whether ultimately -- I don't want to get this wrong -- whether the coroner's decision -- it's the coroner's decision as to whether or not there is a post-mortem?

BOHIN: No, not necessarily. There are two mechanisms where you can get a post-mortem: either a hospital post-mortem, where consent is required from a parent. That is not obligatory and consent is required from a parent in order to undertake that. Whether there's a hospital post-mortem or not, a doctor can sign a death certificate.

Where the cause of death is unknown, doctors are obliged to refer this to the coroner, who then makes his or her own decision about whether a coroner's post-mortem should take place, in which case the parents do not have to give permission.

MYERS: But of course, if a consultant together with the consent of the parents said to the coroner that a post-mortem should be held, then a post-mortem would be held?

BOHIN: No, the coroner -- if a post-mortem is going to be held with consent of the parents, the coroner's not involved at all.

MYERS: Right. So before we even get to the coroner, if the treating consultant and the parents want a post-mortem, then there will be a post-mortem?

BOHIN: Yes.

MR MYERS: Thank you. Those are my questions.

Re-examination by MR JOHNSON

MR JOHNSON: A few minutes ago, Dr Bohin, you were being asked about children born with absent or reverse end-diastolic flow. I don't know if you remember that.

BOHIN: Yes.

JOHNSON: You answered:

"Answer: It puts the baby at increased risk of NEC."

And then the question was asked of you:

"Question: There may be other abdominal..."

Or a statement was put to you:

"Question: There may be other abdominal issues in association with it, may there not?"

And you said:

"Answer: Not that I'm aware of."

If specifics were put to you, would you be able to answer them --

BOHIN: I think so, yes.

JOHNSON: -- by the questioner?

BOHIN: Yes.

MR JOHNSON: Thank you. Does your Lordship have any questions?

Questions from THE JUDGE

MR JUSTICE GOSS: That passage that you were asked a number of times about in the report and it was suggested that the interpretation of that passage was that you were referring to conditions that could cause haemorrhages of that volume of material and then you gave a series of potential causes, did those potential causes relate to haemorrhage of that volume or just haemorrhaging?

BOHIN: Just haemorrhaging full stop, not (overspeaking) --

MR JUSTICE GOSS: So those are just causes of haemorrhage --

BOHIN: -- of any haemorrhage?

MR JUSTICE GOSS: -- of any haemorrhage? Thank you.

Thank you very much, Dr Bohin. That's it at this stage but you'll be coming back obviously.

(The witness withdrew)

MR JOHNSON: Could I recall Claire Hocknell, please, my Lord.

MRS CLAIRE HOCKNELL (recalled)

Examination-in-chief by MR JOHNSON

MR JOHNSON: Mrs Hocknell, for the sake of the record, could you knowledge identify yourself, please?

HOCKNELL: Claire Hocknell.

JOHNSON: Thank you. You've been recalled just to deal with one or two corrections to the sequence of events that we dealt with earlier; is that right?

HOCKNELL: Yes.

JOHNSON: The first two relate to documents that were -- hadn't been edited in the sequence and they are slides 122 and 134, which are the phone bill of [Mother of Babies E & F].

I don't think we need to show them on the screen, but they've, since we went through the sequence, been redacted, they've been edited?

HOCKNELL: That's correct.

JOHNSON: And the version that's now in the sequence of events is the version I showed to [Mother of Babies E & F] in evidence when she gave evidence?

HOCKNELL: That's what I understand, yes.

JOHNSON: But that hadn't been replaced in the sequence when we went through the sequence?

HOCKNELL: Yes.

JOHNSON: All right, thank you. So could we move on, please, to slide 154, with Mr Murphy's assistance, please. Could you just tell us what's been altered here?

HOCKNELL: The time has been added to the slide.

JOHNSON: So there was previously no time at all there?

HOCKNELL: That's correct, yes.

JOHNSON: Thank you. Slide 199, please. That previously said "G1 haemorrhage", didn't it?

HOCKNELL: It did, yes.

JOHNSON: And slides 266 to 273. Perhaps we can take 266 as an example of this because it's the same issue in relation to all these slides. Previously the date was wrong, I think, wasn't it?

HOCKNELL: Yes, it previously said 5 August and it's the 6th.

JOHNSON: Thank you. Could we move next to the NNU review. So the white bundle. We need to go to line 86, which is at page 4 of 11. I think we actually corrected this in manuscript as we went through, but just to check it says -- in the activity summary it says:

"Nursing note entry regarding bradycardic."

And it should read "bradycardia"?

HOCKNELL: Yes, that's correct.

MR JOHNSON: Thank you. I believe there are no questions for you.

Thank you.

Does your Lordship have any questions?

MR JUSTICE GOSS: I don't, thank you very much.

MR JOHNSON: Thank you, Mrs Hocknell.

(The witness withdrew)

Summary of interview with LUCY LETBY re [Baby E] (read)

MR JOHNSON: Ladies and gentlemen, this is but a summary of the interview. It's not a substitute for the real thing.

During her interview on 4 July 2018, Lucy Letby did recall caring for [Baby E]. She said that her shift began at 8 pm on 3 August, that [Baby E] had started insulin earlier that day but was otherwise doing well, [Baby E] was starting to have enteral feeds, but after some feeds she, that is Lucy Letby, got large aspirates back from his NG tube.

Lucy Letby said she consulted a doctor and she thought that they omitted a feed and then [Baby E]'s abdomen became distended. [Baby E] was reviewed by doctors and medication commenced but his abdomen continued to distend and became discoloured. [Baby E] then required respiratory support and began bleeding.

Lucy Letby said she had fed [Baby E] successfully on one occasion and it was the second time when she obtained a large aspirate back from his NG tube. The aspirate contained bile, which is usually a sign that a child is not digesting feeds or potentially there is an infection. Lucy Letby said that bile is not something that they want to be getting back from the stomach and can indicate some sort of abdominal issue.

Lucy Letby said she showed Belinda Simcock, the senior nurse, and they decided to omit the feed. It was after this [Baby E]'s stomach began to distend after about an hour. Dr Harkness was requested to review [Baby E], but Lucy Letby could not recall the time and asked the interviewing officers to check, nor could she recall if she made the request or somebody else made the request.

The discoloured area to part of [Baby E]'s abdomen was like a purple discolouration or a patch of purple-ness, which she believed was a sign of an ongoing abdomen problem. When Lucy Letby got blood back in [Baby E]'s NG tube she thought that she'd shown Belinda Simcock but was not sure that Belinda was definitely there when she obtained it. She said she couldn't remember if she found the blood before or after [Baby E]'s deterioration.

In Lucy Letby's opinion, it was fresh blood and she believed it was from his abdomen. Lucy Letby looked at her notes and stated that if she had seen blood on [Baby E] prior to the large vomit of fresh blood then it would have been in the notes and the charts. She agreed that [Baby E]'s mum had visited and presumed that she, that is [Baby E]'s mum, would have seen blood, but couldn't specifically remember [Mother of Babies E & F] seeing blood.

Dr Harkness mentioned necrotising enterocolitis and ordered an abdominal X-ray. Lucy Letby also thought that Dr Harkness wanted to start [Baby E] on metronidazole anicidine(?), which is used to treat bowel conditions.

Lucy Letby confirmed that she would have told a doctor if at any time she had found blood on [Baby E].

During resuscitation Lucy Letby recalled doing chest compressions. She said more blood came from [Baby E]'s mouth as she pressed his chest, which Lucy Letby said was not nice to see.

She said she cared for [Baby E] after he had passed away, she bathed him with his parents' consent, and felt that it was a privilege to do so for the parents. She also prepared a memory box as per the bereavement policy. Lucy Letby confirmed that it was upsetting after [Baby E]'s death.

When she was interviewed again on 11 June 2019, Lucy Letby couldn't remember who she informed of [Baby E]'s aspirate at 9 pm, the content of the conversation, or whether it was in person or by telephone.

She agreed that she would have written "registrar"

if that had been who she had informed unless it was an oversight on her part. She was shown her own note and she agreed that the only senior house officer on duty was Christopher Wood.

Lucy Letby said that she knew [Baby E]'s mum, [Mother of Babies E & F], but didn't remember [Mother of Babies E & F] arriving on the ward at 9 pm, nor did she recall specifically what time

[Baby E] had blood on his mouth. Lucy Letby said she had no recollection of whether [Baby E] was upset when his mum visited, what she, that is Lucy Letby, was doing at the time, whether the containment technique was used on [Baby E], or any conversation with [Mother of Babies E & F].

Lucy Letby had no recollection of saying that the feeding tube was irritating [Baby E]'s throat or [Baby E] being upset and crying. She said she might have asked [Mother of Babies E & F] to go and get some rest as they often advise parents to do that at night but would not have told her to leave the unit.

Lucy Letby was questioned about the telephone records of [Mother of Babies E & F] and said that she thought she must have made a mistake noting the time as 10 pm, it must have been before that. She wondered whether it was a smaller mucousy amount of blood that had upset [Mother of Babies E & F], as it would look a lot but was not a large amount. Lucy Letby understood that any amount of blood would be upsetting to a parent.

Asked why in those circumstances Dr Harkness didn't come until 10 pm, Lucy Letby wondered whether he had been delayed and couldn't attend straightaway, and whether she escalated it or not or whether Belinda Simcock might have been involved.

She could have contacted Registrar Harkness before 10 pm and it could have been by a telephone call, which would not be documented. Lucy Letby considered whether the interviewing officers had retrieved the bleep times and whether they could check that for Dr Harkness.

She didn't know why there was no entry about the blood on his mouth. The amount must only have been small with mucus in it as she would not class that as something to be overly concerned about.

Lucy Letby denied intending or causing any harm to [Baby E].

On 10 November 2020 Lucy Letby said that they may advise parents not to be there when a baby was being cleaned up but they would never say that a parent could not come on to the unit. Ms Letby agreed that the aspirate from [Baby E] was shown to Dr Harkness.

Asked about messages sent to colleagues after [Baby E]'s death, Lucy Letby confirmed that he was

"bleeding from everywhere" during resuscitation and that a haemorrhage could happen to any baby. She was aware it was an abdominal bleed because they were getting blood back from his NG tube and he passed blood rectally, indicating an abdominal issue.

My Lord, subject to further expert evidence, in particular from Dr Kinsey, who is the haematologist, that is pretty much the evidence in the case of [Baby E].

MR JUSTICE GOSS: Yes. I had a note from the jury whilst you were reading out that summary and it says:

"Slide 155. No time recorded."

That's on the tile itself, "No time recorded". I've looked at the -- it's the neonatal parenteral nutrition prescription and on 2 August, day 5, there are times on the starting and finishing of the prescription for that day.

MR JOHNSON: Yes.

MR JUSTICE GOSS: But there aren't for the next day.

I don't know whether it was deliberately omitted, any timing, because there's only one and it's a start and finish time or not.

MR JOHNSON: Yes, well, if one looks at the document behind, so if one starts with slide 155, it simply says:

"Prescription: neonatal parenteral nutrition Tuesday, 4 August".

It's put into the sequence in effect at midnight.

In the description it says:

"48 hours same bag".

Then if one goes to the document, we see that it was a bag that started, if one looks at the first day 5, 2815, one sees the bag started on 3 August at 00.05 and therefore that then runs into day 6 below and we see in the date column, it simply says:

"48 hours same bag".

And then "04/08/15", Lucy Letby's signature.

MR JUSTICE GOSS: Yes. That's the answer. It's not put on the tile, but you just look at the document behind for the information.

MR JOHNSON: Yes. Actually, the time it finished coincides with [Baby E]'s death, which, if it's entered in the line above, in the date -- time and date finished 04/08/15, 01.40. It's just a -- we'll hear a lot more about this, my Lord, with [Baby F]

because this TPN bag is the central point of his case. So by the time we get to the end of that case, the jury will know all about TPN bags and that's next week.

MR JUSTICE GOSS: That's next week. That note has reminded me. You'll remember there was the note yesterday where the jury were assured that they were going to hear evidence answering that.

MR JOHNSON: Yes. I haven't got the text of the note in front of me, I'm afraid.

MR JUSTICE GOSS: Would you like to just see it then?

MR JOHNSON: Yes. I should say -- and I know Mr Myers is about to say this -- Dr Arthurs will deal with --

MR JUSTICE GOSS: With that one?

MR JOHNSON: With [Baby E] as well when he returns.

MR MYERS: I'm grateful, my Lord. I was about to point this out. There's been reference to Owen Arthurs' report on [Baby E], which plainly forms part of the case regarding [Baby E]. There are no questions, that's agreed. The prosecution will deal with that when he gives evidence about [Baby F], but obviously that's part of the evidence relating to this count.

MR JUSTICE GOSS: Thank you, yes.

MR JOHNSON: Yes. Perhaps we can take a copy of the note.

MR JUSTICE GOSS: I think so. I've taken a copy of the note.

MR JOHNSON: We will deal with it. Just so the jury understands, unless we can sort things out straightaway, there is a protocol as to how we deal with these with experts. So we'll see if we can get agreement from the experts and deal with it that way. If we can't, we'll have to call some evidence, which involves taking statements and the prosecution serving it on the defence and vice versa. It's not always necessarily straightforward.

MR JUSTICE GOSS: All right, thank you. So that's it for today. So on Monday, we'll be moving on to [Baby F].

MR JOHNSON: Yes.

MR JUSTICE GOSS: Another early finish for you, members of the jury. Please remember your obligations as jurors.

No research about anyone or anything to do with the case. No communication by any means with anyone who's not a fellow juror

and, even then, only when you're all together discussing things if you wish to discuss things about the case. All right? Thank you very much.

10.30, Monday morning.

(2.36 pm)

(The court adjourned until 10.30 am on Monday, 21 November 2022)