

15 February 2023
Babies L & M

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Wednesday, 15 February 2023
(10.30 am)

(In the presence of the jury)

MR JUSTICE GOSS: Mr Johnson.

MR JOHNSON: We are about to move on to the cases of [Baby L] and [Baby M]. They are both allegations of attempted murder. I'm sure the jury will remember that in effect both events were going on pretty much at the same time, but [Baby L]'s case is one involving the alleged administration of insulin, whereas [Baby M]'s case is one that coincides more with the type of evidence that the jury have been hearing as we've been going along in many of the other cases.

So rather than confusing the issues by presenting things strictly chronologically with things going on with either child at the same time, we are going to concentrate first on the case

of [Baby L], who is the insulin case, call that evidence, then call the factual evidence relating to [Baby M] and then call the expert evidence dealing with both.

MR JUSTICE GOSS: Right, thank you very much.

MR JOHNSON: So Kate Tyndall, please.

MRS KATE TYNDALL (recalled)

Examination-in-chief by MR JOHNSON

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

TYNDALL: I'm Kate Tyndall, intelligence analyst.

JOHNSON: Thank you, Mrs Tyndall. Can we go to the sequence -- sorry.

(Pause)

MR JOHNSON: Mrs Tyndall, can we start at tile number 1 with Mr Murphy's assistance, please.

Tile 1 records the births of [Baby L] and indeed, to a degree, [Baby M]. They were twins, born by C-section on 8 April 2016.

If we just go behind that, we see towards the middle of the text that no resuscitation was required. [Baby L] cried immediately. His Apgar scores -- essentially, he got full marks at 1, 5 and 10 minutes.

TYNDALL: Yes.

JOHNSON: Thank you. The second tile records the birth of [Baby M]; is that right?

TYNDALL: Yes.

JOHNSON: Then we have at 10.30, tile number 3, the admission of [Baby L] to the neonatal unit?

TYNDALL: Yes.

JOHNSON: As we see from the tile itself, the two medical professionals that completed the necessary paperwork were Lucy Letby and Dr Bhowmik.

At tile number 4, [Baby L]'s vital signs were recorded by Lucy Letby?

TYNDALL: Yes.

JOHNSON: Then at tile number 5, at 10.58, we have blood gas results?

TYNDALL: Yes.

JOHNSON: At tile number 6, [Baby L] was cannulated at 11 am?

TYNDALL: Yes.

JOHNSON: And that is -- there's a record made by Lucy Letby concerning the fact that he was given sucrose and containment as pain management?

TYNDALL: Yes.

JOHNSON: At tile number 7, we see Dr Bhowmik's notes of that procedure, which succeeded at the first attempt.

At tile number 8 we have clinical notes, timed at 11.40, completed by Dr Barrett and Dr Mayberry concerning [Baby L]'s delivery and transfer?

TYNDALL: Yes.

JOHNSON: Tile number 9 is further observations taken at noon?

TYNDALL: Yes.

JOHNSON: Ten and 11 are the other two of what I have been calling the standard three.

TYNDALL: Ten is actually a prescription for dextrose.

JOHNSON: Quite right. Eleven is the fluid balance chart, completed by Lucy Letby.

Then at 12 are some further clinical notes made by Dr Bhowmik. You have helpfully annotated on the tile itself the fact that at this very early stage [Baby L] had low blood sugar.

TYNDALL: Yes.

JOHNSON: Tile 13 is Lucy Letby's nursing note and I'd like to look at that if we can, please. Can you take us through what she recorded?

TYNDALL: Yes. This is an extract from the full summary notes she wrote at 17.42, dealing with the low blood sugar. So she writes:

"Initial blood sugar shortly after birth, 1.9 micromoles. Advised by Reg Bhowmik to commence 10% glucose at 3ml/kg/hour and give 60ml/kilogram/day of donor-expressed breast milk. Myself and shift leader A Davies have discussed this with Reg Bhowmik as does not follow the hypoglycaemic pathway."

JOHNSON: Thank you. At 14 there is a prescription?

TYNDALL: Yes.

JOHNSON: That's also timed at noon. Tile 15, at 12.14 hours, further blood gases?

TYNDALL: Yes.

JOHNSON: By this stage, according to the blood gas, the blood sugar level had risen to 2.5?

TYNDALL: Yes.

JOHNSON: So that's 14 minutes after the previous blood gas.

At 16, a pathology sample, a venous blood sample taken for a blood culture?

TYNDALL: Yes.

JOHNSON: Which revealed nothing after 5 days?

TYNDALL: Yes.

JOHNSON: Tile 17, timed at 12.37, a further blood sample?

TYNDALL: Yes.

JOHNSON: If one were to go behind the tile, we'd see what the results were. Sorry, I wasn't inviting that. I think we're all familiar with these sort of things and insofar as they are relevant we'll deal with them with the medics.

Tile 18, further observations at 13.00 hours together with the neonatal fluid balance chart at the same time at tile 19?

TYNDALL: Correct.

JOHNSON: We then come to some text or WhatsApp messages; is that right?

TYNDALL: Yes, these are just a collection of messages between -- this first one is between [Nurse E] and [Nurse A], a collection of them.

JOHNSON: Yes. You've recorded -- if we just click on the tile itself, we'll see that between 11.13 hours and 12.09 hours, there are incoming and outgoing messages involving work between Lucy Letby, [Nurse A] and [Nurse E], but none of them mention [Baby L].

TYNDALL: Yes.

JOHNSON: At 21, at 12.28 hours, [Nurse A] sent a message to Lucy Letby. Could you take us through its contents, please?

TYNDALL: She writes:

"Only if you get chance could you let me know who is in management and ward wise on Tuesday. I feel crap. Like a failure. Like I'm letting you all down."

JOHNSON: Just to put this in context, this is a Friday, so requesting information for 4 days later?

TYNDALL: Yes.

JOHNSON: At tile 22, Lucy Letby responded at 13.05.

TYNDALL: Yes:

"GP signed you off? I haven't had chance to look, it's mad. Don't feel like that, it can't be helped, and you've got to put yourself first and get yourself well."

JOHNSON: Almost immediately did [Nurse E] then send a message to Lucy Letby saying:

"Oh how sad. How's your day going today? Did you make it to salsa?"

TYNDALL: Yes.

JOHNSON: Lucy Letby responded to that, is that right, 2 minutes later?

TYNDALL: Yes, reading:

"Baby has stomas now. It's busy! [Nurse A] been signed off till end of month and unit full so struggling for staff. All fun and games! Yeah, went to salsa [smiley emoji]. Been to water park yet?"

JOHNSON: Thank you. The next time is number 25, timed at 13.30, and this is Lucy Letby's record of her communication with [Parents of Babies L & M]; is that right?

TYNDALL: Yes.

JOHNSON: Can you take us through what she recorded at that time?

TYNDALL: "Parents were shown babies in theatre and had a quick cuddle. I updated parents on CLS [I think that's central labour suite]. Consent given for donor milk. Aware of need for phototherapy, antibiotics and IV fluids. Photographs given and visiting hours discussed. Daddy visited the unit and had cuddles."

JOHNSON: Thank you. Next is 26, timed at 14.00 hours. Is that further observations of [Baby L]'s vital signs?

TYNDALL: Yes.

JOHNSON: Followed at 27, at the same time, by the neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: And at 28 by Dr Bhowmik's record of a communication that she had -- Dr Bhowmik had had with the [Surname of Babies L & M] parents --

TYNDALL: Yes.

JOHNSON: -- or at least [Father of Babies L & M]? Does that read:

"Updated dad on NNU at about 14.00. Explained re increased fluids to stabilise sugars and plan to introduce enteral feeds. Donor-expressed breast milk consent obtained. Twin 2 needing phototherapy, jaundice, hence twin 1 also on IV antibiotics for possible infection."

TYNDALL: Yes.

JOHNSON: Does tile 29 record the fact that there were various social messages being exchanged between 13.08 hours and 14.39?

TYNDALL: Yes.

JOHNSON: And do we then have a collection of documentation at tiles 30 through to 32 concerning the administration or the

prescription of and administration of two antibiotics, benzylpenicillin and gentamicin?

TYNDALL: Yes.

JOHNSON: At 33 and 34 do we have the observations and the neonatal fluid balance chart, completed by Lucy Letby?

TYNDALL: Yes.

JOHNSON: Then at 35, do we have, timed at 15.45, a record of some swabs that were taken for pathology?

TYNDALL: Yes.

JOHNSON: Again, a record made by Lucy Letby?

TYNDALL: Yes.

JOHNSON: At 36, timed at 16.00 hours, together with 37 at the same time, do we have vital signs and the fluid balance chart records?

TYNDALL: Yes.

JOHNSON: Also at 16.00 hours at 38, a blood gas record?

TYNDALL: Yes.

JOHNSON: Do we see here that the blood sugar of [Baby L] had certainly normalised to 5.8?

TYNDALL: Yes.

JOHNSON: At 39 is there a retrospective nursing note which was actually written at 17.42 but you've put into the timeline at this stage because of its context?

TYNDALL: Yes.

JOHNSON: Could you tell us what Lucy Letby wrote was going on at about this time?

TYNDALL: She writes:

"Subsequent blood sugars have been 2.5 micromoles and 5.8 micromoles with enteral feeds well tolerated, however she has advised to continue with this regime and wean. 10% glucose now at 2ml/kg/hour via peripheral line."

JOHNSON: Does that really take on from the previous tile 13, which refers to the registrar, Dr Bhowmik?

TYNDALL: Yes.

JOHNSON: So it would have to be read in that context, so "she" in that context is Dr Bhowmik?

TYNDALL: Yes.

JOHNSON: At tile 40, is that a pathology sample taken at 16.46?

TYNDALL: Yes.

JOHNSON: Then at 41, do we have the neonatal fluid balance chart first?

TYNDALL: Yes.

JOHNSON: Then at 42, Dr Bhowmik's record or the time that Dr Bhowmik made her record concerning the material that is contained at tile 28 that we've already dealt with?

TYNDALL: Correct.

JOHNSON: At tile 43 do we then have, first, the time that Lucy Letby was making the notes that we have previously referred to?

TYNDALL: Yes.

JOHNSON: But also some further information that she recorded that you have put in at this stage of the chronology?

TYNDALL: Correct.

JOHNSON: Could you just deal with what Lucy Letby wrote at this time that's not already been dealt with?

TYNDALL: "Attended delivery of [Babies L & M] at 33 plus 2 weeks' gestation. Planned section for IUGR and oligohydramnios of twin 1. Times 2 steroids given. Born in condition (see medical notes). Brought to unit at 10.30. Initially had some recession with a raised respiratory rate. Quickly normalised and has remained self-ventilating in air. Blood gases good."

Then there's the records that we have dealt with on the two previous tiles. It then goes on to read:

"Two-hourly feeds (NG/bottle). Minimal aspirates obtained. Abdomen soft and non-distended. Urine and meconium passed.

Observations as charted. Incubator temperature reduced. SBR taken on gas machine and low reading given. Bloods obtained for septic screen due to early jaundice in twin 2 and lab result noted to be on treatment line, therefore phototherapy commenced. Eye protection in place. Antibiotics given as prescribed. Male infant [Surname of Babies L & M] alert and active."

JOHNSON: In that context SBR is serum bilirubin, I think?

TYNDALL: Yes.

JOHNSON: All to do with jaundice.

At 44, is there a note made 5 minutes after the previous note concerning communications that Lucy Letby had had with [Parents of Babies L & M]?

TYNDALL: Yes.

JOHNSON: Could you deal with those, please?

TYNDALL: "Introduced myself to parents prior to delivery. Parents had cuddles with both babies in theatre and photographs taken. Parents updated by myself on CLS and photograph given. Daddy has visited and had cuddles with male infant [Surname of Babies L & M]. Fully updated on care by myself and Reg Bhowmik. Aware of need for septic screen, IV fluids, NG tube feeds and phototherapy. Consent obtained for donor milk. Visiting hours discussed. A Davies has updated parents this evening."

A Davies presumably is Amy Davies.

JOHNSON: Yes, thank you.

At 45 and 46, timed at 18.00 hours, do we have [Baby L]'s vital signs recorded together with the data on the neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: At the same time, tile 47, is there a blood gas record which, amongst other things, records [Baby L]'s blood sugar level?

TYNDALL: Yes.

JOHNSON: Which was 3.3?

TYNDALL: Yes.

JOHNSON: Then at 18.15, tile 48, did Lucy Letby send a message to [Nurse E]?

TYNDALL: Yes.

JOHNSON: Can you deal with the contents of that, please?

TYNDALL: It reads:

"Unpacking. Stuff everywhere lol. May do extra shift over weekend."

JOHNSON: Is that then followed by social messaging for the next 3 minutes or so involving Lucy Letby on one part and [Nurse E] and [Nurse A] on the other?

TYNDALL: Yes.

JOHNSON: At tile 50, is that the hourly, on the hour, at this stage, 19.00 hours, neonatal fluid balance chart data record?

TYNDALL: Yes.

JOHNSON: At 51, at 19.20 hours, was there an outgoing text message sent by Lucy Letby to Susan Letby, her mother?

TYNDALL: Yes. It reads:

"Think I'm going to do tomorrow as an extra but go in a bit later. Extra money and Sat pay."

As in Saturday.

JOHNSON: Yes. Did her mum respond almost immediately with "Great"?

TYNDALL: Yes.

JOHNSON: Was the care of [Baby L] handed over to Nurse Tracey Jones?

TYNDALL: Yes.

JOHNSON: We then move on to the night shift, which followed [Baby L]'s admission to the neonatal unit at tile 54 at 8 o'clock. And 55 and 56, do we have records of [Baby L]'s vital signs together with the fluid balance data?

TYNDALL: Yes.

JOHNSON: Do we see that [Baby L]'s blood sugar was dipping a bit at tile 56, down to 2.3?

TYNDALL: Yes.

JOHNSON: At tile 57, on 8 April still, timed at 21.04, did Sophie Ellis send a message to Lucy Letby asking:

"How's the house, pal?"

TYNDALL: Yes.

JOHNSON: Did Lucy Letby respond in the succeeding tile at 21.24?

TYNDALL: Yes. She responds with:

"Hey. It feels a bit weird having a whole house but it's good, thanks. Although stuff everywhere as moved in properly on Tuesday and been at work Wednesday, Thursday and today. Doing tomorrow as an extra so I'll see you tomorrow night. Won't be such an early start for you now back in Chester. Did I hear your grandparents are coming to see you?"

JOHNSON: Thank you. Did Sophie Ellis respond:

"Yeah, I bet it does. It'll feel more homely once you've sorted everything out. Jeez, four LDs in a row. Are you okay?"

That's long days presumably in that context:

"I know, yay, and I don't have to pay for petrol. It's costing me a fortune. Yeah, they are. Haven't seen them for a while. What's the unit like?"

TYNDALL: Yes.

JOHNSON: Did Lucy Letby respond to that?

TYNDALL: Yes:

"Yeah, I'll get there in time. Petrol and tunnel soon mounts up, doesn't it? Can you claim travel expenses? I couldn't for 405. Unit is busy. No one particularly unwell, just volume and few people off sick. I prefer 4 days to 4 nights. Least tomorrow is an extra and Sat pay. Aw, that'll be nice. Hope weather is a bit better for you."

JOHNSON: Thank you. Did Sophie Ellis respond:

"Yeah, we can. OMG, really? How come? That's 7 weeks as well, isn't it? Yeah, 4 nights are awful. That's not too bad then.

Think I'd prefer to keep busy. I think it's meant to rain, damn it"?

TYNDALL: Yes.

JOHNSON: Is there then another message sent by Lucy Letby about 7 minutes later to Sophie Ellis?

TYNDALL: Yes, that reads:

"Eirian said something about the induction being paid for by the trust, whereas the 405 comes out of network budget so won't pay as it's an expected part of role to progress, et cetera. Mad really and costs a bomb. We've got a nice mix of babies at the mo really. Shift goes quick anyway. Grr, typical April showers, ha ha. [Nurse E] is in Thailand and it has been 44 degrees today. "

JOHNSON: Did she then follow that up with a message to [Nurse E] in Thailand?

TYNDALL: Yes, saying:

"Your painting is finished. Got soaked walking home from work. Doing tomorrow as an extra now. Few more pennies."

JOHNSON: Do we then see at 64, 65 and 66, all timed at 22.00 hours, the record of [Baby L]'s vital signs together with the data on the fluid balance chart, which included the fact that [Baby L]'s blood sugar was low at 2.2?

TYNDALL: Yes, but tile 66 is actually 23.00.

JOHNSON: I beg your pardon. Sorry, it's my eyesight. Let's just rewind then.

So 64 and 65 are the 22.00 hours material that we've spoken of, the fact that [Baby L]'s blood sugar was low at 2.2?

TYNDALL: Yes.

JOHNSON: And recorded in brackets after that reading is "pre", and does that refer to pre-feed?

TYNDALL: I presume so, yes.

JOHNSON: And 66, as you have rightly pointed out, is the same neonatal fluid balance chart filled in an hour later at 23.00 hours?

TYNDALL: Yes.

JOHNSON: At 67, at 23.55, was a pathology sample taken, and the objective was to determine [Baby L]'s bilirubin level?

TYNDALL: Yes.

JOHNSON: At 68, at midnight, just turning into Saturday, 9 April 2016, were [Baby L]'s vital signs recorded together with in the next tile, 69, at the same time, the data on the fluid balance chart?

TYNDALL: Yes.

JOHNSON: Which included the fact that his, that is [Baby L]'s, blood sugar had risen to 3.6, which is within the acceptable range?

TYNDALL: Yes.

JOHNSON: Another neonatal fluid balance chart an hour later at 01.00 hours?

TYNDALL: Yes.

JOHNSON: Followed by observations and a neonatal fluid balance chart at tiles 71 and 72 respectively, both, as I have said, at 02.00 hours?

TYNDALL: Yes.

JOHNSON: At 73, is there a record on the neonatal fluid balance chart of the fact that [Baby L]'s cannula had fallen out?

TYNDALL: Yes.

JOHNSON: Then at 74, a prescription for benzylpenicillin?

TYNDALL: Yes.

JOHNSON: Timed at 03.41?

TYNDALL: Yes.

JOHNSON: At 75, timed at 03.41 as well, a prescription for sodium chloride?

TYNDALL: Yes.

JOHNSON: Then at 76 and 77, the observation chart followed by the neonatal fluid balance chart, timed at 04.00 hours?

TYNDALL: Yes.

JOHNSON: At 78, at 04.27 hours, have you transcribed Nurse Tracey Jones' nursing note?

TYNDALL: Yes.

JOHNSON: And has she -- can you take us through what she has recorded, please?

TYNDALL: "Care taken over by T Jones, agency nurse, at 19.30 hours. All safety checks completed and satisfactory. Fluids and enteral feeds checked and administered. Enteral feeds tolerated of donor-expressed breast milk. Abdomen soft. Passed meconium and urine. Cannula knocked out by baby, therefore replaced by registrar. IV antibiotics administered as prescribed by ward staff. Skin intact, no concerns. Full monitoring continues and observations within normal limits for gestation. Temperature maintained. Nursed in an incubator set at 32.5. Phototherapy continues. Eyes protected. Last SBR result 62, lights to continue. Pre-feed blood glucose all above 2 micromoles, therefore to discontinue monitoring as requested by registrar. No contact from parents throughout shift."

JOHNSON: Thank you. At 79, at 05.00 hours, is there the fluid balance chart?

TYNDALL: Yes.

JOHNSON: And at 80 and 81 respectively, an hour later at 06.00 hours, do we have the observation chart together with the fluid balance chart?

TYNDALL: Yes.

JOHNSON: At 82, 83, 84, 85, 86 and 87, do we have a series of swipe data records which record the arrival of the day shift for Saturday, 9 April?

TYNDALL: Yes.

JOHNSON: That includes, at 83, Lucy Letby's arrival at 07.25 hours?

TYNDALL: Yes.

JOHNSON: On the next tile, which is tile 88, do we have the list of staff on this day shift on the Saturday?

TYNDALL: Yes.

JOHNSON: If we go to that, please. Could you take us first through the list and then we'll deal with the population chart?

TYNDALL: The paediatrician of the week is Dr Gibbs and the on-call consultant is Dr Jayaram. Registrar is Dr Ukoh.

The neo SHO is Dr Barrett and the general SHO, Dr Henton. The nursing staff shift leader is [Nurse B]. [Baby L]'s designated nurse is Mary Griffith. And the other nursing staff are Lucy Letby, Belinda Simcock and Ashleigh Hudson. The nursery nurse is Angela McShane.

JOHNSON: Then if we go to the population chart. Can we start with nursery 1, please, because that's where [Baby L] and [Baby M] were.

TYNDALL: Yes. So in nursery 1, there's [Baby L] and [Baby M], both cared for by Mary Griffith. And two babies being cared for by Lucy Letby.

JOHNSON: I don't think we need to go through the rest name by name, but can we summarise it in this way: two nurses looking after three children in nursery 2?

TYNDALL: Four children in nursery 2.

JOHNSON: Sorry, yes. One nurse looking after three in nursery 3?

TYNDALL: Yes.

JOHNSON: The nursery nurse, together with [Nurse B], in nursery 4 looking after four?

TYNDALL: Yes.

JOHNSON: Thank you. Turning next to tile 89, please, do 89 and 90 record [Baby L]'s vital signs together with the data for the neonatal fluid balance chart at 08.00 hours?

TYNDALL: Yes.

JOHNSON: Both completed by Mary Griffith?

TYNDALL: Yes.

JOHNSON: We then have, at 91 and 92, two entries of swipe data entry data for Lucy Letby coming into the neonatal unit at 08.45 and 08.48 hours respectively?

TYNDALL: Yes.

JOHNSON: Followed at 93 by the hourly neonatal fluid balance chart completed by Mary Griffith?

TYNDALL: Yes.

JOHNSON: Then at 94 and 95 respectively, the entries at 09.17 of Dr Tony Ukoh and [Nurse B], one into the neonatal unit and the other into the labour ward?

TYNDALL: Yes.

JOHNSON: At 96 and 97, do we have the observation chart and the neonatal fluid balance chart records timed at 10 am?

TYNDALL: Yes.

JOHNSON: So far as the fluid balance chart is concerned, does that record a low blood sugar reading of 1.9?

TYNDALL: Yes.

JOHNSON: Rather than just being marked "pre", it says "pre-feed".

At the same time, tile 98, have you transposed the entry made by Nurse Mary Griffith for that time?

TYNDALL: Yes. So this is included again within her summary at the end of the shift, but it refers to the actions at 10 o'clock.

JOHNSON: Yes. Does it record, of relevance to the issues in [Baby L]'s case, the fact that his blood sugar was low and that the intravenous dextrose was increased to 2ml per kilo?

TYNDALL: Yes.

JOHNSON: At 99 and 100 is some door swipe data for [Nurse B] and Angela McShane?

TYNDALL: Yes.

JOHNSON: Then do we have Dr Ukoh's note at tile 101, timed at 10.20 hours?

TYNDALL: Yes.

JOHNSON: We'll let him deal with that, but amongst other things, does that record the increase of the dextrose infusion?

TYNDALL: Yes.

JOHNSON: Thank you. At 102 to 103 do we have more door swipe data?

TYNDALL: Yes.

JOHNSON: Followed at 104, timed at 10.34, by a message sent by Lucy Letby to Ailsa Simpson?

TYNDALL: Yes:

"Have a fab time today, Ailsa. Hope you pick some winners and feet aren't too sore."

And then emojis of horses and a cup. I think it's the Grand National.

JOHNSON: I think we're about to see it was the Grand National, it was Grand National day, Saturday, 9 April 2016.

105, a pathology sample ordered by Nurse Mary Griffith?

TYNDALL: Yes.

JOHNSON: To check on [Baby L]'s bilirubin?

TYNDALL: Yes.

JOHNSON: Followed at 106, 107, 108 by some more door swipe data?

TYNDALL: Correct.

JOHNSON: Then at 109 by the hourly neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: There are some more nursing entries or there is a nursing entry for this time, made by Nurse Mary Griffith, made right at the end of the shift, concerning a repeat blood sugar test at this time.

TYNDALL: Yes.

JOHNSON: Is that right? She has recorded it as 1.6, that intravenous dextrose was further increased to 3ml per kilo.

TYNDALL: Yes.

JOHNSON: At tile 111, what do we have there?

TYNDALL: So this is a handwritten entry that has -- do we want to go in to look at it?

JOHNSON: Yes, please. Mr Murphy, if we could look at the document because it's fairly legible, this one.

TYNDALL: This handwritten entry says:

"Hypo screen results, 12 noon."

And then gives results. However, as you can see, I've written that the results are actually -- the electronic results are not timestamped until 18.26 --

JOHNSON: Yes.

TYNDALL: -- not time stamped at 12 noon.

JOHNSON: We'll just go back to the previous -- the second layer, please. So you have put in there:

"Hypo screen results. Results received at 18.26."

And we're going to see that later at tile 190, aren't we --

TYNDALL: Yes.

JOHNSON: -- the derivation of information that you have inserted there in brackets?

TYNDALL: Yes.

JOHNSON: If we sort of make a mental note of that material, we'll come back to it in due course.

112, also timed at noon that day, do we have the observation chart recorded by Nurse Griffith?

TYNDALL: Yes.

JOHNSON: And at 113, the fluid balance chart which the same nurse records, amongst which data is the low blood sugar of 1.6?

TYNDALL: Yes.

JOHNSON: At 114, does that same information appear in Nurse Griffith's nursing note?

TYNDALL: Yes. She records that blood sugar 1 hour later, 1.6.

JOHNSON: Yes. Just so that we understand, that's 1 hour later than -- the previous sentence is timed at 11 o'clock, isn't it --

TYNDALL: Yes.

JOHNSON: -- 11.00 hours, so that's why you've put it in at 12 noon?

At 115, if we go to this document, please. This is, as the -- it's attributed both to Lucy Letby and to Mary Griffith, who of course were working together in nursery 1. Can we just look at the document, please?

You have raised a query as to the precise timing of this entry; is that right?

TYNDALL: Yes. I'm not sure whether it says 12.00 or 12.10.

JOHNSON: Right. If we go to the penultimate right-hand column, you can see the time is struck through. Then underneath, you're not sure whether that should say 12.00 or 12.10?

TYNDALL: Yes.

JOHNSON: People can make up their own minds and listen to the evidence about that. We see there Lucy Letby's signature appearing above Mary Griffith's signature; is that right?

TYNDALL: Yes.

JOHNSON: And to the left we have the prescription for dextrose, the reference to 3ml per kilogram per hour equals 72ml per kilogram per 24 hours. That may or may not be Dr Ukoh's handwriting, no doubt we can investigate that with the witnesses. Anyway, it appears to be Lucy Letby's writing.

Can we go to 116 next, please? Is this swipe data recording the fact that Dr Jayaram came into the neonatal unit at 12.17?

TYNDALL: Yes.

JOHNSON: Then do we have recorded next the fact that, at 12.30, Nurse Mary Griffith, who was the other nurse working with Lucy Letby in nursery 1, went on a break?

TYNDALL: Yes. That's documented in [Baby M]'s notes.

JOHNSON: Yes. Just dealing with that issue and the fact that this is information derived from [Baby M]'s notes, they were of course in the same room at the same time?

TYNDALL: Yes.

JOHNSON: And as the jury will see when we get to [Baby M]'s chronology or sequence of events, there is either more or less door swipe entry data in that, isn't there?

TYNDALL: Yes.

JOHNSON: Lest a sharp-eyed juror notices the difference between the door swipe entry data in one of the twin's cases as opposed to the other, what is the thinking behind the difference?

TYNDALL: So with [Baby M]'s case, we have a very definitive time of when [Baby M]'s event, so the door swipe data is focused around that time. With [Baby L] we're not sure exactly when there's an event, so the door swipe data covers more of the shift in its entirety.

JOHNSON: Okay.

TYNDALL: But behind the slides for the door swipe data is the base exhibit with all of the door swipe data so anyone can go in and read that.

JOHNSON: So [Baby M] collapses at a specific time?

TYNDALL: Yes.

JOHNSON: So the door swipe data in his sequence is relevant to where people were at that time?

TYNDALL: Yes.

JOHNSON: Because this is an insulin case, one can't necessarily define the precise moment that the prosecution say insulin went into the bag?

TYNDALL: Yes.

JOHNSON: Therefore the door swipe data just covers the whole period of time?

TYNDALL: Yes.

JOHNSON: I'm sure everyone understands.

You've just given us that information of the fact that Nurse Mary Griffith went on a break at or about 12.30, as recorded in [Baby M]'s notes. Do we come next to tile 118?

TYNDALL: Yes.

JOHNSON: What does this show us, please?

TYNDALL: It just shows, between 11.12 and 12.33, Lucy Letby is engaged in messaging a number of different people.

JOHNSON: Yes. And it's all social messaging?

TYNDALL: Yes.

JOHNSON: Tile 119 is the arrival of Dr Ukoh into the neonatal unit via the door swipe data recorded at 12.43?

TYNDALL: Yes.

JOHNSON: At 120, timed at 12.52, is there a text message sent by Lucy Letby to Ailsa Simpson?

TYNDALL: Yes:

"Oh good. Hope you have a fab time. I'm in work doing an extra."

JOHNSON: Then the following tile and a minute later, did Lucy Letby text her mother?

TYNDALL: Yes. It says:

"Is dad betting on Grand National? If so can he see which are greys and put a bet on for me, please?"

JOHNSON: At 122, was there a return message from Susan Letby to Lucy Letby, saying:

"Already gone, doing Unioniste and Ballycasey, which are greys, and Rule The World for Take That. £2 each way on each."

TYNDALL: Yes.

JOHNSON: Then at 123 and 124, do we have the observation chart recording [Baby L]'s vital signs together with the neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: And these are recorded by Mary Griffith?

TYNDALL: Yes.

JOHNSON: At 125, have you recorded the fact that there was a further social text message sent by Susan Letby to Lucy Letby?

TYNDALL: Yes.

JOHNSON: At 126, door swipe data relating to [Nurse B], timed at 13.04?

TYNDALL: Yes.

JOHNSON: Then at the same time, tile 127, Lucy Letby's father texting Lucy Letby the odds on the horses that he had put money on on her behalf?

TYNDALL: Yes.

JOHNSON: At 128, more door swipe data relating this time to Belinda Simcock?

TYNDALL: Yes.

JOHNSON: Followed at 129 and 130 by summaries of the fact that Lucy Letby was receiving WhatsApps from people called Amy Turner and Lorna Fisher?

TYNDALL: Yes.

JOHNSON: 131. Did Lucy Letby send her father a text at 13.40 saying "Unio"?

TYNDALL: Yes.

JOHNSON: Followed by a social message at tile 132 timed at 13.41?

TYNDALL: Yes, to her mother.

JOHNSON: Sorry, yes, followed at 133 by a group WhatsApp message sent by Lucy Letby to Lorna Fisher, Amy Turner and [Nurse E]?

TYNDALL: Yes:

"Sorry guys, mad busy, 4 days in work. You can come to mine if you want to, just need to unpack first! Haven't got a spare bed yet though so can't stay unfortunately. Looking forward to a catch-up."

JOHNSON: Then a further one sent exclusively to [Nurse E]?

TYNDALL: Yes, saying:

"Painting is nice. Will carry on walking until winter. Work, it's mad. Will put request in later. Glad you're having fun."

JOHNSON: Is that then followed by a social message from her mother to Lucy Letby?

TYNDALL: Yes.

JOHNSON: Tile 136, timed at 13.48. Do we have, recorded by the door swipe data, the entry of Lucy Letby to the neonatal unit?

TYNDALL: Yes.

JOHNSON: Then at 137, another group message sent to the same people as before at tile 133, timed at 13.56 saying:

"Got magnum Prosecco and vodka, whoop. No disco ball but sure we can manage."

TYNDALL: Yes.

JOHNSON: At 138, is there a neonatal fluid balance chart timed at 14.00 hours for [Baby L]?

TYNDALL: Yes.

JOHNSON: Which, amongst other things, shows again a low blood sugar reading?

TYNDALL: Yes.

JOHNSON: At 139, does the door swipe data record the entry of Lucy Letby to the neonatal unit --

TYNDALL: Yes.

JOHNSON: -- at 14.02 hours?

Followed at tiles 140 and 141 at 14.09 hours by door entry data for Belinda Simcock and Mary Griffith?

TYNDALL: Yes.

JOHNSON: At 142, did Lucy Letby receive a WhatsApp message from Lorna Fisher --

TYNDALL: Yes.

JOHNSON: -- timed at 14.11?

At 143, timed at 14.46, the bilirubin sample was received and we have there the reading?

TYNDALL: Yes.

JOHNSON: At 144, the door swipe data timed at 14.52 for [Nurse B]?

TYNDALL: Yes.

JOHNSON: Then at 145 and 146 respectively, at 15.00 hours, the record of [Baby L]'s vital signs and his neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: Which recorded his low blood sugar at 1.5?

TYNDALL: Yes.

JOHNSON: At 147, more door swipe data for Dr Ukoh and [Nurse B]?

TYNDALL: Yes.

JOHNSON: At 149, prescriptions for benzylpenicillin and sodium chloride?

TYNDALL: Yes.

JOHNSON: Then the administration of those substances recorded at tile 151?

TYNDALL: Yes.

JOHNSON: If we just go to that document, please, and the underlying material. There do we see that the user is recorded as Lucy Letby and the co-signer as Mary Griffith?

TYNDALL: Yes.

JOHNSON: "User" there is denoted by the cursor and the co-signer, just off to the left there, is Mary Griffith. Thank you.

At 152, do we have a message -- not a message, do we have a record made by Mary Griffith at the end of the shift concerning a blood sample that was taken from [Baby L]?

TYNDALL: Yes.

JOHNSON: Just so that the jury understands the context of this, is this a blood sample which ultimately was sent to Liverpool for analysis?

TYNDALL: Yes, I believe so.

JOHNSON: It's this blood sample that the prosecution say has a very high insulin reading and a very low C-peptide reading.

TYNDALL: Yes.

JOHNSON: If we go to this note, please.

TYNDALL: So this has been put in at the entry at this time due to the 15.35 that's in there, but the entry I have put in says:

"Blood taken for lab but due to emergency not podded at once. Result when received this evening was 2.8. Blood sugars continued to be low so at 15.35 was given a bolus 4.3ml of 10% dextrose."

JOHNSON: Thank you. Do we then have at 153, timed 5 minutes later at 15.40, the neonatal infusion prescription chart?

TYNDALL: Yes.

JOHNSON: If we go to it, please. This is the same document that we saw before, but what we're concentrating on now is the next line; is that right?

TYNDALL: Yes.

JOHNSON: If we read right to left, as we did before, we see the time there, 15.40?

TYNDALL: Yes.

JOHNSON: We see the signatures of Lucy Letby and Mary Griffith?

TYNDALL: Yes.

JOHNSON: And we see 10% dextrose; is that right?

TYNDALL: Yes.

JOHNSON: We see, further to the left, the time there is 15.35?

TYNDALL: Yes.

JOHNSON: Is that right? You've put it in as 15.35; is that -- 15.40, I beg your pardon.

TYNDALL: Yes, and I put the prescribed time as 15.35.

JOHNSON: That's where the two times come from?

TYNDALL: Yes.

JOHNSON: Then at 154, do we have an entry -- if we could click on this, please, Mr Murphy. Can we go to the original?

Can you explain this document to us, please?

TYNDALL: So this is the electronic record of the lab sample and it details what happens to the lab sample as best as I can explain and I understand. The timing that I've put in the sequence is a sort of -- as you go down underneath it has order numbers and underneath that it says: 11:25:25 3 "Entered 09.04.16:15:45."

JOHNSON: You have taken that as being the computer-generated time --

TYNDALL: Yes.

JOHNSON: -- of when the person, whose name we see immediately to the right, entered by Dr Ukoh --

TYNDALL: Yes.

JOHNSON: -- when he's made this record?

TYNDALL: Yes. Above that we've got the specimen number and then we've got two things where it says "09/04/16, UNK", which I believe stands for unknown. And then underneath, "Received 18.26", which refers back to the 12 o'clock.

JOHNSON: Yes, okay. Let's take this slightly slowly. You're referring back to -- when you say the 12 o'clock, you're referring back to tile 111; is that right?

TYNDALL: Yes.

JOHNSON: If Mr Murphy wouldn't mind just taking us back to 111.

So in the context of what we've just seen there at tile 154, can you explain 111?

TYNDALL: I think it might be when we get to 190. This is the handwritten results that have been taken from the electronic results, which is detailed under slide 190, which is timed 18.26.

JOHNSON: We will do the exercise again. I'm really not trying to confuse you or anybody else, but we will do this when we get to 190 again. In order to embed it in our collective memories, if we can just do this exercise now.

TYNDALL: So this is handwritten and it details that the hypo screen results -- and it's been timed -- had written in brackets 12 noon. But from what we've just seen, that sample appears to have been entered on to the computer at 15.45.

JOHNSON: Yes.

TYNDALL: And then it records that the sample is received at 18.26. Therefore those handwritten results weren't available at 12 noon, is how I understand it.

JOHNSON: Yes, okay. Dr Ukoh himself can no doubt, if he can remember, talk us through. So far as the computers are concerned and their automatic recording of timings, we've got two timings on Saturday the 9th; is that right?

TYNDALL: Yes.

JOHNSON: The first being the time in tile 154 when Dr Ukoh is the user and enters this sample into the system?

TYNDALL: Yes.

JOHNSON: The second time being in tile 190, which we're going to come to, which is also in the document at tile 154, which shows the time of receipt of the sample?

TYNDALL: Yes.

JOHNSON: That then also has to be looked at in the context of tile 152, which is Nurse Griffith's note, saying:

"Blood taken for lab, but due to emergency not podded at once."

TYNDALL: Yes.

JOHNSON: So the non-podding, subject to the evidence we're going to hear, may be the delay between 15.45 and 18.26. So far as the noon timing is concerned, that relies on the handwritten note of what may or may not be Dr Ukoh?

TYNDALL: Yes.

JOHNSON: Right. Just to add to the overall complications, the emergency -- an emergency is referred to by Mary Griffith in her note which she times at 15.35?

TYNDALL: Yes.

JOHNSON: Have you looked at the data for all the children in the unit on the afternoon of 9 April 2016?

TYNDALL: Yes.

JOHNSON: Were there any emergencies recorded in the notes of any of the other children at about that time?

TYNDALL: The only one was [Baby M] at 16.00.

JOHNSON: So [Baby M] collapsed dramatically at 16.00 hours, so in other words just after the time we're dealing with now?

TYNDALL: Yes.

JOHNSON: And that's the only emergency you have been able to identify in the records of the other children at about this time, which might account for this delay in the podding, as it's (inaudible: off microphone)?

TYNDALL: Yes.

JOHNSON: Right. I hope that's reasonably clear. I'm sure it'll be much more clear once we've heard the evidence. At tile 155, timed at 15.55, do we have door swipe data recording the entry of Belinda Simcock to the maternity ward?

TYNDALL: Yes.

JOHNSON: And then to the neonatal ward, at tile 156, timed at 15.56?

TYNDALL: No, that's from neonatal to labour ward.

JOHNSON: Sorry. At 157, did [Nurse E] send a message to Lucy Letby saying:

"Okay, thanks. Am rather drunk"?

TYNDALL: Yes.

JOHNSON: Do we then have swipe data for Angela McShane at tile 158, timed at 16.00 hours?

TYNDALL: Yes.

JOHNSON: Followed at 159, also at 16.00 hours, by the neonatal fluid balance chart, the data for which was recorded by Belinda Simcock and included the low blood sugar reading of 1.5 for [Baby L]?

TYNDALL: Yes.

JOHNSON: Thank you. You have put in next at tile 160, to remind us, that 16.00 hours was also the time that [Baby M] collapsed.

TYNDALL: Yes.

JOHNSON: And then, perhaps connected, we see in the next tile, at 161, bleep data calling Dr Jayaram; is that right?

TYNDALL: Yes.

JOHNSON: At tile 162, door swipe data for Belinda Simcock, timed at 16.14?

TYNDALL: Yes.

JOHNSON: Then at tile 163, timed at 16.15, a message sent by Amy Turner to Lucy Letby, saying:

"Yay, it can be an unpacking party, hehe."

TYNDALL: Yes.

JOHNSON: At 164, is there door swipe entry from the entrance -- door swipe data, I should say, from the entrance of -- the maternity neonatal entrance showing the arrival of Angela McShane?

TYNDALL: Yes.

JOHNSON: Followed a minute later, at the same entrance, by Dr Jayaram, tile 165?

TYNDALL: Yes.

JOHNSON: Then at 166, was a pathology sample received for [Baby L], timed at 16.24, in which his CRP level was determined?

TYNDALL: Yes.

JOHNSON: At 167, timed at 16.30, do we have the neonatal infusion prescription chart data recorded by Belinda Simcock?

TYNDALL: Yes.

JOHNSON: Followed at 169 by door swipe data relating to Dr Jayaram?

TYNDALL: Yes. There's an entry before that of --

JOHNSON: I'm sorry, yes, 16.30.

TYNDALL: -- of Mary Griffith, recording that his blood sugars remained low, so they commenced 12.5% dextrose at 16.30.

JOHNSON: So the concentration of the dextrose infusion had gone up from 10% to 12.5%?

TYNDALL: Yes.

JOHNSON: So an increase of about a quarter in the concentration?

TYNDALL: Yes.

JOHNSON: Sorry, 169 is what I've just dealt with, Dr Jayaram's door swipe data at 16.54 hours. Tile 170, Dr Ukoh's swipe data at 16.58?

TYNDALL: Yes.

JOHNSON: At 17.00 hours, tiles 171 and 172 respectively, do we have [Baby L]'s observations and data from his fluid balance chart?

TYNDALL: Yes.

JOHNSON: Does that include Mary Griffith recording that his blood sugar was still very low at 1.7?

TYNDALL: Yes.

JOHNSON: At tile 173, is there door swipe data timed at 17.04 for Lucy Letby?

TYNDALL: Yes.

JOHNSON: At 174, timed at 17.09 for Dr Ukoh?

TYNDALL: Yes.

JOHNSON: Then at 175, timed at 17.28, an incoming message from Lucy Letby's mum saying, "You've won, rule the world" --

TYNDALL: Yes.

JOHNSON: -- and a smiley emoji?

At 176, door swipe data timed at 17.30 for Belinda Simcock?

TYNDALL: Yes.

JOHNSON: Then a report from the bookmaker, via Susan Letby, to Lucy Letby, tile 177, timed at 17.31:

"You'll get £125. Evo and Jane are here to watch it"?

TYNDALL: Yes.

JOHNSON: At 178, 179, 180 and indeed 181, is there door swipe entry recording the movements, between 17.35 and 17.59, of Dr Jayaram, Nurse Griffith, Nurse Simcock and Lucy Letby?

TYNDALL: Yes.

JOHNSON: Then at 182 and 183, do we have the vital signs for [Baby L] recorded and the data from the fluid balance chart?

TYNDALL: Yes.

JOHNSON: You have recorded for us the fact that the blood sugar still remained very low at 1.9?

TYNDALL: Yes.

JOHNSON: That was put into words, in effect, in the nursing note which follows, made by Mary Griffith at tile 184. Just deal with that.

TYNDALL: Yes. That says:

"Blood sugars still low, so put nil by mouth and 12.5% dextrose increased to 120ml per kilogram."

JOHNSON: Yes. So the concentration had been increased first and then the rate increased?

TYNDALL: Yes.

JOHNSON: Then going back to Lucy Letby's messaging, did she send a message at tile 185 to [Nurse E] timed at 18.01?

TYNDALL: Yes.

JOHNSON: What did that say?

TYNDALL: "Ha ha, why not? Work has been shite, but I've just won £135 on the Grand National."

JOHNSON: Then no doubt in response to one of the earlier texts, did she send a group message?

TYNDALL: Yes, that reads:

"Unpacking party sounds good to me with my flavoured vodka, ha ha. Just won the Grand National. £135."

JOHNSON: Did she receive congratulations from Amy Turner at 18.09, tile 187?

TYNDALL: Yes.

JOHNSON: And then at tile 188, do we have some door swipe data for Mary Griffith coming into the maternity neonatal entrance door?

TYNDALL: Yes.

JOHNSON: That's timed at 18.12. Followed by tile 189, which is timed at 18.26, and tile 190 of the same time, both of which concern blood test results, is that right --

TYNDALL: Yes.

JOHNSON: -- or the sample?

Looking at 190, please, just taking up the explanation you gave us before, which I'm sure was very clear, but just to, as I've already said, try and embed it in our collective memories, can we go to the original document, please?

Is this the same document that you showed us before?

TYNDALL: Yes, and it's further -- this is the complete record.

The one before was just showing the timing at 15.45.

This is the complete record including the results.

JOHNSON: Okay. So just because this isn't entirely straightforward, can you just -- can we go through what we've already dealt with? So we've got towards -- if you could talk us through it and perhaps Mr Murphy can do his best to follow.

TYNDALL: We've got at the top the specimen sample number --

MR JUSTICE GOSS: Have you got the mouse there?

TYNDALL: No, I haven't.

MR JUSTICE GOSS: I think it'd be easier for everyone if you controlled the mouse and talked to what you're pointing out.

TYNDALL: Right. This is the specimen sample number. Then here is the consultant GP, Anthony Ukoh. Order. They know it's on the 9th -- sorry, 9 April but not sure what time and not sure what time collected. Received at 18.26.

MR JOHNSON: Yes.

TYNDALL: Then here we've got, "Entered at 15.45", entered by Dr Ukoh. Then we've got "ordered", so this is what's actually been requested.

JOHNSON: Yes.

TYNDALL: And it says:

"U+E. Insulin/C pept [which is C-peptide], cortisol, growth hormone. Type of request: D."

I don't know what that means. And then:

"Relevant clinical details: hypoglycaemia neonate."

Then this is an audit trail of the results as they go through the lab.

JOHNSON: Yes.

TYNDALL: Then these are the results in full. So this bit here with the sodium, potassium, bicarbonate, that is what is written in the handwritten notes at slide 111 at 12.00.

JOHNSON: Yes.

TYNDALL: Then underneath it we've got the insulin and the insulin here, the C-peptide, and you can see that those results aren't reported until 14/04.

JOHNSON: Okay. Just to embed that again, the ones that appear in the manuscript note, which is timed as being a blood sample taken at noon, which may or may not be in Dr Ukoh's writing, are results which are available on this system from 18.49 onwards; is that right?

TYNDALL: That looks right. 18.48 or 18.49.

JOHNSON: It's my eyesight. If we scroll down the page, we see that the insulin and insulin C-peptide ratios, they are not available until 14 April at 09.38; is that right?

TYNDALL: Yes.

JOHNSON: What we see is that the insulin reading was 1,099; is that right?

TYNDALL: Yes.

JOHNSON: Which we will hear is the limit of the capacity of the machine to measure.

TYNDALL: Yes.

JOHNSON: Then the insulin which should be -- sorry, the C-peptide, which should be 10 times the insulin, five to ten times, if memory serves me correct, is 264, so very low.

TYNDALL: And then the C-peptide to insulin, I've got it transcribed as 0.2. It's not very clear on there.

JOHNSON: Yes. Basically, 0.2 is about a fifth. Thank you.

Hopefully -- if it's not entirely clear, at least it's a context for the evidence that we will be hearing in due course. Thank you.

If we can revert back to the -- thank you. Tile 191 next. We have the receiving of a pathology sample timed at 18.29; is that right?

TYNDALL: Yes, that's to do with glucose levels.

JOHNSON: If we do just one click on this one, please, Mr Murphy.

Is what you have recorded there actually information that's taken from the document that we looked at in the previous slide?

TYNDALL: It's a different...

JOHNSON: It's a different document, is it?

TYNDALL: Yes.

JOHNSON: Thank you. Let's look at it just as I've introduced a hare. Can we -- thank you.

TYNDALL: That's more the normal blood results that we're used to seeing.

JOHNSON: I think as a matter of fact, under relevant clinical details, "Hypoglycaemia neonate" is word for word what appears in the other document as well, isn't it --

TYNDALL: Yes.

JOHNSON: -- which is where I've introduced the confusion?

We can see that the glucose level there is 2.8 --

TYNDALL: Yes.

JOHNSON: -- millimoles per litre?

MR JUSTICE GOSS: I know we all know, but hypoglycaemia is low blood sugar levels?

TYNDALL: Yes.

MR JOHNSON: 192 next, please, Mr Murphy. Is there a congratulatory message sent by Lorna Fisher to Lucy Letby --

TYNDALL: Yes.

JOHNSON: -- timed at 18.35?

At 193 and 194, do we have [Baby L]'s vital signs recorded together with the fluid balance chart, which records the blood sugar at 1.8?

TYNDALL: Yes.

JOHNSON: That's 19.00 hours. And also at 195, also timed at 19.00 hours, the neonatal infusion prescription chart?

TYNDALL: Yes.

JOHNSON: At 196, timed at 19.09, door swipe data recording the entry of Dr Ukoh?

TYNDALL: Yes.

JOHNSON: At 197, Dr Jayaram's clinical notes recording the consistent hypoglycaemia in spite of intravenous glucose in [Baby L]?

TYNDALL: Yes.

JOHNSON: 198, the sample sent for the measuring of bilirubin was received?

TYNDALL: Yes.

JOHNSON: More door swipe data at 199, this time for Lucy Letby, timed at 19.28?

TYNDALL: Yes.

JOHNSON: Followed, at tile 200, by your record of the shift handover from Lucy Letby to Tracey Jones?

TYNDALL: Yes, from Mary Griffith to Tracey Jones.

JOHNSON: Sorry, from Mary Griffith to Tracey Jones.

TYNDALL: Yes.

JOHNSON: A mistake provoked by the next tile, which is tile 201, which is a record of Lucy Letby entering the neonatal unit at 19.39.

TYNDALL: Yes.

JOHNSON: At 202 and 203, timed at 20.00 hours, do we have [Baby L]'s vital signs together with details recorded in the neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: Part of which is his persistent low blood sugar, this time measuring 2.0?

TYNDALL: Yes.

JOHNSON: Then Mary Griffith's retrospective note at tile 204, timed at 20.00 hours?

TYNDALL: Yes. It's timed at 20.00 hours because she talks about phototherapy being discontinued at that time.

JOHNSON: Thank you. Well, she can deal with that, but if we move on, do we come to some more text messaging, first of all one from Lucy Letby to her mum?

TYNDALL: Yes, that says:

"Will be late home, so speak to you later."

JOHNSON: Then at 206, her mum's response:

"Ok."

TYNDALL: Yes.

JOHNSON: Then at 207, door swipe data for Dr Jayaram, timed at 20.15?

TYNDALL: Yes.

JOHNSON: At 208, timed at 20.19, door swipe data for [Nurse B]?

TYNDALL: Yes.

JOHNSON: And then, at 209, timed at 20.31, the timing that the notes made by Mary Griffith were actually put into the computer?

TYNDALL: For [Baby M].

JOHNSON: For [Baby M], I beg your pardon. Have you put that in because -- why have you put that into that specific time?

TYNDALL: It's to just show that Mary Griffith is updating [Baby M]'s records as well as [Baby L]'s records between these times.

JOHNSON: Thank you. Tile 210. Mary Griffith's notes concerning the fact that -- do these notes refer to [Baby L] or [Baby M]?

TYNDALL: [Baby L]. For the rest of them, they're all [Baby L] unless they explicitly say otherwise.

JOHNSON: This is about the fact that [Baby L] had passed a large amount of meconium as well as urine?

TYNDALL: Yes.

JOHNSON: Then, at 211, some more generalised notes made at 20.58 by Mary Griffith concerning her general care for [Baby L]?

TYNDALL: Yes. These are the notes with her full summary of her shift.

JOHNSON: Just taking us through to the end of the shift, perhaps before -- or the end of the presence of Lucy Letby on the unit that evening before a break, at 212 and 213 do we have [Baby L]'s vital signs and the data in the neonatal fluid balance chart recorded by Tracey Jones?

TYNDALL: Yes.

JOHNSON: The blood glucose rising, albeit still low, at 2.4?

TYNDALL: Yes.

JOHNSON: Then the two final entries relating to Lucy Letby are notes that she made, is that right, on [Baby M]'s nursing notes?

TYNDALL: Yes.

JOHNSON: And we will come to them in his case; is that right?

TYNDALL: Yes.

MR JOHNSON: We'll leave those for that case if we may.

My Lord, that may be a good time for a break.

MR JUSTICE GOSS: Certainly, yes. We'll have our ten-minute break then. Thank you.

(In the absence of the jury)

MR JOHNSON: One thing I should have told your Lordship at the beginning, and I don't think I did, is that we'll deal with the neonatal unit review after the sequence for [Baby M] because it's the same -- these are concurrent incidents in effect. It's the same review.

MR JUSTICE GOSS: You didn't, but you have now.

MR JOHNSON: Yes.

MR JUSTICE GOSS: Thank you. Sorry, Mr Maher, Ms Letby would like to speak to you or I think she's got a note for you.

(11.52 am)

(A short break)

(12.04 pm)

(In the presence of the jury)

MR JOHNSON: Mrs Tyndall, we'd got to tile 216, please. At that tile did Mary Griffith record a contact with the [Surname of Babies L & M] parents?

TYNDALL: Yes.

JOHNSON: At 217 and 218, did Tracey Jones, the new designated nurse, record [Baby L]'s vital signs and the neonatal fluid balance chart data?

TYNDALL: Yes.

JOHNSON: Do we then come to further messaging involving Lucy Letby?

TYNDALL: Yes.

JOHNSON: Starting with an incoming Facebook message from Belinda Simcock to Lucy Letby at 22.11?

TYNDALL: Yes, it reads:

"Thanks for listening. I'm ok."

JOHNSON: And did Lucy Letby respond almost immediately at tile 220?

TYNDALL: Yes:

"Don't need to thank me. Glad you felt able to tell me. Here to listen any time. You don't have to go through it alone."

JOHNSON: Did Lucy Letby then receive a message at tile 221 at 22.14 from Sophie Ellis saying:

"Hope you're ok."

TYNDALL: Yes.

JOHNSON: And did Lucy Letby respond 4 minutes later?

TYNDALL: "Knackered now I'm home, but yes, I'm okay, thanks. Hope your night isn't too busy."

JOHNSON: At 223 and 224, do we have the observations and fluid balance chart data?

TYNDALL: Yes.

JOHNSON: That's at 23.00 hours. At 225 and 226, the same material recorded at midnight?

TYNDALL: Yes.

JOHNSON: Showing amongst other things that [Baby L]'s blood sugar was still low at 2.1?

TYNDALL: Yes.

JOHNSON: At 227, the clinical notes of [Dr A], timed at 00.30?

TYNDALL: Yes.

JOHNSON: He will be coming to tell us about that, so we'll leave it for him. The infusion prescription chart recorded at 228?

TYNDALL: Yes.

JOHNSON: At 229 and 230, the observations and the fluid balance chart, timed at 01.00 hours?

TYNDALL: Yes.

JOHNSON: 231, some social messages passing between [Nurse E] and Lucy Letby between 01.01 and 01.12 hours?

TYNDALL: Yes.

JOHNSON: 232, the record of the insertion of a peripheral line into [Baby L] at 01.30 hours?

TYNDALL: Yes.

JOHNSON: Followed by [Dr A]'s notes at 233?

TYNDALL: Yes.

JOHNSON: At 234 and 235, observations and a fluid balance chart?

TYNDALL: Yes.

JOHNSON: Blood sugar still low at 2.1?

TYNDALL: Yes.

JOHNSON: That fact appears amongst [Dr A]'s clinical notes at tile 236, timed at 02.25?

TYNDALL: Yes.

JOHNSON: At tile 237, timed at 02.28, was an X-ray taken, reported on by Dr Boothroyd?

TYNDALL: Yes, in response to the long line insertion.

JOHNSON: Yes, reporting the position of that long line. Then at 03.00 hours, tiles 238 and 239, the infusion prescription chart data and fluid balance chart?

TYNDALL: Yes.

JOHNSON: Then all within a couple of minutes, tiles 240 through to 243 concerning a prescription for gentamicin, benzylpenicillin and sodium chloride?

TYNDALL: Yes.

JOHNSON: At 244 and 245, the observations and the fluid balance chart, which recorded low blood sugar of 2.3?

TYNDALL: Yes.

JOHNSON: At 246, a pathology sample?

TYNDALL: Yes.

JOHNSON: And at 247, an update to the nursing record timed at 04.48, made by Tracey Jones?

TYNDALL: Yes.

JOHNSON: And at 248 and 249, the observations and the fluid balance chart at 05.00 hours?

TYNDALL: Yes.

JOHNSON: The fluid balance chart again at 06.00 hours, tile 250, recording a low blood sugar of 2.2?

TYNDALL: Yes.

JOHNSON: Some social messaging involving Lucy Letby and [Nurse E] between 06.31 and 06.42?

TYNDALL: Yes.

JOHNSON: Then some more material at tiles 252 and 253 concerning the neonatal infusion prescription chart and fluid balance charts?

TYNDALL: Yes.

JOHNSON: At 254, [Dr A]'s clinical notes?

TYNDALL: Yes.

JOHNSON: Concerning a further increase in the concentration of glucose?

TYNDALL: Yes.

JOHNSON: It's up to 15% glucose now, but [Baby L]'s blood sugar remaining stubbornly low at 2.2?

TYNDALL: Yes.

JOHNSON: At the same time observations recorded by Tracey Jones at tile 255?

TYNDALL: Yes.

JOHNSON: 256, bilirubin still being -- levels of bilirubin still being investigated at 07.48 hours?

TYNDALL: Yes.

JOHNSON: Then, at 257, the handover from the night shift to the day shift between 07.30 and 08.00 hours on Sunday, 10 April?

TYNDALL: Yes.

JOHNSON: We then have a series of hourly records at 09.00 and 10.00 hours, being the neonatal fluid balance charts and the observations respectively between tiles 258 and 262?

TYNDALL: Yes.

JOHNSON: Followed at 263 by Dr Gibbs' clinical notes?

TYNDALL: Yes.

JOHNSON: At 264, a record of the fact that the blood culture results had come back and [Baby L]'s CRP level remained below 1 and the antibiotics were therefore to be stopped?

TYNDALL: Yes.

JOHNSON: At 265, did Yvonne Farmer send Lucy Letby a message at 10.50 hours?

TYNDALL: Yes, it reads:

"Hi, we have shifts tonight, Monday day or [night] if you [would] like some more overtime? Thanks but appreciate you may be tired."

JOHNSON: Did Lucy Letby respond 5 minutes later at tile 266?

TYNDALL: Yes, saying:

"Sorry but need some days off now. Could do Thursday day/night if that's any help."

JOHNSON: Did Yvonne Farmer responded with:

"That's fine. Sorry to ask"?

TYNDALL: Yes.

JOHNSON: Lucy Letby in turn?

TYNDALL: "No problem. Could be on call for nights if that's any use."

JOHNSON: Thank you. At 11, 12 and 1 o'clock, between tiles 269 and 273, do we have the on-hour, every hour, observations and fluid balance chart readings recorded?

TYNDALL: Yes.

JOHNSON: At 274, between 11.19 hours and 13.24 hours, some social messaging between Lucy Letby, [Nurse E] and Susan Letby?

TYNDALL: Yes.

JOHNSON: At 14.00 hours, tile 275, is the fluid balance chart recorded?

TYNDALL: Yes.

JOHNSON: That, as indeed had been recorded at 270, showed that [Baby L]'s blood sugar levels had normalised?

TYNDALL: Yes.

JOHNSON: Then at 276, timed at 14.17, did Jennifer Jones-Key send Lucy Letby a message reading:

"Hi, how are you? You enjoying your new home?"

TYNDALL: Yes.

JOHNSON: Did Lucy Letby respond a minute later?

TYNDALL: "Hey, I'm okay thanks. Bit knackered after 4 hard days at work though. House is good, unpacking. How's you?"

JOHNSON: Did Jennifer Jones-Key respond:

"Yeah, heard you done an extra. Not surprised you're knackered. That's good. Okay ta, feeling a lot happier."

TYNDALL: Yes.

JOHNSON: Did Lucy Letby respond?

TYNDALL: "Not nice shifts. Oh, that's good to hear."

JOHNSON: Was there then some social messaging denoted at tile 280 between 14.22 hours and 14.31 concerning work but with no mention of either of [Babies L & M]?

TYNDALL: Yes.

JOHNSON: Did that continue with further messaging concerning work at tile 281, timed at 14.32?

TYNDALL: Yes. Lucy Letby sends a message to Jennifer Jones-Key reading:

"Ah yeah, forgot. That's good. Nights Fri Sat Sun. My last for ages. Yvonne asked if I could do tonight, tomorrow day or tomorrow night, but need a day off lol."

JOHNSON: Did Jennifer Jones-Key respond:

"Yeah, it is. Yeah, noticed you haven't got many nights. Won't see you as I'm mainly nights. Yeah, you need a break, it's too much. Did come to say bye Thursday morning but you were slightly busy!"

TYNDALL: Yes.

JOHNSON: Then some further messaging about work but nothing -- and some social messaging but nothing to do with [Babies L & M]?

TYNDALL: Yes.

JOHNSON: At 284, did Lucy Letby send a message to Mary Griffith?

TYNDALL: Yes, that reads:

"Hope you've recovered from our busy day. I phoned about the twins. Twin 2 put on to BiPAP this morning. Some abnormal posture but okay so far. Twin 1 still has poor sugars, now on 15%. Thanks for your help yesterday."

JOHNSON: Was there then a resumption in the messaging between Jennifer Jones-Key and Lucy Letby with Jennifer Jones-Key sending a message which included:

"We never see each other. If we do work together, it's always mad shifts."

TYNDALL: Yes.

JOHNSON: Did Lucy Letby respond but there's no reference to [Babies L & M]?

TYNDALL: Yes.

JOHNSON: At tile 287, was there an incoming message from Mary Griffith to Lucy Letby, saying:

"Is this Lucy? Thanks for update. Have..."

And then that was resumed with:

"... been wondering. Thanks for your support."

TYNDALL: Yes.

JOHNSON: Did Lucy Letby respond?

TYNDALL: Yes, "It's Lucy".

JOHNSON: Thank you. At 16.00 hours, tiles 290 and 291, do we have [Baby L]'s vital signs and the data on the neonatal fluid balance chart recorded?

TYNDALL: Yes.

JOHNSON: We see that he was still receiving 15% dextrose?

TYNDALL: Yes.

JOHNSON: At tile 292, a pathology sample taken and reported upon?

TYNDALL: Yes.

JOHNSON: At 293, an update made by Laura Eagles on the nursing notes, relating to the day shift, Sunday, 10 April?

TYNDALL: Yes.

JOHNSON: Did she record, if we just click on it, please, Mr Murphy:

"Care taken over at 0800 hours. Nursed in air. Maintaining saturations. Temperature elevated. Incubator temperature adjusted accordingly. Blood sugars maintained over 2 millimoles. Remains on 15% dextrose via long line. Site satisfactory. Serum bilirubin remains below treatment line. Antibiotics stopped by Dr Gibbs. Passed urine, bowels opened for meconium. Very unsettled at times."

TYNDALL: Yes.

JOHNSON: Was there then a subsequent entry concerning contact with [Parents of Babies L & M], recording the fact that they had visited and been updated and they were informed that maternal

grandmother -- well, "gran" it says, can only visit in visiting hours as she came first thing this morning?

TYNDALL: Yes.

JOHNSON: At 17.00 hours, tile 295, Laura Eagles entered data on the fluid balance chart, which included the fact that [Baby L]'s blood sugar levels were within the normal range at 2.8?

TYNDALL: Yes.

JOHNSON: At 18.00 hours, [Baby L]'s observations were recorded at tile 296?

TYNDALL: Yes.

JOHNSON: Together with data in the fluid balance chart at tile 297?

TYNDALL: Yes.

JOHNSON: At 298, further data on the fluid balance chart at 19.00 hours?

TYNDALL: Yes.

JOHNSON: Followed at 299 by the shift handover when Samantha O'Brien became [Baby L]'s designated nurse?

TYNDALL: Yes.

JOHNSON: At 8 pm, 20.00 hours, tiles 300 and 301, observations and fluid balance chart?

TYNDALL: Yes.

JOHNSON: With normal blood sugar. At 302, the fluid balance chart at 21.00 hours?

TYNDALL: Yes.

JOHNSON: At 303 and 304, observations and the fluid balance chart?

TYNDALL: Yes.

JOHNSON: At 305, the fluid balance chart at 23.00 hours?

TYNDALL: Yes.

JOHNSON: Normal blood sugar.

At midnight, observations and the fluid balance chart at tiles 306 and 307?

TYNDALL: Yes.

JOHNSON: At 308, at 01.00 hours, a fluid balance chart followed by a neonatal infusion prescription chart at tile 309 timed at 01.45?

TYNDALL: Yes.

JOHNSON: Which shows that [Baby L] was still receiving a high concentration of 15% glucose at a dose of 7.3ml per kilogram per hour?

TYNDALL: Yes.

JOHNSON: That had been prescribed by [Dr A] just after midnight?

TYNDALL: Yes.

JOHNSON: At 02.00 hours, tiles 310 and 311, observations and the neonatal fluid balance chart --

TYNDALL: Yes.

JOHNSON: -- recording blood sugar within the normal range?

TYNDALL: Yes.

JOHNSON: At 312, an update to the nursing notes made by Samantha O'Brien?

TYNDALL: Yes.

JOHNSON: We are not going to hear from her, so can you bring us up to speed with what she recorded, please?

TYNDALL: Yes:

"Care taken over at 20.00 hours. Emergency equipment checked and in working order. Alarm limits checked and set correctly. Saturation monitoring in situ on Philips monitor. Baby self-ventilating in air. No respiratory distress observed. Nursed in incubator. Axilla temp stable as recorded on observation chart. Fluid requirements checked and correct. 120ml/kg/day. 15% glucose infusing via long line in left leg. Site satisfactory. Three-hourly blood sugars, all have been above 2.6 millimoles so far this shift. Plan to continue on 120ml/kg if BMS [I think that's blood sugars] maintained. If drop, to increase to

150ml/kg early. Peripheral cannula in situ in right arm. Clamped and secure. Abdomen is soft and non-tender. Baby passed meconium yesterday. Passed urine overnight. NGT in situ. Aspirated with cares. Minimal obtained. Baby unsettled at times. Settles with comfort measures."

JOHNSON: And there's then a fluid balance chart completed by Samantha O'Brien tile 313 at 03.00 hours?

TYNDALL: Yes.

JOHNSON: At 04.00 hours, observations and the fluid balance chart at tiles 314 and 315?

TYNDALL: Yes.

JOHNSON: 316, an update of contacts between Samantha O'Brien and [Parents of Babies L & M]?

TYNDALL: Yes.

JOHNSON: At 317, a fluid balance chart timed at 05.00 hours?

TYNDALL: Yes.

JOHNSON: Which recorded, amongst other things, blood sugar within the normal range at 2.9?

TYNDALL: Yes.

JOHNSON: At 06.00 hours, at tiles 318 and 319, observations and the fluid balance chart?

TYNDALL: Yes.

JOHNSON: A fluid balance chart again at 07.00 hours, tile 320?

TYNDALL: Yes.

JOHNSON: The handover between shifts at tile 321 with the designated nurse becoming Belinda Simcock?

TYNDALL: Yes.

JOHNSON: Then at 08.00 hours, tiles 322 and 323, the observation chart and the neonatal fluid balance chart completed by Belinda Simcock?

TYNDALL: Yes.

JOHNSON: At 324 on Monday, 11 April, at 08.45, did Lucy Letby send a message to [Nurse E]?

TYNDALL: Yes:

"The unit is in a dire way with staff. Other night it was Minna, Claire B and Tracey Jones trained! And then Sam, Sophie as extra, [Nurse C] and Tracey Jones with 4 HDU, a vent, a baby over exchange line, and one on 15% dex [as read]."

JOHNSON: I think that 15% dextrose is what [Baby L] had been receiving?

TYNDALL: Yes.

JOHNSON: Did she follow that message up a minute later with one saying:

"Busy and [Nurse A], Cheryl, Liz and Nicki off."

TYNDALL: Yes.

JOHNSON: Was that in turn followed at tile 326 by messages of a social nature?

TYNDALL: Yes.

JOHNSON: Did that then elicit the response from [Nurse E] at tile 327 timed at 08.46:

"What? Who had the vent then? And that's terrible having Minna plus two trained that don't even work there."

TYNDALL: Yes.

JOHNSON: "Imagine few off with being Easter hols too."

TYNDALL: Yes.

JOHNSON: At 329 did Lucy Letby respond?

TYNDALL: Yes:

"Sam had vent, [Nurse C] in charge. Sophie had 3 Optiflow and Tracey the triple lights and hypo baby. Not good. Sat when I did extra [Nurse B] was in charge, Belinda and Ashleigh outside with 3 Optiflow, 10 special care, including a withdrawal, then Angela then me and Mary in 1 with 5 babies, one collapsed with full resus, 1 on exchange and 1 hypo. It was mad and poor skill mix."

JOHNSON: Okay. At 330 did [Nurse E] send a message to Lucy Letby at 08.52 hours, which began with social content but moved on to say:

"Wonder if Sam had been through our vent or anything beforehand. Just makes no sense that. Don't do it when we have more people about then have to get on with it."

Then:

"Bet Mary loved that."

And some further social messages at tiles 331 and 332.

TYNDALL: Yes.

JOHNSON: Does that move to tile 333 at 08.55 that Monday morning with a further message from Lucy Letby to [Nurse E]?

TYNDALL: Yes:

"She's off for 2 weeks, I think. Not sure about Sam knowing the vent but Tracey couldn't take as doesn't have Meditech or EMAR and can't give drugs. Not good, is it? It was Mary's baby who went off, so I had to take it vented and then her other one having central line so I did that too. She was pretty good though. Plus I had 4 shifts of G. Ha ha."

And that's the name of another baby.

JOHNSON: Yes. At 334, 09.00 hours, did Belinda Simcock make the requisite entries in the neonatal fluid balance chart?

TYNDALL: Yes.

JOHNSON: As she did an hour later at 336 together with at, 335, [Baby L]'s observations?

TYNDALL: Yes.

JOHNSON: The same material at 337 and 338 at 11.00 hours?

TYNDALL: Yes.

JOHNSON: Which included a normal blood sugar reading for [Baby L] of 2.8?

TYNDALL: Yes.

JOHNSON: Then at 11.00 hours, did Dr Mayberry make a clinical note?

TYNDALL: Yes.

JOHNSON: Dr Mayberry isn't coming, so if we just deal with his notes, please. I think you've transcribed it into typescript so --

TYNDALL: I've not transcribed the full note because he details a lot of [Baby L]'s previous clinical history, which is on the page behind if anyone wants to look at it. What I've transcribed is:

"Feeds/fluids/abdomen. 120ml/kg/day of 15% dextrose. Enteral feeds stopped 10/04/16 07.00 due to low BM (2.2) and falling Na+."

I think that's sodium:

"Due to increase to 150ml/kg/day today. BM this AM is 2.8."

JOHNSON: In this context BM, of course, is blood sugars?

TYNDALL: Yes. Then there's a drawing on the notes and it's:

"Abdo SNT. No masses/organomegaly. Bowel sounds [tick]. Bowels open yesterday. Passing urine well. Neuro: AF soft (N). Tone: jaundiced. Not on PT."

Which I think is phototherapy:

"Sepsis: no current concerns. Plan: continue 15% at 120ml/kg/day."

Then something I'm unable to read and:

"... and TPN and 15%. Start 15ml/kg/day of donor-expressed breast milk and start SMOF at 15ml/kg/day."

And CRUS, which is a cranial ultrasound.

JOHNSON: At 11.30, we have the neonatal infusion prescription chart completed by Belinda Simcock and Mary Griffith?

TYNDALL: Yes.

JOHNSON: Followed by the fluid balance chart at midday, tile 341 --

TYNDALL: Yes.

JOHNSON: -- completed by Belinda Simcock? As it was an hour later at 13.00 hours at tile 343, together with the observations at the previous tile, 342?

TYNDALL: Yes.

JOHNSON: At 344, Belinda Simcock's retrospective nursing notes completed. She'll be coming to tell us about that.

So moving on to 345, the fluid balance chart at 14.00 hours?

TYNDALL: Yes.

JOHNSON: That together with the observations at tiles 346 and 347 at 15.00 hours?

TYNDALL: Yes.

JOHNSON: And we see the blood sugar levels increasing to 3.5?

TYNDALL: Yes.

JOHNSON: A sample taken at tile 348 at 15.04?

TYNDALL: Yes.

JOHNSON: The fluid balance chart at 16.00, tile 349?

TYNDALL: Yes.

JOHNSON: Followed by that and the observations at tiles 350 and 351 at 17.00 hours?

TYNDALL: Yes.

JOHNSON: And again the blood sugars now at 3.5?

TYNDALL: Yes.

JOHNSON: At 352, the fluid balance chart at 18.00 hours?

TYNDALL: Yes.

JOHNSON: Some retrospective nursing notes made by Belinda Simcock at tile 353 timed at 18.18 hours?

TYNDALL: Yes.

JOHNSON: If we click on them to give us a bit of context, which we can probably work out for ourselves, but they are there in black and white. The blood sugar at 3 pm had increased to 3.5

millimoles, Registrar Mayberry was aware. The test was to be repeated in 4 hours and if above 3 can start to increase feeds. Feeds had been tolerated, there'd been minimal aspirates. [Baby L] was active and alert with handling, otherwise was settled.

And [Parents of Babies L & M] had been there and had been updated by the doctor?

TYNDALL: Yes.

JOHNSON: At 7 pm, 19.00 hours, tiles 354 and 355, observations and the fluid balance chart data?

TYNDALL: Yes.

JOHNSON: Showing a further increase in the blood sugar level to 4.7?

TYNDALL: Yes.

JOHNSON: At 356, Nurse Simcock's entry on the computer concerning [Baby L]'s weight and other matters relating to his blood sugar readings?

TYNDALL: Yes.

JOHNSON: At 357, do you record the fact that [Baby L] continued to be cared for in the neonatal unit between 11 April and 3 May?

TYNDALL: Yes.

JOHNSON: That covers obviously about 3 weeks of time give or take. But at 358, in that period, tile 358, as I've said, at 09.38, were the insulin and C-peptide results reported at, as I've said, 09.38 hours?

TYNDALL: Yes.

JOHNSON: I'll come to that in more detail with witnesses. But that's the material that we saw on the document a little earlier, isn't it?

TYNDALL: Yes.

JOHNSON: At 359, was there an outgoing WhatsApp message sent by Lucy Letby to [Nurse E]?

TYNDALL: Yes. That reads:

"Good thanks, I've got baby D [which is another baby], [Baby M] and [Baby L] [thumbs up]. You okay?"

JOHNSON: Did she follow that up with a further message?

TYNDALL: It says:

"Should be nice tomorrow. [Babies L & M] all bottles."

These are names for other babies:

"O going, E all bottles, baby D demand."

JOHNSON: And finally, at 361, on 3 May was [Baby L] discharged from hospital?

TYNDALL: Yes.

MR JOHNSON: Thank you very much. I don't know whether there are any questions. There are no questions. Does your Lordship have any?

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

(The witness withdrew)

Witness statement of [MOTHER OF BABIES L & M] (read)

MR DRIVER: My Lord, I'm going to read three statements and then call Dr Bhowmik and I will ask Mr (inaudible) to ensure Dr Bhowmik is available.

At page 7 of your Lordship's reading bundle, a statement from [Mother of Babies L & M] dated 27 March 2019.

It reads:

"I am married to [Father of Babies L & M] and I am mum to [Baby L] and [Baby M]. I have been asked about my pregnancy with the boys and our time at the Countess of Chester Hospital.

"It was a routine pregnancy and I had no health issues until March of 2016 when I began to feel unwell and had to go for a scan. On that day, the doctor said to me and my husband that I was not well and I needed to be admitted straightaway. We were both surprised and shocked.

"I was admitted to the hospital. That night, a nurse said that they had to give me a steroid injection and I think in the end I had three or four injections. I stayed for 15 or 17 days. They asked if I wanted to have a natural labour or a C-section. I asked the nurse when they were going to do the operation and

they said they had looked through my file and were worried, so it would be early the next morning at 9 am.

"The next morning was Friday, 8 April 2016. When I got to the theatre, two nurses from the neonatal unit were also there, Lucy and Laura. Laura introduced herself and Lucy and said that they were there to take the babies into an intercare room if the twins were poorly. The C-section was fine and the boys were delivered.

"They were 33 weeks old and both weighed 3 pounds. The doctor said that they were very healthy and very nice. They asked if I wanted a picture and they put them in my arms and I had a picture with them.

"At 12 noon on 9 April, my husband's parents and family came to see us and they were taken through to the neonatal unit to see the boys. We went downstairs from my ward to see them. They were in the first room. I was happy and we were chatting to each other.

"I had a photograph of the boys next to my bed and at that time we hadn't decided what they were going to be called. It was a week later when we decided on [Baby L] and [Baby M].

"About 10 minutes after we left the boys, a nurse called Yvonne came running up. She said I had to go back down and took me down in the wheelchair. I asked why and she said she would explain downstairs.

"When we got there, one of the doctors was just pressing [Baby M]'s chest. People were saying that the boys were healthy yesterday and they didn't know what had happened today. One of the nurses, with glasses and a bob haircut, said she'd done everything with him and he was absolutely good and she didn't know what had happened.

"I don't know her name but it sounded like she was the nurse in charge of his care. She was short and fair. I was praying to my god to see my boy and help him because I have never done anything wrong to other people, I was asking my God to save him. My husband was not saying anything and was crying and crying. [Baby L] was okay on the other side of the room.

"Lucy was there with Laura and the nurse in glasses with the bob haircut was there too. The doctor was black and wore glasses, I think. My mind was totally blank other than praying to my god.

"Then it seemed, after hours, they said I should go back to my room as he had stabilised. They couldn't give us any explanation

as to why it had happened. At the time I didn't want to discuss it with them so I went back to my room.

"Then when I was discharged after 2 weeks, the boys stayed in their intercare room. From the Saturday that [Baby M] was really poorly, both boys were really stable and there weren't any other problems. Whilst I was in hospital, I would manage to walk down to the unit every day and spend all day with the boys and my husband would come after work.

"After I was discharged, I would still go and see them every day. My boys were discharged in May after about 3 or 4 weeks of being there. They hadn't put a lot of weight on, but were both fit and well and everything was fine. When we left hospital, the boys were very small.

"Since being discharged, [Baby M] has had scans and we have been told that there were no after-effects of what happened to him. We've been assured everything is clear."

Witness statement of [FATHER OF BABIES L & M] (read)

MR DRIVER: I then turn to her husband's statement, which is at page 3, my Lord, the statement of [Father of Babies L & M] dated 5 March 2020. He identifies himself and says:

"I am married to [Mother of Babies L & M] and we have two boys, [Baby L] and [Baby M], who were born at the Countess of Chester on 8 April 2016.

"Up until March 2016, it had been a routine pregnancy and we had found out early on that we were having twins after a scan. In March, my wife was going for a scan and was not feeling well so I took time off from work and took her to hospital. The doctor asked my wife if she was okay and she clearly wasn't.

"After doing their checks, they told us that they would have to admit her as soon as possible, which I think was down to the position the boys were in. I was really shocked to hear that and had to head home and get things together for [Mother of Babies L & M], then go back to the hospital. She ended up being in hospital for over 2 weeks and they decided they would need to deliver the boys.

"[Mother of Babies L & M] decided on a C-section and they agreed to do that. [Mother of Babies L & M] rang me at work on 7 April and left a message for me telling me the doctors wanted to deliver the boys the next morning so I had to take her stuff in with me that night so we were ready for the next day. I went in on 8 April, which is a Friday, and [Mother of Babies L & M] had the C-section that morning. I was with her when they were born

and we got to see them straightaway and the doctors said they were very healthy. The boys were then taken through to the neonatal unit into nursery number 1, I think, by Lucy and Laura, who had been in the room with us and [Mother of Babies L & M] was taken to a ward upstairs.

"I was able to go down to the unit a couple of hours later to see the boys while my wife had to stay upstairs. I can't remember who was looking after them when I went down, but they were both still fine and in nursery 1.

"The next day my parents and my brother and sister-in-law went into the hospital with me to go and see [Mother of Babies L & M] and meet the boys in the neonatal unit. We went upstairs to the ward first to see her and then we all went down to the unit with [Mother of Babies L & M] to see the boys for about half an hour or so. We were both proud parents and very happy.

"We then went back upstairs to the ward. Within 10 minutes of being on the ward, a nurse came charging in saying, 'You need to come down now'. I can't remember which nurse it was or what she looked like. So we all rushed downstairs.

"I was down first as [Mother of Babies L & M] was being pushed in her wheelchair and I saw one of the doctors doing chest compressions on [Baby M]. It was very distressing to see and I will never forget that image. I still have it in my mind.

"[Mother of Babies L & M] and the others arrived shortly after me and one of the nurses said that [Baby M] had been absolutely fine and they didn't know what had happened to him. [Baby L] was on the other side of the room and was fine. I remember they were working on [Baby M] for half an hour and they later told us his heart had stopped. He then stabilised, he had come round, and his colour started coming back.

"After that, my wife stayed in hospital for about 2 weeks. During that time, both boys were stable and I would visit them every day. [Mother of Babies L & M] would spend time with them during the day and I would go to the hospital on my way home from work at 4 pm to spend time with them.

"Once [Mother of Babies L & M] had been discharged, she would go on the bus every day to the hospital and spend most of the day with the boys. There weren't any other issues with the boys and it was actually only [Baby M] who had the problem early on. The only thing [Baby M] had to have was a brain scan to make sure there were no problems after his resuscitation, but the scan showed nothing of concern, no damage.

"The boys were discharged in early May, I think after being there for 3 or 4 weeks. They were only on the unit because they didn't weigh enough, but other than that they were both healthy. They were fit and well when they were released and it was a relief to finally get the boys home. We are happy with the development of both boys at this point."

Witness statement of MS SUSANNE BOGGAN (read)

MR DRIVER: The next statement is at page 11 of your Lordship's bundle. It's from a midwife by the name of Susanne Boggan dated 20 March 2018, stating:

"I am currently employed as a band 6 midwife on the labour ward of the Countess of Chester Hospital. As a midwife, my role is to care for and assess the women coming into the labour ward, including those that have elected caesarean section as a means of giving birth.

"I provide general care for both mother and baby."

At page 3 of her statement she says:

"I have been asked for my knowledge of [Baby M], who was born on 8 April 2016 on the labour ward of the Countess of Chester Hospital. To assist my memory, I've had an opportunity to view [Baby M]'s medical records and some of what I may say is taken from those notes and not necessarily from memory.

"[Baby M] was one of twins and he is recorded as twin 2 on the notes. Mum had been on the ward prior to birth. She had undergone a scan which caused concern in that twin 1 did not appear to be growing at the correct rate. This caused enough concern for a decision to be made to deliver the babies. This was not an emergency C-section and is known as a semi-elective procedure to deliver the babies sooner rather than later.

"This procedure was pre-planned as a result of the scan on the previous day and was designed to intervene in the growth of twin 1 so the lack of growth didn't worsen by prolonging the pregnancy.

"[Mother of Babies L & M] came down to the labour ward at about 8.30 am and we made her ready for theatre. The babies were delivered by caesarean section without any complications. And because they were so premature, they went to the neonatal unit at about 20 minutes of age, which is quite normal. Both babies were in good condition and there was time for a quick cuddle with mum and dad before they went to the NNU. They were not on breathing support whilst they went to the NNU. I think the gestational age of [Babies L & M] was 33 weeks and 6 days.

"Both babies were in good condition, twin 1 cried immediately after birth, and were handed to the neonatal team without any problems. There was a neonatal team present at the birth, which included a doctor and a couple of neonatal nurses. When [Baby M] was delivered, he was a bit slower to cry but his Apgar score at 1 minute was 9 out of a possible 10. So although [Baby M] was a bit slower to crying, he was rubbed down a bit with a towel and he began crying and he was fine. Few babies achieve an Apgar score of 10 at 1 minute as they are often a bit blue at birth, so a score of 9 is good.

"In summary, the births went well without any complications and the babies were in good condition, as indicated by an Apgar score of 9 at 1 minute. The score was repeated at 5 minutes and at 10 minutes. Both babies scored 10.

"The births were perfect, the only issue being I have noted from the notes entered by the paediatrician that [Baby M] had oxygen saturations of 60% at 3 minutes, which is a little low, but this was corrected by the administration of inflation breaths.

"I had no further involvement with [Baby M] and I did not hear of his collapse the following day."

May I call Dr Bhowmik next, please, my Lord?

DR SUDESHNA BHOWMIK (affirmed)

Examination-in-chief by MR DRIVER

MR DRIVER: Could you state your full name for the recording, please?

BHOWMIK: Dr Sudeshna Bhowmik.

DRIVER: Dr Bhowmik, although I'll be asking you questions, could you direct your answers to the jury and project your voice in their direction to the back of the room if you would?

As I'm sure you appreciate, you've been invited here to give evidence about the twins [Baby L] and [Baby M].

In what capacity did you first encounter those babies?

BHOWMIK: So I was working at the Countess of Chester Hospital as a paediatric trainee so (inaudible) trainee at the time and I would have been on shift at that time.

MR JUSTICE GOSS: Sorry, you'll have to keep your voice up, please. You're naturally looking towards Mr Driver because he's

asking you questions, but could you please imagine you're speaking to the people on the back row of the jury. I know it's artificial and you instinctively look at the person who's speaking to you.

BHOWMIK: Sorry.

MR JUSTICE GOSS: Don't worry, don't apologise.

MR DRIVER: We've learned that a paediatric trainee, albeit a rather senior one, at that stage, performs many a role within a hospital like the Countess of Chester.

What was your specific role in relation to these babies on the date of their birth?

BHOWMIK: I would have been a registrar, a middle grade person, so I would probably have been assigned to the neonatal unit that morning. I would have been attending deliveries if my junior needed some help. I would have been looking after babies on the neonatal unit, so...

DRIVER: Thank you.

BHOWMIK: I'm not sure how much detail you want.

DRIVER: That's quite enough in response to my question, thank you very much.

I'm going to shortly take you to some notes that you created during this shift and they'll appear on that screen to your right to assist you in refreshing your memory. Before we go to the notes, notes aside, do you have any memory of the twins?

BHOWMIK: No, unfortunately not.

DRIVER: Have you had the opportunity of refreshing your memory from the clinical notes?

BHOWMIK: Yes. Only of one of the twins, I think, [Baby L].

DRIVER: Thank you. Does your review of the notes confirm to you that you were present at the birth?

BHOWMIK: Yes. As I said, I don't have any recollection, but I believe it's documented in the notes.

DRIVER: Thank you very much. You know from reminding yourself, we well know, that [Baby L] was one of twins, his brother being [Baby M]. [Baby L] at this point in time is referred to as twin 1, his brother [Baby M] as twin 2.

I wonder whether we could please put up tile number 5, please. If we could click behind that tile.

I think I might have taken you to the wrong tile at the outset. Forgive me.

I'm grateful, Mr Myers, who directed me to tile 12.

Before we go there, tile 7 first, please. Tile 7.

We can see on the face of this document that -- at 11.15 that morning, is this a reference to you, do you believe?

BHOWMIK: I think so.

DRIVER: And that you sited a peripheral intravenous line into the left hand of the baby. Is that an exceptional event in this context?

BHOWMIK: No. A lot of the babies being admitted to the neonatal unit would be either premature or come in because of having problems with breathing, needing IV fluids, needing IV antibiotics. So that's quite a routine procedure to be done on a neonatal unit.

DRIVER: Thank you. Now if we could go to tile 12, please, and if we click on the original document below. Do you recognise this as your handwriting?

BHOWMIK: Yes.

DRIVER: It is a clinical note made on the face of it at 12 noon on 8 April 2016. Have you previously refreshed your memory of the contents of this note?

BHOWMIK: Yes.

DRIVER: I'm grateful. In general terms, what sort of condition was baby [Baby L] in upon his admission into the unit?

BHOWMIK: So the baby was generally well in terms of being active, alert. The only thing of note on the notes I can see is that his breathing rate was a little bit elevated at 65, but that would not have been of any concern because he was born by caesarean section and a lot of babies born by caesarean will have a little bit of fluid on the lungs and will be breathing a little bit faster in the first sort of 24 hours. So nothing sort of out of -- you know, nothing concerning at this point.

DRIVER: So that's a recognised, if not predictable, feature of a baby brought into the world via a caesarean section?

BHOWMIK: Yes.

DRIVER: His weight?

BHOWMIK: His weight's definitely quite low. Yesterday, when I was refreshing the notes, I was having -- I plotted it on the growth charts and he definitely was quite low on the growth chart. So even for being premature, he was lower birth weight, which is the reason why the caesarean section had happened in the first place.

DRIVER: Thank you. We've just heard evidence to that effect, but thank you for confirming it.

What about his blood sugar levels, is that noted by you on this document?

BHOWMIK: Um...

DRIVER: If we could scroll down.

BHOWMIK: Am I able to do that? So yes, BM 1.9. So the blood sugar was a little bit low. Again, we do find that babies who are born a little bit premature and underweight, they can have low blood sugars soon after being born. And what we would hope is that once they are getting some glucose either through IV fluid or through feeds, that that would stabilise.

DRIVER: Why is it that babies born prematurely tends to have low blood sugar levels?

BHOWMIK: Often they don't have enough reserves -- so usually babies will be born with sort of fat reserves, which will be an alternative energy source if they are not being fed. But in the case of babies born prematurely or those who are generally underweight, they will have less of those reserves, so are more prone to having low sugars.

DRIVER: Thank you. Looking at your plan of action, as it were, what was it that you decided upon to address that issue?

BHOWMIK: So I decided to start him on IV fluids with glucose in.

And also to slowly start with some feeds, so starting with some donor breast milk, I presume through a nasogastric tube, so via NG. And usually, when premature babies are being started on some milk, we can't assume straightaway that they would be able to tolerate it or digest it, so we would start with very little

amounts at first, therefore there's the sort of cushion of having IV fluids running, so even if they didn't tolerate the feeds they would still get the glucose they needed through the IV fluids.

And then as they were starting to tolerate the feeds, the amount of feeds could go up and amount of the fluids could go down and that's what I've recorded (inaudible: coughing) seesaw.

DRIVER: Thank you. We can see also as part of your plan that you decided to "hold off" antibiotics; is that right?

BHOWMIK: I think at the time I wrote the note, I had felt that there wasn't any need to give antibiotics at that time.

However, I have commented that if twin 2, and indeed either of the twins, developed jaundice in the first day of life then that would be considered as risk factor for sepsis and therefore we would start on antibiotics, and generally, with twins if either one of them has a risk factor we tend to cover both of them with antibiotics.

I believe, looking through the notes, [Baby L] was commenced on antibiotics later on. I wouldn't be able to tell exactly when.

DRIVER: Thank you. Returning to the low blood sugar reading of 1.9, you have told us your immediate plan to address that and no doubt you wished to keep a watchful eye on the situation.

BHOWMIK: Sure.

DRIVER: How were you going to do that?

BHOWMIK: So as I've already written in the notes, to repeat the blood sugar in half an hour and usually the nurses would be having a schedule of checking regularly. So obviously if the sugars were getting better they might space out the checks. If they were still low, they would be doing it more frequently.

DRIVER: So check half hourly. If we can go to tile 16, please, and click behind. Does this provide us with some information as to the monitoring and checks that were being undertaken regarding [Baby L]?

BHOWMIK: Is it possible to scroll down? That's one result.

DRIVER: I think we may need to go to the next page to see -- there we are. Does that inform you of much, doctor?

BHOWMIK: That's just a blood culture report to say that there was no sign of infection.

DRIVER: Thank you. Could we then click on to the next tile and the document beneath, please, Mr Murphy?

Does this give you more useful information?

BHOWMIK: These are the blood results. These would have been blood results for those things that were sent to the lab. The blood glucose monitoring would more likely be in the nursing notes, I would think, probably on the feeding charts.

DRIVER: Thank you. We'll go to them. Do you remember or, having looked at the notes, has your memory been refreshed as to any discussions you may have had with the nurses in relation to [Baby L]'s continuing blood sugar position and monitoring?

BHOWMIK: So I don't have any actual recollection of the conversations, but at the time when my statement was taken by the police, I was informed that there had been discussions with the nurses, that they had questioned me about what to do with the blood sugar. I think they'd questioned about the feeds and the fluids.

DRIVER: Yes. Could you explain to us what the hypoglycaemia pathway is in this context?

BHOWMIK: So hypoglycaemia means low blood sugar. Every neonatal unit will have a set of guidelines or a pathway in terms of how to monitor, how to treat babies with low blood sugar, when to get concerned, what investigations to do, et cetera. And every unit does have slightly different guidelines as well. So I would be thinking I was referring to the pathway at the Countess of Chester at the time.

DRIVER: Thank you. Could we go to tile 10, return to tile 10, please? I think we'll see a document that you've helped complete there. If we go to the neonatal infusion chart, tell us whether you recognise your handwriting on this document.

BHOWMIK: Yes. So the first three lines, those are in my handwriting.

DRIVER: We'll focus on them from the top and working down. We see some writing that appears to have been crossed out.

In the middle of the page, it says "doctor's signature"; is that your signature?

BHOWMIK: That is, yes.

DRIVER: Thank you. Let's go from left to right. So the date, 8 April. Time, 11 am:

"10% dextrose, 500ml volume."

Does that -- and the duration of infusion. Does that accord with the note that we looked at in your plan?

BHOWMIK: Yes. So when we are writing fluids up, we would put the amount of the whole bag, the 500ml bag, even though we know that the entire amount is not going to go over into the baby. It would be the -- the rate would be critical in terms of determining how much is actually going to be delivered. I can see that I've written it sort of three times and crossed off the first two. This, I think, was because of discussions about how much fluid to give.

I would have written up initially, thinking -- so what I'm looking at is the possibilities -- obviously I don't have any direct recollection. So the one in the middle with the lower rate is --

DRIVER: Doctor, the mouse in front of you -- forgive me. You see the mouse in front of you? If you could take the cursor to help us follow what you're referring to.

BHOWMIK: This one (indicating), the lower rate, 3.6ml an hour, 60ml per kilogram per day, this would be the standard sort of rate of feed or fluid given to a baby on the first day of life.

DRIVER: Right.

BHOWMIK: I think I would have -- because of the low blood sugar and because of the fact that [Baby L] was underweight, I probably would have thought of going a day ahead, which we often do. So I prescribed the higher rate first. I wonder if there had been discussions with the nurses saying, oh, why don't we go back to the normal rather than the higher rate? I think that's why I probably have written that up.

And obviously, then changed my mind and gone back on the -- that might have been because of blood sugar readings coming through at that point, saying it was still low and therefor I might have changed my mind and said, no, I want the higher rate of fluids.

DRIVER: Could I re-cover that ground and break it down --

MR JUSTICE GOSS: I'm just wondering, Mr Driver, time-wise, this topic is going to go on for a little time, isn't it?

MR DRIVER: I'd lost sight of time.

MR JUSTICE GOSS: I'm sorry, I was going to interrupt you earlier. I thought we were going to complete this before the break. Clearly we're not going to, so we'll break off now.

I'm sorry about this, but we have a break at 1 o'clock. We'll have a few minutes under the hour.

Could you be ready, please, to continue at 2.05?

BHOWMIK: Yes.

MR JUSTICE GOSS: Thank you very much indeed. And don't talk to anyone about anything to do with this case in the meantime.

2.05, please, members of the jury.

(1.08 pm)

(The short adjournment)

(2.05 pm)

MR DRIVER: Dr Bhowmik, immediately before lunch we were looking at some calculations that you had made on a document called the infusion therapy prescription sheet. Before we return to the detail of that, might I invite you to take a step back and help us understand the purpose of the prescription. You told us that [Baby L] was of low birth weight, that was the reason, driving reason, why he was semi-electively brought into the world by way of a C-section.

Additionally, you told us that he presented with having a low blood sugar level. The infusion therapy prescription, was that designed to address both those problems, both those issues, or just one of those issues?

BHOWMIK: A bit of both. So as mentioned earlier, premature babies often take a little while to establish feeds and it's quite common practice to start on IV fluids.

Whilst that process is happening, just in case they are not able to tolerate the feeds, you have the fail-safe of having some fluids running.

In case his breathing got worse, again, sometimes we have to stop feeds if we're worried about that affecting the breathing. There can be a lot of things, the baby may not be tolerating feeds, may get more unwell, et cetera. So that's why most preterm babies of this gestation will end up having IV fluids

anyway. And in this case, the rate was being sort of altered because of the birth weight and the glucose levels.

DRIVER: Thank you. With that backdrop (inaudible) by you, could we look at the detail of the chart, please.

As we recognised before lunch, there are effectively three versions of the same prescription on this single document --

BHOWMIK: Sure.

DRIVER: -- is that right?

BHOWMIK: Yes.

DRIVER: Mathematically speaking, what was the aim of the prescription? What result were you aiming to arrive at?

BHOWMIK: So I would have been -- the first and the third prescriptions would have been aimed at a higher rate of fluids, going what I would class as a day ahead. And again, different units have different protocols on that.

That could be 70 at one place, 75 at another, 90 at another. I can't remember what the guidelines in Chester were at the time, but I suspect that's what I was aiming for with the first and the third prescriptions.

The second prescription, as I said, was the day 1, 60ml per kilogram per day.

DRIVER: Thank you. So let's begin at the prescription itself.

At 11 am, 10% dextrose at 3ml per kilo per hour, resulting in, on your calculation, 72ml per kilo per day?

BHOWMIK: (Witness nods).

DRIVER: And that was your target?

BHOWMIK: Yes.

DRIVER: If we look at the one immediately above, which has been crossed out, the first part of that equation is expressed as the 60ml per kilo per day as opposed to per hour in the final calculation. But is that just a different mathematical route?

BHOWMIK: Yes. So the 3ml per kilogram per hour is 72ml per kilo per day. That would have been my calculation for going a day ahead on the fluids. And the 60ml per kilogram per day would have been sort of the normal, the standard, calculation. Again,

some units prefer -- in their pathways or their guidelines, they may keep it as per day, in some they might specify as per hour. At the end of the day it turns out to be the same.

DRIVER: It's an equation, just different factors --

BHOWMIK: Yes (overspeaking) 24 hours is a day and that's just the mathematical correction.

DRIVER: And so the calculation you ultimately prescribed was, is this right, looking immediately above the brackets of our third entry, targeting a provision of 10% dextrose at 4.4ml per hour?

BHOWMIK: That's correct.

DRIVER: Taking into account his weight --

BHOWMIK: Yes.

DRIVER: -- and the amount of fluids you deemed appropriate for him?

BHOWMIK: Yes. Often we would round up or down if there are fractions, which is why I think there's the inconsistency. The 4.2 and the 4.4 is probably one rounded down and one rounded up.

DRIVER: In your professional opinion would either of those have done the job?

BHOWMIK: Yes.

DRIVER: And is it your evidence that you can't recall discussing this with the nursing staff at Chester but you don't have a great memory of the detail?

BHOWMIK: No.

DRIVER: This chart is consistent with that?

BHOWMIK: Yes.

DRIVER: Thank you. And other than communicating these decisions to [Baby L]'s parents, which for your Lordship's note is -- which event is recorded behind tiles 28 and 42 of our presentation, I think, is this right, that was the end of your immediate dealings with [Baby L], but your statement seems to suggest that on 30 April, you looked after him again, by which time his low sugar, blood sugar, had resolved?

BHOWMIK: That's correct.

MR DRIVER: Thank you. Could you remain there and answer any questions?

Cross-examination by MR MYERS

MR MYERS: Dr Bhowmik, could you help us with this? Is the range for neonate blood sugar, the healthy range, 2.6 and up?

BHOWMIK: That's right.

MYERS: With a preterm baby and a low birth weight baby, that carries in any event a risk of hypoglycaemia, doesn't it?

BHOWMIK: That's correct.

MYERS: Hypoglycaemia. So for a baby like [Baby L], it would come as no surprise if, certainly at the outset, there were signs of hypoglycaemia; is that correct?

BHOWMIK: Yes.

MYERS: And we've seen from your note that [Baby L] was recorded as 1.9 within a couple of hours of birth, wasn't he?

BHOWMIK: Yes.

MYERS: Reference was made to the hypoglycaemic pathway and so I'm going to ask you a little bit about that, but only because reference is made to it. There's no criticism in the decisions that were taken in what I'm asking.

BHOWMIK: Sure.

MYERS: It's just to see if you can help with what led to the prescription that we've seen.

BHOWMIK: Mm-hm.

MYERS: Do you recall whether the way in which [Baby L] was first going to receive nutrition was something that you discussed with the nurses who were caring for him at that time?

BHOWMIK: I wouldn't have any actual recollection.

MYERS: All right. Do you recall whether at Chester the pathway was, so far as possible, to feed a newborn baby with milk first and then to move on to fluids if the blood sugar didn't come up after that? Do you recall that?

BHOWMIK: I can't remember what the guidelines at Chester were at the time, but in common practice it would be a clinical decision

made at the time, depending on how the baby is and other factors.

MYERS: And your decision at the time was, in any event, in the case of [Baby L], the appropriate course was to start him on intravenous nutrition at an early stage?

BHOWMIK: Yes.

MYERS: Right. Can we just put up the tile we've been looking at, please, Mr Murphy? Tile 115.

You've gone through and explained to us the process of going through the calculations to reach a rate that you regarded as appropriate; is that right?

BHOWMIK: Yes.

MYERS: So when we look at the two lines that have got the squiggly crossing out, are they calculations you had done initially but then thought, no, I'll change it to what we see in the third line?

BHOWMIK: Yes.

MYERS: Right. But from what we see here, however the calculations are done, the aim was to achieve the same thing, which is to make sure that [Baby L] received the fluids and, in particular, the dextrose that he needed; is that correct?

BHOWMIK: Yes.

MYERS: And although there are three calculations and the final one we can see, from looking at this it appears one bag was put up as a result of your prescription.

BHOWMIK: Yes.

MYERS: And so there's no doubt, what I'm looking at and what I'm asking you about, Dr Bhowmik, I know you're familiar with it, but so we can all keep up with it, is the bag that's signed for in the top line, the first line; is that correct?

BHOWMIK: Yes.

MYERS: And that's a bag where it says "time infusion started".

It appears to be 12.00, doesn't it?

BHOWMIK: Yes.

MYERS: And that is -- if that's right, that's the time that the infusion that you prescribed, the third calculation, that's when that would have begun?

BHOWMIK: Yes.

MR MYERS: Thank you very much, Dr Bhowmik.

Re-examination by MR DRIVER

MR DRIVER: Just to clarify that: having prescribed the bag to achieve your objective of 72ml per kilogram per day, did you oversee the hanging or the connection of the bag?

BHOWMIK: I wouldn't remember.

DRIVER: Did you monitor the time at which the infusion started?

BHOWMIK: No.

DRIVER: Did you have any further dealings with [Baby L] between writing this prescription and looking after him again on 30 April 2016?

BHOWMIK: Whatever's in the notes. I wouldn't remember anything else outside of that.

MR DRIVER: Thank you. Does your Lordship have any questions for the doctor?

Questions from THE JUDGE

MR JUSTICE GOSS: Just this: it's still up on the screen, the infusion therapy prescription sheet. We can see along the top line, which has been scrubbed through, there's a column towards the right-hand side "nurse doing bag additive". And then there's some -- I'll describe them as marks underneath.

BHOWMIK: Those are my initials. So when I was crossing out the first prescription, I would have initialled --

MR JUSTICE GOSS: So that's you initialling the erasure of that entry?

BHOWMIK: Yes.

MR JUSTICE GOSS: Then you've written it again or written another one underneath, scrubbed that through; you accept you have done that?

BHOWMIK: Yes.

MR JUSTICE GOSS: Before you've written the third version, which is then -- what then appears in the columns "nurse setting up infusion", "rate" and "time". Nothing to do with you?

BHOWMIK: No.

MR JUSTICE GOSS: And you have just answered questions about that. But in each case, the bag, the intended bag, is the same, it's 10% dextrose?

BHOWMIK: Yes.

MR JUSTICE GOSS: So half a litre, a 500 ml bag of 10% dextrose. What is different is just the infusion rate?

BHOWMIK: That's right.

MR JUSTICE GOSS: And that's the pump that --

BHOWMIK: Yes.

MR JUSTICE GOSS: The rate at which it's pumped through --

BHOWMIK: Yes.

MR JUSTICE GOSS: -- on the drip going into the baby through the intravenous catheter?

BHOWMIK: Yes.

MR JUSTICE GOSS: That's the only difference?

BHOWMIK: That's correct.

MR JUSTICE GOSS: Thank you very much.

MR DRIVER: My Lord, this, I anticipate, will be Dr Bhowmik's only visit to the court.

MR JUSTICE GOSS: Thank you very much, Mr Driver.

It's not anticipated you're required again.

Thank you very much for coming and giving your evidence today. Obviously, you're free to go now, but just in case -- and I'm saying this to everyone who is not expected to be having to give evidence again -- don't talk to anyone about this case until it's all over, please, anything to do with it, any of the babies concerned.

BHOWMIK: Sure.

MR JUSTICE GOSS: Thank you very much indeed.

(The witness withdrew)

MR DRIVER: There's a hand raised, my Lord.

MR JUSTICE GOSS: Your iPad isn't working? Mr Murphy will come and help.

(Pause).

MR DRIVER: Including Dr Bhowmik, there are three witnesses this afternoon, and the third witness has special measures.

MR JUSTICE GOSS: We'll have a break then if we haven't had one before, we'll have to have a break anyway.

(Pause)

MR JUSTICE GOSS: All well? Good, thank you.

(Pause)

MR DRIVER: Apologies, my Lord, I understood that the doctor would be outside for 2.20. That was the schedule.

We were about 10 seconds early on that.

MR JUSTICE GOSS: Well, it's 27 minutes past.

MR DRIVER: We do have some documents we can hand out.

MR JUSTICE GOSS: Let's do that. The clerk of the court will help us.

MR DRIVER: These are to go behind divider 15 because documents for the baby [Baby K] will go behind divider 14.

MR JUSTICE GOSS: So leave a space for 14 for [Baby K] and then these behind go 15 in the second file.

(Handed)

As you will see, helpfully, the first document is actually the document we've just been looking at on the screen, so the infusion therapy prescription sheet.

MR DRIVER: My Lord, Dr Ukoh is not immediately available.

We can call the next witness who requires special measures. Apologies for that.

MR JUSTICE GOSS: All right. So we're deferring Dr Ukoh until he's here or until he's outside the court. So I'm afraid you're going to have to leave the court for a few minutes while the screens are put up.

(In the absence of the jury)

MR DRIVER: Dr Ukoh has been here all morning. It's a mystery as to where he is right now.

MR JUSTICE GOSS: It doesn't matter, we'll carry on. I'm afraid everybody else just has to leave the building while the witness is brought into court. This will only be a few minutes. The clerk or the usher will come out and tell you when we're ready to proceed. Thank you.

(Pause)

(In the presence of the jury)

MS AMY DAVIES (affirmed)

Examination-in-chief by MR ASTBURY

MR ASTBURY: Could we start with your full name, please?

DAVIES: It's Amy Judith Davies.

ASTBURY: Thank you. I think a few people are already indicating you're quite softly spoken and we're struggling to hear you here, so if you could try and lift your voice, please, and project it as best you can, preferably to the ladies and gentlemen at the back of the jury. We know then that everyone who needs to hear you can hear you.

DAVIES: Okay.

ASTBURY: It's important. I'm just going to have to keep asking the same question otherwise. Thank you very much.

MR JUSTICE GOSS: It's very difficult, it's an awkward, unusual situation in any event, but just imagine you're having to speak to the people on the back row of the jury. Those are the people -- if you look at them or look towards them and then just say, I'll have to speak loudly enough so they can all hear what I am saying, and if you do that then everyone else can hear it. The problem is if you don't, then you have to repeat it and it's

obvious therefore you're sitting there longer giving evidence than necessary.

MR ASTBURY: Don't be too polite. I know I'm asking the questions, but aim there over there, please, your answers.

So your profession, please?

DAVIES: I'm a neonatal practitioner.

ASTBURY: Were you employed in that capacity back in April of 2016?

DAVIES: Yes, I was.

ASTBURY: And where were you working then?

DAVIES: On the neonatal unit.

ASTBURY: Whereabouts, please?

DAVIES: At the Countess of Chester.

ASTBURY: Thank you. We've heard various things about bands and qualifications. Could you just summarise your position back in April of 2016?

DAVIES: Yes. So I was a band 6 neonatal practitioner.

ASTBURY: Thank you. You've come along today to assist us with your recollections of a baby by the name of [Baby L].

DAVIES: Yes.

ASTBURY: Can I ask, have you had the opportunity to check the various notes made at the time in preparing your statement for today?

DAVIES: I have, yes.

ASTBURY: Do you have any independent recollection of [Baby L]?

DAVIES: I don't, no.

ASTBURY: All right. Having seen the notes, can you confirm that you were on a day shift on 8 April 2016?

DAVIES: Yes, I can.

ASTBURY: We've heard, and could you confirm, please, that [Baby L] and indeed his twin brother [Baby M] were born in the morning on 8 April 2016?

DAVIES: Yes, I can.

ASTBURY: And they were admitted to the neonatal unit at Chester?

DAVIES: Yes, they were.

ASTBURY: Were you shift leader that day?

DAVIES: I believe I was from my notes, yes.

ASTBURY: And are you aware of who was the designated nurse for [Baby L] when he arrived on the unit?

DAVIES: Yes.

ASTBURY: Who was that, please?

DAVIES: That was Lucy Letby.

ASTBURY: Lucy Letby?

DAVIES: Yes.

ASTBURY: Thank you. Did you at any point assist Lucy Letby with her care of [Baby L]?

DAVIES: I believe I did, from my notes, yes.

ASTBURY: Thank you. Perhaps if we go to your notes, please. If you look to your right there's a screen. Hopefully, if I ask Mr Murphy to put up tile 13 -- in fact, before we go behind them, they're not actually your notes, they're Lucy Letby's. You're mentioned so I just want to take you to that and see if it jogs your memory. Apologies for that.

If we go to the notes, please, I think it's towards the bottom -- I'm just wondering if we can come back out. I wonder if the summary might be more complete and a little bit easier to read.

So we have a summary of what's in the notes there.

It's a little bit bigger and I wonder whether we can rely on that. I'll go to the other if I'm asked to.

The note says that:

"The initial blood sugar shortly after birth was 1.9mmol."

Do you recall that having seen the notes?

DAVIES: I don't recall it, no.

ASTBURY: Do you remember a conversation with the registrar on duty, Dr Bhowmik, about treatment for that low sugar level?

DAVIES: I don't remember it, no.

ASTBURY: Just looking at the note, we have some calculations and a suggestion that:

"Myself [that being Lucy Letby who prepared the note] and shift leader A Davies have discussed it with Registrar Bhowmik."

Do you recall that?

DAVIES: I don't recall it, no.

ASTBURY: Any conversation about the hypoglycaemic pathway that was in place at the time?

DAVIES: I can't specifically remember that conversation or details of it.

ASTBURY: You made a statement in October of 2018 about this matter. Do you think your memory was perhaps a little fresher then than it was now?

DAVIES: In when, sorry?

ASTBURY: October 2018.

DAVIES: No, I remember when I gave my statement that I couldn't quite remember either that situation.

ASTBURY: Okay. All right. Was there a set policy in place for newborn babies with that sort of very low sugar level?

DAVIES: Yes, there was.

ASTBURY: Do you remember back in April of 2016 what that policy or pathway was?

DAVIES: I wouldn't be able to remember it off the top of my head. I always check a policy before I do an intervention.

ASTBURY: Right. I'm very grateful to my learned friend, my Lord.

Was it right that the policy was to feed or begin feeds with milk rather than go straight to glucose supplement?

DAVIES: It was, but it depends on the situation, of how low the sugar is and what time the sugar is taken.

ASTBURY: Do you recall in this particular instance, or do the notes confirm, that Dr Bhowmik decided to prescribe immediately some glucose infusion for [Baby L]?

DAVIES: Yes.

ASTBURY: Is that the type of thing that would have created some conversation between you as the shift leader, perhaps the registrar, and the designated nurse?

DAVIES: Yes, it would.

ASTBURY: It's the type of thing you would have discussed, but is this right, ultimately a matter for the doctor?

DAVIES: Yes.

ASTBURY: I think, having looked at your notes and when you prepared your statement, you expressed a view about whether that decision by the doctor caused any risk to the baby [Baby L]. Can you remember what that was?

DAVIES: Yes, I can remember thinking from looking at the whole picture that it wasn't a decision that would put the baby at risk, it was just an alternative decision, and the blood sugar was taken at a slightly different time --

ASTBURY: Right.

DAVIES: -- than what the set policy would require you to do. So that's why there could be a little bit of lenience as well.

ASTBURY: Having had the conversation with Dr Bhowmik and with, on the face of the note, Nurse Letby, did you have any concerns about the decision to start infusing glucose?

DAVIES: No, not concerns.

ASTBURY: All right. I wonder if we could look next, please, at tile 5, Mr Murphy. If we can look behind that, please.

These are the blood sugar records or gas records of baby [Baby L] after his birth. The note mentioned the figure of 1.9. Can you confirm that's represented in the first entry?

DAVIES: I can, yes.

ASTBURY: Thank you. If we go to the second line, timed at 12.15, it's raised a little to 2.5; is that right?

DAVIES: Yes.

ASTBURY: So an improvement?

DAVIES: Yes.

ASTBURY: Then if we look at the next two entries, which have the same initials alongside them, it would appear those entries certainly suggest that at, is that 16.00 hours, it was 5.8?

DAVIES: Yes.

ASTBURY: And then it had fallen back a little at 18.10 to 3.3?

DAVIES: Yes.

ASTBURY: As a matter of interest, we have a number of entries in the first two lines and only the sugar recorded thereafter. Is there any explanation for that you can help us with?

DAVIES: The first two which shows a blood gas, that shows the respiratory information on a baby. But I'm guessing because they were okay and it's only the sugar that we were looking at after that, there was no reason to do the full blood gas, we just needed a blood sugar result.

ASTBURY: Right, okay. Thank you very much. So if we can go next, please, to tile 10. Do you recognise that particular form, type of form?

DAVIES: Yes, I do.

ASTBURY: We've already heard some evidence from this so we don't need to take it from the top. There are three separate entries, two -- and a third is untimed -- seem to be around about 11 o'clock with various calculations in respect of the infusion. Can you see those?

DAVIES: Yes.

ASTBURY: Are you able to assist with, from your recollection, I don't want you to speculate, but from your recollection does that jog your memory as to how those calculations were finally arrived at?

DAVIES: Not from my memory, no. No.

ASTBURY: Okay. But it would appear that the third infusion is the one that is not crossed out?

DAVIES: Yes.

ASTBURY: If we look to the top right, can we see there that -- is that your signature in the box?

DAVIES: Yes, it is.

ASTBURY: Just briefly, please, explain to us what that means.

DAVIES: So that means that I've checked the infusion with Lucy.

ASTBURY: Okay. Just tell us a little bit of what that would involve, please.

DAVIES: So we would both check that we were happy with the calculation and with the prescription that the doctor had prescribed. We would both check the bag of fluid and make sure it was in date and that we were giving the right medication to the right -- the right fluid to the right baby and then we would both sign it.

ASTBURY: It would seem from the box that's next to your signature, the rate is the final uncrossed-out rate that you've settled on; is that right?

DAVIES: Yes.

ASTBURY: Is that the type of thing that you would discuss with the registrar, what the rate should be?

DAVIES: Yes. There will be a set way to work out the rate. You can see she's written that in brackets. But if we thought the calculation wasn't right or we had any queries then we would go back and ask the doctor.

ASTBURY: Right, okay. Then I suspect the next box along rather speaks for itself. 12.00 hours is when the infusion started?

DAVIES: Yes, that's correct.

ASTBURY: Again, we've heard evidence before, but just to remind everybody, in what form is the glucose or the dextrose as it's recorded on there, stored and delivered to the baby?

DAVIES: In a bag of fluid.

ASTBURY: Do those bags have a predetermined strength?

DAVIES: Yes, they do.

ASTBURY: Or should I say concentration, which would in this case have been 10%?

DAVIES: Yes.

ASTBURY: Are there other concentrations available?

DAVIES: There are other concentrations.

ASTBURY: Pre-made?

DAVIES: Not pre-made -- you do get 5%, sorry.

ASTBURY: Okay.

DAVIES: But not above.

ASTBURY: So if the concentration is to be increased then does the bag have to be amended, as it were, with the different strength of sugar?

DAVIES: Yes, it does, yes.

ASTBURY: Where would that take place?

DAVIES: Usually in the nursery that the baby's in.

ASTBURY: But it's a 10% bag. We have heard they're hung; is that right?

DAVIES: Yes, they are.

ASTBURY: The rate is delivered through a pump; is that correct?

DAVIES: That's correct, yes.

ASTBURY: Through what portal is the solution delivered to the baby?

DAVIES: There's like a giving set, we call it, that's attached to the bag and then you run it through and then it's attached to a cannula that's in the baby.

ASTBURY: So we have the bag of pre-made 10% solution?

DAVIES: Yes.

ASTBURY: The giving set, is that a separate piece of kit that's kept sterile and used for a separate bag?

DAVIES: It is, yes, and we insert it into the bag.

ASTBURY: That giving set, is that then attached to -- in this case, can you recall whether the baby had a cannula or a long line?

DAVIES: From the notes I can see that the baby had a cannula.

ASTBURY: So that giving set will be attached to the cannula?

DAVIES: Yes, and you do have a filter which is attached, you attach that to the giving set and that just filters the glucose before it goes to the baby.

ASTBURY: Can you tell us anything about the filter? What's it filtering?

DAVIES: I don't think I'd be able to give a thorough description, but just anything that could go through.

I couldn't really give a thorough description.

ASTBURY: So there is a filter --

DAVIES: Yes.

ASTBURY: -- between the bag and the baby?

DAVIES: Yes.

ASTBURY: All right. If we can just go back to tile 7, please, just to confirm what you've told us. We don't need to go behind it, thank you.

[Baby L]'s line was inserted at 11.15, which would be consistent with, am I right, the infusion starting at 12.00? How much is in the bag?

DAVIES: 500ml usually.

ASTBURY: Once the bag is hung, all other things being equally, how long does a bag last for with any given baby?

DAVIES: That'd be really hard to say because it'd depend on the size of the baby, the rate that's going through.

ASTBURY: So there's no set time to change it, it depends on the rate and any development --

DAVIES: We change the bags every 48 hours, but that's regardless of whether they've got enough infusion in them or not.

ASTBURY: Okay. So if it's empty, obviously it would require a new one.

DAVIES: Yes.

ASTBURY: If there was perhaps a change in what was required, it would require a new one?

DAVIES: Yes.

ASTBURY: But in the event the bag is still going after 48 hours and it's the same treatment, that would be changed in any event?

DAVIES: Yes.

ASTBURY: All right. Do you recall administering [Baby L] with any medication during the course of that day shift on 8 April?

DAVIES: I can't remember, no.

ASTBURY: To help you, I hope, can we go to tile 30. Again, I don't think we need to go behind it. You told us before how you -- it takes two to hang the bag. Is the same -- can the same be said of medication?

DAVIES: Yes.

ASTBURY: Do the next two tiles represent yourself and Nurse Letby administering both benzylpenicillin and gentamicin to baby [Baby L] --

DAVIES: Yes.

ASTBURY: -- at 14.55?

DAVIES: Yes.

ASTBURY: If we just look at the next two tiles, please -- well, the next tile. We understand that once administered to the baby, the computer is updated with the names of those two people who were involved with the administration?

DAVIES: Yes, that's right.

ASTBURY: If we can go, finally at this stage, Nurse Davies, to tile 44. Again not your note, but you get a mention so I'll ask

you if it refreshes your memory in any way. If we go to the first layer, please. On the very last line:

"A Davies has updated parents this evening."

Does that suggest that you spoke to [Baby L]'s parents at the end of the shift to update them as to what had been going on?

DAVIES: Yes.

ASTBURY: Do you have any recollection of that?

DAVIES: I don't, I'm sorry, no.

ASTBURY: All right. Finally this, please, Nurse Davies: did you at any point during the course of the day shift with [Baby L] administer him with insulin?

DAVIES: No.

ASTBURY: Are you aware of anybody else having administered him insulin?

DAVIES: No, I'm not.

ASTBURY: In what circumstances, please remind us, would insulin be given to a baby?

DAVIES: If a baby -- usually if a baby has two consecutive blood sugars over 12.

ASTBURY: So that's if the blood sugar is too high?

DAVIES: Yes.

ASTBURY: That would be hyperglycaemia?

DAVIES: Yes.

ASTBURY: And what would be required in those circumstances for a baby to receive insulin? Would that be simply done by a nurse on their judgement?

DAVIES: No, it would be prescribed by a doctor.

MR ASTBURY: Thank you. I have no more questions but if you could wait there, please.

Cross-examination by MR MYERS

MR MYERS: Nurse Davies, were you one of the nurses that took [Baby L] and his twin brother [Baby M] over to the neonatal unit after they'd been born?

DAVIES: I believe so from my notes, yes.

MYERS: And was it you and Lucy Letby who did that as far as you can remember?

DAVIES: From the notes, yes.

MYERS: From the notes, thanks. Do you recall if it was Nurse Letby who was going to be looking after [Baby L] when he was taken over to the neonatal unit?

DAVIES: Yes, from the notes I can see Lucy had [Baby L] and I had [Baby M].

MYERS: Do you recall whether you were going to be looking after [Baby M]?

DAVIES: Again, sorry (overspeaking) saying it --

MR JUSTICE GOSS: She just said that.

MR MYERS: Sorry, I didn't hear that bit.

MR JUSTICE GOSS: She answered that in the previous answer.

DAVIES: Sorry, I keep saying "from the notes", but from looking at the notes, I was looking after [Baby M].

MR MYERS: Sorry, my Lord. I didn't hear that.

MR JUSTICE GOSS: Don't worry, Mr Myers.

MR MYERS: I was so busy talking loudly myself --

MR JUSTICE GOSS: She just tagged it on to the previous answer.

MR MYERS: I'll listen carefully, Nurse Davies.

I'm just going to ask you about the nursery when you took the children there. Were they both put into nursery 1? You may have checked in the note.

DAVIES: I can't remember.

MYERS: Do you recall whether there had to be a space made for [Baby M] to fit him in near to one of the walls because it was

so busy in the nursery? Do you remember anything like that taking place?

DAVIES: I don't remember, no. I don't remember. Sometimes when there's twins, we like to keep them together, so it could be that a space was made for that reason.

MYERS: If it assists in prompting memory, and please say if it doesn't, I refer to a space by a wall because I'm going to suggest there was a portable Masimo monitor there and so it was a space that he could be slotted into because it was so busy. Does that trigger any recollection at all or not?

DAVIES: It doesn't, no.

MYERS: You were asked some questions about what's called the hypoglycaemic pathway.

DAVIES: Yes.

MYERS: You're familiar with that at the Countess of Chester, aren't you, Nurse Davies?

DAVIES: I am, yes, but like I say, I always refresh myself because policies change.

MYERS: Right. As it happens, you don't recall, if I understand this correctly, any particular conversation with Dr Bhowmik about the way in which [Baby L] was going to be fed; is that right?

DAVIES: That's correct.

MYERS: But you can confirm there was a hypoglycaemic pathway in operation at this time; is that correct?

DAVIES: I can, yes.

MYERS: And you can confirm that the standard policy or starting point, if you like, was that babies would receive a milk feed and then their blood sugar would be checked and they may go on to fluids if the blood sugar wasn't rising at that point? Was that the way the policy worked, all other things being equal?

DAVIES: Yes.

MYERS: Right. But as you've explained, and as we've heard, sometimes in the circumstances a doctor might decide to change from that policy and go straight to intravenous fluids, intravenous feeds; is that right?

DAVIES: Yes. It does relate to a little bit to when [Baby L]'s blood sugar was taken as well.

MYERS: You were asked or prompted about what you'd said and I'm going to ask you if this is the situation. Of course you can't answer for the doctor's reasoning, but she will have made a decision based on the fact that [Baby L]'s blood sugar level was quite low. Does that sound right?

DAVIES: Yes. I did read that I'd said that.

MYERS: You said that?

DAVIES: I said that, yes.

MYERS: And your view was that this was a perfectly reasonable course of action and not unsafe, just a deviation from the policy?

DAVIES: Yes.

MYERS: So in normal circumstances, a baby in [Baby L]'s position would be given a milk feed, but in [Baby L]'s situation the better course, the doctor decided, was to be given fluids intravenously?

DAVIES: Yes.

MYERS: I'm going to ask you, if you would, please, to look at tile 10, which we've looked at. It's the infusion chart.

DAVIES: There's nothing on my screen. It's come up now, sorry.

MR JUSTICE GOSS: There's a little bit of a delay.

MR MYERS: He's fast, Mr Murphy is, but -- usually very fast.

If we look in the top line, you looked at this only moments ago, where we see your signature and Ms Letby's signature above it on the top line, that relates to the bag that was hung up, doesn't it?

DAVIES: It does, yes.

MYERS: Just to remind us, in fact, there were three types of TPN bag on the unit. There were Start-up bags, weren't there?

DAVIES: Yes.

MYERS: And those are bags that are used normally in the first 2 days of a baby's life; is that correct?

DAVIES: That's correct, yes.

MYERS: And you have a stock of them in the fridge, don't you?

DAVIES: Yes.

MYERS: And then you also had what were called Maintenance bags and they were bags that could be used in the first -- after the first couple of days of the baby's life; is that right?

DAVIES: Yes, that's right.

MYERS: And also in some cases there might be a specifically prescribed TPN bag for a baby; is that right?

DAVIES: That's right, yes.

MYERS: When we're dealing with a specific TPN bag, that's one that's been designed for that baby with that baby's name on it, prescribed?

DAVIES: Yes, correct.

MYERS: If we're dealing with dextrose like this, is that a standard Start-up bag that's being used?

DAVIES: We don't refer to it as Start-up, it's just a bag of 10% dextrose.

MYERS: So you have a number of those available?

DAVIES: We do, yes.

MYERS: And if you need one, whoever it is that's going to be using it goes and collects it and it's then prepared and used?

DAVIES: Yes.

MR MYERS: Thank you very much.

Re-examination by MR ASTBURY

MR ASTBURY: It may be me, but so I'm not confused, one matter, please, my Lord.

MR JUSTICE GOSS: Of course.

MR ASTBURY: When we talk about TPN and Maintenance bags and those three different types of bags, are they a separate type of bag from the dextrose bags that we're looking at here?

DAVIES: Yes, they are.

MR ASTBURY: Thank you.

Questions from THE JUDGE

MR JUSTICE GOSS: So the bags here, of which there will be a stock available in the unit, are 10% dextrose bags?

DAVIES: Yes.

MR JUSTICE GOSS: And that was it and that was all that was being infused --

DAVIES: Yes.

MR JUSTICE GOSS: -- according to the records?

DAVIES: According to the records.

MR JUSTICE GOSS: You don't have a recollection?

DAVIES: I don't remember, no, but from looking at the chart, it was only 10% dextrose that was prescribed.

MR JUSTICE GOSS: Okay. Thank you.

MR ASTBURY: Thank you, my Lord.

MR JUSTICE GOSS: Thank you very much.

That completes your evidence -- please just remain where you are for the moment. Not anticipated, required again?

MR DRIVER: No.

MR JUSTICE GOSS: Thank you, Mr Driver.

It's not anticipated you will be required to come and give evidence again during the course of this trial.

But I'm saying to you what I say to every other witness in your circumstances just in case for some unexpected, unknown reason at the moment you do have to come back and answer further questions: don't talk to anyone about anything to do with this case --

DAVIES: Mm-hm.

MR JUSTICE GOSS: -- be it [Babies L & M] or any other case.

DAVIES: Yes.

MR JUSTICE GOSS: All right?

DAVIES: Yes.

MR JUSTICE GOSS: Thank you very much indeed. Just remain there. We're going to have our ten-minute break now, which will give you an opportunity to be taken from the court.

(3.04 pm)

(A short break)

(3.14 pm)

MR DRIVER: I call Dr Anthony Ukoh, please.

DR ANTHONY UKOH (sworn)

Examination-in-chief by MR DRIVER

MR DRIVER: Could you state your full name, please?

UKOH: My name is Dr Anthony Ukoh.

DRIVER: I'm going to ask you questions about events dating back to April 2016, which is quite some time ago now. To assist your recollection of the detail, from time to time we'll put up documents on that screen to your right, documents that were created within the Countess of Chester Hospital at that time --

UKOH: Okay.

DRIVER: -- amongst which are your own clinical notes.

UKOH: Thank you.

DRIVER: We would like to hear your recollections about your involvement with a baby by the name of [Baby L] and, in particular, the events of 9 April 2016. Before we assist you by looking at the notes, are you able to give the jury a gauge as to what actual recollections you still have of that baby and your involvement with him, if at all?

UKOH: Yes. So my recollection, with the help of the notes, is that [Baby L] was one of twins that was born prematurely at 33 weeks, which, although is premature, but not exceptionally premature.

Now, he was one of a set of twins that was born in fairly good condition, did not really require any major resus, and by day 2 we would term such a baby as a baby who is feeding and growing. So in other words, a baby who didn't have any red flags as to him becoming very unwell.

DRIVER: Thank you for that. Could we go to, please, Mr Murphy, our tile 101, behind which we will find some notes made by Dr Ukoh contained within [Baby L]'s clinical notes.

This is our presentation of the chronology of [Baby L]'s time at the Countess of Chester, amongst which (inaudible: coughing) I anticipate you will recognise as your own writing.

UKOH: Yes, I do recognise that, my writing, yes.

DRIVER: This was your examination and assessment of the baby at, is this right, 10.20 hours on 9 April 2016?

UKOH: That is correct.

DRIVER: Do your notes relate to day 2 of his life?

UKOH: Yes.

DRIVER: Although not as familiar as you, we are growing familiar with the format of these notes. Have you here set out at points 1 to 6 the problems or particular features of the neonate, as reported to you?

UKOH: Yes.

DRIVER: I'm grateful. Moving down the page, please, Mr Murphy.

As you summarised, the baby was breathing well.

Is that self-ventilating in air?

UKOH: Yes.

DRIVER: Thank you. But this is the feature of your note that I'd like you to help us with in particular. The next couple of lines, do they deal with the feeding regime, as it were, the nutrition?

UKOH: Sorry, which line are you referring to? The one with F?

DRIVER: Below "self-ventilating in air" --

UKOH: Yes.

DRIVER: -- the next two or three lines after that. Can you help us with this?

UKOH: Please may I just mention there's a specific format with neonates, that you'd specifically go in this format, so V for ventilation, F for fluids. So that F for fluids is just saying -- because there's a specific amount of fluids which a baby has each day of life, so that 75ml per kilogram per 24 hours just refers to the amount of fluids, the total amount of feeds, that baby [Baby L] was on.

But I also mention that the baby's on an extra 10% dextrose. So baby [Baby L] at this point was on a mixture of tube feeding, which is the NG, but also some 10% dextrose, which was going through a cannula.

DRIVER: Thank you. Why was it that baby [Baby L] was deemed to require an extra 10% dextrose to be provided through a cannula?

UKOH: Yes, so baby [Baby L]'s sugars, blood sugars, were running at a relatively low level for his age. But we do see that sometimes in babies who are born slightly prematurely, so it wouldn't be unusual to have a baby on that kind of mixture.

DRIVER: Thank you. Was that deemed to be a product of his prematurity or of his prematurity and any other particular features of [Baby L] as he was on his first and second day of life?

UKOH: Yes. One of the features that babies who are born early can have, especially the very, very premature babies, but baby [Baby L] was also noted to be small for his age as well, for that age. So those two factors being that he was born early and, not only that, he was slightly small for that age, these two factors could have caused that low blood sugar.

DRIVER: How exceptional a presentation is that in a neonate twin delivered by C-section in these circumstances?

UKOH: Yes, I wouldn't be totally surprised at that. It's not unusual to have a baby who is on day 2, who is needing some extra fluids. I mean, some babies do have everything on fluids and need slightly higher at this level, so it wouldn't ring any red flags to me.

DRIVER: Thank you. You've given us your summary of his general well-being, so I'm not going to go into the detail of your note on examination unless there's anything towards the bottom of the page that you deem to be of particular interest that you'd like to bring to our attention.

UKOH: No, not at this point, no, thank you.

DRIVER: I'm grateful. If we could continue down. In fact, it's over the page, down the note but over the page. Thank you.

So what was the plan of action, as it were?

UKOH: So as I've put here:

"As per protocol to increase to 10% to 2ml."

So this, if I remember rightly, was -- I think the sugars had dropped a bit more. This is why we went up a bit more on the dextrose. That arrow there means an increase. So I think the sugars had dropped off a bit and then we increased the infusion of the 10% dextrose.

DRIVER: Just staying with that first feature of your plan, what is the protocol referred to in your note?

UKOH: Well, there's a hypoglycaemic protocol, which is a protocol -- which is a protocol we follow when blood sugars are low in babies. So you increase the dextrose volume just to make up for the low sugars. There's a protocol on the unit. So that's just following what that protocol is.

DRIVER: Thank you. The second part of your plan, could you expand upon that for us?

UKOH: Yes. When we go up on the fluids, obviously you want to monitor what the sugars are to see if the fluids you have gone up to is having the effect. So what I mean by a pre-feed BM is just to monitor the sugar before each feed.

DRIVER: Thank you. So BM is doctors' shorthand for?

UKOH: BM (inaudible), which is purely blood sugar.

DRIVER: That's a measure of the baby's blood sugar. So is that for a single check before the next feed or is that for a course of checks pre-each feed?

UKOH: Yes, so this will be for each feed. This is just to make sure that the increase in the fluids has had the desired effect, especially when the sugars are running low anyway.

DRIVER: Thank you. We know from the beginning of the note that we looked at here that this was an examination undertaken at 10.20 hours --

UKOH: Yes.

DRIVER: -- on 9 April. Was this plan, was it your desire that this plan would be put into effect immediately thereafter?

UKOH: Yes. So this was the plan after the ward round. What I'd done was a ward round and this would be something that would be taken into effect after. So I would make this known to our nursing staff and then this would be the plan that would be taken on soon after.

DRIVER: Thank you. Having ordered the blood sugar checks, was it part of your responsibility to monitor the results of those checks thereafter?

UKOH: Yes, but it would also be -- basically, we work as a team. So some of these results may not be -- oh, you mean for these pre-feed BMs?

DRIVER: Yes.

UKOH: That would be -- so I am the clinician on duty that day so yes, I would need to be informed by the nursing staff or when I come round to make sure that they are all within normal limits, yes.

DRIVER: Is there a particular reason for that?

UKOH: Oh yes, because if the sugars are too low, we would need to make further management plans. So we would need to go up further or, you know, do some kind of plan to try and treat the low sugars.

DRIVER: So that would be a case of fine-tuning, reacting to the most recent blood sugar measurement?

UKOH: Absolutely.

DRIVER: Correct me if I'm wrong, but I think the next two entries relate to, firstly, the potential for jaundice and addressing that if it arose and, fourthly, a check on the baby's general well-being and assessing the need for antibiotics if required?

UKOH: That's absolutely correct.

DRIVER: I'm grateful. Do you recall thereafter seeing or considering any blood sugar checks for [Baby L]? Do you positively recall it now?

UKOH: To be honest because of the time I can't recall particularly, no.

DRIVER: Have you, before coming to court, reminded yourself of any notes made by you or any results generated by the blood sugar tests?

UKOH: Yes. Some of the -- I do recall -- they must have been quite low because there is a protocol we have called a hypoglycaemic protocol. We'd only do that when the blood sugars are exceedingly low. I know I ordered this test. I can't remember the exact figures. They would be sufficiently low for me to order that screening test and this is to find out why they are low.

DRIVER: Thank you, Dr Ukoh. I'm now going to invite Mr Murphy to take us to slide 111 and to click on a document beneath that slide. Firstly, do you recognise that handwriting?

UKOH: Yes, that is my handwriting.

DRIVER: For the purposes of our presentation, that document appears here in isolation, but shortly I'll invite you to look at it in conjunction with some other documents, but let's see what you remember. The date, the same date, 9 April?

UKOH: Yes.

DRIVER: Could you talk us through the rest of the note, your note?

UKOH: So you mean what's in front of me right now?

DRIVER: Yes, please.

UKOH: This is part of the hypoglycaemic screen, which is a screen we undertake when blood sugars are low. So the Na there, the K and the other figures there are just electrolytes of the body which is part of the screen.

DRIVER: Yes.

UKOH: And the cortisol and the GH there, which is growth hormone, these are two hormones which are part of that hypo screen. But that's not a complete hypo screen, there are many others amongst that.

DRIVER: I'll return to that point in a moment. Next to the heading, "hypo screen results", it reads "(12 noon)".

UKOH: Yes.

DRIVER: From this distance of time, are you able to help us understand why 12 noon is there and what 12 noon relates to?

UKOH: Yes. That 12 noon would have been -- now you've shown me this again, it's kind of reminded me that there was -- there must have been a low sugar at that time.

We wouldn't normally just do that. The hypo screen has to be done at the time of the low sugar, otherwise it's not going to make any meaning. So that time is the time that the low sugar must have been to have done that hypo screen.

DRIVER: Please correct me if I'm wrong, but the evidence you gave a minute or two ago, was that to suggest that the first five entries, although possibly important in other contexts, in terms of addressing the blood sugar levels, are less important than those against which you've put an asterisk at the bottom of the list?

UKOH: Sorry, I didn't quite understand the question.

DRIVER: There are, let me count, seven entries there, do you see, beginning with N and ending with GH?

UKOH: Yes.

DRIVER: Entries 6 and 7 you appear to have marked with an asterisk; is that right?

UKOH: Oh yes.

DRIVER: Any particular reason why you'd do that?

UKOH: No, because it's just highlighting -- I may as well have given it a number. It's just to highlight that the cortisol and the GH, which is growth hormone, are separate entities of the hypo screen. So the first -- the Na, the K, the bicarb, the urea and creatine are all one entity and then the cortisol is separate and then the growth hormone is separate. So there are actually just three entities there, although there are seven that you've numbered. I may well have put cortisol number 2 and growth hormone number 3 here.

DRIVER: I understand your evidence. Which, if any, of these readings would inform you as to the baby's blood sugar level?

UKOH: None here right now because the actual blood sugar is not here. So the blood sugar is actually a part of the hypo screen. Because sometimes when you test, there's a screening blood test you do that can tell you straightaway, but then it needs to go

to the lab to confirm that it's genuinely low. Sometimes it's not always the same.

DRIVER: Taking that in stages, the blood sugar test that you ordered should be done pre-feed?

UKOH: Yes.

DRIVER: Is that a test that is done and the results produced at the cot side?

UKOH: Yes. So the pre-feed BM is what you would get at the cot side. These results here would go to the lab, so you wouldn't get them back straightaway.

DRIVER: So are you able to assist the jury to understand the circumstances in which you made this handwritten note?

UKOH: Yes. So when we order blood tests, when we perform blood tests, we would normally chase up the results to see what they are to further action them. So this is just part of what the hypo screen was, to find out why -- as part of the reason as to why baby [Baby L] was having low blood sugars.

DRIVER: Thank you. Could I ask Mr Murphy to go to tile 190, please. Firstly, do you recognise the format of this document?

UKOH: I'll just take a few moments, if you don't mind, to...

(Pause)

Yes, I do, yes. Thank you.

DRIVER: Is this a document the likes of which you encountered whilst at the Countess of Chester Hospital?

UKOH: Yes.

DRIVER: We can see it's headed "Countess of Chester Pathology".

And then "Lab specimen internal inquiry".

UKOH: Yes.

DRIVER: Is this a reading that would have been generated at the cot side or generated at the laboratory?

UKOH: Definitely not at the cot side. This is a printed document which would have come out from the lab.

DRIVER: Thank you. Can we see your name on this document?

UKOH: Yes. I can see a short form, yes. Also my full name as well, correct.

DRIVER: If we go down towards the bottom of this document, please. We can see at this page there are a number, to the left, of tests listed in the left column; do you agree?

UKOH: Yes.

DRIVER: With corresponding results?

UKOH: Yes.

DRIVER: Just keep going down the page, please, Mr Murphy. It's the end of that report, it says, but let's keep going.

Do you recognise this document?

UKOH: Just bear with me a minute.

DRIVER: Or this type of document I should say.

UKOH: Yes, I do, yes.

DRIVER: What type of document is this?

UKOH: This is a comments at the end of a report that the lab gives, the biochemistry lab. This is kind of a report that they have given.

DRIVER: Thank you. Keep going down, please, Mr Murphy.

Do you recognise this format of document?

UKOH: Yes.

DRIVER: Where and how and in what circumstances are documents such as that generated?

UKOH: Well, it's just giving you -- all this is just giving you more information as to that screen. So all these are elements of the hypo screen that had been performed, just giving it in different ways. So the sodium was part of what I'd -- you'd already brought up -- sorry, that had already come up on the screen.

DRIVER: Yes.

UKOH: The things behind or rather below are all part of the same hypo screen.

DRIVER: Thank you. Let's retrace our steps then and let's go back to tile 111. On tile 111 we see the handwritten note that we looked at a little earlier.

UKOH: Can I please mention, these results are actually part of what you've shown me earlier. So these are the results that we got back. So what you showed me afterwards was a full hypo screen. So these were the results available to me at the time, yes.

DRIVER: Right. So you anticipated my next question. This handwritten note:

"09/04/16, hypo screen results (12 noon)."

From where did you derive the data that you've noted in your handwriting on this page?

UKOH: Do you mean the ones in the brackets.

DRIVER: No, these seven here. Where did you derive that data, where did you read it to transpose it?

UKOH: This would have been on the computer system. So there are some results you can get fairly quickly but there are some more, what would I say, results that take a bit longer, so ones that take a bit longer to analyse by the lab. But these results, the Na, is what you call electrolytes, you'd get them fairly quickly by any lab, they would come straightaway.

DRIVER: Could the cot side test generate the Na result, for example?

UKOH: No. Well, you could... There is something called a gas machine. So if you were to use a gas machine, but I can't recall, we didn't have one of those on our unit at the time. So there is a gas machine that some units have that would generate the sodium, potassium and those other ones. But again, it would not be -- if I remember, I can't recall us having that at the time.

DRIVER: Right. From memory, are you able to tell us whether the reference to 12 noon is a reference to the time of the test, the time of the results or something else?

UKOH: I think if -- with how I have written it, I think this would have been the time the results were -- the time it was actually done.

DRIVER: Right. Go up the screen, please, Mr Murphy. Pause there. Sorry, down just a touch. The bottom of this page, your handwriting, PTO.

UKOH: Yes. Please turn over, yes.

DRIVER: If we were to look at the original exhibit, we'll find that the handwritten note, the 12 noon note, is on the other side of the same document. So we're looking at two sides of a single page on this screen.

UKOH: Yes.

DRIVER: So let's look at the form as opposed to the note.

If we look almost down the middle of the page, where we see the time of 18.26, we see some entries down that column: Na, 140; K, 2.9; urea, 2.3; and is that creatine, 73? Yes?

UKOH: Yes.

DRIVER: Bicarb, 19. If we look down at the handwritten PTO, do those entries correspond to the entries in the column that we've just looked at?

UKOH: Well, there's obviously a discrepancy with time, but because it's been so long, my memory -- what I can remember, normally when I would write 12 noon it would make sense that that is when the results were actually taken.

DRIVER: Yes. Can you recall why you've written some results, some data, on the back of the form?

UKOH: At the back of the actual...?

DRIVER: Yes.

UKOH: Is that the actual form?

DRIVER: Yes. This is two sides of the same piece of paper.

UKOH: Oh yes, because it could just be that I hadn't actually -- I mean, that is part of the -- we would normally put results on there anyway.

DRIVER: If we go back to the printed page, we see that column of data timed along -- below, I should say, 18.26, that time entry, does that represent the time of the test or the time of the results?

UKOH: That would represent the time of the results --

DRIVER: Right.

UKOH: -- because it would take time. So the blood results are done, they have to go to the lab, there might be a time lag between when the results are actually performed and then put on the system. So clearly, that now refreshes me because that time of 12 noon clearly was when the results were actually done.

DRIVER: Yes. Well, can that be right? Dr Ukoh, let's look. It says "Lab or gas sample". And you mentioned that in some circumstances, a gas sample can be undertaken at the cot side and the results received at the cot side.

UKOH: So it says there "lab", so that is actually a lab sample.

DRIVER: So that's a blood sample taken from the baby?

UKOH: Yes.

DRIVER: In his cot?

UKOH: In the cot.

DRIVER: Then?

UKOH: And then taken and analysed in the lab.

DRIVER: Thank you. And according to this document, when were those results received within the NNU from the lab?

UKOH: That I cannot remember, the time it was actually taken -- sorry, it was actually called through.

DRIVER: No, but what does the time 18.26 mean on this form?

UKOH: That is usually -- it doesn't really add up because the 18.26 would have usually been when it was taken. So if you scroll down a bit for me, please. So usually, if I'd put that time there, it would usually -- that 12 noon to me signifies that is when the blood result was actually done. So the 18.26 there doesn't quite add up. It doesn't quite add up.

DRIVER: Let's go back to tile 190 that we looked at a short while ago. Can you see where it says "Received"?

UKOH: Yes.

DRIVER: In this context, does that mean received by whom or by where?

UKOH: That means received by the lab.

DRIVER: Okay. And the date, 9 April, and the time?

UKOH: Yes.

DRIVER: Is?

UKOH: 15.26. Is that 15, isn't it?

DRIVER: I suggest it's 18.26.

UKOH: Right, 18.26. So... Do you mind, please, can we go back to again when -- the actual chart that you brought up...

DRIVER: The one we looked at a moment ago?

UKOH: Yes, please.

DRIVER: Tile 111, please, Mr Murphy. That one?

UKOH: Yes. So it's become very clear that the time there was when it was received, so that wasn't when it was performed.

DRIVER: Right.

UKOH: This is a more accurate -- the chart you showed me before is more accurate. So it may be whoever entered this hasn't actually put in the time that it was done.

I think I would go by what I wrote at the time because I'd put a time and the lab is also more accurate. So the lab had put "received". I believe my colleague who may have done that may have put in the time it was received rather than when it was done. Thank you for getting my memory.

DRIVER: Then if we go down to the bottom of our screen, the reverse of that page, keep going down, please, Mr Murphy, we have "PTO". Then we have "Hypo screen results (12 noon)". Having considered all those documents, what do you say the 12 noon relates to?

UKOH: I still believe if I'd put that time -- I wouldn't put when I received it, this would have been when it was actually done.

DRIVER: When the bloods were taken?

UKOH: Yes, but there is a lag time between when the bloods are taken and when it actually gets to the lab because these are not cot side tests.

MR DRIVER: Thank you, Dr Ukoh. I have no further questions for you.

Cross-examination by MR MYERS

MR MYERS: I'm going to ask some questions, Dr Ukoh, if I can, and try to just clarify some issues if that's all right.

UKOH: Yes.

MYERS: I'll have to move between these documents to try to deal with this. What we've got on T111 -- can we put that up, please? Yes, that bit. What's the point of that?

What's that for?

UKOH: What do you mean?

MYERS: This is on the back of the document above it, isn't it?

UKOH: Sorry, I'm not clear what you're saying. You mean why I wrote it down there?

MYERS: Yes. Why has that been written on the back of the other document?

UKOH: Because there were different -- I believe they were done -- the document in front is obviously not me.

MYERS: Right.

UKOH: It might be my colleague who's on a different shift.

I believe I got this document way before my colleague, who's written that. So they're done at different times.

This is what I would have got way before the other tests.

MYERS: If we go to the document above, if we scroll up, the first part, when was that created, do you know?

UKOH: No.

MYERS: Right --

UKOH: But if you have a look there, it's got dates that will exceed the fourth(?). So it may well be this is all done way after, many, many days later.

MYERS: Yes.

UKOH: It's possible. Because it's not me who -- this is clearly not my writing.

MYERS: No.

UKOH: I mean, I've entered some of them, but, you know, most of them are by my colleagues, so anyone can enter that.

MYERS: Thank you. That's helpful, thank you very much, Mr Murphy.

Then if we look at the bottom that you have written on, on the right-hand side of the screen, Dr Ukoh, is that something you could have written down some time after all of this was done, relating to some of the results that you'd been looking for or waiting for?

UKOH: Results like that would have come -- so the electrolytes, which is the Na, the K, the HCO₃ and the U&E and HCR, they are not cot side but they will come much quicker than what the other tests that were done.

MYERS: Could they have come from a blood gas test, something entirely separate from what's sent to the laboratory?

Could they come from a different test?

UKOH: You mean even the cortisol and the...?

MYERS: Yes, what we've got on the right-hand side.

UKOH: So can I please clarify your question? Are you saying that -- are you asking me if all those -- you know, the first five letters and the cortisol and the growth hormone, are you asking me if they could have come from a gas machine?

MYERS: First of all, let's deal with that. Could they have come from a gas machine?

UKOH: Absolutely not, no.

MYERS: Not the last two?

UKOH: They could have come from a gas machine, yes.

MYERS: Which ones couldn't come from a gas machine?

UKOH: The ones that could never have come from a gas machine are the cortisol and the growth hormone.

MYERS: All right. But exactly where you got that information from, is that something you can't be sure about?

UKOH: Because of how long it's been, going back to the notes I believe this is from -- because I wouldn't put something from a gas machine with the cortisol and the growth hormone. They're completely -- if it was from a gas machine I would have put it that it's from a gas machine. So the way I see it now, this is -- I put everything from the lab together from the lab.

I wouldn't put some from a gas machine and mix it up with something that has come from the lab.

MYERS: If we have a look at T190, please.

UKOH: And sorry, if you don't mind me saying, I think it says -- now I can see it clearly, it's all saying lab, yes.

MYERS: Yes, that's it. Let's see if we can join this all up.

If we go to T190, please. This is the one we looked at where it's got your name, Dr Ukoh.

UKOH: Yes.

MYERS: And you've explained where it says in the line below that "received" -- we think that's 18.26 -- that's when the sample would have been received by the lab?

UKOH: Yes.

MYERS: Right. The sample will have been taken on the unit, will it, at some earlier point?

UKOH: Yes.

MYERS: You don't know precisely when or do you know precisely when?

UKOH: No, but 12 noon is what I have down, so that would have been when I believe that sample -- you see, it's important when you do these tests to put the time, otherwise it's not going to make -- so I believe that time would have been when the blood tests were done.

MYERS: So 12 noon. Then if we scroll down on this, please, if we look at when information is received, did you say not all information is received at the same time?

UKOH: No, they'd get everything at the same time but the lab -- some results are analysed quicker than the others. So

some results -- like as I said, the electrolytes are basic tests, so those would come quite quick. But the other results, like, for example, maybe the insulin or the C-peptide, they would take longer to come because they need a little bit more analysis.

MYERS: If we scroll down and look at this, we've all seen it before but now you have said that -- can you see where it says "insulin" and "insulin C-pep"?

UKOH: Yes.

MYERS: And looking to the right of that it has entered 14 April, do you see that, "14/04"?

UKOH: Yes.

MYERS: So that would appear to be a result that's generated at a later date; is that right?

UKOH: Correct, yes.

MYERS: Okay. There's another document I would like to look at with you, please. It's at T191. Can we go into T191, please?

Having a look at this, we can see it relates to [Baby L]. Then if we look in the box, can you see it says, "Received 9 April 2016, 18.29"?

UKOH: Yes.

MYERS: And that's something -- is that something you sent to the lab then when we see your name next to it?

UKOH: It just means I was the doctor ordering it, yes.

MYERS: You were the doctor ordering it?

UKOH: Yes.

MYERS: It's got readings for glucose and lactate if we look down at the bottom?

UKOH: Correct, yes.

MYERS: And the glucose reading there is 2.8, which is a standard -- within the level you'd hope glucose to be; is that right?

UKOH: Yes. Just slightly -- it is an acceptable level. So above 2.6, yes.

MYERS: Where it says "received", has this been received at the same lab as the other sample or is this received at a different lab?

UKOH: So most of the blood tests will go to the biochemistry lab, which is what this lab is. Most of them, yes.

MYERS: Do you know whether this will have been taken at the same time as the other sample?

UKOH: Which sample?

MYERS: Well, we've looked at the results which had "Received 18.46" next to them.

UKOH: Yes.

MYERS: And this has been received at a lab at 18.29 and this will be from a sample taken from the patient, won't it?

UKOH: Yes.

MYERS: So will the samples be the same sample or two different samples?

UKOH: Yes, so it would be -- so depending on what test is done, they may go to the different sections at different times, yes, but it would be exactly the same sample. Or rather, it would be done at the same time.

MYERS: Done at the same time?

UKOH: Yes.

MYERS: So doing the best you can, the sample that lies behind this test is done at the same time as the sample that lies behind the test with all the readings on that we've been looking at?

UKOH: Correct. That is my understanding, yes.

MR MYERS: All right. Would you give me one moment, please, Dr Ukoh? Thank you very much.

Re-examination by MR DRIVER

MR DRIVER: Just staying with this tile, Dr Ukoh, we can see that the specimen in question that was received at 18.29 -- yes? Are you with me? It has a specimen number or specimen reference. Does each specimen have a unique reference?

UKOH: Yes. The lab uses that to differentiate between different tests, so yes, each one will have a different reference.

DRIVER: Does the lab use it to differentiate between different tests or different specimens?

UKOH: Well, both. Both, because each test would have their own specific reference number, depending on when it was done and also the type of specimen it is. But this is not something we get very much into as doctors. It'd be more what is used within the lab circumstance. We would normally go, for us, for the NHS number, which is the number to the right there.

DRIVER: Perhaps I'll reserve the questions about specimen references for those who practice within the lab then.

But from your experience of working on the unit, will lab results come back as quickly at the weekend as they do on the weekday or was there a distinction?

UKOH: It all depends on the type of test. There are some results that are not actually processed over the weekend, but there are some basic tests, so for example, electrolytes. I keep making reference to the Na, the K and the U: those sort of results are kidney enzymes that you'd get back fairly quickly, but there are some others that they wouldn't even process over the weekend. They have a rule: if it doesn't really change your management, they would not really do it yet.

DRIVER: As a priority?

UKOH: Yes, absolutely, yes.

MR DRIVER: Does your Lordship have any questions for Dr Ukoh?

Questions from THE JUDGE

MR JUSTICE GOSS: I appreciate that you have no clear independent recollection of these events and you're relying on the documents that you've been referred to --

UKOH: Yes.

MR JUSTICE GOSS: -- but in relation to the taking of blood on the day in question, will there have been one sample of blood taken?

UKOH: Yes. When you request a hypoglycaemic screen, these tests are done together. So although they're going to different tube samples, they would all have been done at the same time.

MR JUSTICE GOSS: So the blood will have been taken at the same time?

UKOH: Yes.

MR JUSTICE GOSS: And then subjected to different tests?

UKOH: Absolutely, yes.

MR JUSTICE GOSS: Possibly at different times?

UKOH: Some of the test results, as we've been seeing, may not come back straightaway.

MR JUSTICE GOSS: Exactly, yes.

UKOH: Yes. Because they may not want to do it over the weekend or it's just something that takes longer.

MR JUSTICE GOSS: All right. And you can't speak as to how the laboratory decides what --

UKOH: No, I would leave that to them, I wouldn't want to speculate, no.

MR JUSTICE GOSS: We'll leave that to another day then.

Thank you very much.

Dr Ukoh is coming back?

MR DRIVER: Yes.

MR JUSTICE GOSS: That completes your evidence at this stage, but you are going to be coming back; you'll obviously be informed about when that is. So in the meantime, please do not talk to anyone about anything to do with this case and that is any of the babies involved in this case because you'll be giving evidence about two others, I think.

UKOH: Okay. Thank you.

MR JUSTICE GOSS: Thank you very much indeed.

(The witness withdrew)

MR DRIVER: I think that might be as far as we can go today.

MR JUSTICE GOSS: Yes, thank you. I'm not being critical, it was difficult to follow, but I think I'm seeing light as to where we'll get to and how these things arise.

Thank you very much. So that's it for today, members of the jury. 10.30 tomorrow morning and we will continue. Remember, of course, Friday we're not sitting on this case, so tomorrow is the last working day of the week for you on this case. Thank you.

(In the absence of the jury)

MR JUSTICE GOSS: Mr Myers?

MR MYERS: There will be someone to come down and see Ms Letby.

MR JUSTICE GOSS: Someone will come down in a minute.

Thank you very much.

(4.04 pm)

(The court adjourned until 10.30 am on Thursday, 16 February 2023)