

5 April 2023

Baby Q

[DR A] (recalled)

Examination-in-chief by MR DRIVER

Cross-examination by MR MYERS

Re-examination by MR DRIVER

Questions from THE JUDGE

Witness statement of [NURSE B] (read)

DR JOHN GIBBS (recalled)

Examination-in-chief by MR ASTBURY

Cross-examination by MR MYERS

Witness statement of MS AMY DAVIES (read)

Witness statement of MS KATE BISSELL (read)

Witness statement of DR BENJAMIN LAKIN (read)

Witness statement of DR KATHERINE DAVIS (read)

Report of DR STAVROS STIVAROS (read)

Witness statement of DR HOWYADA ISAAC (read)

DR DEWI EVANS (recalled)

Examination-in-chief by MR JOHNSON

Cross-examination by MR MYERS

Re-examination by MR JOHNSON

Questions from THE JUDGE

Wednesday, 5 April 2023

(10.30 am)

(Delay in proceedings)

(10.40 am)

(In the absence of the jury)

MR DRIVER: My Lord, the digital display that indicates that the DARTS machine is operating is blank at present.

LiveNote is working, I'm informed.

(In the presence of the jury)

[DR A] (recalled)

Examination-in-chief by MR DRIVER

MR DRIVER: [Dr A], could you restate your full name for the recording, please?

DR A: [Dr A].

DRIVER: [Dr A], you've been invited to return to give evidence in relation to your involvement with the patient [Baby Q] --

DR A: Yes.

DRIVER: -- and in particular, as to the events of 25 June 2016.

DR A: Yes.

DRIVER: Have you had the opportunity to refresh your memory from the clinical notes made about [Baby Q] during his time at the Countess of Chester?

DR A: Yes, I have, thank you.

DRIVER: I'm grateful. Do you have a working memory of your involvement with [Baby Q]?

DR A: I have more memory about the following day, but having looked at the notes, I'm aware of what was happening on the 25th.

DRIVER: Could we please go, Mr Murphy, to our tile 103 and the clinical notes that underpin it, please.

Towards the bottom of this first page, is that your handwriting we see at 09.17 hours on 25 June?

DR A: Yes, it is.

DRIVER: I'm grateful. The first line of which bears the letters WR, does that indicate ward round?

DR A: Yes, it does.

DRIVER: Then the next line reads, am I right:

"Called to NNU at 09.17 because of desaturation"?

DR A: That's right.

DRIVER: To read those words literally would imply that you were not in the NNU at 09.17; is that right or wrong?

DR A: It looks as though I was not there at 9.17, I may have been on the children's ward, we may have still been doing the handover from the night team.

DRIVER: Do you have any memory as to how you were called to the NNU at 09.17?

DR A: No, I don't.

DRIVER: Could you please consider the next part of the note?

Does the second line continue to explain why you were called to the NNU?

DR A: Yes, it does.

DRIVER: And what do these next few lines inform the reader of?

DR A: "Had just vomited and then desaturated to the low 60s, minor bradycardia. Bagged with a Neopuff circuit on a pressure of 20/5 in 100% oxygen. Soon returned to 100% [that'll be the saturations]."

DRIVER: Thank you. Could we pause there and can you assist the jury to understand which, if any, of those few sentences you read out are derived from your direct observations and which represent information conveyed to you by somebody else at the NNU?

DR A: Okay. It doesn't state whether it's myself or somebody else. The fact that I used the past tense, I would imagine that [Baby Q] has already vomited and then had a desaturation. "Bagged up in 100% oxygen", I would imagine I was there at that point but not necessarily.

DRIVER: Can you recall from whom you received the information that he had desaturated, just vomited and was in the low 60s?

DR A: No, I'm afraid I don't. It may have been a bleep, in which case it will have been whoever made the phone call.

DRIVER: Thank you. Taking a step back from 09.17 on 25 June for a moment, do you recall that a day or two later [Baby Q] was transferred from Chester to Alder Hey?

DR A: Yes.

DRIVER: And do you recall being involved in that transfer and in the documentation that went with him --

DR A: Yes, I was.

DRIVER: -- to Alder Hey? We'll return to this note in a moment, but just dealing with that, could we go to tile 310, please, Mr Murphy?

There is a transfer letter penned by you and a colleague, I believe. If we could go down that page -- continue down, please, Mr Murphy -- to a section that is entitled "GI/hepatic".

[Dr A], can you tell the jury what the purpose of this paragraph was in this context within the transfer letter?

DR A: So the system that produces these letters gives you pre-formatted headers, such as haematological and GI/hepatic, and it gives you a pertinent place to record those details for each baby who's being transferred.

DRIVER: I'm grateful. In this context what do the letters GI stand for?

DR A: Gastrointestinal.

DRIVER: We can see that in the middle of this entry, under the "GI/hepatic", you make reference to the morning of 25 June 2016.

DR A: That's right.

DRIVER: It's been described here as:

"Profuse vomit with desaturation on morning of 25 June."

DR A: Yes.

DRIVER: Were they your words?

DR A: They are my words, but they will have been taken from the recording made of that vomit, which may well be an observation by whoever was looking after [Baby Q] on that day.

DRIVER: Thank you. Let's go back then to our tile 103 and your clinical notes. You had kindly taken us down as far as the recording of the fact that he'd been bagged via the Neopuff. What was the consequence of that bagging?

DR A: His oxygen saturations returned to 100%, which was ideal, but unfortunately [Baby Q] then continued to have a requirement for PEEP, so it's a little bit of back pressure just to hold the lungs open at the end of a breath, and because of that, he was moved from, I presume, nursery 2 or 3 towards nursery 1, and then started on CPAP, which delivers the same pressure of air but in a more formal way.

DRIVER: That requirement for PEEP, for that positive end-expiratory pressure, I think it stands for --

DR A: Yes, it does.

DRIVER: -- were you able to discern whether that was indicative of the cause of his problems or whether it was the consequence of the earlier problem?

DR A: At that time, no, it was a requirement and whether that was the reason for the vomit or whether it was a consequence of it is impossible to tell, I'm afraid.

DRIVER: So you recorded his movement to nursery 1 because of this requirement?

DR A: Yes.

DRIVER: Then you considered other features of the baby; is that correct?

DR A: That's right.

DRIVER: And the next feature that you considered?

DR A: He has an umbilical venous catheter in situ and therefore he was re-screened and commenced on teicoplanin and cefotaxime, which were, in Chester at the time, the antibiotics for use in case of a line infection.

DRIVER: So taking a step back from that, he was about 4 days old at this point?

DR A: I believe so, yes.

DRIVER: And the UVC in situ, had that been in situ from day 1?

DR A: I suspect so.

DRIVER: At this point, 09.17 on 25 June, was there anything indicative of an infection at or around the UVC?

DR A: No.

DRIVER: Therefore was this a precautionary prescription on your part?

DR A: So this UVC is a long length of indwelling plastic and it is a risk, it takes a direct route into one of the central veins, and I would rather start [Baby Q] on antibiotics and stop

when I know that he doesn't need them than not start and be too late.

DRIVER: Is that an established potential for infection?

DR A: It is, yes.

DRIVER: And therefore an established precautionary response?

DR A: That's right.

DRIVER: Could you please, Mr Murphy, take us to the next entry?

What does this show?

DR A: So I will have placed a cannula at this point and the blood tests that are recorded on the end of the previous page will have been taken. One of those, because there was venous blood available, was a venous gas.

DRIVER: Thank you. There is a file in front of you, the one at the top has a number 2 on the spine. Behind divider 22 there's a small bundle of documents from [Baby Q]'s file, as it were, and it's variously paginated but in the top right corner there's a three-digit pagination stamp. Could you please go to page 008?

If you could look, firstly, please, at the entries for the morning of 25 June?

DR A: Yes.

DRIVER: We can see at 06.58, at a point in time when [Baby Q] was self-ventilating in air, there was a blood gas taken, measured and recorded. Are you able to evaluate those readings, [Dr A]?

DR A: Certainly. This is a very acceptable gas for a baby of 31 weeks and 4 days. A pH of 7.296 is ideal. A CO₂ of 6.86, looking at the trend of those, is not changing very much. The oxygen from a capillary gas, we don't really look at. The bicarbonate is normal. The base excess is a little bit above what I would like it to be, but it's only changed a little from the previous gas from the evening of the 24th. Blood glucose and blood lactate are normal.

DRIVER: Thank you. So that's at 06.58, which is the last reading prior to the episode about which you were called to the NNU to care and examine [Baby Q]. The next we see is timed at 09.56. What can you tell us about that reading?

DR A: This is the gas that is recorded in my notes as venous on this chart. It has a C in it, which would suggest capillary. I suspect that that's been recorded wrongly.

DRIVER: So do you, by that, suggest that you prefer your note?

DR A: I think that to have stated that it was a venous gas, with having taken a blood culture at the same time which has to be venous blood, I think that this was a venous gas.

DRIVER: I'm grateful. Can you evaluate that gas?

DR A: This is markedly or different to the previous gas at 06.58. The pH is lower, the carbon dioxide is higher, so this is a respiratory acidosis. The bicarbonate is much the same. The base excess has increased to minus 6 from minus 2.8. The blood glucose is acceptable, but again the lactate has increased from 1.2 to 4.0.

DRIVER: Thank you. So before we move away from the blood gas record chart, in addition to the data you just looked at, there is under the column "type", the record-maker, presumably the nurse, records that prior to the vomit he was self-ventilating in air, but as you've told us, thereafter he received respiratory support.

DR A: Yes.

DRIVER: Thank you. Could we focus on the screen then, please?

This is a continuation of the note that you timed at 09.17, but as we look at the next entry, is there a further time noted within there?

DR A: Underneath the date at the top left, it just says "continued". And it is likely that I will have gone to [Baby Q] at 09.17 and not left him, having just continued my initial assessment of him, the intervention of taking the bloods and the gas, and then I start on the formal ward round review, which he would be due to have that morning anyway.

DRIVER: Thank you. Below the venous gas data, you've recorded that sodium chloride was provided to [Baby Q].

DR A: Yes.

DRIVER: And do you time --

DR A: 10.10.

DRIVER: So that at 10.10 is a record of a timed event?

DR A: That's right.

DRIVER: It follows, therefore, that everything thereafter must be --

DR A: Is 10.10 and beyond, yes.

DRIVER: So is this now then part of your ward round review of [Baby Q]?

DR A: If the preceding events hadn't happened, this would be where I'd normally have started.

DRIVER: Understood. So you begin, as we see from your notes in relation to other patients, by stating his age, gestational age and the like. Does the next line represent some of his history?

DR A: It does.

DRIVER: Can you help us with the next two lines after the reference to the placenta, which is something to do with [Baby Q]'s attachment to his mother?

DR A: That's right. So placenta previa and accreta were the reason, we presume, for his early delivery.

DRIVER: Yes.

DR A: His next line is jaundice with a bilirubin of 220, which at 31 weeks of gestation will have required treatment.

We've presumed secondary sepsis and then I move on to his ventilation review.

DRIVER: May I ask what's the basis of that presumption?

DR A: So this refers to the notes that are written prior to 10.10, that he's had a vomit and a desaturation and with a UVC in situ, I am treating for presumed infection.

DRIVER: The next entries come alongside the letter V; is this ventilation?

DR A: It is.

DRIVER: Do you there detail the ventilatory regime that you set him on because of the earlier desaturation?

DR A: Yes.

DRIVER: In summary, could you tell us what that records?

DR A: So he's receiving CPAP, so continuous positive airway pressure, with a peak end-expiratory pressure of 6 centimetres of water, and that's set on the machine.

That's the residual pressure that [Baby Q]'s lungs are inflated to at the end of a breath. His oxygen requirement being delivered through the machine is 25%, and I have commented that his nasal septum is intact.

[Baby Q]'s oxygen saturations are 99% in 25% of oxygen and his heart rate is now 160 beats per minute, having had a bolus at 10.10. They were previously between 190 and 200. His respiratory rate is still elevated at 70 to 80 breaths per minute.

DRIVER: Thank you. Comparatively, comparing events after 10 -- his presentation, forgive me, after 10.10 as compared to 09.17, how was he after the passage of an hour or so?

DR A: With that bolus of sodium chloride being given, I've managed to reduce his heart rate, so he's not having to work as hard to pump blood around because the volume in his venous system is increased.

DRIVER: And in terms of his general stability?

DR A: He's no longer needing 100% oxygen through a Neopuff, he's only needing 25%, and in that he has oxygen saturations of 99%.

DRIVER: If Mr Murphy could take us down the page, please. F, is that feeding?

DR A: Feeds and fluids.

DRIVER: What was the regime as dictated by you?

DR A: So at this moment in time he is nil by mouth and he is receiving IV fluids, which are the parenteral nutrition fluids stored in a fridge on the unit, and he is receiving Babiven Start-up, which is the proprietary name for one of the electrolyte solutions, it contains the salts. He is receiving 9ml per hour and the lipid component of his parenteral nutrition is a brand name called SMOF, and he is receiving 1.29ml per hour of that to give him a total fluid volume of 120ml per kilo per day.

DRIVER: Thank you. He passed urine, the notes suggest?

DR A: Yes.

DRIVER: And then did you record his presentation upon examination?

DR A: Yes. That's the next few lines.

DRIVER: You record that he was settled, which speaks for itself.

Did he have a rosy appearance, but was also a bit yellow?

DR A: Both of those at the same time, yes.

DRIVER: Thank you. You record that he was under phototherapy for the jaundice, we presume, is that correct?

DR A: He is and his treatment line at day 4 of life is 210.

So I recall from the transfer letter that you showed me just now that his bilirubin had been at 220 and we would only normally stop or reduce the phototherapy when the patient is 50 below the treatment line.

DRIVER: Thank you. The next two entries, can you take those together, please?

DR A: Certainly. His heart sounds are 1 plus 2 plus 0, which are normal heart sounds in neonates and children and adults. His femoral pulses were palpable on both sides of his groin. His peripheral perfusion was better since he'd received that bolus of 10ml per kilo. And his blood pressure is 69/37mmHg, and his mean arterial pressure is 50. That will have been recorded on the machine that measures the blood pressure at the incubator side. His chest is clear, there are no additional sounds at this time, his abdomen is soft and non-tender, his umbilicus looks normal, there's no flare or redness around it, and his anterior fontanelle is soft, his tone and movements are normal.

DRIVER: In the absence of a flare around the UVC, is there any significance that can be attached to the absence of that finding?

DR A: Yes. So if there is a flare or redness around the umbilicus, that suggests that there is an infection of the skin at that point and because there is then an open route down into the abdomen through the umbilical cord, it's taken as a significant finding. In this instance there was no flare, there was no redness and his abdomen was soft at that time. These were reassuring things, but he still had the UVC in situ.

DRIVER: Understood. But redness or a flare would be something that would tend to confirm infection in --

DR A: That's right.

DRIVER: -- or around the UVC?

DR A: Yes.

DRIVER: So having thoroughly examined him and recorded the pertinent features of that examination, what was your general impression as recorded towards the bottom of the screen?

DR A: The first line is:

"Presumed sepsis with secondary jaundice."

So I'm recording that -- jaundice can increase during infection, it's an associated sign. Then line 2 is:

"Poor gas, [query] aspiration."

And that refers to the large vomit and subsequent desaturation down to the 60s, requiring now CPAP.

DRIVER: Could we pause there and expand upon that a little if you would?

DR A: Certainly.

DRIVER: The poor gas, is that the reading at 09.56 that we looked at on the chart?

DR A: Yes, it is.

DRIVER: Thank you. So, "[Question]..." -- does that say "aspirant"?

DR A: "Aspiration."

DRIVER: So what is it that you're noting there, please?

DR A: I'm raising the query that following that large vomit, [Baby Q] may have inhaled some of the vomitus into his chest, which was responsible for the poor gas and may then lead on to infection in subsequent hours and days.

DRIVER: So you're noting and raising the possibility that the readings may be the consequence of the vomit as opposed to the cause?

DR A: That's right.

DRIVER: So your plan of action?

DR A: So:

"Start IV cefotaxime and IV teicoplanin. A gas 1 hour after starting CPAP. Chest X-ray. May need metronidazole if evidence of aspiration."

DRIVER: Thank you. Let's see how that plan was put into effect, please, in part, if we go to tile 131. Part of your plan was for a further blood gas to be taken in about an hour's time; is that correct?

DR A: That's correct.

DRIVER: Is that where we are now? We see that collected at 11.21 that morning, so about an hour later.

DR A: I suspect that the samples were requested earlier than 11.21 because they'd been received in the laboratory at the same time they were collected and that can't be the case.

DRIVER: We know from the note we've just read that that was post 10.10?

DR A: Yes. It was around about 10.10 because he will have had the bolus, the blood culture and gas, and the other bloods that I listed there will have been collected at the same time.

DRIVER: And that note included a plan for a gas in a hour hence --

DR A: Yes.

DRIVER: So we won't get hung up on the precise time that the gas was taken. More importantly, what do the results inform you?

DR A: On this top set of results, this is his biochemistry readings, his sodium is normal, his potassium is normal, his bicarbonate is a little low, it's just a shade under the reference range, his urea is high, his creatine is at the top end of normal, and his bilirubin is 146, again that would then be referenced to the bilirubin treatment charts which are gestational age specific.

DRIVER: Thank you. What conclusions can be safely drawn from those results?

DR A: Biochemically, [Baby Q] is a little dry at the moment, he needs more fluid. That may well have been partly responsible for his increased heart rate in the 190-200 range that we have discussed just now.

DRIVER: What, if anything, does it inform you of, of the causal relationship vis-à-vis the vomit?

DR A: It doesn't give me an explanation of why it is, it just tells me what it is and then from that I draw conclusions and then make a treatment plan.

DRIVER: Thank you. If we just look at the paper document, the blood gas record, we can see that there was a gas taken at 11.12 according to the paper document.

DR A: Yes.

DRIVER: Is that this reading?

DR A: No, the results that are here are the biochemistry and haematology results. The blood gas will have been done locally within the neonatal unit.

DRIVER: Understood. But whilst we're on that row, could you evaluate those blood gas readings from 11.12?

DR A: Certainly. His pH has normalised and it's better than the reading at 6.58 that morning. His carbon dioxide has come down to an acceptable level because of that peak end-expiratory pressure that's allowing him to blow off more carbon dioxide. Oxygen, again, is not really commented on on a capillary or venous gas. His bicarbonate has changed slightly but not much. His base excess has halved in the time since the bolus and the CPAP started and, by the look of this record, he is no longer in 25% oxygen but down to 21%. His glucose is very slightly increased but his lactate has come down nicely and is pretty much the same as it was at 6.58 in the morning.

DRIVER: Thank you. We know that another feature of your plan was the suggestion that an X-ray should be taken.

DR A: That's right.

DRIVER: If we go to tile 135, we see an X-ray timestamped at 11.52 that morning.

DR A: Yes.

DRIVER: If we go down to, please, consider the analysis of it.

What does that X-ray tell you and how does that inform your assessment of the vomit and desaturation that was the reason why you were called to him in the first place?

DR A: So the second half of this report is the bit that's pertinent to his chest. There is mild interstitial shadowing with a trace of fluid in the horizontal fissure. There is no focal collapse or consolidation.

So this doesn't suggest that there is a large amount of foreign matter in his lungs, it doesn't suggest that he's had or is evolving a chest infection. The reason for doing the chest X-ray is to see whether those things are there at that time and are responsible for the collapse and it appears not.

DRIVER: I'm grateful. I think there's a later X-ray at tile 163. We'll look at that while we're considering the X-rays -- no, I think this is just your note then of the consideration of that. But let's click on here, please.

So did you return to see [Baby Q] at 13.50?

DR A: Yes. I've recorded the chest X-ray and the blood test results and then I've documented a plan. It looks as though I have signed off there, so I may or may not have examined him. I suspect not if I've not recorded it.

DRIVER: So is this a note of your consideration of the chest X-ray we've just looked at and the earlier blood results?

DR A: That's right.

DRIVER: I'm grateful. And the plan was?

DR A: To increase the fluids and we can go a day ahead. So instead of remaining on 120ml per kilo per day -- to go up to 150ml per kilo per day.

DRIVER: Is that because of features within those blood analysis which led you to think, in simple terms, he needed more fluids?

DR A: There's three numbers there that have made that my plan: it's the urea being elevated at 7.9, the creatine being just at the top end of that reference range, 70, and the haematocrit, which is a measure of concentration of cells within the blood is on -- it's not very high but I would prefer it in the 0.3 range and giving extra fluids will reduce that.

DRIVER: Is that the white blood cells evaluation or is that something different?

DR A: No, so the white cell count listed here is 7.4. Of the white cells, I then go on to document the neutrophils and the lymphocytes, which are -- they've got different roles in fighting infection. His platelets here are a little bit low.

Again, that is a suggestion of infection or bleeding. The haematocrit is a measure of concentration and [Baby Q]'s blood here is a little bit more concentrated. That supports the fact that his urea is slightly raised. By giving more fluid, the urea number will come down as a waste product and the amount of concentration of cells within his blood will settle.

DRIVER: In summary, how did you assess the white blood cell readings?

DR A: The white cell count is not significantly raised but this is all within an hour or two of his initial deterioration. This white cell count number reflects what's going on at the time of taking the sample, it doesn't tell you what response [Baby Q] would have had from that -- or from an infection developing.

DRIVER: Is it capable of informing you of cause or effect?

DR A: The trend of the neutrophils and the lymphocytes are recorded there as NX and LX: if the neutrophil count goes up, that suggests bacterial infection; if the lymphocyte count goes up, that suggests a viral infection. These are both perfectly normal at this time. But the platelet count is something to keep an eye on: I would normally expect that to be in the sort of 140s/150s.

DRIVER: Thank you. If we go down the page, Mr Murphy, we can see a further entry, again your handwriting, at 19.20.

DR A: Yes, it is.

DRIVER: Which records gases taken at 18.22 which peculiarly, I don't think, appear on the blood gas record, unless I'm mistaken.

DR A: No, they don't.

DRIVER: I'm not aware of any other document that evidences that particular reading, I stand to be corrected, but plainly, you've obtained this data from somewhere.

DR A: If it's not recorded in the chart that you have provided here, the blood gas machine produces a paper slip and it's that that's taken back to fill in this chart.

I suspect I will have seen that that paper clip was clipped on. There's bulldog clips across the top of the recording chart and I presume I've read it from there.

DRIVER: We've heard previously a paper slip referred to as something vaguely resembling a till roll (overspeaking) --

DR A: Essentially, it is very similar, yes.

DRIVER: Is that what you're referring to?

DR A: Yes.

DRIVER: How are the gases at 18.22?

DR A: This is an acceptable gas. The pH of 7.289 is down a little from the one at 4.20. The carbon dioxide is up a little. Base excess again has increased a little.

Glucose is normal. The lactate has continued to stay around about 1.2/1.3.

DRIVER: Did you comment on the pH level?

DR A: The pH -- no, I possibly didn't. It is an acceptable pH for a baby on CPAP.

DRIVER: If we look at the paper document, how does it compare to the previous pH?

DR A: Compared to the one at 16.18, it is down a little but not much.

DRIVER: Thank you. The next part of your 19.20 note, please?

DR A: So on review, respiratory rate is trending down with the respiratory rate currently 18 to 20 breaths per minute, starting to look tired, which then clarifies some of the points from that gas. If the respiratory rate is trending down, [Baby Q] will not have as many breaths in which to expel carbon dioxide, so he will be retaining it, which is why the PCO₂ there is 6.72, whereas it was 5.95 2 hours ago.

Looking tired whilst being on CPAP suggests that there's a lot of effort being put into breathing and if he is looking tired with results that are starting to turn towards a more respiratory acidosis, then it's time to intervene.

DRIVER: And if we look at the page beneath, we'll see your intervention. If Mr Murphy could take us down. For the reasons that you have just explained to the jury, did you deem it appropriate to discuss the position with Dr Gibbs?

DR A: I did.

DRIVER: What was your joint conclusion?

DR A: I will have explained my observations of [Baby Q]'s breathing and this most recent blood gas result and with [Baby Q] looking to me as though he's tiring, it's the decision to intubate him now rather than wait for him to have a respiratory collapse.

DRIVER: So negative indicators and intubate before he tires further, if indeed that was his direction of travel?

DR A: That's right, yes.

DRIVER: So you and Dr Gibbs, having arrived at that joint decision, did you share it with [Baby Q]'s parents?

DR A: Yes. I've recorded here:

"Discussed with parents."

And this was performed -- I probably mean "undertaken". I discussed this with his parents prior to his intubation and explained the clinical grounds, why it's necessary to intubate and ventilate.

DRIVER: I'm grateful. Then does the next entry set out the intubation?

DR A: It does. I'm listing the intubation -- the pre-intubation drugs given at the time of intubation and then the size of tube and the length to which it's secured.

DRIVER: In summary, was that just a normal intubation process?

DR A: Yes. I see here I've placed that tube on the first attempt and I've put a tick next to capnograph, suggesting that there was normal colour change on it.

DRIVER: Can Mr Murphy take us further down the page then, please? What was the plan hereafter, post-intubation?

DR A: So he's been connected to the ventilator and the mode of ventilation is continuous mandatory ventilation, so this is going to deliver breaths for the rate that is set, not measuring [Baby Q]'s effort of breathing. The inspiratory pressure is set at 18 centimetres of water, the PEEP is set at 5 centimetres of water. He is in the same oxygen concentration through the ventilator as room air and the inspiratory phase or the part of the breathing cycle is set at 0.4. That means that the expiratory phase is -- the out-breath is longer than the in-breath. His respiratory rate is set at 40, so the machine will deliver 40 breaths per minute.

DRIVER: Thank you. A further chest X-ray was requested. Was the plan to take a further blood gas -- is that your shorthand for an hour's time?

DR A: It's 1 hour after intubation so we can see what the ventilation is doing in terms of his respiratory function.

DRIVER: Some more sodium chloride was deemed appropriate; is that right?

DR A: I think just at the top of that page, I may have commented on the fact that his heart rate had started to rise again and his blood pressure was slightly lower, so this is more fluid volume to support that circulatory volume. And then point 3, I've said that he needed another 100 micrograms per kilogram of morphine due to agitation and attempts at self extubation. So I think he was wriggling around, holding on to the tube, and without a little bit more sedation he may have pulled the tube out and required intubation again.

DRIVER: Hence the morphine?

DR A: And then his background rate of morphine to give that ongoing sedation to tolerate the tube is increased to 40 micrograms per kilo per hour.

DRIVER: This is a note made at 19.20 and we know from the outset of your evidence that you've been in the hospital since the morning. Are we now approaching the end of your shift?

DR A: It's towards the end, yes.

DRIVER: And how was [Baby Q] when you handed care over to the night shift?

DR A: I will have explained what had happened over the course of the day and given some background of what the X-ray had shown and the antibiotics and their proposed reason and then that he is now ventilated. Any baby who's ventilated is going to need a review by the night-time team and they need to be mindful of blood gas tests taken overnight in case his ventilation settings need changing.

DRIVER: May I just remind the jury that [Dr D] the night shift, as it were, and she already gave evidence ahead of [Dr A] about her observations and her review of the X-ray that [Dr A] recommended should be taken. For logistical reasons, we had to take that out of time sequence.

[Dr A], did you return to look after [Baby Q] on the morning of 26 June?

DR A: Yes, I did.

DRIVER: And, Mr Murphy, could you please put up -- I think they're in the additional file, [Dr A]'s clinical notes, at J24199. Is it possible to enlarge it a little? I'm not going to go through each and every line of these notes, [Dr A], but there are a few features of it I'd like you to assist us with. In your first paragraph you include, at the final line of that paragraph, a reference to bilious aspirates.

DR A: Yes.

DRIVER: "Noted [does that say] this morning"?

DR A: This morning, yes.

DRIVER: We'll return to that in due course. If we go to the next section, the middle section of this page, Mr Murphy.

Under the F for feeds and fluids, as you told us earlier, the penultimate line there, again, is a reference to bile; is that right?

DR A: Yes, there is.

DRIVER: And you record that 0.5ml of dark green bile -- could you complete the reading of that sentence for me?

DR A: Sorry, yes. The sentence is:

"Bile: 0.5ml of dark green bile per OG tube since 08.00."

DRIVER: We can see the top of the page this is a note made at 10.25.

DR A: That's right.

DRIVER: Is this information provided to you by a third party or information discovered by you directly?

DR A: Given that it's since 08.00, I would presume that it has been observed by the member of staff looking after [Baby Q]. It may well have been left in a tube to look at. So on the desk next to the incubator, samples or aspirates are sometimes held there until they've been seen by the ward round.

DRIVER: Is there anything within your note to assist the jury understand whether this is information provided to you verbally or information discovered by you upon inspection?

DR A: This will not have been me. I wouldn't have been able to measure 0.5ml of green bile. The aspiration of the OG tube is done as regular part of the -- part of the regular care cycle, so I presume this has been since the start of the day shift.

DRIVER: Could we look at the bottom of this page, Mr Murphy? I'm grateful.

GI, which you've already educated us about, what was your GI examination (overspeaking) --

DR A: I've said:

"Abdomen is soft and there's increased bile per OG with right upper quadrant palpation. No palpable liver, kidney, kidney or spleen."

DRIVER: Could you help us understand the bile reference there, please?

DR A: This looks as though when slight pressure is placed on the right upper quadrant of the abdomen, so the bit just where the ribcage ends on the right-hand side, that there is bile showing itself into the OG tube. So just with light pressure on [Baby Q]'s abdomen, a little bit like a column of water, as I press on it I can see movement of a green liquid. Now, whether that's liquid that's remained in the OG tube since the half a millilitre was aspirated at some point after 8 o'clock, I can't say. But the fact that it's there and it's green and it's bile is a significant finding.

DRIVER: Could we go to the next page and look at the continuation of your GI note? What does the first entry inform us of?

DR A: It says:

"No audible borborygmi."

So that's no bowel sounds, there's not the normal gurgle and flow of sounds through his abdomen. So this finding tells me that his abdomen is -- his bowel has stopped and is something called an ileus. There's no blood at the tail end seen or recorded from the -- collected in the nappy. His genitalia and anus look normal. There are small loops of bowel palpable on light palpation. His umbilicus is normal. There's no flare and there's no redness.

DRIVER: Let's return to the topic of bile against the background of those observations. If we look at our -- on the paper bundle, it's page 5 using the pagination at the top right. We can

perhaps read it more -- it's very small and it's been reproduced. If we put up on screen, please, Mr Murphy, the document behind tile 303.

If we could look to the right of the page and the entries, please, at 03.00, 06.00 and 08.00 hours.

If we just orientate ourselves at the column headed "NG". From memory I think it says "aspirates and vomit". It's cut off there, isn't it? If we look at that column and see what was recorded by the nurse AD at 03.00 hours and then 06.00 hours and then the nurse KB at 08.00 hours.

DR A: Yes.

DRIVER: So when describing bile -- your notes about bile, you made reference, I think, correct me if I'm wrong, to the fact that you may have been provided this information by the nurse or nurses directly or derived from the charts. These were the charts you were referring to?

DR A: Yes.

DRIVER: What do those entries tell you?

DR A: At 3 o'clock and 6 o'clock there was nothing recorded and at 8 o'clock there was 0.5ml of dark green bile.

DRIVER: So putting that information together with your abdominal examination as of 10.25 on 26 June, what was the picture that morning and what did that provoke you to do?

DR A: So bile generally means that the bowel is not working in its normal function and the fact that bile from the gallbladder has made its way back up to the stomach and is then being aspirated out is worthy of looking for more information and seeing what is going on with this baby.

DRIVER: And what did you do to seek out more information?

DR A: There will have been an abdominal X-ray and I may well have used a light to see if that showed any signs in his abdomen -- I forget, I'm afraid.

DRIVER: If Mr Murphy could take us back to J24200. At the bottom of the page, is that the abdominal X-ray that you've just referred to?

DR A: It is, yes.

DRIVER: Or your notes of your consideration of the abdominal X-ray, more accurately. What did you discern from that?

DR A: So there is a dilated loop of bowel in the right upper quadrant. There's no other gas seen throughout the abdomen. It's essentially featureless. I then discussed with Fiona Murphy, who was the surgical registrar at Alder Hey -- the images had been transferred electronically to Alder Hey and reviewed by her and she has then contacted the neonatal unit, probably directly through to me, at approximately 1 o'clock, that there is a bed available on the intensive care unit at Alder Hey.

DRIVER: The next page, please, Mr Murphy, finally, page 24201.

The top of the page records your continuing communication with Alder Hey and the transfer --

DR A: Essentially, yes.

DRIVER: -- to Alder Hey, the fact that [Dr B] was informed.

So is it right that this was done at your instigation because of your examination and piecing together of all the information on the morning of the 26th?

DR A: Yes. The bile led me to want to look for a cause. That dilated loop in the right upper quadrant was a significant feature and, following discussion with the surgical specialist at Alder Hey, Fiona Murphy has made the decision that she needs to see [Baby Q] and has arranged for a bed for him at intensive care.

DRIVER: I'm grateful. The final entry on this page, timed at 18.00, again by you, does this record the events, the arrival of the transport team and [Baby Q]'s transportation and the verbal handover to your colleagues at Alder Hey?

DR A: So this is -- yes, this is my recording of the events from about 15.30 to 18.20. There will have been some requests for a repeat chest and abdo X-ray prior to loading him into the transport incubator. And there's some other medications given prior to leaving the neonatal unit and I've given a verbal handover to the intensive care transport nurse, Lisa, and then the Badger discharge letter that you showed me earlier on has been prepared for transfer, and [Baby Q]'s left the unit at 18.20 in the evening.

DRIVER: I'm grateful. Which letter, my Lord, is behind our tile 310, but I don't intend to take [Dr A] to any other features of it.

Is that just a formal document that reflects that which you've recorded and --

DR A: That's right.

DRIVER: -- told us about already?

DR A: Yes.

MR DRIVER: I'm grateful. Could you remain there and answer any further questions?

Cross-examination by MR MYERS

MR MYERS: One moment, please, [Dr A].

DR A: Certainly.

(Pause)

MYERS: [Dr A], thank you, I'd like to go back now just to piece some of this together and ask you some further questions. I would like to start, please, with tile 103, which is your initial attendance at the unit.

Just go behind that, please, Mr Murphy. If we scroll down, thank you.

You arrived on the unit, [Dr A], at about 09.17; is that correct?

DR A: Around then, yes.

MYERS: So is it the case that whatever had taken place, it seemed a fair amount of the activity had happened already at that point?

DR A: Yes.

MYERS: Whatever the nature of the vomit, that was something that was described to you, it wasn't something that you saw; is that right?

DR A: That's right.

MYERS: Desaturation, is that to low 60s, is that what it says?

DR A: Yes.

MYERS: And a minor bradycardia; do you recall who said that or do you not recall?

DR A: I don't, I'm afraid.

MYERS: You say it may have been that the Neopuffing and the bagging was going on when you arrived?

DR A: Yes.

MYERS: We can see a couple of lines below that, it says:

"Soon returned to 100%."

Does that mean 100% saturation of oxygen?

DR A: That's right.

MYERS: It was after that, because of the requirement for some breathing support, that [Baby Q] was moved to nursery 1?

DR A: Yes.

MYERS: And he remained on CPAP --

DR A: That's right.

MYERS: -- at that point? Thank you. If we scroll forwards -- that was at about 9.17 and if we scroll forwards to the ward round at 10.10, on to the following page, please, Mr Murphy.

We know, if we just look a little bit further down, please, on that page, if we look at on examination, OE, the first thing you have written there, [Dr A], is "settled"?

DR A: That's right.

MYERS: We'll have a look at a couple of the features that you have included there, but is it the case that whatever had happened that you attended at 9.17, relatively rapidly, [Baby Q] was stable and settled from that?

DR A: Yes, it does.

MYERS: Right. I say that because in this case, as you know, we've seen a variety of different types of incident and a variety of different sorts of deterioration.

What we have here is an incident at 9.17 but then a relatively rapid stabilisation; would you agree?

DR A: Yes.

MYERS: Looking at some of the aspects on that examination, a couple of lines down, heart sounds, they were normal?

DR A: Yes.

MYERS: The femoral pulse was normal?

DR A: That's right.

MYERS: Blood pressure acceptable. It's in an acceptable level, isn't it?

DR A: It is, yes.

MYERS: I'm going to ask you to keep your voice up a little bit.

DR A: I'm so sorry.

MYERS: That's all right. It's me that's speaking loudly, but if you keep your voice loud, we can all follow that.

DR A: Will do.

MYERS: The anterior fontanelle is soft?

DR A: Yes.

MYERS: So that's the part on the skull which helps you check there's no pressure that's building up and no concern that way; is that right?

DR A: That's right.

MYERS: We looked at the blood gas, which was taken at this time and I'm going to ask, and I apologise that we're moving between screens, we have it in paper but I'm going to ask Mr Murphy to put up tile 79 which has it on there as well. But by all means make reference to the paper, [Dr A], ladies and gentlemen, if you have it.

If we scroll a little bit further down the page -- there we go, thank you. If we look at the picture with the blood gas -- and I'm looking, [Dr A], at those entries for 25 June where we've got 6.58, and then an entry at 9.56, and then an entry at 11.12. So I'm looking at three entries there.

DR A: Yes.

MYERS: And if we keep in mind your evidence on the 9.56 blood gas is that actually that was venous, not capillary.

DR A: Okay.

MYERS: But at 6.58, do you agree, that seems to be a good or a relatively good blood gas picture for a baby like [Baby Q]?

DR A: Yes, it does.

MYERS: 9.56, which is a little while after the incident that you were called to, some of the readings indicate an acidosis that's taken place; is that right?

DR A: Yes.

MYERS: And in particular, you looked at the drop in pH down to 7.194 and the increase in carbon dioxide to 8.17 and the base excess has dropped to minus 6.6?

DR A: Yes.

MYERS: But bearing in mind what you were saying about the ward round at 10.10 and settled and the reading -- your examination of him then, if we look at 11.12 that actually shows an improvement then in the blood gas, doesn't it?

DR A: It does.

MYERS: And that's an acceptable position on the blood gas for a baby in [Baby Q]'s position; is that right?

DR A: Yes.

MYERS: So at this point, plainly a baby that you would want to keep under observation because you were questioning why it is that there was that incident at 9.17; is that right?

DR A: That's right.

MYERS: But at this point no obvious ongoing deterioration in progress that you identify?

DR A: No, no, not at all.

MYERS: Not at all. If we move forwards to the next entry then, which is at 13.50, and that was tile 163. We can probably see the whole of this entry if we just scroll down a little bit in one go. Thank you.

Reviewing [Baby Q]'s position overall, as we see this, it's got "chest X-ray" at the top. There was nothing on the X-ray that was a major cause of concern; is that correct?

DR A: That's right.

MYERS: It seemed relatively normal, is that fair --

DR A: Yes.

MYERS: -- from the X-ray?

DR A: Yes, absolutely.

MYERS: From the blood tests, the electric lights, the chemicals in the blood, they were normal; is that right?

DR A: The sodium, potassium, recorded there, they are normal, yes.

MYERS: The creatine you have said is a little elevated, a little high?

DR A: It's at the top end of the normal range. I think for [Baby Q]'s age, the accepted normal is up to 71.

MYERS: All right. And combined with the urea, which is the UR reading that we can see, which is a little raised, that indicates he may be dehydrated; is that right?

DR A: That's right.

MYERS: You've gone through the various reading, you identified for us that the platelets were a little on the low side, they should be 140, but they're down to 95?

DR A: Yes.

MYERS: But again, generally, the picture, I'm going to suggest, is a baby that seems pretty stable at this point?

DR A: Yes.

MYERS: Requiring fluid; is that right?

DR A: That's right.

MYERS: And again, to watch carefully because of what had happened earlier and because some of the readings, like the platelets, indicate there may be something to -- an underlying problem, possibly?

DR A: Yes.

MYERS: We can scroll down the page, just keeping in mind the picture we have of [Baby Q], to 19.20, which is your next entry, [Dr A]. The first entry that you've written in the notes at that point, the first thing is to put down the blood gas readings for 18.22?

DR A: Yes.

MYERS: And in general, is it your evidence that they are -- that's an acceptable gas?

DR A: It's a gas that's improved from the previous one and the direction of travel is acceptable.

MYERS: Right, thank you. So there's been an improvement, it's acceptable. So, so far as that is concerned, a significant improvement from where you were earlier that day at about 9.17?

DR A: Yes.

MYERS: Indeed, during the day up to this point, [Baby Q] appears to have been stable?

DR A: Yes.

MYERS: And a general improvement, but matters to watch; would you agree?

DR A: Yes, I would.

MYERS: However, what you do identify at this time is that he appears to be getting fatigued, he seems tired?

DR A: Yes.

MYERS: And is that the reason he was then intubated to help him with breathing, with respiratory effort?

DR A: Because he was tiring and in order to prevent a respiratory collapse or arrest, yes.

MYERS: After that had happened, your shift came to an end; is that correct?

DR A: It will have done shortly after that.

MYERS: And the picture at that point was that [Baby Q] was stable and ready to be handed over to the night shift?

DR A: Yes.

MYERS: That's the picture as it was when you finish at 19.20 that evening.

I'm going to move forwards then to where we pick it up with you, [Dr A], the following morning at about 10.25.

For that we need to go to the exhibits, Mr Murphy, from page 24199. It's the one we just looked at.

Again, they're additional ones, ladies and gentlemen, they're not on the sequence of events, they're just additional J numbers.

I'm going to suggest that as we then get into this particular day, a more particular problem appears to be emerging; would you agree?

DR A: There's certainly a change today, yes.

MYERS: A change, yes. A change now and this is distinct from how you had seen [Baby Q] the day before, isn't it?

DR A: Yes, it is.

MYERS: Again, as we did earlier, I'm not going to every entry here, I'm just going to go to a couple of particular entries relevant to what happened. If we look about five lines down, we see the first reference that you make to:

"Bilious aspirates noted this morning."

DR A: Yes.

MYERS: You note a little further down -- we can actually split the note into two halves, Mr Murphy, maybe, and we can see it more easily.

There's, "Bilious aspirates noted this morning"?

DR A: Yes.

MYERS: Just to the lower end of the section F for feeds, you've gone into more detail and put, "Bile: 0.5 dark green bile"?

DR A: That's right.

MYERS: Could you explain again, where it says, "OG tube since 08.00", does that mean that's something that was reported to you from the charts that had been kept?

DR A: It will have been either reported to me at the time of doing the ward round or, as is my custom, I will have looked at the charts at the end of the incubator and looked. And at 10.25, making this ward round note, since 8 o'clock there's been 0.5ml but nothing more.

MYERS: Right. Dark green bile -- we're getting familiar with different colours of bile. As medical practitioners, doctors or nurses, you're experienced or aim to become experienced in looking at the quality of the bile, the colour of the bile, don't you? Different colour means different things; is that right?

DR A: Yes.

MYERS: So if it is dark green, is that a potential matter of concern?

DR A: Dark green bile suggests that the fluid from the gallbladder is -- without interacting with food and without following the normal route towards the nappy, that bile is moving in the wrong direction back up into the stomach.

MYERS: So that suggests or might indicate an abdominal problem of some sort?

DR A: That's right.

MYERS: And that's something that requires closer consideration?

DR A: Yes.

MYERS: If we carry on down the page with Mr Murphy's help, just noting, we've actually got a reference, it says "O/L"? Just where the cursor is.

DR A: "O/E."

MYERS: On examination. You have put a temperature of 36.8. Is that a rise in temperature from the day before?

DR A: It says that the temperature has increased and decreased since yesterday, so it's a fluctuating temperature.

MYERS: Then just down to the bottom of the page, I would like to come back to what it was you described where you've got:

"Increased bile [and then something] OG."

DR A: Yes.

MYERS: Can you tell us what it was that you were doing or what it was that was done that led to you making that entry?

DR A: [Baby Q] will have been lying in his incubator, I will have approached from his right-hand side and performed my examination. And when I get to the abdominal examination, I will have listened for bowel sounds and I will have then palpated his abdomen to see what it feels like. And what I've noted is that just when I'm doing my normal light palpation through the four quadrants of the abdomen I can see a little rise and fall of a green liquid in the OG tube. That may only be a small amount of liquid that's there because as I use very light pressure I'm increasing the pressure up the tube. It doesn't mean there's a standing column of bile, it just means that there is some. It's unusual and the fact that I can see it move when I palpate means I suspect that there is maybe a little bit more bile there since 8 o'clock.

MYERS: Right. So it could be accumulating in some way?

DR A: Yes.

MYERS: And is that something you'd regard as a significant finding in fact?

DR A: It's not normal.

MYERS: Not normal?

DR A: Yes.

MYERS: Also, you said there were no abdominal sounds; is that at this point or did that come later?

DR A: I think that may have come later.

MYERS: Okay. In fact we can go over the page to help with that. 24200, please. It actually follows. That says:

"No audible..."

DR A: Borborygmi. It's the name for bowel sounds.

MYERS: In the circumstances is that a matter that doesn't matter or is it a further matter of concern, potentially?

DR A: It's a matter of concern.

MYERS: Why is that?

DR A: So with bile present in the stomach and no active bowel sounds I'm wondering whether there is a gastrointestinal manifestation of a problem.

MYERS: This is what you're considering at the moment before we come to any X-ray that was taken --

DR A: That's right.

MYERS: -- and you could look at? So this is your assessment of any relevant X-ray?

DR A: Yes.

MYERS: Carrying on down, if we look a couple of lines below that, it says:

"Small loops of bowel palpable."

Is that on light palpation?

DR A: Yes, it is.

MYERS: So does that mean you would do a physical examination and you can tell -- there's something you can feel about the small bowel?

DR A: That's right.

MYERS: And again for those of us who may not be familiar as you are, what is it you're describing, what does it mean?

DR A: As I've worked my way through the four quadrants of the abdomen what I'm describing feeling is loops of bowel.

So this is -- I wouldn't normally -- through the muscle layers of the abdomen I shouldn't normally be able to feel loops of bowel. I may do if I use really deep palpation with fingertips, but what I am describing here is light palpation, usually with the tips of the fingers and the flat. As I'm moving my hand over [Baby Q]'s abdomen I can feel, a little bit like sausages, if you imagine.

MYERS: Yes, all right, thank you. That's vivid enough for us, we're with you with that, probably. That's something you can feel is there that shouldn't be there?

DR A: It's unusual to feel it.

MYERS: You've explained that what's going on during this, and in fact from the day before, is you're considering what are the

possible explanations for whatever findings you encounter with [Baby Q]?

DR A: That's right.

MYERS: You're looking all the time to see if there is an underlying problem?

DR A: Yes.

MYERS: In fact, if we look at this, I don't think we have looked at this yet, but if we just move down, we can see it has "Imp", which means impression, underlined.

DR A: That's right.

MYERS: You've actually formed a provisional view as to what might be here; is that correct?

DR A: That's right.

MYERS: What was that view?

DR A: So probable necrotising enterocolitis and in the Bell's staging score this would be fitting of 2.

MYERS: I'm going to come back to that in a little bit. But that's a particular condition that may be a condition that a premature baby like [Baby Q] might display in certain circumstances?

DR A: Yes.

MYERS: You've got "plan" and does this plan follow on from the impression that you had formed?

DR A: Yes, it does.

MYERS: So what were the steps that you decided to take given the impression that you had formed, [Dr A]?

DR A: An abdominal X-ray so that we could see whether my palpation findings are shown through an abdominal film.

To start metronidazole as the third antibiotic. To continue the cefotaxime and teicoplanin that were started the previous day. And then review the abdominal film and:

"May need discussion with the Alder Hey surgical team. Continue to be nil by mouth."

And the next gas at around about 11 o'clock.

MYERS: Just pause for a moment. We'll come to the X-ray in a moment. Where you've put "start metronidazole", we've seen that was given at an earlier stage for concern for infection.

DR A: Yes.

MYERS: Is that given as a result of your view that there could be NEC here?

DR A: That's right.

MYERS: Continuing with cefotaxime and teicoplanin there, are they antibiotics as well?

DR A: They are.

MYERS: Then having reviewed the X-ray, your plan was that it may need discussion with the Alder Hey surgical team?

DR A: That's right.

MYERS: And we'll come to that in a moment:

"Continue nil by mouth."

Is that because a baby who has NEC or suspected NEC, one of steps you may take is to stop feeding or not feed by mouth?

DR A: That's right.

MYERS: All right. If we scroll down, we can see what comes next at 12.00. We'll look at your note and then go to an X-ray if we may. You put:

"Abdominal X-ray, dilated loop right upper quadrant"?

DR A: Yes.

MYERS: Does that match with what it was that you had felt when you'd been palpating [Baby Q]'s tummy?

DR A: It may well do.

MYERS: May well do. I'm going to ask if we can put up a radiograph -- again, I don't believe this one is on our sequence of events, but it will be, ladies and gentlemen, on the documents that you can access. It's pages 24299 and 24300. So 24299, please.

I have to say, just pausing before we go to the commentary, perhaps a little confusingly this says 12:02:45 6 26 June 2016. And it's got 05:05:04 pm. Normally, we've seen 24-hour clock timings here. I have to say, it's not clear to me whether the precise time, whether it's 5.05 in the morning this was taken, although you've asked for an X-ray later than that.

DR A: Yes.

MYERS: Or whether it's meant to be something from the evening, in which case you wouldn't have been reviewing it at 12 noon. There's two X-rays I'm going to ask you about and then perhaps I can ask you to look at and then ask you the question?

MR JUSTICE GOSS: I hesitate to interrupt, Mr Myers, but we're after midday and you seem to me as though you've got quite a few more questions to ask. Would this be a good point to break before we start on the X-rays?

I think that might be better.

MR MYERS: Thank you. And then we'll have a look at the X-rays and I'll ask the questions when we come back.

MR JUSTICE GOSS: Yes, I think that might be best.

MR MYERS: Thank you, my Lord.

MR JUSTICE GOSS: A ten-minute break.

(In the absence of the jury)

MR JUSTICE GOSS: [Dr A], would you like to leave the court? Do you need to have a break or are you content to remain there.

DR A: I'm okay here, thank you.

MR JUSTICE GOSS: Well, in those circumstances then, I'll just rise. [Dr A] can remain where he is, but if there are members of the public in here, when I rise they should leave the court and they can be allowed back in just before we resume in 10 minutes. Thank you very much.

(12.05 pm)

(A short break)

(12.15 pm)

(In the presence of the jury)

MR MYERS: Mr Murphy, could you take the radiograph down for a minute? There's something else I'd like to just ask [Dr A] for his assistance with and that's actually a little bit about NEC and that's before we come to the radiographs, because that's something we've heard of and I would be grateful if you could give us some further information.

NEC obviously stands for something. Could you tell us what the actual condition is called?

DR A: It stands for necrotising enterocolitis.

MYERS: Necrotising enterocolitis.

DR A: Yes.

MYERS: So NEC is a bit easier to use as an abbreviation?

DR A: Yes, it is.

MYERS: Are you able to describe to us, keeping in mind our levels of medical knowledge, so we have an idea, what NEC is, first of all?

DR A: NEC is a condition that affects, more commonly, preterm babies and the younger their gestation, the higher the chance of it occurring is. It can still happen in full-term babies but is much more rare. And it is where a section of the bowel, usually the small bowel, starts to die. And the necrotising part of the name references the sections of dead bowel.

MYERS: Is it in origin an infection or is it some other process that lies behind what happens?

DR A: I'm not aware that we know the exact cause of NEC. It's documented in neonatal units and the treatment for it is fairly standardised, but there is a scoring system for it, which I've mentioned, and there are known risk factors such as prematurity.

MYERS: All right. So as to precisely how it comes into being, that's something that's unclear; is that right?

DR A: That's right.

MYERS: Is it something which is what you might call, there's nothing standard about illness, but a standard concern on neonatal units, NEC?

DR A: Yes, it is because neonatal units deal with preterm babies more frequently.

MYERS: So it's something that you're on the lookout for as soon as you can identify it?

DR A: It's always a matter of concern because early identification and treatment means that that bowel may be saved through medical management without requiring surgical intervention.

MYERS: What are the kind of symptoms that you might look for at an early stage? What might the early indicators of NEC be?

DR A: Temperature instability.

MYERS: Right.

DR A: Decreased tolerance of feeds. Bile. And occasionally blood from the anus into the nappy.

MYERS: Right. Moving on to other signs, abdominally what sort of signs might there be that can indicate NEC on further investigation?

DR A: Clinically, you may see distended abdomen and in some instances with an abdomen that is really looking distended, as though it's blown up a little bit.

An X-ray taken through the bowel from the side can give you a raised -- you see the skin and the abdominal wall lifted up.

MYERS: You mentioned a scoring system. On the notes, where you put "impression", you put NEC, you had also put "Bell's 2"?

DR A: Yes.

MYERS: Is that to do with the scoring system?

DR A: Yes.

MYERS: Is the Bell's system a system for identifying NEC or potential NEC at different stages?

DR A: Yes.

MYERS: So would Bell's 1 be the earliest stage?

DR A: That's right.

MYERS: Might that be things like apnoea or bradycardia? Could they be indicators?

DR A: It can be. I don't have the scoring system to hand.

It's something that I would look up when I was trying to make an accurate stage.

MYERS: You'd said that had you palpated [Baby Q]'s abdomen, you could feel loops in one of the quadrants and you made a reference to something like the ileus or something like that.

DR A: An ileus is where there are no audible bowel sounds, it's as though the bowel has stopped moving.

MYERS: So when you put this under the Bell's stage 2 what were the features that led you to that conclusion for [Baby Q]?

DR A: I think that was temperature instability. I still had in mind the low platelet count from the previous day and there was an ileus and sort of palpable loops of abdomen.

MYERS: Right. So these are things that would be consistent with NEC at about that stage?

DR A: I believe so. Again, I make a point of always looking up the scoring system at the time so that I can be accurate.

MYERS: Thank you. If you believed there may be a problem with the abdomen, is the next step to take an abdominal or have -- consult an abdominal X-ray to see what that reveals?

DR A: Yes.

MYERS: We'll come to that in a moment, but can I just ask this: in terms of treatment of NEC, once it has been identified, does the extent of treatment required, is that linked to just how advanced or how developed that variant of NEC may be or that condition?

DR A: Yes, it is. In the early stages of NEC then they may just require medical management. So antibiotics and being nil by mouth, that settles and rests the gut and it may recover.

MYERS: So if it's at a relatively early stage -- we've seen that [Baby Q] was nil by mouth --

DR A: Yes.

MYERS: -- and we've seen one of your recommendations that he remain nil by mouth.

DR A: Yes.

MYERS: Was that part of the management of NEC or potential NEC?

DR A: Yes.

MYERS: We've also seen where you'd additionally prescribed metronidazole --

DR A: Yes.

MYERS: -- if I've pronounced that correctly. Was that antibiotic prescription for NEC?

DR A: It was for presumed NEC, yes.

MYERS: So we can follow this, does that mean that maybe over a period of days, if a baby's treated by no feeds and antibiotics, that may be sufficient to deal with the problem?

DR A: It's possible, yes.

MYERS: That would be called conservative management of NEC, would it?

DR A: That's right.

MYERS: But of course if it isn't treated or treated appropriately, it could become a very serious condition indeed; is that correct?

DR A: Yes, you can have segments of bowel that die and then need removing and the ends of the bowel that are left need further management.

MYERS: So it's important to identify it early on and take action?

DR A: Yes.

MYERS: Thank you for explaining that. I'm going to look at two radiographs. I pointed out one of them where the timing may have a question. I'm going to go to one where the timing is quite clear first of all. It's timed at 11.58 on 26 June. I'm going to show you both of them and we'll come to what you say about X-rays.

Mr Murphy, could you put up please J24301. It's not the one I went to first, it's the one where we definitely have the time. Keep in mind that in your notes there was a review at 12 noon that we're coming to or looking at. This is 11.58.

The commentary on this one, if we could scroll down to the notes from the radiologist, please, Dr Boothroyd.

J24302.

I'm going to ask you to look at a couple of X-rays before I ask any further questions. It says:

"Indication: pre-term neonate, temperature instability, bilious aspirates, loops of bowel palpable, presumed NEC."

And it's got:

"Abdomen: the baby is significantly rotated to the right. There is no evidence of gaseous distension of the bowel nor any evidence of intramural or free intraperitoneal gas. The bowel appears displaced around a soft tissue density but as this is not evident on the previous or subsequent radiographs this is thought to represent a full bladder. The tip of the NGT tube lies just beyond the expected position of the OG junction but would benefit from some advancement."

That's what's on a radiograph that we've got timed at 11.58 but I want to go to the one I'd gone to just before the break next, which was at page J24299. This is the one which is the same day, 26 June 2016. The 12:24:35 15 timestamp says 05:05:04 pm. If we go down to the commentary that accompanies it at 24300 I would like us to look at what that says. It says:

"Indication: pre-transfer chest and abdominal X-ray. UVC withdrawn 2 centimetres. Recent desaturation. ETT position: check please."

Then:

"Report. Chest and abdomen: the baby is significantly rotated to the right. The heart size is normal. Allowing for the fact that the lungs are better inflated, there has probably been no change in the degree of interstitial shadowing seen bilaterally. The ETT tip lies just above the carina [which we know is where the bronchioles connect at the bottoms of the trachea]. The tip of the nasogastric tube is projected over the expected position of the body of the stomach. The UVC has been withdrawn and now lies only 9 millimetres distal to the IVC/RA junction."

And then this, which is the part I'm getting to:

"There is a single loop of mildly dilated bowel on the left side of the abdomen. The remainder of the bowel appears normal in calibre and no convincing intramural or free peritoneal gasses are identified."

But you see there, [Dr A], it says there's a single loop of mildly dilated bowel on the left side of the abdomen?

DR A: Yes.

MYERS: If we go back, having seen that, to the X-ray that goes with that, 24299, just up the page. If we look at that image, are you able to identify what that reference by the radiologist was to, the dilated single dilated loop of bowel in the abdomen? There's a cursor just in front of the screen. Hopefully it'll move if you move it.

Can you point us to what that is?

DR A: This section here (indicating).

MYERS: Where is that in relation to where you had palpated [Baby Q]'s stomach or abdomen and felt?

DR A: I've recorded on the right side and there is -- gas can move through the bowel so whether I felt it on the right and that was enough to prompt me for the X-ray, and at the time of it being reported this X-ray shows it on the left.

MYERS: Yes. But insofar as there is a loop, certainly a loop of gas in the abdomen, is that one explanation for -- is a loop of gas an explanation for what you could feel on palpation?

DR A: I suspect it is, yes.

MYERS: Now we've seen those X-rays, I'm going to return just to the notes and the conclusion of your involvement with that. Mr Murphy, that was at page 24200, please. Just enlarge the bottom bit where it says 12.00, please.

Before we come to this, again I remind us, having looked at those radiographs, one of them was timed 11.58 on this morning.

DR A: Yes.

MYERS: The other one, as we've seen, a little perhaps confusingly is 05.05 pm.

DR A: Yes.

MYERS: But in any event, do we take it that the abdominal X-ray you looked at and made the note of at 12.00 satisfied you there was a dilated loop -- you've put right upper quadrant?

DR A: Yes.

MYERS: And you identified a dilated loop in the abdomen?

DR A: Yes.

MYERS: And indeed, you'd asked for an X-ray to be made because that was what you (inaudible: no audio feed) and that was what was there. We had seen in your plan that you raised the possibility of discussing the situation with [Baby Q] with a doctor from Alder Hey Hospital.

DR A: Yes.

MYERS: So we can follow everything, why would that be a next step that you would take?

DR A: So [Baby Q] is demonstrating some signs that are consistent with next in the Bell's scoring system: there's a dilated loop of bowel and he is on now triple antibiotics. I need to know what to do next: is [Baby Q] safe to stay in Chester and be managed there or does the regional neonatal surgical team want to have a look at those images and have a discussion about what happens next?

MYERS: What was the decision that was reached?

DR A: As we've seen from earlier on, Ms Murphy had arranged a bed at Alder Hey and [Baby Q] was subsequently transferred.

MYERS: And that was with a view to whatever may follow with regard to his condition?

DR A: Absolutely.

MYERS: Is that because that's the right place to be if there's a question of a potential significant complication with the abdomen?

DR A: Or a further deterioration.

MYERS: Thank you. That deals with what I wanted to ask you about [Baby Q].

There's one other matter I'd be grateful to ask you about, [Dr A], and it relates to some messaging again, just in the aftermath of an event we've looked at. I'm going to ask Mr Murphy to put on the screen D25A, please, which comes from material we're going to be receiving. It's just some further messaging. I'm going to go through this with you, there's not a lot to ask about it but I just wanted to ask you what lies behind these messages.

Just to help us all, this is not to do with [Baby Q], this is 30 June 2016 and we're going to see -- I suggest, this relates to something to do with a baby called [Baby O], who we've dealt with.

DR A: Yes.

MYERS: We know that [Baby O] died on 23 June 2016.

DR A: Yes.

MYERS: And we know, as we've had in evidence now, that one of the issues, one of the complications, was injury to his liver that was identified on post-mortem.

DR A: Yes.

MYERS: So I'm going to read through the messages on this page and the next and I have a couple of questions.

We can see, if you look at the format, we have the date and the time and the communication medium that was used. So it's on Facebook Messenger. Can you see 23.51, a message from you to Ms Letby:

"Did J tell you what was wrong earlier?"

DR A: Yes.

MYERS: I will read through the messages so we have them and then I will ask you a couple of questions. The answer you got was:

"Not really. We started talking but then people came into nursery and she dashed off."

You send at 23.55:

"I'm not sure where the information has come from. It seems that on the SHO grapevine somebody at LWH..."

Is that Liverpool Women's Hospital?

DR A: Yes, it is.

MYERS: "... has said that one of the triplets was found to have a ruptured liver. J was upset that this may have been caused by her chest compressions."

A response, 23.55, from Ms Letby to you:

"Oh no, that's awful."

DR A: Yes.

MYERS: At 23.57, followed by:

"No wonder she's upset. Were you able to reassure her?"

Just past midnight you send a message:

"We spent 20 mins in a cubicle going over everything. The CPR was all at the 5th rib space between the nipples. The DuoDERM on [initial of Baby P] was high. If there was anything it will have been due to fluid volume causing liver distension."

1 July 2016, 00.01 over the page, please, Mr Murphy.

You sent a message:

"I'm not sure I believe it."

Then 00.02:

"It was a coroner's PM. It usually takes weeks to get any report."

Then the following minute, 00.03, from Ms Letby to your Facebook account:

"It seems a bit like a rumour mill has gone into overdrive. The boys were only returned today. Can't see how info would be out that quick."

00.04, [Dr A] to Lucy Letby:

"No, me neither."

Lucy Letby to [Dr A] at 00.04:

"Not nice for J though. Can see how it would play on her mind."

00.05:

"This has come at the end of a seven-day run for her, not a good time."

That from, it says, [Dr A] from Lucy Letby.

One minute later Lucy Letby to [Dr A]:

"No, it's good that she felt able to tell you."

00.09, a reference from [Dr A] to Lucy Letby:

"I'm good for a hug and a chat. I think I helped."

And then finally, 00.10 from Lucy Letby to [Dr A]:

"She said she'd spoken and cried on you and Huw and was feeling better for it."

First of all, do you recall the messages being passed?

DR A: No, I don't.

MYERS: Do you recall what this relates to?

DR A: I don't really. I don't know where the information -- I don't know how I heard it.

MYERS: Right.

DR A: It may have come to me by any of the other doctors.

I think I was surprised at it and I was surprised that given the resuscitation was -- it seemed to be running well, I didn't have concerns about the chest compressions. I really don't understand the comment about the fluid.

MYERS: Just so we can orientate ourselves to what's there -- we're going to receive these in any event, these messages -- J, is that a reference to a doctor called Jess Burke, is that the doctor who J is?

DR A: It may well be.

MYERS: Was she a relatively junior SHO?

DR A: She was at the time, yes.

MYERS: Was she upset because she was worried that in the course of the chest compressions maybe she had done something which had caused damage to the liver?

DR A: No, I think it was more that she'd been involved in what was a very busy time on the unit and then a lot of sort of introspection occurs. It's very easy to try and look into what you don't understand and I suspect that that's what was happening.

MYERS: All right. I'm going to ask if we can look at the message which is numbered 115. It was on the first page, Mr Murphy.

It's a message from you to Ms Letby saying:

"I'm not sure where the information has come from. It seems that on the SHO grapevine somebody at LWH has said that none of the triplets was found to have a ruptured liver."

Then this:

"J was upset that this may have been caused by her chest compressions."

Can you see that's what you sent at 23.55?

DR A: Yes, I do.

MYERS: So casting your mind back, is it the case that she wanted reassurance that that couldn't be her or wouldn't be her, in your opinion?

DR A: Yes, and given that the chest compressions were all done in the correct location I think I was able to reassure her that that was highly unlikely.

MYERS: With that in mind, if we scroll down to line 118, please, Mr Murphy, the entry there. You said:

"We spent 20 minutes in a cubicle going over everything. The CPR was all at the 5th rib space between the nipples."

And you describe other things. That's 20 minutes with her going over what had happened in the resuscitation; is that correct?

DR A: Yes.

MYERS: As it happens, was that her, as far as you can remember, telling you what she had done or what she believed she had done?

DR A: I don't recall the conversation, I'm so sorry.

MYERS: If you just think back to the events, if you possibly can, independently of any notes do you have any recollection of who did what during that resuscitation precisely?

DR A: No, I don't. As I described at the time, I think I was managing the airway and I know at some point we changed positions because that's the thing to do, to make sure that you don't tire. But I don't recall who was doing what at what particular time.

MYERS: In fact, you wouldn't have been watching what everybody was doing, would you?

DR A: I was focusing on the task in hand, yes.

MYERS: So where it says:

"The CPR was all at the fifth rib space."

First of all, that is where CPR should be on a baby?

DR A: That's right.

MYERS: Of course when we think about an adult, the distance between the 5th rib space and going down below ribcage might be 6 or 7 inches; is that right?

DR A: Maybe, yes.

MYERS: On a baby it might be a matter of centimetres actually, on a small neonate?

DR A: That's right, yes.

MR MYERS: All right. Thank you, [Dr A].

Re-examination by MR DRIVER

MR DRIVER: Before we return to [Baby Q], can we stay with these messages for one moment, please, within which there is a reference to the SHO grapevine and in your evidence you have made reference to the rumour mill. Do we learn from that that there was information being exchanged which may or may not be reliable?

DR A: Those terms don't really mean anything to me. There wasn't a network of information that flew around and I don't -- as I've said, I don't recall where that information had come from. Certainly there wasn't frequent discussion of illness or details. I honestly don't know how that information has come to be known by either myself or the other doctors on the unit.

DRIVER: Very well. Let's leave hearsay to one side and let's stick with facts known to you.

DR A: Of course.

DRIVER: And let's look at line 118. Did you spend 20 minutes in a cubicle going over everything?

DR A: Yes, but again I'm so sorry, I don't recall that conversation.

MR JUSTICE GOSS: This is with J?

DR A: Yes.

MR JUSTICE GOSS: So if you had 20 minutes in a cubicle going over everything with her, if it be the person it's suggested it is, the junior house officer, Jess Burke --

DR A: It will have been most likely discussing the events of the Thursday and the Friday.

MR DRIVER: So that first sentence is an assertion of fact by you to Lucy Letby relating to a conversation that you had had with Jessica Burke?

DR A: Yes.

DRIVER: The second sentence, is this an assertion of fact or is this something provided to you by other people?

DR A: No, I was there for both resuscitations. That was fact.

DRIVER: So is it a fact that the CPR was all at the fifth rib space between the nipples?

DR A: Yes.

DRIVER: The third line. Is it a fact that the DuoDERM on [initial of Baby P] was high. Is [initial of Baby P] [Baby P]?

DR A: [Initial of Baby P] will have been [Baby P]. I can't imagine now what the reference now to the DuoDERM dressing was about.

DRIVER: Thank you. That's all I would like to deal with in relation to the messages.

MR JUSTICE GOSS: Well, did these messages relate to [Baby P] or to [Baby O]?

DR A: Having no recollection of the conversation, I'm afraid I can't say. I wouldn't have included the babies' names in the messages.

MR JUSTICE GOSS: Well, [initial of Baby P]?

DR A: Yes, there is an initial, a letter.

MR JUSTICE GOSS: There's a difference between [initials of Babies P & O].

DR A: Absolutely. Certainly the last part -- the middle part of this message relates to [Baby P]. It is possible -- it is likely that the first part refers to [Baby O] because of his liver injury and Jess Burke's wonder that there may have been something about the resuscitation that caused the liver injury.

MR DRIVER: Take that down, please, Mr Murphy, and go to [Baby Q]'s carousel and tile 103.

My learned friend Mr Myers asked you about the circumstances in which you received the information about [Baby Q] and you said that you don't recall who communicated it to you.

DR A: No, I don't.

DRIVER: Leaving aside the identity of the person who communicated, would the terms of that communication have been accurately reflected in your summary within the transfer letter?

DR A: The style of a transfer letter is to deliver information to the receiving team, so not being able to recall what information and how it was passed to me, I can't say whether I would have quoted verbatim in the transfer letter or whether if I'd have summarised it in a way that doesn't make for a long transfer letter, it makes for an accurate one and one that's easily understood at the receiving end.

DRIVER: Understood. When answering questions from my learned friend, you reconsidered aspects of the clinical notes you made in relation to [Baby Q].

DR A: Yes.

DRIVER: They are variously timed at 09.17 on 25 June, within which there's a reference to 10.10 hours on 25 June.

Then at 13.50 hours on 25 June and 19.20 hours on 25 June. And then finally, moving on to the next day, notes timed at 10.25 on 26 June. The only reference to NEC appears in the notes on 26 June.

DR A: Yes.

DRIVER: Is that an oversight on your part or did NEC not play a part in your analysis of [Baby Q] on the 25th?

DR A: NEC is always an item for consideration, especially in preterm babies, especially in babies who have had a deterioration. Given that there were no abdominal signs of note on the 25th, they weren't a prominent feature. This was more about breathing and his blood gas results. I think I may have

made reference to starting metronidazole on the 25th just in case, but NEC wasn't something that needed to be recorded as a concern until there was more evidence to support it. And what I would never want to do is write in a list of considerations that then get seen as a list of diagnoses when they don't -- they're not proven or thought of highly at that time.

DRIVER: On 26 June when NEC was in your mind and you made the note under "impression" that you were taken to:

"Probable NEC (Bell's stage 2)."

As of 26 June was there any vomiting?

DR A: No, so the NG tube was in situ and it was the bile that had been aspirated from it. As far as I recall, there's no recordings of vomit, nor of -- no, there wasn't.

DRIVER: So the sole recorded vomit was that which was brought to your attention when you were asked to attend upon him at 09.17 on the 25th?

DR A: That's right.

DRIVER: Moving topics now, if we may, as to X-rays and the timing of X-rays on 26 June. You were shown two radiographs, one timed at 11.58 and the other which was described, potentially confusingly, as timed at 05.05 pm. Within the narrative that follows that radiograph itself, it is described as a pre-transfer X-ray.

DR A: Yes.

DRIVER: When was transfer first contemplated?

DR A: That was around lunchtime on the Sunday, the 26th.

DRIVER: And transfer as a matter of record, could you confirm, was completed at about 18.20 hours on the 26th?

DR A: Yes, that's right.

DRIVER: Does it follow, therefore, that that timestamp must be accurate and that X-ray must have been taken at 5.05 pm?

DR A: I think it's highly likely.

DRIVER: Finally, there was in your evidence reference to increasing the amount of fluids because of, amongst other things, urea readings in the blood gasses. In terms of fluid loss, what effect, if any, does phototherapy have?

DR A: In the past, phototherapy -- it's a radiant light used to deal with raised bilirubin levels. In previous years the radiant heater or the lamp has caused fluid loss through heating and increased evaporation of the skin.

So in the past it was often common to add to extra fluids because you're on phototherapy. The newer, more modern phototherapy lamps generate light, not heat, so there's no additional fluid requirement for being under phototherapy.

DRIVER: Just help us to understand your use of the past (inaudible: off microphone) in the context of (inaudible: off microphone) and then (inaudible: off microphone).

DR A: I am thinking in the early 2000s and certainly prior to that. Since I've been involved with neonatal medicine I don't think I've ever had to calculate additional fluids for increasing levels of phototherapy.

If I have, it may have been once in a hospital that was not yet using the newer lamps.

MR DRIVER: Understood. Thank you.

Does your Lordship have any questions for [Dr A]?

Questions from THE JUDGE

MR JUSTICE GOSS: Well, just to make sure I've understood.

Document 5 in our paper bundle here, which is the intensive care chart, J24313. The only aspirate I see on that chart is the 0.5 dark green bile at 08.00.

DR A: Yes.

MR JUSTICE GOSS: So there was only one aspirate as such, although there's reference to aspirates?

DR A: This chart just covers the one day. There's a new chart for each day.

MR JUSTICE GOSS: Well, that's the 26th.

DR A: Yes. I can't...

MR JUSTICE GOSS: You were on duty on the 25th --

DR A: Yes, I was.

MR JUSTICE GOSS: -- when the incident took place?

DR A: When the vomit happened, yes.

MR JUSTICE GOSS: Then obviously off at night and this is recording what happened during the night and you come back on?

DR A: That's right.

MR JUSTICE GOSS: You have just made reference to "aspirates" and I was checking there was just that one aspirate.

DR A: Yes. That is confusing because on one aspirate it wouldn't be normal to discuss with a surgical team at a regional hospital. I suspect that there were other small aspirates and whether they were these little bits of bile I could see rising and falling in the tube as I was palpating the abdomen... But I think that, along with the feeling of [Baby Q]'s abdomen and his temperature instability -- that was enough to start the third antibiotic to complete the medical management of NEC and to then make the phone call because if he had a further deterioration, that most likely wouldn't have been dealt with on the neonatal unit.

MR JUSTICE GOSS: All right. Thank you very much.

Thank you, [Dr A], that completes your evidence.

Would you remain there for the moment?

Is there a statement to be read now? A short statement?

MR DRIVER: Yes.

MR JUSTICE GOSS: Would there be any difficulty with that being read now with the doctor here?

MR MYERS: Not at all, my Lord.

MR JUSTICE GOSS: I've got an order, a list of witnesses coming, so I know what's next.

Witness statement of [NURSE B] (read)

MR DRIVER: This is a statement by the [Nurse B], dated 31 August 2018, and it reads as follows:

"I have been asked with reference to my knowledge of [Baby Q] and in particular the date of Saturday, 25 June 2016. I have had the opportunity to read through his case notes to assist with this statement."

MR JUSTICE GOSS: Is it care or case? It says "care" but does it mean case notes?

MR DRIVER: It says...

MR JUSTICE GOSS: A distinction without much of a difference.

MR DRIVER: The nurse confirms that she does remember [Baby Q] and that she remembers [Baby Q] was in nursery 2 on the left side by the window for some of his admission:

"On Saturday, 25 June 2016, I was working a long day shift from 07.30 to 20.00 hours. I have no recollection of [Baby Q] collapsing on this shift or which nursery the collapse happened in, but it is likely to have been nursery 2 as according to records [Baby Q] had a UVC in situ and babies with these lines are in nursery 1 or 2, and Lucy Letby's notes state he was moved to nursery 1 following his deterioration.

"I do not remember if I was involved directly with [Baby Q] following his deterioration. According to Nurse Letby's care notes, I spoke with [Baby Q]'s parents. I do not recall this conversation. If I were to have a detailed conversation of this nature, I would have written my own patient note in relation to it. I do not believe I have been actively involved in [Baby Q]'s care on this day."

MR JUSTICE GOSS: I think the next witness is Dr Gibbs.

MR DRIVER: It is. That's as far as we can go.

MR JUSTICE GOSS: Exactly. We'll have the break now, it's slightly earlier than normal. We'll resume again at 1.55 if that's not inconvenient to anyone, so we'll have the hour. Thank you very much.

(12.55 pm)

(The short adjournment)

(1.55 pm)

MR JUSTICE GOSS: Mr Astbury, just before we start, I want to say something to the jury. I'm aware a number of issues have arisen over recent days. I've had a message sent through to you about one of them, which I hope will solve problems -- well, I'm reasonably confident it will.

Now, I've had a message about 26 April. That will be a non-sitting day, for good reason, so I'm telling everyone now: Wednesday, 26 April, a non-sitting day.

Before we part company tomorrow afternoon, which is our last sitting day before Easter, I'll just run through days and dates with you for what happens after then. We might finish a little bit early today and then someone's going to come and see you and speak to you.

Thank you very much.

Yes, Mr Astbury.

DR JOHN GIBBS (recalled)

Examination-in-chief by MR ASTBURY

MR ASTBURY: Thank you, my Lord. I recall Dr Gibbs, please.

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

GIBBS: John Gibbs.

ASTBURY: Thank you. You've been asked along today to assist with your treatment and knowledge of a baby by the name of [Baby Q].

GIBBS: That's right, yes.

ASTBURY: Thank you. You will be aware, I am sure, that others have given evidence ahead of you, so we don't need to cover much of the ground that you've helpfully set out for us. But by way of summary, and so that you know, we have heard that [Baby Q] was born at 31 weeks and 5 days' gestation. Our understanding is that you didn't have any contact with him at that point in his life.

GIBBS: That's correct, yes.

ASTBURY: You've noted in your statement, by way of summary, that initially [Baby Q] needed assistance with his breathing, but that improved after about 11 hours and he was placed on CPAP; is that correct?

GIBBS: Yes.

ASTBURY: He wasn't, because of the difficulties he was having, given milk feeds initially but instead was provided with intravenous nutrition?

GIBBS: That's right, yes.

ASTBURY: That was given via a UVC?

GIBBS: Yes.

ASTBURY: You have noted on the second day of life small amounts of milk feeds were introduced by a nasogastric tube into [Baby Q]'s stomach?

GIBBS: That's correct yes.

ASTBURY: Although the majority continued to be given intravenously?

GIBBS: Yes.

ASTBURY: Is there a purpose for giving these small amounts of milk at an early stage?

GIBBS: Yes, it's called trophic feeding and it's simply to help prime the bowel and the stomach so that when proper milk feeding starts, it tends to be better tolerated. The trophic feeding is very small amounts and for [Baby Q] it was just 0.5ml every 2 hours, once every 2 hours, and that's just to prime the gut. It won't provide much nutrition; nearly all his nutrition was being provided intravenously.

ASTBURY: So that's the second day of life. By the third day of life [Baby Q] was managing without CPAP by away of ventilation; is that right?

GIBBS: Yes.

ASTBURY: And at that stage what does that tell us about the direction of travel as far as [Baby Q]'s well-being is concerned?

GIBBS: That he was doing well -- and in fact even when he needed ventilating in the first 11 hours of life, roughly, and then CPAP, he didn't need supplemental oxygen, he just needed air, which again is an indication that he was doing fairly well.

ASTBURY: Thank you. Did you first become involved with [Baby Q] when he was 4 days old?

GIBBS: Yes.

ASTBURY: That was a Saturday, I think, 25 June 2016.

GIBBS: Yes, I was the consultant paediatrician on call that day, yes.

ASTBURY: Thank you. Your period on call that day was from 08.00 hours on the Saturday morning right through to the same time on the Sunday; is that right?

GIBBS: Yes.

ASTBURY: Thank you. I'm going to refer you from time to time to our sequence of events chart. I think you're familiar with that now. If I could ask Mr Murphy just to put tile 92 up, please.

We don't need to go behind it. That shows, through the swipe data system, you attending the NNU at 08.34 on the morning of 25 June. Would that be relatively early in your period of cover?

GIBBS: Yes. I'm not quite sure why I was there then.

ASTBURY: What would your normal practice be then, coming on at 8 o'clock in those circumstances?

GIBBS: We'd have a handover, so myself and two registrars, the one who'd been on the night shift and the one who was starting, like me, the daytime shift, would sit down with our more junior doctors -- called SHOs, or ST1 and 2s, different terminology, and there would be two of those -- to discuss the patients' progress over the previous night.

ASTBURY: And how long would that process ordinarily take?

GIBBS: Between half an hour -- it should be about half an hour, sometimes it takes an hour, depending on the number of patients and the complications those patients were experiencing.

ASTBURY: Thank you.

GIBBS: We normally hold that -- we don't normally hold that handover on the neonatal unit, it's held in a room by the paediatric ward, which is next door to the neonatal unit, which is why I can't remember why, 7 years ago, I was on the unit at 8.30 in the morning.

ASTBURY: I don't think anyone would expect you to. We're just putting together the timeline if it assists you. We are aware that at 9.17 am that morning, about 40 minutes later, [Dr A], who was the registrar on duty, was called to see [Baby Q].

GIBBS: Yes.

ASTBURY: We've seen you going into the unit. We know there isn't a record of people leaving because of the way these systems

work. Do you recall whether you were still on the unit at that stage?

GIBBS: I don't think I was because I would conduct the ward round on the paediatric ward on a Saturday, the registrar would conduct the ward round on the neonatal unit on a Saturday morning, and then we'd hand over to each other some time late morning after we had finished the round. So I probably was on the paediatric ward around 9 o'clock onwards.

ASTBURY: Is there a division of labour for the ward round between the two units?

GIBBS: Yes. It varies on different days of the weekend. So on the Saturday, myself, as the consultant, would do the ward round on the paediatric ward, the registrar does the ward rounds on the neonatal unit, but then after the rounds are finished which is a variable length of time, so late morning, we discuss the patients on both sides with each other, so I would normally have been on the paediatric ward.

ASTBURY: Right. We've heard from [Dr A] this morning, and we've seen his note and gone through it in some detail, but he was effectively called to see [Baby Q] following a vomit and a desaturation.

GIBBS: Yes.

ASTBURY: And we heard that one of the measures taken was to provide Neopuff to [Baby Q] to assist bringing his saturations back up.

GIBBS: Yes.

ASTBURY: Have you refreshed your memory from [Dr A]'s note as to what he noted at that particular time?

GIBBS: Yes.

ASTBURY: Are you aware that, having been Neopuffed, in fact [Baby Q]'s oxygen saturations returned to 100% not too long thereafter?

GIBBS: Yes.

ASTBURY: Are you aware or were you told of the incident involving [Baby Q] around 9.17 that morning?

GIBBS: I should have been told and it's very likely I was told, but I might not have been told until the handover that I do with the registrar once we have finished the ward rounds.

ASTBURY: Okay. From the notes, have you reminded yourself that in fact [Baby Q] was then placed on CPAP?

GIBBS: Yes.

ASTBURY: Having improved in the way that he did?

GIBBS: Yes.

ASTBURY: And although antibiotics had in fact been stopped because of his progress, they were resumed given what had happened and --

GIBBS: Yes.

ASTBURY: -- the concerns that [Dr A] had potentially at that stage?

GIBBS: Yes.

ASTBURY: All right. Now, are you aware a chest X-ray was taken of [Baby Q] that morning?

GIBBS: Yes.

ASTBURY: I'm going to ask, please, Mr Murphy to go next to tile 135. Would you have seen that X-ray during the course of the day?

GIBBS: It's very likely I would have done. But I didn't record in the notes that I had done, so I can only say it's likely I would have done.

ASTBURY: The purpose of the X-ray, please?

GIBBS: Because [Baby Q] had had a deterioration in his condition and was struggling temporarily to breathe, but he settled down after the measures that [Dr A] had taken that you've just discussed, the possibilities are he could have inhaled some gastric contents or milk, although he was on such a tiny amount of milk, but he might have inhaled some gastric contents and so the X-ray may show what we call a whiteout, a prominent white patch in one of the lungs. He might have been suffering from an infection, even though he had been treated with antibiotics and they had been stopped after the first few days -- and again infections can show shadowing changes on X-rays.

So it was to check whether there were any complications that might have caused his deterioration at about 9.10 that morning.

ASTBURY: You've clearly seen the X-ray and bearing in mind those two concerns that you've expressed, did they support those concerns or not?

GIBBS: Not the first one about inhaling gastric contents or having inhaled milk because there's no big whiteout.

I think the jury are used to looking at these X-rays now. Obviously this is the heart (indicating).

You have that sort of shadowing, the heart-type shadowing in the middle of the lungs, or even the whole of the lung, if you've inhaled a lot of gastric contents or milk and there isn't such shadowing in the lungs.

Now, for infection sometimes infection affecting the lungs of a small baby can just show generalised diffuse shadowing. This X-ray does show some diffuse shadowing in the lungs, so you can see the ribs across each of the lungs but there's a lot of white shadowing, almost like cobwebs. We tend to call it reticulate shadowing, but really it does look like cobwebs. That can be a sign of infection. It can also be a sign that the airways have slightly closed down, not completely closed down, otherwise you get a whiteout. And that's not uncommon in small premature babies with stiff lungs. If they're getting tired and having difficulty with their breathing the lungs may look a little whiter, a bit more of this cobwebby appearance.

ASTBURY: Right.

GIBBS: It doesn't quite fit with his sudden deterioration and the amount of clear secretions he was producing.

ASTBURY: Why is that?

GIBBS: Because if a baby has a problem with their lungs getting stiffer and they're getting tired, gradually their breathing gets worse, they have an oxygen requirement and the amount of oxygen they need increases and they gradually deteriorate. Whereas [Baby Q] had suddenly deteriorated at 9.10. So it's not in keeping with a little baby who was getting tired, with their lungs slowly closing down because they're stiff.

ASTBURY: Okay. We'll come to it in a moment but I think there was a point later in the day when that was the view taken with [Baby Q]; is that right?

GIBBS: Yes, by the evening.

ASTBURY: Thank you. Staying with our timeline for now, did you see [Baby Q] at all that morning yourself?

GIBBS: It's very likely that I did, yes. I didn't record in his notes, so I can't, it's 7 years ago, remind myself exactly what I did -- or even 2 to 3 years ago at the time I did my initial statement on him.

ASTBURY: Okay. Would you have discussed the morning's events with [Dr A]?

GIBBS: Yes, because we hand over all the patients to each other after we have each finished our ward rounds. And given that [Baby Q] had caused some concern, he would have almost certainly have been discussed first -- unless there was another baby on the unit who was presenting more problems than [Baby Q], but I can't remember if that was the case.

ASTBURY: All right. I'm not going to take you to it but we've seen [Dr A]'s note, it incorporates a ward round, and [Baby Q] being examined in that sphere. So after the ward round the routine is for the registrar to discuss it with you; is that right?

GIBBS: Yes, we discuss all the patients.

ASTBURY: Thank you. We've heard that [Dr A] again saw [Baby Q] through the course of the afternoon. But did there come a point in the evening where you again became involved with [Baby Q]?

GIBBS: Yes. I've been able to remind myself by looking at the notes that [Dr A] records that he had spoken to me about [Baby Q]. It is likely at some point that afternoon or evening I would have seen [Baby Q] again.

But [Dr A] was there dealing with him and I think he records in the notes that he discussed his plan for [Baby Q] with me and I agreed with that.

ASTBURY: Perhaps can we go to that note, please, just to confirm that. 197, please, Mr Murphy.

We can see the note that you are referring to, Dr Gibbs. It's further down the page, please. That's the afternoon note.

It's the 19.20 that we're interested in and we can see a blood gas result, we can see some other notes from [Dr A], but it's the top of the second page, I think, is that which you were referring to?

GIBBS: Yes.

ASTBURY: "Discussed with Dr Gibbs. Agrees [is that] plans to electively" --

MR JUSTICE GOSS: "With", that's the symbol for "with".

MR ASTBURY: Thank you:

"Plans to electively intubate due to worsening..."

GIBBS: "... of respiratory drive."

ASTBURY: Thank you.

GIBBS: And 19 is the respiratory rate, which is quite low for a small premature baby like [Baby Q].

ASTBURY: Thank you. So you are discussing a specific plan in order to assist with [Baby Q]'s breathing; is that right?

GIBBS: Yes.

ASTBURY: Did you, according to your statement certainly, also take into account the observations through the afternoon?

GIBBS: Yes. His respiratory rate had been steadily slowing down from about 50 down to around about 20 by 7 o'clock in the evening.

ASTBURY: Could I ask Mr Murphy to put up tile 183, please. Have a look at that respiratory rate, doctor, if we may.

If we scroll down. Thank you. We can see from midday on the 25th looking to the top left, are they the readings that you would have been seeing on the chart up until that point? We can see, up until in fact 19.00, shortly before that entry, that they'd dropped to the lowest point on the graph; is that right?

GIBBS: Yes.

ASTBURY: So that was part of the decision. Were you also aware of blood gas results for [Baby Q] through the course of the afternoon?

GIBBS: It's very likely I was because [Dr A] would have reported them to me and he does -- just before he's written he has discussed with me, he quotes the latest blood gas. He's written that in the notes, so it's very likely that would have been part of our discussion.

ASTBURY: I'm going to ask you to look at the blood gases please: they're at tile 162. If we can scroll down, I think we can see a

series of readings on the 25th, five in total, beginning, it would seem, at the end of the night shift at 6.58 and then resuming on the day shift through until 16.18 that afternoon.

GIBBS: Yes.

ASTBURY: Bearing in mind you have seen the observation chart with the respiration rate dropping and falling to what looks on the graph to certainly be a very low point, is there an interaction between that feature and these blood gas results?

GIBBS: Not particularly, no.

ASTBURY: Could you explain that?

GIBBS: Yes, the obvious -- the most obviously abnormal gas, and I'm going to concentrate for the moment on the carbon dioxide levels, which is this column here (indicating), was the one just before 10 o'clock in the morning. That would have been fairly shortly after [Baby Q] had been restarted on CPAP support following his deterioration around 9.10. That carbon dioxide level is outside the normal range, being abnormally high. The normal range being about 4 to 6.5. But that's a worry because that means he's struggling to breathe adequately, except an intervention had been started fairly shortly before that, the CPAP, and encouragingly, 2 hours -- no, just over an hour later, that carbon dioxide's come down to the high end of the normal range now, which is very encouraging because that shows how the CPAP is presumably helping [Baby Q] with his breathing.

It stays down at about 6.5 here. And in fact around about sort of quarter past 4, it's at its lower level, it's still in the normal range. So the carbon dioxide levels were reasonable here and if a baby is not breathing well enough, or anyone, and the carbon dioxide level is rising abnormally high it causes acidosis, so this pH level becomes lower and lower. Yet this pH of 7.315 is a very satisfactory normal range acid level for a baby, so it's a little surprising that his breathing was getting slower and slower but his blood gases actually, from late morning onwards, were normal.

ASTBURY: If we read across we can see in pretty well the central column it has the observation:

"CPAP still in use but only air, no requirement for additional" --

GIBBS: Yes, not needing any additional oxygen, which is an indication that his lungs are reasonably good, whatever the problem is, whether it's the lungs getting a little bit collapsed because he's getting tired before the CPAP or whether

he had infection, it's not affecting his lungs too badly because if it was he'd need oxygen and he doesn't.

ASTBURY: Okay. So the elective intubation takes place, we can see that on the observations chart.

GIBBS: It's done more for his clinical condition because you have to take many things into account. I would not intubate him because of his blood gas, but rather than the tests, you look at the patient, and given that his rate was getting slower and slower and dropping down to a very low level for a baby of his age, that was the indication to ventilate him.

ASTBURY: Is there a risk in allowing it to continue to fall without intubation in place?

GIBBS: Yes, that he'd go into bad respiratory failure.

ASTBURY: Right, okay. That's why you described it as elective because it was a decision --

GIBBS: Yes.

ASTBURY: -- a medical decision on the trend that you could observe?

GIBBS: Yes. Because of the way he was behaving rather than his blood gases.

ASTBURY: Following that intubation did you see another X-ray?

GIBBS: It's... Well, I have seen it now, yes. On that day, did I see it? I think it's likely I did because I know from one of the nursing reports later on that day that I'd been on the unit and spoken to [Baby Q]'s father, so therefore it's likely I would have seen the X-ray.

I didn't write about the X-ray in the notes so I cannot be certain that I did.

ASTBURY: Having told us what you could see on the first X-ray from late morning, could I ask you to have a look at tile 217 and, in the context of everything you have told us about the lungs and the carbon dioxide level remaining acceptable, are there any changes, anything significant on this particular X-ray that was taken at 20.25 that evening?

GIBBS: No. An obvious change is he's now got a marking of a plastic tube up here (indicating), that's his endotracheal tube, he's attached it a ventilator. But in his lungs, they're not as cobwebby looking, reticulate shadowing as before. They have

opened up a little more, they are slightly better expanded, which is what you'd expect if you're now providing artificial ventilation.

ASTBURY: Okay.

GIBBS: But it doesn't show any signs of obvious infection, nor any signs of having inhaled gastric contents, and by this stage he'd been about 10 hours or more without any of those tiny milk feeds he was having before, so his stomach was being kept empty.

ASTBURY: Right. So what you see there is consistent with a positive effect from the ventilation that had been --

GIBBS: Yes.

ASTBURY: -- undertaken?

GIBBS: Yes, just to point out, if it helps the jury, because if I look at this, I think it looks rather different to the previous X-ray, and it is just the exposure. This is a more grey X-ray, the other one was a more black and white X-ray, and it's really a feature of how the radiographer took the picture. But when you compare the lung fields to the bones to the heart, that's how you can tell these lungs are clearer than on the previous X-ray.

ASTBURY: So it's not in isolation, it's a comparative exercise?

GIBBS: Yes.

ASTBURY: Thank you. You mentioned that you had spoken to [Baby Q]'s dad later in the day --

GIBBS: Yes.

ASTBURY: -- which caused you think that you had seen these X-rays and you had some contact with [Baby Q], perhaps --

GIBBS: Yes --

ASTBURY: -- that wasn't in the notes?

GIBBS: -- I spoke to him on the neonatal unit, so I would have been there, and I wouldn't talk to parents without checking out the patient and usually their relevant investigations, which should have been this X-ray at that time.

ASTBURY: Of course.

GIBBS: But the reason I can't say I'm sure I saw that X-ray that day is because I am not quite sure what time I spoke to [Baby Q]'s father.

ASTBURY: All right. Perhaps if we look at the note because -- have you taken that from one of the nursing notes, that feature?

GIBBS: Yes, staff Nurse Davies.

ASTBURY: If we can look at tile 238, please. Perhaps if we stick with the summary on the page before because these are so small. If you just go down. It's the last line:

"Dad visited and was updated by Dr Gibbs and by [Dr A] and helped to settle [Baby Q]."

We know the note is made -- in fact it begins at 10.29, so it would have been at some time before 10.29 --

GIBBS: Yes, but she doesn't say at what time the events had happened. We know they'd happened by the time she entered that note.

ASTBURY: So it's that note that you rely on when you say you had spoken to dad?

GIBBS: Yes.

ASTBURY: You don't have any recollection of it; is that right?

GIBBS: That's correct. We can also tell, though, that Staff Nurse Davies will have come on duty around about 7.30 and probably started looking after [Baby Q] from 8 o'clock in the evening onwards --

ASTBURY: All right.

GIBBS: -- so we can say it's some time between 8 o'clock and 10.30 that I saw his father.

ASTBURY: We can narrow it down to that extent at least?

GIBBS: Yes.

ASTBURY: Of course you told us that your duty was 24 hours on that particular occasion --

GIBBS: Yes.

ASTBURY: -- or you were on standby for 24 hours?

GIBBS: Yes.

ASTBURY: Is it right that [Baby Q] overnight continued to require only a low level of ventilation?

GIBBS: Yes, he didn't need high pressures and he didn't need any supplemental oxygen, he was managing on air.

ASTBURY: We've heard already from [Dr D], who was on duty that night and treating [Baby Q]. Are you aware that the pain relief and sedation continued through that shift?

GIBBS: Yes. I don't think -- and I can't remember for sure, but I don't think I was contacted about [Baby Q] by [Dr D] for the rest of the night. If I was, she ought to have written that in the notes and she didn't record that, so I think she didn't feel there was a need to inform me about [Baby Q], although she did have to intervene, there were some concerns about him, but not enough for [Dr D] to call me at home that time.

ASTBURY: Okay. Did she, and you've commented upon this, note at 6.50, so towards the ends of the night shift, that [Baby Q] had been settled for the last 4 hours?

GIBBS: Yes.

ASTBURY: Sleeping?

GIBBS: Yes.

ASTBURY: She expressed some concern about a raised carbon dioxide level?

GIBBS: Yes, the blood gas at this time did show an abnormally high carbon dioxide level.

ASTBURY: And are you aware that as a consequence of that, she increased the rate of breaths being given by the ventilator?

GIBBS: Yes, and the next gas an hour later showed a much improved carbon dioxide, so [Baby Q] just needed a little more help from the ventilator.

ASTBURY: Thank you.

GIBBS: What we think had happened, if you look at the notes, is that [Baby Q] had probably gone to sleep. Before there was quite a lot of concern from Staff Nurse Davies and [Dr D], the registrar, seeing [Baby Q] that he wasn't settled and that he needed more pain relief, but then he seemed very settled and

after he became settled, his blood gases deteriorated. That means it's very likely he was putting a fair bit of effort in to assist his own breathing, despite the sedation he was getting, in addition to the ventilator doing the breathing for him. Once he settled down and became much calmer, because of his sedation, the ventilator wasn't quite adequate -- providing adequate enough ventilation, which is why the carbon dioxide rose and that was resolved by just increasing the rate of the ventilator, not by needing to add any more pressure or any more oxygen.

ASTBURY: Just dealing with ventilation in principle, we've heard a couple of times now that [Baby Q] became tired.

GIBBS: Yes.

ASTBURY: In your context does that have a particular meaning where perhaps you would become concerned? Tiredness to many of us might just seem the obvious, that with sleep one would be refreshed, but is it a different concept with [Baby Q]?

GIBBS: Yes. If a patient of any age, but we'll take [Baby Q], a premature baby -- if [Baby Q] was getting tired and did have some breathing problems, then he may start going into respiratory failure. But he's having his observations done, and not just the observations by the nurses, intermittent blood tests to check his blood gases. But there's a fear if a patient who has breathing problems gets more and more tired their breathing will deteriorate. If a healthy person gets tired, they just go asleep and continue to breathe satisfactorily.

ASTBURY: Okay. So that's the distinction in this --

GIBBS: Yes.

ASTBURY: Now, your period of cover came to an end round about the end of [Dr D]'s shift, I would imagine, on the Sunday morning?

GIBBS: Yes.

ASTBURY: Although I think, is it right, that you reminded yourself and us in your statement that [Baby Q] was subsequently discussed with the paediatric surgical team at Alder Hey Hospital during the day of Sunday the 26th?

GIBBS: Yes, that's right.

ASTBURY: There was a concern he was suffering from the early stages of NEC?

GIBBS: Yes.

ASTBURY: And he was in fact transferred, we know, to Alder Hey that day?

GIBBS: Yes.

ASTBURY: Is it right that [Baby Q] returned to the Countess of Chester NNU 2 days later on the 28th?

GIBBS: Yes, that's right.

ASTBURY: When he returned, he no longer required any mechanical ventilation at that time?

GIBBS: That's right: it was stopped whilst he was at Alder Hey Hospital.

ASTBURY: Was he continuing to receive antibiotics?

GIBBS: Yes, he received them for about 10 days and was kept nil by mouth, no milk into his tummy, for that period, which is standard treatment for suspected necrotising enterocolitis, NEC.

ASTBURY: Okay. [Baby Q] was discharged on 25 July 2016; is that right?

GIBBS: Yes.

ASTBURY: Anything you recall or can assist us with that stands out during the course of the period after his return to the NNU in Chester?

GIBBS: No, as far as I'm aware he progressed very satisfactorily. I saw him a couple of times and I've recorded my examinations of him at those times, I think about 3 July, and then the day before he went home.

ASTBURY: Right. Did you also have occasion to see [Baby Q] as an outpatient?

GIBBS: Yes, he was followed up in my clinic, yes.

ASTBURY: During his first year of life, did [Baby Q] suffer with gastro-oesophageal reflux?

GIBBS: Yes, a common problem in young babies.

ASTBURY: Did that resolve?

GIBBS: As far as I remember it resolved by about 1 to 2 years of age, which is commonly the case with troublesome gastro-oesophageal reflux.

ASTBURY: Any intervention required surgically?

GIBBS: Not surgically. No, he did have medication to help his reflux, his regurgitation.

ASTBURY: Did it also happen that [Baby Q] was believed to have a cow's milk protein intolerance?

GIBBS: Yes, and he had to go on to a low-allergy milk to help that.

ASTBURY: Finally, Dr Gibbs, I would like to ask you, please, about a message that we have on our sequence of events.

It's not from you, it's not to you, but it mentions you so I would like to ask you, please, what, if anything, you remember about it. It's at tile 240. It's sent by Nurse Lucy Letby to [Dr A]:

"Do I need to be worried about what Dr Gibbs was asking?"

That's timed, as you'll see, about 22.45 on the Saturday evening. Not long after that note was made, as it would happen, by Nurse Davies. Do you recall any questioning by you, any conversations by you on the unit that might have provoked that message?

GIBBS: I'm not sure what Staff Nurse Letby is referring to in this particular comment. I do remember that there was -- well, I had heightened concern about what was happening on the neonatal unit. I mentioned that when I was last in court about [Baby P]. At the time I saw [Baby P] just after one of his brothers had died, I was concerned because of the increasing number of unusual and unexpected deaths that happened on the neonatal unit.

This Saturday we're discussing for [Baby Q] was 2 days after [Baby O] had died, the day after [Baby P] had died, and I knew about both of those deaths. So I was worried about what was happening on the unit. So I can't remember which nurse or nurses I spoke to -- I think it was Mary Griffith, one of the staff nurses on the unit. When I knew there had been a deterioration in [Baby Q], and I'm struggling a bit because I didn't write my examination of [Baby Q] during that day, so I'm not sure what time it was, but as I've said before, I'd likely gone to the unit and had a handover with [Dr A] later on in the morning and so some time around then, probably, not in the evening -- well,

not in the evening because we have got this message here, but not in the evening when Staff Nurse Davies was recording that I'd spoken to [Baby Q]'s father, earlier in the day, I remember wanting to know who had been looking after [Baby Q] at the time he deteriorated.

ASTBURY: Okay. Did the question go any further than that?

GIBBS: No, I just wanted to know. I wouldn't normally want to know who's looking after patients, I'd want to know what had happened to the patient and then what had been done to remedy the situation, but because of concerns about what had been going on on our unit that had been growing I wanted to know who had been around looking after [Baby Q] at the time he deteriorated.

ASTBURY: Okay. You think -- you can't remember who it was, you think it might have been Mary Griffith?

GIBBS: Yes, I think it was, but it could have been Staff Nurse Lappalainen and it might have been both of them.

ASTBURY: Okay. Was it a question you asked of Nurse Letby?

GIBBS: Not that I recall, but I have to admit I can't remember exactly which nurses I spoke to.

ASTBURY: Okay. Was there any other purpose to asking the question of the nurses that were on duty?

GIBBS: Um... To convey some -- that I was concerned about what was happening, really. And I knew if I asked one nurse, having worked for so many years in Chester, but in the NHS, if you talks about a problem with one nurse on the unit it usually very quickly gets known by most of the nurses on the unit.

MR ASTBURY: I have no more questions for you, doctor. If you could wait there, please.

Cross-examination by MR MYERS

MR MYERS: Just this: did you also want to check that [Baby Q] hadn't been left unattended at the time of his deterioration? Was that one of the concerns that you had?

GIBBS: I don't recall that being a particular concern. My concern was just to know who was looking after him at the time he deteriorated.

MR MYERS: Thank you.

MR ASTBURY: Does my Lord have any questions?

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

Thank you, Dr Gibbs, that completes your evidence.

You won't be required again. Thank you very much indeed.

(The witness withdrew)

MR ASTBURY: My Lord, some more statements to read, please.

MR JUSTICE GOSS: Yes. Just give me a moment, please.

Witness statement of MS AMY DAVIES (read)

MR ASTBURY: It's a statement from Amy Davies, paediatric nurse, dated 23 March 2018. She says this:

"I am currently employed at the Countess of Chester Hospital as a band 6 neonatal practitioner. I was on maternity leave from March of 2015 to January 2016, although I did do a couple of shifts leading up to Christmas before I returned full-time."

Under the heading "[Baby Q]":

"I have had the opportunity to read the nursing notes to assist with my memory. I remember [Baby Q]. I was present when [Baby Q] was admitted on to the unit and I think I was his designated nurse at this time.

"On Saturday, 25 June 2016 I worked a night shift from 19.30 hours to 08.00 hours. This particular shift does not stand out to me, but I do recall that Belinda Simcock and [Nurse E] were also working. I was the designated nurse for [Baby Q] and I cared for him in nursery 1 and, according to the care notes, I took over from Nurse Lucy Letby.

"I do not remember the handover from her but can see from the notes that [Baby Q] did have a couple of issues during the day that led to him being intubated. I remember that he was a bit restless and unsettled at the beginning of the shift and I did get a doctor to review him. He was, however, stable throughout the remainder of that shift and gave no cause for concern."

Witness statement of MS KATE BISSELL (read)

MR ASTBURY: Moving on, my Lord, to page 24, please, Kate Anne Bissell, in a statement dated 12 January 2018 states:

"I am Kate Bissell, a senior nurse (band 6) at the neonatal unit at the Countess of Chester Hospital."

Under the heading "[Baby Q]" she states:

"I looked after [Baby Q] on the day he was transferred out from the unit, 26 June 2016. It was a day shift. He was a 31-week and 5-day baby. Nurse Amy Davies had been looking after [Baby Q] on the night shift and handed his care over to me on the day shift. He was day 3 or 4 of life and when I came on duty he had been vomiting and had an abdominal distension. He was nil by mouth and his nasogastric tube was on free drainage, which would be normal for a baby who we suspect has something wrong with his tummy. With premature babies we are looking out for infection of the gut and this is called necrotising enterocolitis.

"Looking at his notes, when I aspirated his NGT there was some dark green bile, which is indicative of something wrong with the stomach. At the time in his notes I put that [Dr A], who was the registrar on duty, requested an abdominal X-ray. The X-ray was sent to the surgeons at Alder Hey and they confirmed that there looked to be something wrong, possibly a volvulus (a twist in the gut).

"They said that [Baby Q] had to go over to Alder Hey for a surgical review. The rest of the shift was spent readying [Baby Q] for transfer over to Liverpool. The notes say he was transferred at 6.30 pm."

Witness statement of DR BENJAMIN LAKIN (read)

MR ASTBURY: Next at page 29 is Benjamin Lakin. He says in a statement dated 16 January 2020:

"I am Dr Benjamin Lakin. I was appointed as a locum consultant in paediatric critical care, which includes paediatric intensive care, at Alder Hey Children's Hospital in September 2014 with a permanent appointment in September 2015.

"[Baby Q] was admitted to Alder Hey Children's Hospital Liverpool on the afternoon of 26 June 2016. As I do not have a strong recollection of [Baby Q], this statement is prepared with the support of his medical records.

"[Baby Q] was admitted to the paediatric intensive care unit, which is the only ward at Alder Hey which cares for sick babies who require the assistance of a ventilator through a tracheal tube."

This, he explains, is a tube in the windpipe:

"He was transferred from the special care baby care unit at the Countess of Chester Hospital. He was borne quite early at 31 weeks' gestation.

"[Baby Q] was transferred as there were concerns about his abdomen being distended and that his condition at the Countess of Chester had deteriorated with vomiting and lower oxygen levels, requiring him to be once again established on a ventilator. There were concerns that this could have been a condition called necrotising enterocolitis, which is a type of infection/inflammation within the bowel that is quite common in babies who are born early. In the most severe cases an operation may be required and so most usually the local team, in this case the Countess of Chester, will discuss the patient with our surgical colleagues at Alder Hey and then the baby will be transferred to this hospital, and in this case PICU, the paediatric intensive care unit, to assess the clinical situation as well as rule out any other causes.

"Unfortunately, I do not have any documentation that this was the case for [Baby Q]. My colleague Dr Holek(?), an experienced middle grade doctor registrar, assessed [Baby Q] when he arrived. The medical records show that [Baby Q] had deteriorated at the Countess of Chester on the morning of 25 June 2016, day 3 of life, having had an episode of vomiting, lowered oxygen levels and a distended abdomen. He had been placed on a ventilator. His feeds had been stopped with hydration maintained with fluids into a vein and antibiotics started.

"This is typical treatment for any baby where there are concerns about the possibility of necrotising enterocolitis. When Dr Holek assessed [Baby Q] he found that he was stable and did not require high levels of support on the ventilator, he did not require drugs known as inotropes to support his circulation, and that his abdomen was very slightly swollen. These are all signs of a baby who is quite stable.

"[Baby Q] was receiving a number of drugs: he received three antibiotics (cefotaxime, metronidazole and teicoplanin) regularly into a vein -- this is a typical combination of drugs when NEC is suspected -- together with a morphine infusion, that's a continuous intravenous dose, to maintain comfort on the ventilator as well as a sugar/salt drip [and he gives the concentrations] (saline and dextrose), with potassium chloride to maintain hydration.

"Later, [Baby Q] also received paracetamol into a vein for pain relief and a drug called caffeine, which is commonly used in babies who are born prematurely to stimulate breathing to enable them to stop needing the ventilator. These were given through a

tube, a catheter, into the vein in the umbilicus, commonly used in small babies.

"I reviewed [Baby Q] on the evening of 26 June 2016 at 8.24 pm and was reassured to have found him to be very stable. He was assessed by our surgical colleagues on 26 June 2016 at 9.14 pm, who felt that [Baby Q] was stable but with some subtle signs suggestive of necrotising enterocolitis, with slightly low platelets at the Countess of Chester..."

Then he explains that's a cell in the blood responsible for clotting which can be low during times of serious infection:

"... and some changes on an abdominal tummy X-ray. However, they also assessed him as being stable.

"Our surgical colleagues reviewed [Baby Q] the next day on 27 June 2016, at 2.24 pm, and were pleased with his progress. He remained stable, his abdomen had returned to normal, and his abdominal X-ray had also normalised.

"The decision was to transfer [Baby Q] back to the Countess of Chester, which is quite a common outcome as he was stable, to complete a course of antibiotics and gradually restart feeds at the end of the treatment period. This decision is led by the surgical team.

"Over the course of the admission, [Baby Q] had continued to improve to the point where we were able to remove his breathing tube and thus take him off the ventilator. This is a very reassuring event and was successful on 27 June 2016 at 1.15 pm.

"[Baby Q] was stable for the rest of the afternoon whilst we were waiting for the neonatal transfer service to transport [Baby Q] back to the Countess of Chester. During this time he remained stable and his blood gases, designed to check on waste products, which is important following extubation, were acceptable."

That concludes Dr Lakin's statement, my Lord.

Witness statement of DR KATHERINE DAVIS (read)

MR ASTBURY: Moving on, please, to page 32, a statement of Katherine Davis, dated 30 June 2020. She says:

"My name is Dr Katherine Davis. I have been employed by the Countess of Chester NHS Foundation Trust as a consultant paediatrician with an interest in epilepsy since September 2019. I am currently [Baby Q]'s named general paediatric consultant.

"He was previously under the care of Dr John Gibbs, who retired prior to my appointment. I have been asked to provide a summary of [Baby Q]'s current medical condition and a review of the MRI scan from 2018.

"I have only met [Baby Q] in person once, on 5 November 2019. I have also undertaken a telephone consultation with [Baby Q]'s mum on 1 June 2020. The following information has been obtained from a review of his electronic medical notes.

"[Baby Q] has been diagnosed with a mild right-sided hemiplegia [that's a weakness] by Dr John Gibbs on 10 August 2018. There have also been concerns about his social communication and development. As a result of this, [Baby Q] was discussed at a multidisciplinary meeting in November 2019. As part of this assessment he was seen by a paediatric physiotherapist, who had no concerns, and an occupational therapist in December 2019, who reported age-appropriate fine motor skills. These reports suggest that [Baby Q] has no significant impairment at present from his mild weakness.

"[Baby Q] had an MRI scan of his head on 16 November 2018 in the Countess of Chester Hospital due to his mild right-sided weakness. This had been reported locally by consultant radiologist Dr D Enion at the Countess of Chester as normal. The opinion of a paediatric radiologist in Alder Hey has not currently been sought.

"[Baby Q] is currently reviewed in my general paediatric clinic on a 6 to 12-monthly basis.

"In summary, [Baby Q] has been diagnosed with a mild right-sided weakness and developmental delay. He remains under my care and I would expect [Baby Q] to have a normal lifespan but it will be necessary to continue to monitor his development as he grows up and to provide appropriate support as needed."

Report of DR STAVROS STIVAROS (read)

MR ASTBURY: The next statement, in fact, is a report from Dr Stavros Stivaros, dated 26 October 2020, who is a specialist paediatric neuroradiologist, and provided a detailed report, which we've been able to edit simply to include the summary of his findings, which are at page 45.

In his summary of findings, Dr Stivaros says this:

"[Baby Q] was born prematurely. Although he was transferred to the neonatal intensive care unit, the clinical narrative appears to suggest he was well with no signs of respiratory distress or collapse until the morning of 25 June 2016 when he took a sudden

and unexpected deviation in his clinical condition and required ventilatory support to recover.

"I defer to my neonatal expert colleagues' assessment in regards to him having suffered a significant hypoxic ischaemic event at that time, but the imaging findings could be explained by such an event having occurred. The scan also needs to be taken in the context of a possible infection.

"My understanding of the clinical findings and reports are that no significant infection was seen in [Baby Q], but again I defer to clinical opinion in this regard."

Witness statement of DR HOWYADA ISAAC (read)

MR ASTBURY: My Lord, finally, there's a statement from a Dr Howyada Isaac, dated 16 April 2020. Dr Isaac says this:

"My name is Dr Howyada Isaac and I'm a registered medical practitioner and I have been employed as a consultant community paediatrician at the Countess of Chester Hospital NHS Foundation Trust since March 2012.

"I outline my involvement with [Baby Q] as follows. [Baby Q] was referred to me by Dr Gibbs on 26 April 2018 because of maternal concerns about possible autism. There is a family history of autism. He demonstrated excellent social communication skills, which would go against a diagnosis of autism. However, he also had some atypical features, such as repetitive speech and mother-reported repetitive play, repetitive activities and behaviours. The plan was to review [Baby Q] once again when he had settled in nursery to monitor his progress within the nursery setting.

"[Baby Q]'s development was also assessed on 17 August 2018 and he was mildly delayed. He was functioning at an age equivalent of 18 months at a chronological age of 2 years 1 month.

"[Baby Q] was reviewed again on 13 February 2019 in clinic. From my observation, [Baby Q] presented with good social communication skills, which is not in line with a presentation of autism, but that his speech was repetitive. Due to the discrepancy in [Baby Q]'s presentation between home and clinic, I advised a period of watch and wait until [Baby Q] settles at nursery.

"[Baby Q] was reviewed again on 20 November 2019. [Baby Q] continued to present with a mixed picture of his social communication skills, his language was repetitive, but he also had some spontaneous language. His eye contact was well integrated into his social overtures.

"To date, [Baby Q] has had the following assessments: (1) the Early Years Specialist Teaching Service on 22 October 2019; speech and language therapy report, March 2018 to 14 February 2019; speech and language therapy report on 2 October 2019; educational psychology report on 10 October 2019."

Dr Isaac's conclusion:

"[Baby Q] presents with a mixed picture with some good social communication skills, some repetitive speech, repetitive behaviours and not yet interacting with his peers, but this could be secondary to his language delay. To date [Baby Q] does not have a diagnosis of autism."

My Lord, that concludes the evidence to be read.

MR JUSTICE GOSS: Thank you very much.

MR JOHNSON: Dr Evans next.

MR JUSTICE GOSS: Yes. About how long do you expect you're going to be with him?

MR JOHNSON: About half an hour, possibly.

MR JUSTICE GOSS: I think what we'll do is start now and have a break after about quarter of an hour. Is that all right? We'll sort of split the afternoon more evenly up that way.

DR DEWI EVANS (recalled)

Examination-in-chief by MR JOHNSON

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

EVANS: Dr Dewi Evans.

JOHNSON: Thank you. Dr Evans, I just want to deal with, as I always have done, with the various reports that you have written. Was your initial sift report dated 21 November 2017?

EVANS: Yes.

JOHNSON: Did you then write a second report dated 25 January 2019?

EVANS: I did.

JOHNSON: Were you posed some questions which you answered in a statement dated 21 October 2021?

EVANS: I did.

JOHNSON: Thank you. Then have you written at least one statement dealing with pagination issues which have arisen from the several versions of the medical records that you have been sent over the years?

EVANS: Yes.

JOHNSON: Thank you. As the basis for your evidence, I would like to use the report of 25 January 2019, please.

EVANS: Right.

JOHNSON: As always, did you record the basic biographical detail of [Baby Q] leading up to the events that we are now considering?

EVANS: Yes, I did.

JOHNSON: His birth on 22 June 2016 at 04.09 hours?

EVANS: Yes.

JOHNSON: His birth weight at a fraction over 2 kilograms?

EVANS: Yes.

JOHNSON: The fact that his gestational age at birth was 31 weeks and 5 days?

EVANS: Yes.

JOHNSON: You gave the case your reference 27?

EVANS: Yes.

JOHNSON: It being the 27th of the cases that you were asked to review?

EVANS: Yes.

JOHNSON: Did you set out in that report the material that you were sent by the police in order to conduct the review?

EVANS: I did.

JOHNSON: Did that material include medical records from the Countess of Chester Hospital --

EVANS: Yes.

JOHNSON: -- and Alder Hey Hospital in Liverpool?

EVANS: Yes.

JOHNSON: Together with X-ray images?

EVANS: Yes.

JOHNSON: Dealing with, very briefly, if we may, the lead-up to events, starting with your review of the medical notes, at your paragraph 5, did you record that it was on 22 June 2016 that [Baby Q] was born and admitted to the neonatal unit?

EVANS: Yes.

JOHNSON: You recorded the first medical note at 09.00 hours, which is our tile 6. Did you then record his oxygen saturations at 100% in air?

EVANS: Yes.

JOHNSON: In effect 21% oxygen?

EVANS: Yes.

JOHNSON: His blood gases, which we have in a hard copy, albeit not in -- well, hard copy and of course in the SOE on 22 June.

EVANS: Yes, they were all normal.

JOHNSON: The fact that he was extubated at 15.30 hours on 22 June?

EVANS: Correct.

JOHNSON: Did you note what we have in tile 20, which is that on 24 June at 10.30, there was a bradycardia --

EVANS: Yes.

JOHNSON: -- or bradycardias that were self-limiting and that he remained in air?

EVANS: Correct.

JOHNSON: Did you then come to the incident that is our count 22 in your paragraph 7?

EVANS: Yes.

JOHNSON: Which you recorded as having occurred at 09.17?

EVANS: Yes.

JOHNSON: That's our tile 103. Did you take that time from [Dr A]'s medical notes that we've dealt with this morning?

EVANS: Yes, I did.

JOHNSON: Thank you. Did you record or re-record the blood gas readings that had been recorded by [Dr A] and which he told us about this morning?

EVANS: I did.

JOHNSON: Did you move on to the entry at tile 197, which is 19.20 hours on 25 June?

EVANS: Yes.

JOHNSON: That was [Dr A]'s record concerning when it was that [Baby Q] had started to look tired --

EVANS: Yes.

JOHNSON: -- and was electively intubated?

EVANS: Yes.

JOHNSON: Did you then move on to, finally so far as medical records were concerned, the entry at 00.30, [Dr D]'s entry on 26 June, it's still your paragraph 8, which is set out at tile 275?

EVANS: Yes.

JOHNSON: Thank you. Did you then move to the observation charts?

EVANS: I did.

JOHNSON: You dealt with them, effectively, in summary, but moved to events on, in particular, which we have on the charts, both in hard copy and the SOE, reflecting the fact that late on 25 June, at about 8 pm, 20.00 hours, [Baby Q]'s heart rate had increased significantly to 198?

EVANS: Yes.

JOHNSON: Did you then move to consider events of 26 June --

EVANS: I did.

JOHNSON: -- at paragraph 10? It's the material that we have at tile 301. It concerns the medical entry that Dr Gibbs in effect has at least referred to in passing, which is concerned with [Baby Q]'s reduced rate of breathing and the fact that that was linked on the face of it with the fact that he was asleep?

EVANS: Yes.

JOHNSON: The blood gases that Dr Gibbs has told us about this afternoon; is that right?

EVANS: Yes.

JOHNSON: Then you moved on to note, paragraph 11, what [Dr A] told us about the presence of small loops of bowel which had been -- he had felt when he had touched [Baby Q]'s abdomen?

EVANS: Yes.

JOHNSON: And that at that stage a probable diagnosis of NEC had been made?

EVANS: Yes.

JOHNSON: And he was prescribed metronidazole?

EVANS: Correct.

JOHNSON: Did you refer also to the abdominal X-ray which, again, we have looked at today?

EVANS: I did.

JOHNSON: Then did you refer to the fact that, given the concerns which had been raised, [Baby Q] was transferred to Alder Hey Children's Hospital in Liverpool?

EVANS: Yes.

JOHNSON: Thank you. Did you refer specifically to the discharge letter which was dealt with in a little detail with [Dr A] this morning?

EVANS: Yes. That's the letter that said that he was admitted from Chester because he had "profuse vomiting" with desaturations on the morning of 25 June and over the next 24

hours he developed abdominal distension despite being nil by mouth.

JOHNSON: Yes. That's, as we saw, during the evidence of [Dr A], to be found in the sequence at tile 310.

EVANS: Yes.

JOHNSON: Did you move on to summarise the material that's just been read to the jury by Mr Astbury, referring to the fact that once he got to Alder Hey, [Baby Q] settled quickly?

EVANS: Yes.

JOHNSON: Was extubated on the afternoon, early afternoon of 27 June --

EVANS: Yes.

JOHNSON: -- which was about 20 hours after his transfer to Alder Hey?

EVANS: Yes.

JOHNSON: And was then readmitted to the Countess of Chester Hospital at 02.00 hours on 28 June?

EVANS: Yes.

JOHNSON: By that stage, as always indeed, he was in air?

EVANS: Yes.

JOHNSON: And blood gas results and the like you also referred to?

EVANS: Yes, and they were satisfactory.

JOHNSON: Did you then move on to consider the nursing notes?

EVANS: I did.

JOHNSON: Starting with notes that had been made just before the handover at the end of the day shift on his date of birth, 22 June?

EVANS: Yes.

JOHNSON: The fact he was in air, not needing any supplemental oxygen?

EVANS: Correct.

JOHNSON: The fact that in the early afternoon at 14.46 the following day, 23 June, he was recorded as being stable and had been taken off CPAP?

EVANS: Yes.

JOHNSON: He had maintained his saturations under his own steam, so to speak, he was self-ventilating in air?

EVANS: Correct.

JOHNSON: And his saturations were good?

EVANS: Yes.

JOHNSON: As were his blood gases?

EVANS: Yes.

JOHNSON: Did you refer next to the nursing note that recorded the fact that there had been a slightly bilious aspirate?

EVANS: Of 2ml, yes, I did.

JOHNSON: And an aspirate of a mixture of possibly bile and blood which had been recorded in the nursing notes at 21.30, still on 23 June?

EVANS: Yes, I did.

JOHNSON: That's a day and a half before the incident that we're considering.

Did you move next to nursing notes early on 24 June?

EVANS: I did.

JOHNSON: And then at 21.00 hours on the 24th, which noted the fact that enteral feeds had recommenced or had commenced at a rate of half of 1ml per 2 hours --

EVANS: Yes.

JOHNSON: -- as we have seen in the feeding chart?

EVANS: Yes, yes.

JOHNSON: Did you continue by referring or repeating the records made by the nurses of the fact that [Baby Q] was coping well in air at 05.20 on 25 June?

EVANS: Yes.

JOHNSON: So we're now approximately 4 hours before the event that we've been considering?

EVANS: Yes.

JOHNSON: A blood gas at 06.58?

EVANS: Correct.

JOHNSON: And you refer next to the blood gas that Dr Gibbs has referred to this afternoon, which was taken about 30 to 40 minutes after [Baby Q]'s collapse, timed on the chart at 09.56 on the morning of 25 June?

EVANS: Yes.

JOHNSON: Did you refer next to the note made by Lucy Letby, which is our tile 102, it's your paragraph 20?

EVANS: Yes.

JOHNSON: Which, just to remind us all, is timed at 09.10 hours and that [Baby Q] had:

"... vomited clear fluid nasally from mouth, desaturation and bradycardia, mottled ++, Neopuff and suction applied, Registrar [Dr A] attended. Air ++ aspirated from NG tube."

EVANS: Yes.

JOHNSON: Did you move on to consider the entry in the nursing notes at 12.53 recording the elective intubation of [Baby Q]?

EVANS: I did.

JOHNSON: Did you then turn, at your paragraph 21, to Amy Davies' notes concerning [Baby Q]'s position as at 22.29 hours on the evening of 25 June?

EVANS: Yes. And his blood gases were satisfactory, yes.

JOHNSON: Yes. Did you move at your paragraph 22 to deal with what we have at tile 283, which concerns [Baby Q] being "unsettled and tense" at 01.40 hours on the morning of 26 June?

EVANS: Yes.

JOHNSON: The fact that his blood gas had deteriorated at 06.23 that morning, Sunday, 26 June?

EVANS: Yes.

JOHNSON: And then the entry at 08.56 concerning, amongst other things, the fact that there had been green bile aspirated from the NG tube --

EVANS: Yes.

JOHNSON: -- as attested to this morning by [Dr A]?

EVANS: Yes.

JOHNSON: Did you note the fact that you'd looked at X-rays which had been provided?

EVANS: I did.

JOHNSON: Did you then proceed to deal with your observations arising out of all that material?

EVANS: I did.

MR JOHNSON: My Lord, we're at exactly 15 minutes from where we started.

MR JUSTICE GOSS: Perfect. A perfect time to break.

Thank you very much. Ten minutes then, please.

(3.06 pm)

(A short break)

(3.16 pm)

(In the absence of the jury)

MR JOHNSON: My Lord, just before the jury comes back, having discussed progress with my learned friend, what we propose now, once we've finished Dr Evans' evidence, with your Lordship's approval, is to call a halt to today, whenever that is, and tomorrow we'll deal with Dr Bohin and all the post-indictment time text messages.

Then, effectively, "all" we have are the interviews, the searches and any other material that in all likelihood we will

agree over the vacation. That third category of material we don't anticipate adding a great deal to --

MR JUSTICE GOSS: No. Well, that's absolutely fine. So tomorrow, about how long a day do you think it'll be?

MR JOHNSON: It depends how long Dr Bohin takes. If past experience is anything to go by, we think that Dr Bohin plus the sequence of texts is -- it may trickle into the afternoon, but if it does, not by a long way. We'll be finished by 3 pm, I think.

MR JUSTICE GOSS: That's very helpful. I'm sorry I didn't give you notice of 26 April. I only got it this morning. It was clearly a day when we can't sit. It's a medical appointment. All day. It's a definite non-sitting day.

MR JOHNSON: Yes, thank you.

MR JUSTICE GOSS: Thank you very much.

(In the presence of the jury)

MR JOHNSON: Dr Evans, you move on in your 2019 report to make some observations concerning the period of time between [Baby Q]'s birth and the events at about 9.10 hours on 25 June.

So could you summarise what you took as being the relevant features of that period of time, please?

EVANS: Yes. Before 9.10, looking at the nursing entries and also listening to the information from the local team, nursing and medical staff today, [Baby Q] wasn't quite well from the night before. It looked as if he was unable to tolerate his feeds. Now, this is not unusual in small babies. So when reviewing this note or any other notes, one's starting point is to look to the initial marker of instability or his being unwell.

So therefore, there were a couple of markers that he was unwell from what we heard from Nurse Downes on Friday and from her colleague earlier this week, sufficient for them to call [Dr D] to have a look at him. These related to his gastrointestinal system, in other words there was a bit of bile coming up, he wasn't really tolerating his feeds. So that was my starting point in terms of concern there was something not quite right.

But from 9.10 something totally different happened, which cannot be explained on the basis that he was sickening for some kind of gastrointestinal problem -- and, you know, we've mentioned necrotising enterocolitis quite a lot -- because at 9.10 he vomited. Now, when he vomited, he was on virtually no oral feeds

at all, and the last entry of aspiration showed nothing coming up in the tube from the night -- sorry, from the last entry of the night staff.

So therefore he vomited and he vomited clear fluids. If you vomit because you've got some kind of intestinal obstruction, you're not going to vomit clear fluids, you have going to vomit fluid that contains bile. So there was clear fluids, that's quite clear. And also, from what we heard from [Dr A] it was profuse vomiting.

On top of that, what I also saw, which I don't think is in my report, is that Nurse Lappalainen, I think, noted "clear fluids +++". And on top of that, there was air aspirated, although it's not quite -- from the stomach, although it's not quite clear whether that air was aspirated before, during or after his Neopuff.

But in addition to the vomiting he also suffered a very, very significant deterioration in that his heart rate fell below 100 and his oxygen saturation dropped to 68, which is a very, very significant fall in oxygen and not a fall I would expect simply from the fact that over the previous 12 hours he's not really establishing his feeds.

So I thought that we are now dealing with two separate incidents. It was not clear simply from looking at the notes -- I think I've mentioned this in other cases -- how to put it all together. It's far easier to put it together having heard the evidence from the people who were looking after [Baby Q] at the time.

So anyway, so he vomited, he was resuscitated very, very promptly, his oxygenation returned to normal.

He was kept nil orally. The suspicion regarding necrotising enterocolitis was, in my opinion, perfectly reasonable: he was a prem baby, he was not tolerating feeds, there was not a lot of bile had come up, but some bile had come up. Therefore, keeping him off oral feeds was appropriate, putting him on metronidazole was appropriate, which is an antibiotic used in cases of NEC, and he was put on CPAP, which also is appropriate.

And on top of that, they did a number of blood tests which broadly were pretty satisfactory, and his blood gases returned to reasonable values later that morning.

But during the day he became increasingly tired and this led to his being ventilated, he was placed on ventilatory support later on Saturday the 26th, and the concerns continued, so again there was this peculiarity on the abdominal X-ray, which I have seen.

So it was quite reasonable to ring the Alder Hey surgical team and he was transferred there on Sunday afternoon, in other words the following day.

JOHNSON: Yes.

EVANS: So that's the sequence, which was difficult to work out from simply reading the notes, but clearly there were two events taking place here.

JOHNSON: All right. Let's, if we can, please, concentrate on the events at 09.10.

EVANS: Yes.

JOHNSON: We know that, as you have said, [Baby Q] was receiving a very small amount of milk, 0.5ml every 2 hours.

EVANS: Yes.

JOHNSON: And there is potentially conflicting evidence on precisely what it was he vomited if one -- what is recorded and what has been said in oral evidence may be different things and it may be a question for the jury to determine where the truth lies.

But taking the alternatives, please, Dr Evans, if a significant quantity of clear fluid was vomited what view did you come to?

EVANS: What I deduced was that he could not have vomited clear fluid or vomited anything at all unless some clear fluid had been placed down his nasogastric tube earlier, before 9.10. So with or without some air as well. But clearly there was enough clear fluid injected down his nasogastric tube into his stomach to make him vomit. He would only have vomited if he had quite a significant amount of fluid -- and also he would not have deteriorated in dropping his oxygen saturation and dropping his heart rate unless he'd experienced this phenomenon, which we've heard about previously, where his diaphragm had been interfered with, in other words he was unable to breathe properly because his tummy was full of liquid, and that is what led to the oxygen desaturation and led to the reduction in heart rate.

Once he vomited, that of course was nature's way of unsplinting the diaphragm and therefore it was easier for the resuscitation to be successful.

JOHNSON: Yes. All right. What about the air? What conclusions did you come to so far as the air ++ or +++, however it was recorded?

EVANS: There are two options here. It could be a bit of both.

What we heard the day before yesterday was that the air was aspirated after he had had some Neopuffing. So therefore if you bag a baby, some air will get into the stomach. So that could be one of the explanations.

But having said that, there was very little Neopuffing taking place. So therefore it could well be that as well as having his clear fluid down his nasogastric tube just before 9.10, he had some air inflated into the stomach as well, and of course air and liquid, as a matter of the combined volume, would add to the stomach distension and increase the risk of diaphragmatic splinting.

JOHNSON: I think you were posed various questions, is that right, to which you responded on 21 October 2021?

EVANS: Yes, I did. Yes, I did.

JOHNSON: Part of the matters that you were asked about you have already dealt with, namely the note made by Nurse Lappalainen.

EVANS: Yes.

JOHNSON: But what you were also asked about were issues that had been raised by Lucy Letby in the interview.

EVANS: Yes.

JOHNSON: You've dealt with one of those, which is the Neopuff point. But you were also asked to comment on an assertion made by Lucy Letby in interview that vomiting can cause babies to swallow air.

EVANS: Well, it doesn't. When they vomit, they vomit liquid and air would come out if anything, so they're not going to swallow air.

JOHNSON: So far as NEC and/or the possibility of NEC being responsible for any or all of the events at about 9.10 are concerned, what view did you come to so far as that was concerned?

EVANS: Right. Well, I've seen an X-ray report from Professor Arthurs that says that there's one abnormality, which could or may be reflecting NEC.

JOHNSON: Yes.

EVANS: But you know, that's a radiology opinion. Given what happened to [Baby Q] after he left Chester, I don't think -- he either had very, very mild NEC or he had NEC -- or he didn't have NEC at all because he settled very, very promptly. I mean, he was sent back from Alder Hey very, very quickly. I think that if he was sickening from necrotising enterocolitis from late Friday/early Saturday morning, I don't think he'd have settled as quickly. I think the other reassuring thing is once he came back to Chester on 28 June, they were able to continue -- sorry, they were able to introduce oral feeds and he did not have any further significant gastrointestinal problems until he was sent home on 25 July.

So therefore, from the point of view of necrotising enterocolitis, they were very prompt in this case and in every case in Chester, to be fair, in suspecting the condition. I don't think it -- I'm certain it was not a factor in causing his vomiting and his deterioration at 9.10. I'm sure of that.

And the other option of consideration is that his bowel problem post-9.10 could be the result of the fact he was unwell and was the result of what we call ileus.

What I mean by ileus is that the intestines stop working, in other words nothing works.

JOHNSON: All right. Just pausing there for a second and putting that into context, we will remember what [Dr A] said this morning about listening to [Baby Q]'s bowel on the morning of the 26th, so the day after this incident, and not hearing anything.

EVANS: Well, not hearing bowel sounds.

JOHNSON: Yes, sorry.

EVANS: Not hearing bowel sounds.

JOHNSON: Yes.

EVANS: And then not hearing bowel sounds is -- you seriously have to consider this condition of ileus. He was on ventilation. As part of his ventilation he was on morphine, which is routine. But morphine will also interfere with your bowel activity, morphine can cause constipation, but it can interfere with bowel activity.

So I'm not critical of his receiving morphine, but the bowel problem could be due to the effects of the collapse at 9.10 on Saturday morning.

MR JOHNSON: Yes. Can you wait there, please, Dr Evans?

Mr Myers will have some questions for you.

Cross-examination by MR MYERS

MR MYERS: Dr Evans, your view is that the incident on the morning of the 25th is due to fluid and air being forced down the NGT?

EVANS: Fluid and air or -- fluid or fluid and air, yes.

MYERS: Oh, so it's definitely fluid?

EVANS: Well, it's definitely fluid because he vomited fluid.

MYERS: Right. And maybe air as well?

EVANS: And maybe air as well.

MYERS: You recognise, don't you, that it's entirely possible the air that was produced from his NGT could have been aspirated because it had got there because of the Neopuffing?

EVANS: I've mentioned that, yes.

MYERS: That's something that could account for the air in fact, couldn't it?

EVANS: Yes.

MYERS: As for the fluid, I'm going to suggest that is something that you've suggested has been introduced as a late addition to your opinion.

EVANS: As a what?

MYERS: It comes at a late stage of your opinion, saying that fluid had been forced down the NGT, doesn't it, as it happens?

EVANS: I think in all these cases what I have said in evidence on a number of occasions is that I've had to rely on the notes that I was presented with and the more information you get, the more accurate your opinion. That is how clinical medicine works.

MYERS: The fluid that's been described that -- we've seen it described in various ways. One way, Nurse Lappalainen described mucus, that there was a lot of mucus.

EVANS: Yes.

MYERS: If that's right you're not suggesting that mucus was forced down the NGT, are you?

EVANS: No.

MYERS: So that can't account for it?

EVANS: Nurse Lappalainen mentioned "clear fluids +++". That's what she wrote down in what they call the apnoea/bradycardia chart. So clear fluids +++. I think that's quite clear that's what she wrote town.

MYERS: As has been explained already, there may be a matter for the jury to consider as to what's meant by that given the evidence that we've had. But I'm just establishing with you that if that is actually a reference to mucus, you're not suggesting that could have been forced down and caused the vomit, are you?

EVANS: It's not a reference to mucus, it's a reference to clear fluid +++. I am quite happy for the page to be shown up actually.

MYERS: We've had the evidence, Dr Evans.

As to the vomit itself, you have taken the word "profuse" to use as a reason to say there's something abnormal, haven't you?

EVANS: That's the word [Dr A] used. He was there.

MYERS: Well, he wasn't there for the vomit, was he?

EVANS: That's what he said today.

MYERS: He didn't say he was there for the vomit today.

EVANS: He said the vomiting -- the word he used was profuse.

MYERS: Yes. In fact what he said when asked about that in particular was that that was the transfer letter he used the word profuse in, he's not able to recall whether he was quoting verbatim or if he was just summarising.

All right?

EVANS: Yes, yes, I know that.

MYERS: Now as it happens, if we look in the notes made at the time, the word "profuse" for vomit doesn't appear anywhere, does it?

EVANS: Correct, as far as I know, yes.

MYERS: "Profuse" is the word that was used by [Dr A] the next day in a discharge letter to summarise the situation, wasn't it?

EVANS: Yes, yes.

MYERS: If we look in the reports that you've prepared, I would like to see what you've put there. The first report was 21 November 2017. Do you have the reports with you?

EVANS: Yes.

MYERS: You can refer to it if you wish to but I'm looking at your conclusion on this in the first report at paragraph 23.

EVANS: Yes.

MYERS: You say with regard to the incident on the morning of 25 June that, in your opinion, the deterioration, say, during the early hours of 25 June that is due to inappropriate care:

"In particular, I believe he was given a lot of air via his nasogastric tube into his stomach."

You talk about a lot of air, don't you?

EVANS: Yes.

MYERS: You make no reference to fluid at all, do you?

EVANS: That is correct.

MYERS: If we move to the second report you wrote on 3 June --

EVANS: Can I finish that paragraph, please? It says:

"The aspiration of a lot of air at 09.10 hours on 25 June is noteworthy."

Just to get it absolutely correct.

MYERS: Yes, yes, you identified -- that's right. What you have focused on -- thank you for identifying that for me -- in that first report was the aspiration of air ++, wasn't it?

EVANS: What I focused on is the fact that he had a lot of air at 09.10 hours on 25 June and that's 6 years ago.

MYERS: Right.

EVANS: Okay?

MYERS: So that's the first report. If we go to the second report, again for your opinion. We are in the second report now, 3 June 2018, paragraph 29. You say:

"In my opinion, [Baby Q]'s deterioration during the early hours of 25 June is due to inappropriate care. I believe he was given a lot of air via his nasogastric tube into his stomach. The aspiration of a lot of air ++ at 09.10 is noteworthy. That may have destabilised him."

Do you see that?

EVANS: Yes, this may have destabilised him, which is why his heart rate and respiratory rate increased (inaudible) -- anyway, they increased, yes.

MYERS: When you said that, you had access to the clinical notes, didn't you?

EVANS: Yes.

MYERS: That included the nursing notes made by Nurse Letby at the time?

EVANS: Yes.

MYERS: And it also included the apnoea chart, didn't it? Or do you not recall? I'm not going to --

EVANS: Is that the one when Nurse Lappalainen mentioned the clear fluid +++?

MYERS: Yes.

EVANS: Well, I don't know. I must have -- I have had a whinge or three about the quality of the notes that the management sent to Chester Police, so it was difficult to follow one or two of these things. But anyway, the apnoea chart is on J24314 if you want to check that.

MYERS: Well, we could have a look if you like. Tile 101. I'll ask Mr Murphy to put that up, please.

EVANS: There you go.

MYERS: That's the entry, 09.10:

"Baby found to very mucousy. Clear mucus from nasopharynx and oropharynx removed. Clear fluid +++ [(inaudible) evidence

there]. O2 via Neopuff given post-suctioning. [Dr A] emergency called to attend. NGT used to aspirate stomach by Nurse Letby."

Do you see that?

EVANS: Yes, that's correct.

MYERS: Noting there that the NGT used to aspirate comes after the Neopuffing, doesn't it?

EVANS: I thought we'd agreed that.

MYERS: That's right, isn't it? Now that makes reference to clear fluid +++. And the nursing notes made reference to clear fluid as well, didn't they? Well, let's have a look please so there's no disadvantage to you.

I wonder if we could put up the relevant nursing note, Mr Murphy, which is tile 143.

If we go behind that to look at the relevant passage. If we go to the top left, please. Thank you:

"09.10. [Baby Q] attended to by Staff Nurse Lappalainen. He had vomited clear fluid nasally and from mouth. Desaturation and bradycardia, mottled ++. Neopuff and suction applied. Registrar [Dr A] attended. Air ++ aspirated from NG tube."

Do you see that?

EVANS: Did we mention...?

MYERS: Do you see that, Dr Evans?

EVANS: Yes, I do. I am just wondering whether I discussed this in my (inaudible) a few minutes ago.

MYERS: The entries are included in your clinical review if that's what you're wondering.

EVANS: Yes.

MYERS: If we're looking at your second report, look at paragraph 26 if you would, please.

EVANS: Mm.

MYERS: Do you see paragraph 26? This is your report of 3 June 2018.

EVANS: Yes, I --

MYERS: Paragraph 26. You make reference to this entry and you make reference to the expression "vomited clear fluid nasally and from mouth" and go on to deal with the desaturation, the bradycardia, mottled and air ++ from NGT. Do you see that?

EVANS: Yes, that's right.

MYERS: Yes. Now, my point is this: in the same report, the second one you've written, under "Opinion", you have put:

"In my opinion, [Baby Q]'s deterioration during the early hours of 25 June is due to inappropriate care. I believe he was given a lot of air via his NGT into his stomach. The aspiration of a lot of air is noteworthy."

Do you see that?

EVANS: Yes.

MYERS: No reference to fluid at all at that point, is there?

EVANS: That is correct.

MYERS: Although as we've seen from the report there, you were well aware of the description of clear fluid vomited, weren't you?

EVANS: The presence of fluid adds to the -- well, the presence of fluid explains the vomiting. If it's left out, it's left out but you cannot vomit air. So therefore the fact that I noted the fluid in my evidence today and picked it up in this report, which was done 5 years ago, and as with many reports of this nature, as you get asked more questions then your opinion becomes more and more accurate. That is what clinical practice is all about.

MYERS: What you're saying today is that this incident was due to, you're saying, at the very least, fluid being forced down the NGT and maybe air. That's what you've just said in your evidence-in-chief and I confirmed it with you at the beginning of these questions.

EVANS: That is correct.

MYERS: And I'm pointing out that now on the second report, fluid, which is the thing you say has definitely caused this, doesn't feature as part of the mechanism at all, does it?

EVANS: I've written a report since then clarifying that.

MYERS: We'll come to the third report, which we have just been through, in a moment. But as of your second report, fluid doesn't feature as part of the mechanism at all, does it?

EVANS: (Inaudible) 5 years ago.

MYERS: The report which you went through in evidence now, 25 January 2019, you have the same clinical information and can we go, please, to paragraph 32. At paragraph 32, you say:

"The clinical scenario is consistent with receiving a lot of air via his nasogastric tube into his stomach prior to 09.10 on 25 June."

As you say, in fact, in a paragraph before that, paragraph 31:

"In my opinion, [Baby Q]'s deterioration during the early hours of 25 June is due to inappropriate care. The aspiration of a lot of air ++ is noteworthy."

In other words, again, what you're focusing on at that point exclusively, Dr Evans, is the air, isn't it?

EVANS: I think we should add fluid to it.

MYERS: I'm going to suggest you've added fluid to it now because, in fact, having gone through this trial as we have and heard the evidence, you know that air ++ can be explained by the Neopuffing, don't you?

EVANS: We agreed that about five questions ago.

MYERS: Now that we've reach this point, you've added fluid now to keep the mechanism going, to keep the allegation going rather than to simply reflect what we have on the facts here.

EVANS: No, no, you've got it completely wrong again. It doesn't work like that at all. If, for instance, I've been called to Chester as an external opinion by Dr Gibbs or one of his colleagues, we would have been able to go through the notes, I would have been able to speak to the nurses, speak to the doctors get all of the facts together. Reviewing notes in isolation is a very unusual way of doing things. It's not the ideal way of doing things, but you know that's the way it is. And at the time, as we've discussed, I was -- this was case number 27. So -- and again I think I've only missed one day in court, so I've listened to all of the local evidence. And the local evidence has been a great help in helping me, and I hope helping members of the jury, to form an opinion regarding the accuracy of what happened at 9.10 on the Saturday.

So my opinion now -- and whether I would have been able to say this, you know, before hearing the medical evidence is neither here nor there -- the nursing evidence, I should say. But we are here -- oh, and we've heard the evidence from the people who were looking after him. I had never heard this before last Friday and this week.

So therefore, going on about what I wrote in 2017 and so on is really missing the point.

MYERS: Actually, if we look at the whole episode with [Baby Q] from when there was first identified to be bile on 23 June, through to his discharge to Alder Hey Children's Hospital, I'm going to suggest all of that is in fact consistent with early stage or mild NEC.

EVANS: I don't think you can rule it out. Okay? I don't think you can rule it out. I'm familiar with the Bell's classification, by the way, for NEC. At best I think he scores 1A and the classification is 1A, 1B, 2A, 2B, 3A, 3B, 3C. Obviously 3C is the worst and 1A is the mildest. So I don't think we can rule NEC out. But the key thing for me, from a clinical point of view, is that the presence or otherwise of NEC does not explain what happened at 9.10 on Saturday morning. That's the key thing. It does not explain the fact he destabilised, it does not explain the fact that his saturations dropped to 68, and it does not explain the fact that he was said to be vomiting clear fluids.

MYERS: I'm going to suggest, Dr Evans, that the bile -- the bloodstained bile on 23 June, before the incident we're dealing with --

MR JUSTICE GOSS: Did you say bloodstained?

MR MYERS: Well, yes.

EVANS: It's the 23rd, yes.

MR JUSTICE GOSS: The 23rd.

MR MYERS: Yes, my Lord.

MR JUSTICE GOSS: You're going back another day?

MR MYERS: I'm going through the sequence we're looking at.

EVANS: It's 4 in the morning, I think.

MYERS: Yes, on 23 June. First of all that's consistent with a gastrointestinal problem, isn't it?

EVANS: Blood is found only on one occasion only. His stomach was aspirated every 2 hours or so. So if there was any -- if the blood was significant, I'd expect the nursing staff to discover blood on more than one occasion. I think it's noteworthy, it's worth noting, it's worth noting, but it's a one-off. It's a one-off.

It's a one-off and, as with the bile, I think the total amount of bile was 5ml or something. So it's a one-off.

Again, the other point is, it is 36 hours prior to this. If we fast-forward to the night shift of the 24th, that's the Friday/Saturday, he was on 0.5ml two-hourly only, and there was no blood aspirated in any of those feeds. So therefore -- so whatever happened on the 23rd happened on the 23rd, but it did not persist and occur on one occasion only.

If that, for instance -- right? If that had been due to NEC, I'd have expected more in the way of bile, more in the way of blood and more in the way of abdominal distension. None of those features -- none of those characteristics feature. So it's a one-off. It's worth -- I'm glad you've noted it, but it doesn't explain... Again, as with everything, it simply does not explain the vomiting clear fluid and the desaturation and the crash at 9.10 or thereabouts on Saturday morning.

A bit of blood would not do that. A bit of bile would not do that. A bit of tummy that looks blown up would not do that. And of course if he was vomiting fluid it must have gone in in the first place.

MYERS: Pausing there, whatever else it is, and I don't make light of any incident on the unit, it's not a crash at 9.10 in the morning. It's not a crash.

EVANS: I disagree actually. He needed resuscitation, he needed a Neopuff. Right? He needed a Neopuff. His oxygen saturation was 68. That is life-threatening. A heart rate under 100 in a little prem baby, that's a big concern. The registrar who was ST7 at the time, experienced registrar, being called quick, that's a crash. Okay? That's a crash.

MYERS: Well, we disagree with that, but I'm going to move on.

EVANS: I know it's the vernacular, but it's an appropriate term that we all use.

MYERS: No, he was stabilised and he was relatively steady for the rest of the day until 19.20. We've heard that.

EVANS: He was by vomiting that diaphragmatic splinting had disappeared.

(Pause)

EVANS: Sorry, where was I?

MYERS: I think we're disagreeing about the use of the word crash, Dr Evans, and we had moved back to --

EVANS: Let's be a bit medical and scientific about this. There was a significant deterioration that was life-threatening. Okay? The sats to 68 is life-threatening. A baby who was in air earlier, now needing Neopuff, you know, if he hadn't been Neopuffed he would have developed respiratory arrest, cardiac arrest, and died. Right? So therefore, you don't get much more serious than that.

MYERS: In the context of what we are dealing with --

EVANS: We're not talking trivial matters here.

MYERS: That is a gross exaggeration of what we're dealing with.

EVANS: It's not. I'm the clinician and I know what I'm talking about when it comes to babies deteriorating.

MYERS: Now, that deterioration itself could be part of an ongoing course of NEC developing, couldn't it, in fact?

EVANS: It could have been if he developed more features of NEC --

MYERS: Well, he did.

EVANS: -- but he didn't, you see? That's the whole point.

MYERS: He went on to tire later into the evening, didn't he?

EVANS: He got tired, he got tired. He's a prem baby.

MYERS: Overnight we see there's bile aspirates produced, dark bile, the dark green bile.

EVANS: 0.5ml.

MYERS: That's a feature of NEC, isn't it?

EVANS: 0.5ml in isolation?

MYERS: It's not to be disregarded, is it? Something that's come up that shouldn't be there can be disregarded; is that right?

EVANS: You record it. But in the absence of other features of NEC it's something you record. And the fact that he settled so promptly at Alder Hey would suggest that necrotising enterocolitis was not a feature that caused his deterioration at 9.10 on Saturday morning. And again, NEC -- yes, so anyway, I've said my point.

MYERS: Temperature instability is another feature of NEC potentially, isn't it?

EVANS: That's a non-specific feature.

MYERS: A lot of features of NEC are non-specific, aren't they?

Well, are they or aren't they?

EVANS: Yes, yes, yes, yes.

MYERS: And temperature instability features on the Bell staging, doesn't it?

EVANS: It's not so much whether he had NEC or not, the factor here is: does NEC explain what happened at 9.10? And it doesn't. Okay? It does not.

MYERS: The bile that [Dr A] described seeing in the OG tube, I think he said it was, when he was palpating or pressing the belly of [Baby Q], that is something that shouldn't be there, isn't it?

EVANS: I agree with that.

MYERS: That's another feature we can take in mind for NEC, isn't it?

EVANS: I think he had ileus at that time, actually.

MYERS: Well, ileus is a feature of NEC, isn't it?

EVANS: It is actually, yes.

MYERS: And the bowel loop he could feel may be indicative of NEC, mightn't it?

EVANS: I have never said we can rule out NEC. What I'm saying is that the NEC that he had was very -- if he had NEC it would have been very, very mild and does not explain what happened at 9.10 on Saturday morning.

MYERS: And just to complete it, the abdominal X-ray we see with the bowel loop we see on that indicates what could be another feature of NEC, couldn't it?

EVANS: That is a matter for the radiologist. I've read the report and that's a fair comment.

MYERS: Right. And if it is a mild variant of NEC that can be treated conservatively by nil by mouth and antibiotics over maybe a week or so?

EVANS: Correct.

MR MYERS: Those are my questions, Dr Evans. Thank you.

Re-examination by MR JOHNSON

MR JOHNSON: Just one issue, please, Dr Evans. These two suggestions have been made to you over the last half an hour or so.

First, that you have introduced fluid as a late addition to your opinion and then you have added fluid now to keep the mechanism going rather than reflect what we have on the facts here.

EVANS: Mm, mm.

JOHNSON: Could you go to your report of 21 October 2021?

EVANS: Yes.

JOHNSON: It's a report you wrote 18 months ago. Given that the suggestion has been made that you have only just introduced fluid, can you go to a number of questions that you were asked, please. Can you find your paragraph 4, which is at the bottom of the first page?

EVANS: Yes.

JOHNSON: And can you see there that you were asked to comment on Nurse Minna Lappalainen's note, which we've just seen on the screen. All right? Can you then go to your paragraph 5 on the next page? You there reproduce the note; is that right?

EVANS: Yes.

JOHNSON: What do you reply in your report 18 months ago? Can you read out your report, please?

EVANS: Sorry, this...?

JOHNSON: It's your paragraph 5 of the report, dated 21 October 2021. I think you're in the wrong report.

(Pause)

It starts:

"My response is as follows..."

EVANS: Yes.

JOHNSON: You set out the medical note of Minna Lappalainen; is that right?

EVANS: Yes.

JOHNSON: It's a typed version of what we've seen on the screen in her handwriting.

EVANS: Yes.

JOHNSON: Can you just read out, in answer to the suggestion that you have only just made this up, what you have put in your report, please?

EVANS: "At the time [Baby Q] was receiving a minuscule amount of milk. The chart dated 25 June 2016 records him as receiving only 0.5ml every 2 hours. If he had vomited clear fluid he must have been given clear fluid orally, either in the form of water or a clear solution such as saline from an intravenous bag. In addition, he received a lot of air as well. It is most likely this was administered via NG tube. None of this could have occurred as a result of prescribing error. Any naturally occurring mucus would be of a very small volume and would not explain his vomiting and very significant deterioration."

Thank you for that. That's 21 October 2021.

JOHNSON: Yes. Have you just made that up today or in the last few days, Dr Evans?

EVANS: Well, it's down there 18 months ago.

MR JOHNSON: Yes, thank you.

Does your Lordship have any questions?

Questions from THE JUDGE

MR JUSTICE GOSS: Just so that I'm clear about this, you've explained your sift report was in 2017. You were asked about another report in 2018 by Mr Myers, where there was only mention of air.

EVANS: Yes, that is true, my Lord.

MR JUSTICE GOSS: Then 25 January 2019. Was there any mention of fluids in that report or not?

EVANS: I noted fluid in the report, my Lord, but I didn't -- but in the conclusion I only mentioned air. I did know there was fluid there, but I should have put fluid and air there.

MR JUSTICE GOSS: You didn't attribute that as a cause of the event?

EVANS: Correct.

MR JUSTICE GOSS: Thank you. I just wanted to be clear about that.

EVANS: So the fluid and -- eventually, I got through to mentioning fluid 18 months ago.

MR JOHNSON: Thank you, Dr Evans.

MR JUSTICE GOSS: Right. That's all, I just wanted to clarify.

Thank you very much, Dr Evans. That completes your evidence in its entirety.

MR JOHNSON: It does, thank you.

MR JUSTICE GOSS: Thank you. You no longer therefore will be required again, you won't be required again.

(The witness withdrew)

MR JUSTICE GOSS: We'll hear from Dr Bohin tomorrow morning.

It's too late now because someone's going to come and speak to you. 10.30 tomorrow morning. As far as tomorrow is concerned, you will have learnt over the months that we've been together that estimates as to how long things are going to take are notoriously unreliable, but I've been told that as far as tomorrow is concerned it's unlikely to be a full day. It's our last day before the Easter break. It's anticipated that -- by 3 o'clock?

MR JOHNSON: Yes. Doctor --

MR JUSTICE GOSS: No need to explain. As I said, your word is not your bond in that respect.

MR JOHNSON: Good job!

MR JUSTICE GOSS: It's always difficult because there's more than one person who's participating in the proceedings, but I'm hoping we will finish certainly by 4 o'clock tomorrow at the latest.

I will just go through with you, before we part company for the Easter break, days that we will definitely not be sitting, or part days we'll definitely not be sitting, once we come back together on Monday, 17 April. As you know, Tuesday the 18th is definitely not a sitting day. You've known about that for some time. I will just say a few words to you as well tomorrow afternoon before we have the next break. All right? Thank you very much.

(In the absence of the jury)

MR JUSTICE GOSS: Mr Johnson, just this. As far as the materials that Mr Myers and Ms Clancy have put together in relation to the matter that was raised, I'm obviously not going to consider that at this stage. But if you wish to contribute to it, either when we re-assemble after the break or very shortly thereafter, you should feel free to do so.

MR JOHNSON: Thank you very much.

MR JUSTICE GOSS: It's a helpful document, if I may say so, in relation to considerations.

MR MYERS: I'm grateful for that, my Lord.

MR JUSTICE GOSS: Good. Thank you very much.

MR MYERS: We'd be grateful if we could have the opportunity for a quick visit with Ms Letby.

MR JUSTICE GOSS: Yes. Someone will be straight down.

Thank you very much. 10.30 tomorrow.

(4.02 pm)

(The court adjourned until 10.30 am on Thursday, 6 April 2023)