

Monday, 12 December 2022

(10.28 am)

... [Omitted] ...

(Pause)

(In the presence of the jury)

MR JUSTICE GOSS: Yes, Mr Johnson.

MR JOHNSON: Thank you, my Lord. Dr Dewi Evans, please.

DR DEWI EVANS (recalled)

Examination-in-chief by MR JOHNSON

MR JOHNSON: Thank you, Dr Evans. Would you just, for the sake of the record, give us your full name, please?

A. Dr Dewi Evans.

Q. Thank you. Dr Evans, so far as the case of [Baby G] is concerned, the jury knows that there are actually three counts concerning [Baby G]'s case, counts 7 to 9 inclusive. All we're dealing with at the moment is count 7.

A. Yes.

Q. All right?

A. Yes.

Q. So the events of and leading up to 7 September.

A. Yes.

Q. Just as a reminder for the rest of us, there were events also on 21 September, about which you have written reports?

A. Later I did, yes.

Q. But for now if we just concern ourselves with the events

of the 7th, please. If I can just summarise...

(Pause)

If I can summarise the position then, please.

You have written several reports, haven't you, in
[Baby G]'s case?

A. I have, yes.

Q. The first was dated 6 November 2017?

A. That is correct.

Q. Was that your original sift report?

A. Yes, it was.

Q. Did you then write a more detailed report on
31 May 2018?

A. I did.

Q. Followed by a report on 24 March 2019?

A. I did.

Q. And that report on 24 March 2019 concerned primarily the
events of 21 September 2015?

A. Correct.

Q. You followed up with some additional reports of
17 October 2021?

A. Yes.

Q. 21 October 2021?

A. Yes.

Q. 22 April 2022?

A. Correct.

Q. And then finally, 14 September 2022?

A. Yes.

Q. Thank you. I'd like to start, if we may, please, with your report of 31 May 2018, which for your Lordship's note is at I2008.

It's a little time since we went through the sequence of events relating to [Baby G], so I'd just like to deal with a few dates with you first of all, please, Dr Evans. As you point out in your report, [Baby G] was born on 31 May 2015.

A. Yes.

Q. That was, of course, at Arrowe Park Hospital.

A. Yes.

Q. On 14 June 2015, so 2 weeks after she was born, she was examined via a cranial ultrasound; is that right?

A. Correct.

Q. Was that to identify whether or not she had any bleeding on her brain?

A. Yes. Brain bleeds are very common in premature babies, so cranial ultrasounds are carried out routinely. The absence of bleeding is always a very encouraging sign.

Q. Yes. Just to remind ourselves, of course, [Baby G] had been born exceptionally early, hadn't she?

A. Yes.

Q. 23 weeks and 6 days' gestation?

A. Yes.

Q. And she had weighed at birth 535 grams?

A. Yes.

Q. I think in one of your reports you described that as

being at the edge of viability or words to that effect or the limits of viability?

A. I did, I did.

Q. On 29 June 2015, [Baby G] had what's called a Broviac line fitted; is that right?

A. Yes.

Q. And I think this sort of intravenous access is something that we'll hear about more in one of the other cases; is that right?

A. Yes.

Q. But in effect, is it IV access that's achieved by the surgeons?

A. Yes. A Broviac line is inserted into a large blood vessel and it requires a surgical procedure and it's used in premature babies because getting IV lines is difficult and is painful, therefore you get a Broviac line in, into a main blood vessel, it can stay there for quite some time. It's how you would give intravenous nutrition -- we've heard about TPN -- and also intravenous antibiotics, if required, or any other requirement that needs intravenous access.

Q. Was there a further ultrasound examination -- I'm looking at paragraph 8 at your report now -- a cranial ultrasound examination of [Baby G]'s brain on 30 June?

A. Correct. That showed -- that was essentially normal. The important thing was no IVH. IVH is intraventricular haemorrhage. Therefore there was no evidence of

bleeding into the brain. So a very satisfactory finding.

Q. Did [Baby G] then remain at Arrowe Park, the tertiary hospital, until she was discharged on or about 13 August 2015?

A. Yes, that's correct.

Q. On your examination of the medical notes, did you find notes running up to and including 13.00 hours on 13 August?

A. I did. I didn't summarise them all in detail, but yes, I saw that, and it covered her progress there, yes. And she was stable.

Q. Yes. At discharge from Arrowe Park, was [Baby G] receiving ventilatory support via CPAP?

A. Yes. She was requiring 30% oxygen. She was known to have what we call chronic lung disease.

Q. Yes.

A. Therefore she was still needing oxygen -- not a great volume, 30%, not a great concentration -- and she also required CPAP, which is this mechanism whereby babies receive their oxygen via slightly raised pressure. So it's a standard management of babies, premature babies, when they require -- when they have chronic lung disease. So having said all of that, she was stable.

Q. So looking at your paragraph 13 of the statement of 31 May, Dr Evans, do we see there in effect you setting out in writing what you've just told us?

A. Yes. I mean, her first couple of weeks at Chester, she was requiring 28% to 31% oxygen, therefore the same as she was when she arrived from Arrowe Park. Another brain ultrasound had shown -- reported what was described as mild bilateral ventriculomegaly, which is not uncommon and not generally deemed a concerning finding, more on the left than the right. Otherwise she had a normal heart rate, she had a normal breathing rate, she had a normal temperature. Her tone was described as being normal. She required support, medication-wise, so she was given Gaviscon, which is very, very commonly used in small babies, and she was also given a combination of diuretics, which again -- furosemide and spironolactone, and these are again drugs that are given in little babies. She had supplemental sodium. We heard earlier today that her sodium was a little on the low side, so she was having sodium chloride and Sytron, which is an iron supplement. So she was receiving iron.

So all was well and her oxygen saturation was 95%, which is very satisfactory.

Q. Yes. You have just repeated a term that we heard for the first time this morning from Dr Harkness, which is mild bilateral ventriculomegaly, but you didn't give us any further explanation as to what that meant. Could you just remind us what it means, please?

A. Yes. The brain has two hemispheres, left and right.

And in the middle there are two potential -- well, holes, really, ventricles. Premature babies, if you get a -- are at risk of getting a haemorrhage, a bleed, into these ventricles which are set in the middle of the brain. The ventricles have a normal range which you can measure on ultrasound. [Baby G]'s ventricles were slightly larger than average. But as an isolated finding, this is not uncommon and it's something that you simply record.

Q. Thank you. It may help us, Dr Evans, to go to the more recent jury bundle, which is this jury bundle number 2.

MR JUSTICE GOSS: Yes. You put it on the floor, I think.

MR JOHNSON: I think it's at the bottom, as always. It's the one with 24 dividers in or thereabouts.

A. Yes.

Q. This will help us to navigate your evidence as to [Baby G]'s condition, hopefully. Just to remind us, because it's been a while since we looked at this material, the first page, it's divider 7 of course because we're dealing with count 7.

The first page has the page number in the bottom right-hand corner in red, J6959.

A. Yes.

Q. Is this the observation chart running from 23.00 hours on 23 September (sic) through to 17.00 hours on 5 September?

A. On 2 September.

MR JUSTICE GOSS: The 2nd.

MR JOHNSON: What did you say?

MR JUSTICE GOSS: The 23rd. You were eliding, I think, the 2nd and the 3rd, creating the 23rd. We knew what you meant because we are all looking at it in the top left-hand corner. We could see it starts at 23.00 on the 2nd.

MR JOHNSON: Sorry. It's having a day off. It's thrown me out. Right.

Dr Evans, do we see there that [Baby G] was being -- it's not always the case, but generally speaking, having her observations taken about every 3 hours?

A. Something like that, yes.

Q. Yes, there are exceptions to that, but generally speaking over that period of time, observations every 3 hours. So over that period of time, what would you observe as being her general state from the observations at least?

A. Right. Very satisfactory. If we look at the first page, which goes from the 2nd to the 5th, you have a normal pattern of heart rate. You have a normal pattern for respiratory rate, 50 to 60. Her temperature's normal. Then towards the bottom on the extreme left hand, you've got SaO₂, that's oxygen saturation, which we've mentioned, and her oxygen saturations measured -- there's 99, 98, 97, 100, et cetera. So all very satisfactory. And she's in

oxygen, 30%, and then I think we heard earlier today that she was put on low-flow oxygen because her condition was getting even better.

Q. Yes.

A. So 0.06 and 0.07, that relates to the amount of oxygen she was getting. So that page, very satisfactory.

Q. Okay. Could you just stop you there so we all follow what you're saying? So we have the SaO₂, which is saturations inn oxygen; is that right?

A. Yes.

Q. Below that, O₂, which is the chemical symbol for oxygen?

A. Yes.

Q. We see 30% reproduced on -- ignoring the one that's crossed out, there are four of those; is that right?

A. Correct, yes.

Q. And we then go to the entry at 11 am, 11.00 hours, on 3 September, and that goes to 0.08. Is that a reflection of the moment at which -- the means by which [Baby G] was being given oxygen changed?

A. Correct.

Q. So an improvement at that point in the sense of the intrusiveness of the system by which oxygen was being administered to [Baby G] was less?

A. Correct.

Q. All right. So a reflection of the fact she was doing better. We then have, what, cares; is that right?

A. Yes.

Q. Do you know what the next word is? Is it "position"?

A. "Position" and "probe". I'm not sure what probe applies to.

Q. All right. Moving on then, on the 6th into the 7th, and indeed -- well, we start on the 6th at 20.00 hours with a continuation of observations every 3 hours.

A. Yes.

Q. Is that right?

A. Yes.

Q. And that changes between 2 and 4 o'clock in the morning when it goes down to 2 hours and then from 4 to 5, it goes down to hourly observations?

A. Yes.

Q. Just to remind us, in the respirations line or section/block, we see that the rate of respirations is recorded in two different ways. One is with dots that look a bit like tadpoles --

A. Yes.

Q. -- which moves at 4 am to crosses in circles.

A. Yes.

Q. What do those two alternative ways of recording respirations denote?

A. Right. Well, the first half, the bit on the left, is a continuation of the respirations from the previous few days. So her resps vary between 40 and 50/55. The crosses simply is -- I'm not quite sure what the crosses relate to. In the context of the fact we know she'd

collapsed, so presumably these crosses indicate that she was receiving ventilatory support.

Q. Yes.

A. That is what I would assume is the difference in the way that her respiration has been recorded.

Q. Yes. Well, I think you're right. I think those records of the cross in the circles coincide with the time at which she was put on to a ventilator.

A. Yes.

Q. Up to 2 in the morning -- we'll come to the rest of it in due course -- how would you describe -- I should say on the morning of 7 September, how would you describe [Baby G]'s observations?

A. Again, very much the same as the day before. If we look to SaO2 again, we've got a number of recordings of oxygen concentration -- sorry, oxygen saturation, I mean.

Q. Yes.

A. The first one is 96 and then there's a 98, 98, 97, et cetera, 93, 92, 97. So again, very stable. Very, very slight variations, absolutely fine. Her oxygen requirement -- she is still on this low-flow measurement, which is why you've got 0.06 or 0.07 rather than an oxygen concentration itself. So therefore up until around 2 in the morning, her condition remains as satisfactory as it was for the previous few days.

Q. Thank you. Before we have our midday break, if I just

deal with the other documents here just to remind us where things are if people want to search them out as you continue with your evidence.

Turning beyond the observation charts, please, to the intensive care chart, which has the number 6962 in the bottom right-hand corner, does that record various substances being given to [Baby G] on 7 September --

A. Yes, it does.

Q. -- starting at 4 o'clock in the morning?

A. Yes, it does.

Q. We see 10% glucose, morphine, midaz -- is that short for midazolam?

A. Midazolam. Yes, that's right.

Q. Dopamine and then bolus and then what the bolus is is recorded, or sometimes recorded, alongside those figures, together with output of various things.

A. Yes.

Q. Then a page further on, 6971. Is this the blood gas chart?

A. It is.

Q. Which continues over to 6972?

A. It does.

Q. And then the final two pages in this section, are they the feeding chart?

A. They are.

Q. Being 5 September at 7012?

A. Yes.

Q. And the bottom half of that page, 6 September?

A. Correct.

Q. And finally at 7013, 7 September and the feed at
2 o'clock in the morning --

A. Yes.

Q. -- administered by [Nurse E]?

A. Yes.

MR JOHNSON: My Lord, that may be a good moment.

MR JUSTICE GOSS: It is, certainly. Thank you very much.

We'll break off there and resume at 2.05, please,
members of the jury.

(1.04 pm)

(The short adjournment)

(2.05 pm)

MR JUSTICE GOSS: Mr Johnson.

MR JOHNSON: Dr Evans, we had just reminded ourselves of the
contents of the jury bundle in terms of the documents.
We heard this morning from some of the treating medics
that, in their view, [Baby G] was in an entirely
satisfactory condition as at the beginning of the night
shift of the 6th into 7 September. Would you agree with
that assessment, first of all?

A. I would, yes.

Q. Thank you. If we could go to tile 80, please.
If we scroll down, please.

This is Dr Ventress' note, if you recall --

A. Yes.

Q. -- concerning her being called to review [Baby G] at 02.35 and saying that she'd had:

"... a very large projectile vomit, reaching the chair next to the cot and the canopy. Abdomen appeared discoloured, purple and distended. She was distressed and uncomfortable, red in the face and purple all over, and then an increased oxygen requirement followed by full feed, 45ml aspirated, large watery stool passed, after which abdomen slightly better. [Baby G] relaxed and [something]..."

A. "Appeared."

Q. "... back to usual self."

Could we look at J26510, Mr Murphy, which was Ailsa Simpson's exhibit.

(Pause)

It was put on the screen during Ailsa Simpson's evidence.

(Pause)

MR JUSTICE GOSS: It's a photograph, isn't it?

MR JOHNSON: It is, my Lord, yes.

MR JUSTICE GOSS: I've found it in my note.

MR JOHNSON: Sometimes the old ways are the best.

MR JUSTICE GOSS: A handwritten note.

MR JOHNSON: If it's going to be a problem we'll come back to that, Dr Evans.

So going back to your report then, I'm looking at paragraph 15 in which -- so we're still in the report of

31 May 2018.

A. Yes.

Q. You identified those notes of Dr Ventress. You moved on to deal with the second page of what we can see on the screen in front of us now, which is, if Mr Murphy could scroll down, please, to note the fact that Dr Ventress had been called out of theatre because [Baby G] had gone apnoeic and dusky, that Dr Brearey was called in --

A. Yes.

Q. -- as he reminded us this morning. That, on arrival, Dr Ventress had noted the fact that [Baby G]'s saturation was 50% in 100% oxygen. That she became pink and well perfused with the mask on and CPAP. That Dr Ventress had tried to obtain intravenous access.

Right, thank you. We've now found AS4. So if we could just go back to that, please.

(Pause)

Just to remind ourselves of the evidence of Nurse Simpson, who marked with those black circles the locations of the vomit. And you indeed were shown these a few months ago, weren't you, or shown this a few months ago?

A. Yes. Recently, anyway.

Q. Relatively recently. Thank you. So if we could go back to the sequence, please, Mr Murphy. We may return to that photograph in due course.

Your paragraph 17 now, please, Dr Evans. You noted

the fact, just at the bottom of the previous page, that [Baby G] was intubated at some stage between 2.35 and 4.40 in the morning. And you have reminded us, when we looked at the second page behind divider 8, page 6960, that the cross in the circle in the respirations column or part of the form indicates the fact that [Baby G] had been intubated. We can see that the first one of those is at 4 o'clock in the morning.

A. Yes.

Q. You also noted, and I think it's just at the bottom of what we're looking at on the screen at the moment, if we can scroll down, please, keep going down -- it may be on the next page -- the fact that some bloodstained fluid came up the trachea --

A. Yes.

Q. -- which we will return to in due course.

MR JUSTICE GOSS: That's on our screen now.

MR JOHNSON: Yes, thank you.

MR JUSTICE GOSS: Second line down.

MR JOHNSON: Thank you.

So:

"Intubated, size 3 ETT, 8 centimetres at lips, bloodstained fluid noted coming up from trachea/between cords."

If we can go to tile 107, please, Mr Murphy.

Did you note next in your report what you describe as the note of the profound desaturation of [Baby G] at

05.30?

A. Yes.

Q. The fact that [Baby G]'s heart rate reduced to 60 and her saturations to 40%. That's about a third of the way up the page as we're looking up the page there, about half a dozen lines up.

A. Yes.

Q. There's an inverted arrow. Heart rate down to 70, sats 40%, perfusion reduced, refill time 3 seconds.

That [Baby G] had desaturated when put back on the ventilator, which Dr Brearey told us about this morning; is that right?

A. Yes.

Q. Then tile 117, please. Do you refer next to a further profound desaturation at 06.05 in the morning? It's further down. Do you see it there?

A. Yes.

Q. [Baby G]'s heart rate dropped to 80%, was re-intubated, whereupon her heart rate increased to 120, her oxygen saturations remained at 50, despite increasing pressure from the ventilator.

A. Yes.

Q. And this is where "thick secretions ++ in mouth" plus "blood clot at end of ETT" were noted by the treating physicians?

A. Yes.

Q. Thank you. Further down the page, do we see the

re-intubation at 06.15 hours?

A. Yes.

Q. That the nasogastric tube was aspirated at that stage and 100ml of either fluid or air, or a mixture of both, depending on the evidence, was aspirated from the nasogastric tube?

A. Yes.

Q. I think in your report you made the following note:

"It's not clear how much of the 100ml was milk, how much was air."

A. Correct.

Q. That was your note on reviewing the medical records?

A. Yes.

Q. Thank you. Did you then recount the fact that [Baby G] was given a paralysing agent, pancuronium?

A. Yes.

Q. Her blood gases, which we know are recorded on the paper documents that we have behind divider 7?

A. Yes, got that here.

Q. Thank you. And the fact that [Baby G] was transferred to Arrowe Park Hospital at about 3 am on 8 September?

A. Yes.

Q. Next in your report did you review the observation charts which we've looked at up to and including the time of [Baby G]'s collapse?

A. I have.

Q. So these are documents that we have referred to behind

divider 7 at page 6960.

Did you also refer to the neonatal feeding charts --

A. I did.

Q. -- from the early hours of 3 September up to the time of [Baby G]'s first collapse --

A. Yes.

Q. -- at about 2 am?

A. Yes.

Q. Sorry, some time after 2 am I should say, on 7 September.

A. Yes.

Q. Those are or at least some of those documents are the last two documents behind divider 7 in the jury bundle.

A. Yes.

Q. Did you record the fact that [Baby G] was being alternately fed, by and large, with the nasogastric tube and a bottle?

A. Correct.

Q. So for examples of that, starting at page 7012, which is behind divider 8, which is the 5th and 6 September, do we see those facts recorded under the "route" column?

A. Yes, we do. It's alternate nasogastric feeds alternating with bottle feeds, yes.

Q. And from time to time do we see that [Baby G] was fed via both routes at about the same time? So as an example on 5 September at 11 am and at 18.00 hours and indeed at 23.00 hours do we see partially fed by bottle --

A. Yes.

Q. -- and partially fed by nasogastric tube during the same feed?

A. Yes.

Q. Just so that we understand, and lest we've forgotten some of the evidence we received several working days ago now, how quickly does it take for expressed breast milk to get from the tube where it's poured by the nurse into the stomach of the child under the force of gravity?

A. Well, it's a gravitational feed and this is a question better answered by a nurse --

Q. Right.

A. -- because nurses are the ones who feed babies and I think we heard one of the nursing staff saying it could take anything from 5 to 20 minutes and that's fine, I would go along with that. It doesn't take a few seconds, it takes several minutes and it might take longer than -- some feeds than others.

Q. Yes. But using your long experience of such things, does a baby -- what happens if a baby's stomach is full?

A. Once the stomach is full, it's full. Therefore if you give milk gravitationally, that's the end of it, you won't get any more milk trickling down from the syringe into the stomach because the stomach is full.

Therefore, if the stomach can only accommodate 45ml and you give, say, 55ml, then you're unlikely that the --

the baby is unlikely to absorb the final few millilitres of feed.

Clearly, stomachs are distensible, in other words they do expand to accommodate the volume of fluid they're receiving, but as a general principle if the stomach is full, then it's full and no more milk will run down the tube into the stomach.

Q. Under the force of gravity?

A. Under the force of gravity, correct.

Q. As a matter of -- would there be a way of getting additional milk into the stomach if you couldn't get it in under the force of gravity?

A. Well, the milk is given via syringe, where the plunger of the syringe is withdrawn, so it's the open end of the syringe that is connected to the nasogastric tube, which gets into the baby's stomach. But if you put the top end, in other words the plunger end, of the syringe into the syringe and press it down then you will force more milk or fluid through into the stomach.

Q. All right.

A. You never do that because obviously you would overdistend the stomach. So therefore this is why it is so important that babies who are on nasogastric feeds are only fed by gravitational means. In other words, letting the milk drip through slowly.

Q. Yes. Thank you.

Did you refer next in your report to what we see on

the final page behind our divider 7, namely
[Nurse E]'s note at 02.00 hours on the morning of
7 September? I'm looking at your paragraph 21 now,
Dr Evans.

A. Yes, thank you. Yes.

Q. Did you refer to the fact that, in the nursing record,
there was a note of the fact that there had been
a large -- what was recorded as a "large projectile
milky vomit" at 02.15?

A. Yes.

Q. Followed by the words "continued to vomit ++"?

A. Yes.

Q. Followed by:

"45ml milk obtained from NG tube with air ++"?

A. Yes.

Q. And that:

"Abdomen was noted to be discoloured and distended.
Colour improved few minutes after aspirating tube.
Remained distended but soft"?

A. Yes. There's a misprint there. It's got "discoloured
and discoloured".

Q. Yes.

A. It should be "discoloured and distended".

Q. Yes. Did you refer at your paragraph 23 to the blood
gas results?

A. I did.

Q. And for the jury's information, they are at pages 6971

to 6972.

So far as those results were concerned, if we can start with the results at 03.59 on the morning of the 7th. I'm not sure they actually appear in the table that we have, do they? I think you have made a note of them. But if anybody wants to write them on to the blood gas results, I think -- were you looking for signs of an infection?

A. Yes, yes, I was, because as we have heard infection is probably the commonest risk factor for any baby on a neonatal unit. So therefore one is always on the alert for evidence of infection.

Q. Yes.

A. So I can go through those three...

Q. Yes, well, I think we heard from Dr Brearey this morning something of at least some of these readings, didn't we --

A. Yes.

Q. -- in his evidence? At 3.59 in the morning the CRP reading was less than 1?

A. Correct.

Q. The WBC, what's that?

A. That's the whole blood count-- sorry, that's the white blood count, but it's the total white blood count. There are different types of white cells, so the main two are neutrophils and lymphocytes, so therefore the total white count is 10.1, which is fine. The

neutrophil count -- the neutrophils are the white cells that increase first during or as a result of infection. So the neutrophil count of 1.4 is perfectly normal and tends to rule out infection.

Q. Right. So just taking a step back and summarising the position from the blood test at 03.59, so in other words a couple of hours or two and a half hours, even -- sorry, no, an hour and a half after the vomit, the projectile vomit, did those blood test results show any evidence of infection?

A. No.

Q. By 14.18, later that day, so about 10 hours later or so, was there any change to those results?

A. Yes, there was. The CRP is now 28, so that is an increase and that could be interpreted as a marker of infection. It's not particularly high, but the important thing is it's gone up and it's 28. The total white cells, 11.2, so no difference between 11.2 and 10.1. But you also have an increase in the neutrophil count to 6.5.

Q. Yes.

A. And again, the key thing there is that the neutrophil count has increased. A value of 6.5 is not particularly concerning, but in conjunction with a CRP of 28 it would suggest that the neutrophil count has increased and therefore it's an indicator of infection. So this is -- yes, so this is 10/12 hours later.

Q. Yes. By 22.53, had the CRP count or value risen to 106?

A. That is correct. So therefore this is a very significant increase, consistent with infection.

Q. Yes. Now I want to move on, if we can, please, to the observations section of your report, please, Dr Evans. That's paragraph 30.

A. Yes.

Q. You refer there to [Baby G]'s remarkably small size.

A. Yes.

Q. You describe her as -- we discussed before the adjournment that she was "at the margins of survival" --

A. Correct.

Q. -- when she was born.

A. Yes.

Q. And you thought it was a reflection of the skill of the staff at Arrowe Park Hospital that she survived.

A. Yes.

Q. Did you look at the care that [Baby G] received at the Countess of Chester between being admitted there in August, 14 August, and collapsing some time after 2 am on 7 September?

A. I did.

Q. Could you find any evidence in the medical notes that during her time at Chester, [Baby G] had been unwell up to the point of her collapse?

A. No. Her condition was stable. She was requiring oxygen because she had chronic lung disease and, if we recall

the discharge summary from Arrowe Park, there were only two issues there. One that she has chronic lung disease and the second active issue was establishing feeds.

Q. Yes.

A. So those were the only -- so therefore given her start in life, this was an extremely satisfactory state.

Q. So given her breathing issues, just going back to our paper documents behind divider 7, what do those documents at -- the first two documents at 6959 and 6960 tell us so far as those breathing issues were concerned prior to her collapse?

A. They are all extremely -- they're indicative of a baby who's got chronic lung disease, who is stable and would be expected to continue to remain stable until she would be well enough to go home, probably after she would have been fully established on bottle feeding.

Q. Yes. And so far as establishing her on bottle feeding is concerned, we have a snapshot of that in the final two documents behind divider 7 in the sense of we have the full day on the 5th, we have the full day on the 6th, and we have the single feed prior to collapse. But what do those documents tell us so far as the establishment of that regime was concerned?

A. Again, all of these are very satisfactory findings. She's 2 kilos by now, so that's a fair weight, slightly less than you'd expect for her gestational age, but satisfactory, and she is coping with bottle feeds every

other feed.

Q. Yes.

A. So you know, that is satisfactory. And what you would normally find is that over the -- you know, over the next week or two, she would be given more feeds by bottle and fewer feeds by nasogastric tube until she was well enough to go home, and she would probably have gone home still requiring oxygen supplements.

Q. If the jury wouldn't mind keeping open page 7013, and if Mr Murphy would put back up on the screen exhibit AS4, please, which is a photograph.

At paragraph 32 of your report of 31 May, Dr Evans, you refer specifically to the entry made in the -- by Dr Ventress.

A. Yes.

Q. And you drew certain -- so you quoted it and we've just looked at it. But you expressed a concern in your paragraph 33. Could you tell the jury what your concern is and, in particular, by reference to what [Nurse E] has written there on page 7013?

A. Well -- 7013, right. We'll start with what [Nurse E] said because she says at 02.00 hours [Baby G] had EBM, expressed breast milk, with fortifier, which is extra calories, less Gaviscon, which is given commonly to little babies, and was given 45ml of feed via nasogastric tube.

The column re-vomit aspirate says pH 4. PH 4 means

acidic, therefore there's acid in the stomach, that's what she says.

Then I think I'll read my paragraph 33.

Q. Please.

A. Paragraph 33 relates to the fact that she'd had this projectile vomit and I quote --

Q. And we can see in pictorial form on the screen where the vomit landed, can't we?

A. Yes. Let's mention that.

Q. And how would a baby be lying in that contraption?

A. Presumably, the baby would be lying with its feet towards this end of the photograph and its head at the top end.

Q. That was the evidence, certainly.

A. Okay. There are three black circles. The one in the cot obviously indicates that the baby was sick and had vomited in the cot. Babies do vomit and therefore the fact that the baby vomited in a cot would be worthy of note but not unusual.

The second circle is the one between the chair and the cot on the floor. For a baby of 2 kilos to vomit that far is quite remarkable because on the whole, when babies vomit, they tend to vomit over their babygros, you know, and over whoever's holding them if they are held by someone. But that is as far as it goes unless they have a condition called pyloric stenosis, that Dr Brearey mentioned this morning.

Q. Yes.

A. And he said projectile vomiting is something he's only seen with pyloric stenosis and the same applies to me as well. Pyloric stenosis is a condition that turns up and a baby will vomit quite far away.

But even more astonishing is the vomit that ended up on the chair. Now, that is several feet away. I can't recall a baby vomiting as far as the floor, but certainly I can't recall a baby vomiting that distance and it was described correctly as projectile vomiting and that is quite extraordinary.

So therefore there is something very, very unusual going on here for [Baby G] to show up in this way with this vomiting and, on top of that, of course, they have noticed that her abdomen was distended. Well, you know, small babies don't have muscles in the abdomen, therefore if you put a lot of fluid or a lot of air into the stomach, the abdomen will swell.

Q. Yes.

A. And as well as vomiting -- and you can't measure accurately the volume of vomit because it'll be all over the floor and all over the chair -- on top of that the nurse staff aspirated -- in other words they got the syringe and extracted 45ml of feed from the nasogastric tube. This was in addition to the milk she had vomited.

Q. Right. Let's just -- sorry to stop you, but if Mr Murphy could help us by reminding us of what

Lucy Letby wrote down at tile 79, please. If we can go to the original note behind the tile, please.

So:

"[Baby G] had large projectile milky vomit at 2.15, continued to vomit ++. 45ml milk obtained from NG tube with air ++. Abdomen noted to be distended and discoloured. Colour improved few minutes after aspirating tube, remained distended but soft. Reg Ventress asked to review. To go nil by mouth with IV fluids."

So just going back to your report then, please, Dr Evans, with my apologies for stopping you and referring the jury back to Lucy Letby's note, could you continue your explanation?

A. Well, if I continue on my paragraph 33, really.

Q. Yes.

A. So the entry from (inaudible) makes it clear the member of staff aspirated 45ml of feed from the NG tube in addition to the milk she had vomited. There can be only one explanation: [Baby G] had received more, far more, than 45ml of feed down the NG tube before she vomited at 02.15 hours. She may also have received a bolus of air from the feeding syringe used for feeding. This caused the abdominal distension, the distress, the change of abdomen colour and the vomiting.

So therefore, just to add to that, just one thing, really. So [Baby G] must have received far, far more milk

down the tube. She probably had more air as well. And given that it had caused the abdominal distension, et cetera, I don't think this got down by gravity, so the mechanical explanation is that the plunger end of the syringe must have been put over the syringe and the milk forced down, squirted down the tube, if you like, using a syringe, and this caused the baby -- would have caused the abdominal distension to start off with, then it would have caused the baby distress and, of course, she would have vomited because of the gross overdistension of her stomach.

Q. So given that you've told us that in the absence of pyloric stenosis -- well, let's deal with pyloric stenosis first before I ask you this question. Why do you exclude that as a possibility for what happened?

A. Well, pyloric stenosis is something that occurs with babies 6 to 8 weeks of age or thereabouts and it doesn't occur and disappear, it requires a surgical procedure to treat the overgrown muscle at the bottom of the stomach.

Q. Okay.

A. Therefore if she had pyloric stenosis the vomiting would have continued until somebody took her to theatre and operated on her.

Q. Can we exclude that as a possibility?

A. We can exclude pyloric stenosis completely.

Q. You have told us that baby of this size and age would be incapable of producing the amount of force required to

vomit out of the cot on to the floor and beyond on to a chair.

A. Mm.

Q. So what's the physical explanation for how this baby undoubtedly did manage to do that?

A. Well, she -- well, right. The whole of the gastrointestinal system has a series of muscles, from the mouth all the way through. A particular kind of muscle is called smooth muscle. Muscles only go one way, therefore milk will go from the mouth down through the oesophagus, through the stomach, through the intestine and then out the other end. So it's one-way traffic.

The only time this does not work is if the baby's compromised by something. Okay? So in this situation the baby was compromised by receiving a large volume of fluid into the stomach, and in that situation, the stomach muscles would contract and the contraction of the stomach muscles would lead to the baby vomiting. This is not unique to babies. If anybody drank too much fluid too quickly, you'd end up with a similar pattern of vomiting. So therefore the mechanism of it is straightforward.

Q. Is it like putting a large amount of air or fluid, or a combination, into a balloon to stretch the balloon and then letting your fingers off the end in effect? Is that the sort of idea?

A. No, I'd make it simpler than that.

Q. Go on.

A. I'd make it simpler than that. You can't be flippant in this. But if an adult drank a large volume of liquid too quickly they would probably vomit --

Q. Right.

A. -- because there is a rate at which liquid can go from stomach to intestines through to the intestine, therefore any indulgence of drink leads to vomiting.

Q. Okay.

A. The stomach muscles contract and it all comes out.

Q. All right.

A. So this is what happened to this little baby.

Q. Thank you. Moving on to your paragraph 35, Dr Evans. Did you look at the X-rays of [Baby G] and, in particular, one that was timed just before 5 am at --

A. I did. Now, I emphasise I'm not a radiologist, so we do have a radiology opinion, but obviously I'm familiar with looking at X-rays of the abdomens and chests of little babies, so this is about the limit of my radiology competence as it were. And the X-rays shows chronic lung disease and a great deal of air in the abdomen, yes.

Q. We'll leave that for the radiologists in due course.

Thereafter, so far as this report was concerned, were there -- did you come to any conclusions about what happened to [Baby G] following this unusual vomit at

anything between 2.15 and 2.30?

- A. Yes, I did. Her condition over the next few hours was incredibly unstable. I'll explain it in more detail, but this is a time when she's experienced a significant amount of oxygen deprivation. There are recorded values of oxygen saturations 40% and 50% and also bradycardia, heart rate down, and also lowish blood pressure. So therefore, getting [Baby G] back to where she was before 2 am turned out to be extremely challenging and extremely difficult. They did get her round because obviously she survived, but she suffered sufficient oxygen deprivation to cause significant irreversible brain damage.

Q. Yes.

- A. And her resuscitation was quite difficult. I've heard Dr Ventress' testimony and Dr Brearey. So it was quite difficult for all, and I just mention one or two things.

The first thing that Dr Ventress mentioned was when she tried to intubate the baby, in other words you put a laryngoscope into the back of the throat to get a tube in, an endotracheal tube, she noticed blood. She noticed blood not just at the back of the throat but the other side, in other words on the lung side of the vocal cords.

Q. Yes.

- A. So in other words, there was bleeding. Now, this doesn't mean -- this doesn't... The fact there was

blood beyond the vocal cords, in other words towards the lungs, doesn't mean that the bleeding came from beyond the cords, it could be that the bleeding came from the upper -- from the back of the throat and, you know, and then trickled down through the cords. You can't say one way or the other.

But certainly there was bleeding there and the important thing about the bleeding is that this was found at the initial resuscitation. So in other words although they had tremendous difficulties with ventilation, the bleeding was not noted an hour later or with a second intubation or with a third intubation. And the significance of that is this: that the bleeding was there from the first time that the baby was -- from the first occasion that resuscitation with intubation was attempted.

And we know that [Baby G] did not have a bleeding disorder, in other words she was not at increased risk of haemorrhage or bleeding. So therefore, the bleeding was present from the beginning. And I think Dr Harkness said the same thing: there was blood at the back of the throat, so there was bleeding at the back of the throat from more or less the time that [Baby G] crashed/collapsed.

Q. Is this the same sort of bleeding we've seen so far in any other case so far as you can tell or is it different?

A. Right. Well, we've seen this before, but much worse in

little [Baby E]. That's case number 5, the first of the twins. But the bleeding that we found there was much worse, he lost a third of his blood. So the bleeding here was not major. But the fact that it was present is not something that one would normally expect and it cannot be explained on the basis of vomiting only.

Q. No. The possibility of pulmonary haemorrhage, so bleeding from the lungs, do you regard that as being a realistic source of the blood in this particular case?

A. No, I do not. Pulmonary haemorrhage is a killer and if the haemorrhage was in the lungs itself, she's unlikely to have survived, quite frankly. But she certainly wouldn't have picked up -- although she took several hours to pick up, I don't think she'd have picked up in such a short period of time. So I don't think pulmonary haemorrhage was a factor in this collapse at all.

Q. So far as the issue of infection is concerned, from your interpretation of what happened did you regard infection as being a credible explanation for [Baby G]'s vomiting and collapse some time after 2 am?

A. No, not at all. [Baby G]'s infection, in my opinion, occurred after the collapse. I think it is worth explaining this in some detail because it applies -- it's applied to previous babies and it will apply to babies we're going to be discussing later.

The key thing is that when babies start to sicken

for an infection, nursing and medical staff in baby units are alert to subtle changes. So the oxygen requirement may go up, the oxygen saturation may go down. The breathing may become a little bit irregular. They generally don't -- they're not quite as well as they should be. There's none of that. There's none of that. There is this complete stability. You might get pooling of blood -- sorry, pooling of milk in the stomach. That did not occur. We know that she was on 45ml every 3 hours and all of it was going through either by bottle or by NG tube.

Therefore there were no markers of infection clinically at all. And then 2 hours, nearly 2 hours after her collapse, the blood tests we've discussed showed a CRP of less than 1 and a neutrophil count of 1.4. Normal.

Now, we know that CRP is not always increased at the presentation of infection, but it is in -- it is more likely than not to be increased. But the other thing that's important in [Baby G]'s case is that her infection, if I could put it that way, was very CRP relevant. In other words, her CRPs really shot up. So 12 hours later, it was 28, which is not particularly high. 20 hours or so later, it was 106, and I think there was a value of over 200 later on after she'd been transferred.

So therefore, none of her clinical features indicate

infection. None of the blood tests indicate infection. So in my opinion, the infection occurred after the resuscitation, most likely, and this is not a criticism by the way, most likely in association with all the efforts they made to get her going, you know, to save her life, really. So there we are.

Q. Thank you. Moving on, if we may, and I'm moving on, Dr Evans, to a later report of yours, please, of 17 October 2021 and I'm looking specifically at your paragraph 7, which is, I think, your page 5, if your print is as mine appears on the screen.

A. My response to the 10 questions?

Q. Correct, yes. I think you were asked to consider Dr Ventress' suggestion that [Baby G]'s initial collapse, when she projectile vomited and 45ml of milk was aspirated from her stomach, you were asked to consider whether that was consistent with being the product of an infection.

A. With respect to Dr Ventress, no, I don't agree with that. I think the infection occurred afterwards.

Q. Yes. Is that for the reasons that you have already explained?

A. Yes, yes, yes. And of course, infection would not cause a baby to vomit halfway across the nursery. And where would the extra fluid come from? Because even after vomiting, they aspirated 45ml of milk from the stomach, so therefore she had only been fed 45ml. So if you are

fed 45ml, some of the milk will have already gone through the stomach into the duodenum, you're not going to aspirate every millilitre anyway because, you know, you can't aspirate 100%, but they still aspirated 45ml. They also aspirated air. Where on earth did the air come from? Plus all the vomit on the chair and on the floor and everywhere else. So therefore, she must have had far, far more volume of milk than 45ml.

Q. All right. Now, one of the things you were asked to deal with on the issue of air was something that Lucy Letby told the police when she was interviewed.

A. Ah, right.

Q. I'm now looking at your paragraph 7 at page 7 of your report, it's the same report, 17 October. So the suggestion made by Lucy Letby in her interview was that an explanation for there being a lot of air in [Baby G] was that when babies vomit they swallow a lot of air.

A. Well, they don't. They don't. I mean, you'll vomit -- air will come out with liquid. It won't go back in.

Q. Therefore if a baby doesn't swallow large quantities of air, what conclusion did you draw as to how the air got there that was aspirated with the milk?

A. Right. As far as the initial one is concerned, I think as well as having quite a lot of additional milk pushed down into the nasogastric tube, I think she had excess air as well down that tube, and that contributed to the abdominal distension. So she had air down the tube and

excess milk down the tube.

Q. Yes.

A. Yes.

Q. And so far as Dr Brearey's evidence -- we have had differing versions of the 100ml aspiration from Dr Ventress and Dr Brearey as to whether or not it was air or whether it was fluid, possibly milk. But would infection account for either as far as you are concerned?

A. No, no. I have never seen a baby with an infection present in this way. You know, it's just not the way they present.

Q. All right. I think at a later stage -- and I'm looking now, Dr Evans, at your report of 22 April 2022, 22/4/22 -- you were asked about whether or not it was normal for babies who are fed via NGTs to vomit at all.

A. Well, they don't.

Q. It's your paragraph 4.

A. Yes, they don't. Because what -- you see, it has been explained before, but I'm not sure it's been explained clearly enough. When you have a baby on nasogastric feeds, the nurse will put a syringe before the feed -- before the feed the nurse will put a syringe on to the top of the nasogastric tube and aspirate, in other words suck back from the syringe to see if there's any residual milk there.

They do it for two reasons: first of all, to see if

there's residual milk because if the milk -- if there's a fair bit of milk from a previous feed that has not gone through, then you need to be careful about giving more milk. The second reason they aspirate the tube is to measure the acidity of the stomach content, and the reason they do that is to ensure that the end of the nasogastric tube is actually in the stomach. Okay?

The stomach has acid. Nasogastric tubes can come out and can go down the wrong way, go into the lung, so the last thing you want to do is to give milk into the wrong orifice, into the lung. Therefore, the reason that they measure pH before each feed is to ensure that the tip of the nasogastric tube is actually in the stomach.

If the baby is on bottle feed then you don't need to do that because obviously the baby will swallow normally and the milk will go down the right hole, into the stomach. But with nasogastric feeding you must ensure as a nurse that the nasogastric tube tip is in the stomach and this is why you measure its pH and a pH of 4, acid, tube in the correct place.

Q. Thank you. Can I turn finally, please, to your report of 22 April 2022 and to really the conclusion of that report, please. I'm looking at paragraph 12.

A. I'll just read it. This is my last paragraph:

"Inserting an excessive volume of fluid/milk via nasogastric tube with or without associated air cannot

occur accidentally. A professional member of staff, nursing or medical, who gives a small baby an excessive volume of milk places that infant in harm's way. It places the infant at risk of vomiting and the complication of aspiration pneumonia. Excessive volume of fluid in the stomach also interferes with diaphragm movement, splinting the diaphragm..."

Meaning the diaphragm can't move up and down:

"... leading to the risk of respiratory distress, respiratory failure and cardiorespiratory collapse."

So that was my final...

- Q. So the diaphragm is the very strong muscle under the lungs; is that right?
- A. Correct, yes.
- Q. And as the diaphragm moves, it reduces pressure in the lungs, which draws in air?
- A. Correct.
- Q. Is that right?
- A. Correct.
- Q. The effect of the stomach being overfull of air and/or fluid has what effect on that movement of the diaphragm?
- A. If the stomach is full of fluid, the diaphragm cannot move down. The diaphragm needs to move down to suck air in. If the diaphragm cannot move down because the stomach is full of air, then the baby cannot receive air and oxygen into its lungs, and it'll lead very rapidly to oxygen deprivation, oxygen reduction, in other words

oxygen saturations falling, followed by bradycardia, in other words heart rate falling, followed by collapse. So that's the mechanism of a sequence of this nature. I think we'll hear about that at a later time with another baby. But as far as [Baby G] is concerned, this is what compromised her.

MR JOHNSON: Thank you, Dr Evans. Would you wait there, please, for some further questions?

Cross-examination by MR MYERS

MR MYERS: Dr Evans, the way that you described [Baby G], her condition at the time of her birth, was that she was born on the margins of survival.

A. Yes.

Q. That's the expression you used.

A. Yes.

Q. She was extremely preterm, wasn't she?

A. "Margins of viability" was the term I used, actually. She was very preterm, yes.

Q. Right. I'm actually looking at your second report, the main one we've looked at, Dr Evans, 31 May 2018.

Page 11 of 16. It's 31 May 2018 report.

A. "Margins of survival", yes.

Q. Yes, the expression you used was "margins of survival", wasn't it?

A. Yes. I used viability somewhere else I think, but anyway.

Q. Right.

A. Same thing.

Q. She was extremely preterm, wasn't she?

A. Correct.

Q. And she was a very low birth weight?

A. Yes.

Q. And in the initial period at Arrowe Park a lot of work had to be done just to get her through that period, didn't it?

A. Absolutely.

Q. By the time that she came to the Countess of Chester Hospital, she was stable on CPAP, wasn't she?

A. Correct.

Q. And so it could be said that, relative to where she began, she was doing very much better, wasn't she?

A. Yes, indeed.

Q. Do you agree she was still a little baby that would be prone to infection?

A. Yes.

Q. With regard to the events of 7 September, which is what we're looking at now, when you came to consider this -- can you confirm how you put this, please -- if we look at your paragraph 41 at page 14 of 16, you give your opinion. I just want to look at this and then look through where we are with the evidence now.

You say:

"In my opinion, [Baby G] was treated inappropriately at or around 02.00 on 7 September. The aspiration of 100ml

of milk and air plus the projectile vomiting is entirely consistent with some action where [Baby G] was given an excessive volume of milk via her NGT. [Baby G] probably received a volume of additional air via the NGT as well."

Then you go on to say:

"In [your] opinion, an individual experienced in working with small babies would have known that such an action would have placed the infant in harm's way."

And that was the principal mechanism you identified, wasn't it?

A. Yes.

Q. When you did that, and when you considered your reports, and looked at what lay behind the projectile vomit and what follows, you worked on the basis that [Baby G]'s tummy would have been empty or almost empty at the time of the 2 am feed, didn't you?

A. Correct.

Q. You worked on that basis because what you understood to be the case was that the nurse responsible for [Baby G] would have aspirated her stomach of all milk, if there was any, before a feed took place?

A. Correct.

Q. We have heard the evidence of [Nurse E] and we now know that [Baby G]'s tummy was not aspirated before the feed at 2 am, don't we?

A. No, we don't, actually. You cannot measure pH unless

you aspirate the stomach. The way you aspirate -- the way you measure pH is you put the syringe in the -- a syringe on top of the nasogastric tube, see if you can get some acid out or some fluid out and measure the pH. Therefore we know for certain that she aspirated the stomach because otherwise she could not have written down pH 4. Okay?

Q. We have all heard [Nurse E]'s evidence.

A. I heard it as well.

Q. Yes, and what she said was that she took sufficient to be able to measure the pH --

A. Yes.

Q. -- which didn't require very much.

A. No.

Q. But she said that in a baby of [Baby G]'s age she would not have aspirated the stomach contents to see what was there. She simply would not have done.

A. Okay.

Q. You heard that, didn't you?

A. Yes.

Q. And she agreed that she could not -- therefore it couldn't be said how much milk was or wasn't in [Baby G]'s stomach by the time of the 2 o'clock feed. That's the effect of her evidence, isn't it?

A. Well, no, no. This is far too simple. You see, milk is not acidic. Milk is neutral. Therefore if you aspirate anything and you end up with a pH of 4, then you won't

have any milk there because milk will tend to neutralise the acid in the stomach. So if you've got a pH of 4, which is pretty acidic, then you can't have had any milk there. Okay? That's basic chemistry, by the way.

Q. Dr Evans, we have heard [Nurse E] say that the volume -- the pH doesn't bear upon how much milk was in the stomach, she was clear about that, you heard her evidence on that, didn't you?

A. Well, my evidence is this: if the pH is 4, it's acidic and it's indicative of acid in the stomach. If there was a significant amount of milk mixed up with the acid, mixed up with the stomach content, then the pH would not be 4. That is my evidence and that's what I'm sticking to.

Q. Now, the reason I suggest that you are disputing this is that your theory as to harm is based upon the stomach's contents having been aspirated before the feed. That's what your theory is based upon, isn't it?

A. No, it is not, actually. No, it is not. It is based on extraordinary presentation. You have 45ml aspirated from the stomach after the vomit. And the vomit has spread itself over the canopy, over the floor and over the chair. And when the -- so even after the vomiting, even after the vomiting -- goodness knows how much vomit you need to spread yourself over three areas of a nursery -- on top of that there was an aspiration of 45ml, so even if -- 45ml plus air. Therefore there has

to have been a significant amount of additional milk plus air to explain what happened to the little baby at 2 o'clock in the morning. That's it.

Q. One moment, please. When I said that you have relied upon the nurse aspirating it, let's just be clear about how you base your evidence in your reports. Can you look at page 5, please, of the report dated 17 October 2021?

What you say, paragraph 7(a), when dealing with the aspirates -- and I am talking about what you say about the nurses:

"A nurse will aspirate the nasogastric tube of a baby prior to giving the next feed. This ensures the stomach is empty."

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

A. Yes.

Q. And that is something you're basing your findings upon, that [Baby G]'s stomach must have been empty at the time of the 2 o'clock feed, isn't it?

A. Her pH was 4. 4 is acid. If there was milk in the stomach, the pH would not be 4.

Q. Let's go through all the evidence of what the nurses say. You say the nurse will have aspirated the NG tube, don't you?

A. I'm here to give my own evidence, okay?

Q. And in your next report, 22 April 2022, if you look at page 2 of that, please, Dr Evans --

A. Sorry, where?

Q. Page 2 of 6, your report of 22 April 2022. Page 4904 of our statements, my Lord. It's page 2 of your report.

A. Right.

Q. You said this, paragraph 4:

"It is unusual for babies who receive their feeds via NG tube to vomit. The attendant nurse aspirates the NG tube prior to giving the next feed to ensure that the stomach is empty."

A. Correct.

Q. You base what you say about [Baby G] projectile vomiting in part upon her having had her stomach emptied by aspiration before the 2 o'clock feed, don't you, from what you said there?

A. The stomach was empty apart from one millilitre maybe, enough to measure pH. There would have been no milk in her stomach when [Nurse E] gave her her 2 am feed. That is my evidence, that is my opinion.

Q. That's what you're saying. But so there can be no confusion, did you hear [Nurse E] give her evidence?

A. I did.

Q. And did you hear her say that you wouldn't aspirate the stomach contents at every feed because that would mess with the digestion? You might do it once or twice in a shift potentially. Did you hear her say that?

A. I did.

Q. And did you hear her asked:

"Question: If there's no particular issue with [Baby G] up to the 2 o'clock feed you'd have no reason, for instance, or anyone else, to start taking out all the contents of her stomach to check how she was doing, would you?

To which she said:

"Answer: No, you wouldn't do that with a baby like this."

A. No, she was -- sorry, we've been through this. Over the past several days she'd had 45ml of milk, either by NG tube or by bottle, and she'd coped well. And I also heard [Nurse E] say that after the feed she went for her break and she would not have gone for a break if she was worried about a little baby. So that's what I heard and therefore I am totally satisfied with my professional opinion regarding the content of this stomach at 2 o'clock in the morning.

Q. So do you base your opinion upon the stomach having been aspirated before that feed?

A. No, I base my opinion on the fact that she vomited, projectile vomited something, most of us have never heard of before, in the situation of this nature, and the amount of vomit plus the amount of aspirate was massive and can only be explained -- I put in my report that there's only one explanation. There aren't very many medical conditions for which there is only one explanation. This is one of them. Therefore she had

a huge amount of milk plus air just before this vomiting occurred.

Q. Can I be clear by asking this question and ask you to answer the question, Dr Evans, and I'll move on: do you base what you say on the understanding, at least in part, that the stomach contents must have been aspirated by the time the 2 o'clock feed took place?

A. I base my opinion on the fact that the stomach was empty.

Q. You base it on the stomach being empty?

A. Yes.

MR JUSTICE GOSS: The last way in which you put that question added "at least in part". Previously you had not had "at least in part". You were saying it was based on the stomach having been aspirated.

MR MYERS: Yes.

MR JUSTICE GOSS: You're now putting it -- it's suggested that at least in part, do you base your opinion on the stomach having been aspirated before that feed at 2 o'clock?

A. A question for me?

MR JUSTICE GOSS: For you, yes.

A. Sorry.

MR JUSTICE GOSS: Sorry, Dr Evans, yes. You see, the question was put in a slightly different format then.

A. Oh no, my opinion is, I think, fairly straightforward. The stomach was empty of milk at the -- just before the

2 o'clock feed. And whether it was empty of milk because [Nurse E] did not aspirate -- you see, what [Nurse E] said was:

"I wouldn't normally aspirate all the milk."

That's fine. That's completely different to saying, "I did not aspirate the stomach fully at 2 am". She didn't say that because I heard what she said. She said that's what she would normally do. Now, that's what nurses do.

So therefore this was a stable baby, tolerating 45ml of milk every 3 hours, make sure the pH is acidic, that's fine. And therefore she -- therefore the stomach was empty because it was empty but I base my opinion on the fact, you know, that the projectile vomiting, my Lord, was a result of her having this massive additional amount of milk just before the vomit, plus air as well, probably, or almost certainly.

MR MYERS: I'm not going to rehearse [Nurse E]'s evidence again, my Lord, we have heard that, we can go back to that to see precisely what she said.

MR JUSTICE GOSS: I wasn't asking about that. I had understood, because previously it had been put, as I understood it, and maybe I misunderstood it, to Dr Evans that he was basing his opinion purely on the fact that [Nurse E] had aspirated before the feed. And then you said "at least in part". I just wanted to be clear what Dr Evans' answer to that question was.

MR MYERS: I'm grateful to Mr Maher for showing me this.

I had put to Dr Evans:

"You base what you say about [Baby G] projectile vomiting in part upon her having had her stomach emptied by aspiration before the 2 o'clock feed?"

MR JUSTICE GOSS: Yes. That was much earlier on. But then the question just immediately before, I think, you modified it slightly.

MR MYERS: I'm trying to give Dr Evans the opportunity of either way, if it plays any part, and we say he's saying it doesn't.

We have the evidence of [Nurse E] and I'm not going to repeat all of that. We can return to that in due course. We hear what you say about it, Dr Evans.

What you have done is you have given a description of force feeding by using the plunger of the syringe to press into the body of the syringe, haven't you?

A. Yes, I have.

Q. You said you press the plunger and you force it down the tube.

A. Yes.

Q. That bit of description is something you've added to what you say today, isn't it?

A. It's not in my original report.

Q. Well, we've got six reports. It's not in any of them, is it?

A. Okay. You've heard it now.

Q. Just wondering, have you added that, Dr Evans, because you're thinking, well, maybe if there was more milk in there and it hadn't been aspirated, I'll have to change it and suggest a mechanism to force it in? Is that what you have done?

A. No, I haven't.

Q. In terms of aspiration, when nurses aspirate, they may draw out liquid, mightn't they?

A. Correct.

Q. They may draw out air; do you agree with that?

A. One or two millilitres maybe.

Q. Do you agree that a large quantity of air can be withdrawn?

A. You're more likely to get a large quantity of air... It depends how much air you've put in in the first place, really.

Q. We know that 100ml of aspirate was withdrawn round about 6.15, don't we?

A. We do -- sorry?

Q. 100ml of aspirate, something, was withdrawn round about 6.15, wasn't it?

A. Correct.

Q. You have seen the notes don't clarify what was, do they?

A. That's true.

Q. You have seen what Dr Brearey had to say this morning?

A. I did.

Q. Did you hear what Dr Ventress said about that?

A. I did.

Q. And her view was it was probably air.

A. Yes, I did.

Q. When you dealt with your conclusions with the prosecution, and just the final part that you were dealing with, Dr Evans, you were asked about paragraph 12 in your report of 22 April 2022. So let me just ask you about that, please. Page 3 of 6. I'm going to ask Mr Murphy, if he would, please, to put up tile 80. The first page of tile 80. It has two pages, we can start at the first page.

If we scroll down, please. Thank you very much. Leave that there for the moment.

You had described in your paragraph 12 the following and I'm going to remind us what you say and then ask some questions about it. You said:

"Inserting an excessive volume of fluid/milk via a nasogastric tube with or without associated air cannot occur accidentally. A professional member of staff, nursing or medical, who gives a small baby an excessive volume of milk places that infant in harm's way."

You give [Baby G]'s weight on the date:

"It places the infant at risk of vomiting and the complication of aspiration pneumonia. An excessive volume of fluid in the stomach also interferes with diaphragm movement, splinting the diaphragm, leading to the risk of respiratory distress, respiratory failure

and cardiorespiratory collapse."

Yes?

A. Yes.

Q. That's what you said. And I take it what you are doing there is linking excessive volume of fluid down the NGT to ultimately respiratory distress, respiratory failure and cardiorespiratory collapse; is that what you're doing?

A. Yes, that's correct.

Q. In fact, we know that the later collapse and desaturations come after [Baby G] had vomited, didn't they?

A. I didn't look at the later collapse during this. I'm happy to discuss that when we discuss it later, but I'd rather stick with this for the time being.

Q. It's my fault for not being clear. We know that as the morning proceeded, from 04.40 on this note, which pre-dates that, as we go through that morning there are a succession of incidents, aren't there?

A. Yes.

Q. Desaturations, aren't there?

A. Yes.

Q. We know that they commence some time after [Baby G] had vomited, don't they?

A. Yes.

Q. And if we just scroll down this page just to have a look down, if you would, Mr Murphy -- can you just go back up, it's the bottom part of the page -- we have what

Dr Ventress reported, rather recorded, that had been reported to her, that:

"There had been a very large projectile vomit reaching the chair" --

A. Yes.

Q. -- "next to the cot and canopy. The abdomen appeared discoloured, purple and distended. [Baby G] was distressed and uncomfortable, red in the face and purple all over. Oxygen to the IL via nasal cannula. Desaturated to 80s but [Baby G] (sic) okay."

It says:

"Full feed (45ml) aspirated. Large watery stool passed after which abdo slightly better and [Baby G] relaxed" --

A. Yes.

Q. -- "and appeared back to usual self."

A. Yes.

Q. So that is the position when Alison Ventress attended round about 2.30?

A. Yes.

Q. If we go over the page, we can see there was a plan to cannulate with IV fluids, unfortunately delayed due to the delivery of another preterm baby.

A. Yes.

Q. Do you recall Dr Ventress explaining that [Baby G] seemed stable enough for her to leave her at that point --

A. Yes, I do.

Q. -- with that plan? The problems that then follow commence roughly about an hour after that, don't they, because it's about 3.30 that she was called back?

A. Something like that, yes.

Q. So whatever it is that lies behind desaturations later on, that is distant and distinct from the projectile vomit, isn't it?

A. No, it's not.

Q. Because [Baby G] had settled by that point, she did not have a splinted diaphragm, nor was she in respiratory failure after Alison Ventress had left her, was she?

A. That's not correct, actually. She was in a very unstable condition. If you go through all of the entries from around 2 am until about 6.30/7 in the morning, there's hardly an entry there that notes that she is stable for a significant amount of time. There are a number of entries -- if you look at what I've got on the screen here, "Dr Brearey called in" -- this is five lines down:

"On arrival sats 50%..."

Oxygen saturation at 50% is life-threatening, you won't survive on 50%:

"... despite being in 100% oxygen."

And she's having IPPV from a nurse.

So from the time of the vomit, the projectile vomit, [Baby G] never fully stabilised. Okay? That's quite important to know that. What the medical and nursing

staff would not have realised, and this is not a criticism, is that all of this had compromised her far more than they anticipated, leading -- in other words, the oxygen deprivation was very marked and probably occurred for a longer period of time than they realised, which is why she's got the brain damage, et cetera, now.

So therefore she was never stable from the time of the projectile vomiting and the abdominal distension. There was an improvement, okay? There were improvements. If you aspirate a baby's stomach, get 45 ml out, you're taking the pressure off. If she passes a stool, which happens, more pressure is reduced from the abdomen. Therefore there was an improvement, but she never, ever stabilised during the whole of this time.

Q. She was not in respiratory failure after the vomit, was she?

A. Well, she was. I mean if she wasn't in respiratory failure they wouldn't have intubated her.

Q. That came -- you understand the point I'm asking you. That came over an hour later, wasn't it?

A. Well, first -- right. Perhaps you could scroll more.

She was compromised from the time of the vomiting, all right? Having worked on neonatal units for a long, long time, when things happen they occur as quickly as this, then it's -- you can't run a running commentary of what you're doing when you're trying to save a little

baby's life.

So therefore she was unwell from the time of the vomiting. Oxygen... Let's have a look here. Here we go. Anyway, she was unstable from the beginning, she was never right and that's why she needed all the activity she had.

- Q. And if the feed at 2 o'clock had caused her diaphragm to be splinted in the way you've described to us before on a number of occasions, there would not have been a period of maybe 45 minutes that followed when she was settled and able to be left by Dr Ventress, would there?
- A. No, I disagree, because by vomiting -- if she vomits, she gets rid of all the fluid, someone aspirates 45ml of fluid on top of that, and therefore that creates a stability of some -- you know, for a temporary period of time. In other words, the vomiting -- by vomiting she got rid of the pressure and therefore reduced the splinting of the diaphragm that was taking place. Okay? Therefore that's what happened and that's why she was, and I use the words advisedly, relatively better after she had vomited because the splinting, which I have described, which I'm very happy with -- very satisfied with my explanation regarding the diagnosis. Once she vomits, that offers some relief to the diaphragm, allowing the diaphragm to move a little bit better than it did before. Okay? That is the mechanism. That's how it works.

Q. When we look at the issue of bleeding -- and we're on the right page here so we can just scroll down a little bit, please -- we can see:

"Intubated size 3 ETT, 8 centimetres at lips, bloodstained fluid noted coming up from trachea/between cords."

You have said, with some qualification, that we've seen something like this with [Baby E], haven't you?

A. We did.

Q. This isn't even close to what we saw with [Baby E], is it?

A. It's the same area, it's the upper airway, okay? It's not the upper airway, I beg your pardon, it's the back of the throat. But in terms of seriousness, no, I agree, but we do see it in a later case as well (overspeaking) come to next year.

Q. [Baby E] had a diagnosed gastrointestinal haemorrhage, didn't he?

A. Yes.

Q. This is not a gastrointestinal haemorrhage, is it?

A. No. I think this is an upper airway -- I think this is a back of the throat haemorrhage.

Q. And you suggesting a link to [Baby E], Dr Evans, is you doing something simply to support this prosecution allegation rather than properly reflect the facts that we have, isn't it?

A. No, no, I'm not, I'm looking at this case in isolation,

as I have done with all the other six cases we've discussed here. If it wasn't for the other six cases, my opinion regarding this case would have been exactly the same. And in fact, because I had nothing to go on when I did the initial review, I went according to the dates of birth. So this is the one I did first.

I reached this conclusion without having known about [Baby E] or any of the other cases. So this was my first case because from date of birth wise, [Baby G] was the oldest of the babies. So yes, so that is factually incorrect what you're suggesting.

Q. In the case of [Baby E], there was profuse active bleeding taking place, wasn't there?

A. I know.

Q. Pardon?

A. I know.

Q. Yes. In this instance, there is no active bleed identified or taking place, is there?

A. They couldn't identify it. It depends on the degree of whatever it is that occurred.

Q. There's no evidence of trauma identified anywhere with the oropharynx or the trachea, even with them looking into it, is there?

A. I don't know what caused the bleeding, but bleeding in the back of the throat in a baby who's stable is incredibly unusual and very, very concerning. It's very, very concerning. [Baby G] did not have a bleeding

disorder and yet when they tried to -- the first time they intubated her there was blood at the back of the throat, enough blood to go through the cords into the trachea. Now, that's a worry, okay? That's a worry.

Q. Bloodstained fluid, it says, doesn't it?

A. Well, I think Dr Ventress said she could visualise blood beyond the cords.

Q. And there can be natural, as in non-trauma based, reasons for bloodstained fluids, can't there, like this?

A. No.

Q. You disagree?

A. In this particular case I disagree with you.

Q. And a baby in [Baby G]'s condition may have had a small haemorrhage that could cause some sort of bloodstained fluid like this, couldn't she?

A. Why? No reason for it.

Q. But it can happen, can't it?

A. No, she's 100 days old, she's been stable for a long, long time. No is the answer to that.

Q. And you referred to, "Pulmonary haemorrhage would be a killer", I think is the expression you used.

A. That's the word I used. She did not have a pulmonary haemorrhage.

Q. Small babies, as it happens, can have pulmonary haemorrhages of different degrees, can't they?

A. She did not have a pulmonary haemorrhage. That's my opinion.

Q. But you don't identify anywhere, and no one does, any source of haemorrhage, do you, or they?

A. Well, the back of the throat is not a very large area. And the blood was noticed there and it is noticed beyond the cords, so it was there or thereabouts.

Q. We know that later -- and we can go, please, to tile 107, page 2, and scroll down, please, Mr Murphy. Thank you.

Just above the X-ray review, a few lines above, we can see it says:

"Bloodstained fluid in oropharynx."

A. Yes, back of the throat.

Q. This is after the re-intubation. You can see that at 06.15?

A. Yes.

Q. And a small amount of blood after re-intubation, bloodstained fluid, however we describe it, that could be due to intubation or re-intubation on this occasion, couldn't it?

A. Oh yes. If the bloodstained fluid had occurred for the first time at this time, then I wouldn't be able to say whether it was due to resuscitation or not, but that is not the case. Blood was noticed at the first resuscitation, at the first effort at intubation by Dr Ventress --

Q. Yes.

A. -- and was noticed again for the second time. So this

was -- the important thing to say here is this was not the first time that blood had been noticed in the back of the throat. That's the important thing.

Q. This could be due to intubation, this one?

A. This could be.

Q. And for the first one there's no identified site of any trauma or any identified cause, is there?

A. No one found anything.

Q. Projectile vomiting I'd like to ask you about next, Dr Evans. Babies may vomit for many reasons, mightn't they?

A. Yes.

Q. With more or less force?

A. Yes.

Q. Forceful vomiting in a neonate can happen, can't it?

A. I don't use the word -- I'm not familiar with the term forceful vomiting. I'm not sure what it means. I'm not being awkward, it doesn't... It has no medical relevance. Sorry about that.

Q. A child that is unwell and it's having an effect upon their stomach, a baby like this might projectile vomit; do you agree?

A. No.

Q. There's a division of opinion between you and Dr Ventress on that, isn't there, Dr Evans?

A. I don't think so.

Q. You say, with respect to her evidence, you don't agree

with her evidence on this.

A. I don't think Dr Ventress said that babies will have projectile vomiting as a common side effect/complication of an illness. I don't think she said that.

Q. Well --

A. Sorry, what I disagree with Dr Ventress is she said infection caused the vomiting. I disagree.

Q. Yes.

A. The infection occurred after the collapse.

Q. But you heard me put to her by reference to her statement where she'd said that projectile vomiting could be caused from infection?

A. If she said that, fine, but I don't agree with her. I'm not being condescending, but she was a registrar at the time, and we've heard -- I'm not going to criticise junior doctors for their opinion, okay? I'm not going to do that, I think it's unfair.

Q. Well, it is possible for [Baby G] to have vomited very hard, projectile vomiting, because she was unwell; do you agree or agree with that?

A. No, not that degree of vomiting, no.

Q. Pardon?

A. Sorry, and if she had vomited because she was unwell, where would the 45ml still in the stomach have come from?

Q. We can't actually say -- let's say that there was more than 45ml in the stomach at the time of the vomit, that

for whatever reason more milk had gone in there than should have been there for that one feed. We can't say how much extra there actually was, can we?

A. We can say there was a fair bit. There was quite a lot I would say.

Q. We don't know, do we?

A. Yes, we do.

Q. There's no measurement of how much vomit there was, is there?

A. No, but it's a lot of vomit. It's a lot of vomit, you know.

Q. We don't know because we don't have an image of it, do we?

A. No, but it's a lot of vomit.

Q. You don't know how much there was, Dr Evans.

A. There was quite a lot. 45ml is not much more than this glass. You've got a vomit on the chair, you've got vomit on the canopy, and you've got 45ml or more still left in the stomach. That's an awful lot of vomit.

Q. And if, for whatever reason, [Baby G] had not digested the milk that had been given to her at an earlier feed and milk had been fed over that, that could mean there was more than 45ml in her stomach, couldn't it?

A. That is pure hypothesis. There was no milk in her stomach because the pH was 4 and milk is neutral, therefore the pH would not have been 4.

Q. I'm not going to go back and debate the evidence of

[Nurse E] with you, Dr Evans. We've heard it.

A. Anyway, I disagree with that point.

Q. Gastro-oesophageal reflux can cause projectile vomit, can't it?

A. Yes, it can.

Q. And it's possible that [Baby G] had or developed gastro-oesophageal reflux, isn't it?

A. The discharge letter from Arrowe Park from mid-August did not mention gastro-oesophageal reflux. What it says was, in terms of active issues, chronic lung disease and establishing feeds. She was on Gaviscon, which is used commonly, but there was -- she's got reflux afterwards. She may well have had some reflux but the reflux would have been minor, would not have caused her any problems, and certainly would not have caused the sort of vomiting we've been discussing all day.

Q. Is gastro-oesophageal reflux something that can develop in a baby over time? So they're not born with it but it develops over time?

A. It depends on the cause actually. It depends on the cause. So... No. I mean, it doesn't occur in... It doesn't occur in 3 hours between one feed and the next, I'll tell you that.

Q. But it occurs over time in a baby, doesn't it? And when we move beyond 7 September, as we're going to do, we see that [Baby G] was a baby who had a marked predisposition to vomit, didn't she?

- A. Once we go beyond 7 September -- and I'd still rather talk about this later -- she is so awfully compromised by the brain oxygen deprivation that she's a completely different baby, sadly. So therefore whatever applies before the 7th, you cannot apply that after the 7th. We know this from the MRI, from the scans, et cetera, that she had. Anyway. So this was the event that compromised her overall health.
- Q. That's what you're saying, isn't it?
- A. No, no, there's plenty of evidence of that.
- Q. And that's an opinion you're constructing in support of the prosecution, isn't it?
- A. No, it is not. We will hear, I suspect, of -- I've seen the results of... Dr Stivaros, I think, the neuroradiologist. He's mentioned how the scans before all of this were okay and the scans -- the MRI of the brain after this were not okay. So it's nothing to do with supporting the prosecution: I am giving evidence as I see it and the evidence, in my opinion, is very clear.
- Q. Where infection is concerned, the CRP in [Baby G] was at 28 by about 2.18 on the 7th, wasn't it? We know that as a fact.
- A. At what time?
- Q. By 2.18 on the 7th, her CRP reading had gone up to 28.
- A. 2.18 in the afternoon?
- Q. Yes.
- A. Yes. Yes, 12 hours later.

Q. Yes. And by 22.53, so a little before five to 11 in the evening, it was up to 106?

A. Yes.

Q. That's consistent with infection, isn't it?

A. Yes.

Q. We know that by the time she was at Arrowe Park on the 9th, it was at 218.

A. That's right, yes. I remember that.

Q. That could be consistent with infection developing before the vomit or after the vomit, couldn't it?

A. No.

Q. Well, it could be, couldn't it?

A. No, you're wrong.

Q. It takes between 24 and 48 hours for CRP to peak, doesn't it?

A. It varies, actually. What you cannot do is you can't do a case-controlled study on the rate of growth or rate of development of CRP. In most cases, CRP is raised at the time the infection presents, not in all cases but in some cases. So what you've got is -- and I don't know whom you're quoting, but the paper I read is that the CRP is always abnormal by 24 hours plus.

Q. Dr Ventress agreed it's 24 to 48 hours to peak.

A. I haven't got a transcript, I'm not sure what -- if that's what she agreed with, but anyway, as I said, I'm not here to criticise junior doctors in training.

Q. She's giving her evidence now. Is she a consultant now,

Dr Evans?

A. Yes, well, fine, but she wasn't at the time.

Q. Yes, but giving her evidence now, she is, and she agrees with that, doesn't she?

A. If she wants to agree with that, we'll have to have a respectful disagreement.

In the majority of babies who have an infection, the CRP is raised at the time --

Q. Right.

A. -- of infection, okay? Not all of them, not every one of them. And as we've discussed there was nothing else -- there were no other markers of infection in [Baby G]. In other words she wasn't off her feeds, her temperature hadn't gone up, she wasn't desaturating, her oxygen requirement was with low flow. In other words, all the markers were of her getting better. You do not suddenly do this. Anyway. So therefore there were no markers of infection prior to her projectile vomiting.

Q. She passed a large watery stool, that was abnormal for her, didn't she, at -- shortly after the vomit?

A. That's not abnormal actually. There's something called a gastrocolic reflex -- not reflux, reflex. We know this from anybody's who's looked after babies: you give them a feed and the next thing they fill their nappy. So she's had a load of milk into her stomach, so the gastrocolic reflex kicks in, and she passes a stool. That's okay.

Q. While she was at Arrowe Park Hospital, correct me if I'm wrong about this, there's no finding of or treatment for aspiration pneumonia, is there?

A. When now?

Q. At Arrowe Park after she's admitted there having been taken there from the Countess of Chester.

A. I don't think she had aspiration pneumonia, actually.

Q. And the mechanism that we've had described at one point was she might have aspirated something and created an infection, that's not right, is it?

A. I don't know. I know she had an infection. Okay? We know that she had an infection. Nobody grew any bugs as far as I know. For the nth time, she responded to the treatment that she had. She was a very resilient little baby, actually. So she had an infection. Yes, she had an infection and it probably kicked in, you know, during the time that they were trying to save her life.

Q. You cannot -- to be clear about this, you say it probably kicked in then, you cannot discount the possibility it was present and kicked in at some time before the vomit? You can't discount that, can you?

A. (Overspeaking) no clinical evidence whatsoever to back up that hypothesis, none whatsoever.

Q. I'm not going to repeat what I've put to you about the CRP, but I'm just asking, it's something that cannot be discounted, is it?

A. It's not what caused her collapse.

Q. If there is an infection she's suffering from, will that interfere with her ability to digest her milk?

A. Oh, yes, yes (inaudible).

Q. And if she had an infection and if she received more milk than she should have received, is that more likely to precipitate a vomit?

A. Well, you've got lots of ifs, haven't you?

Q. Yes.

A. I stick with evidence. I don't stick with ifs. So there's no evidence that she -- there's no evidence that she had infection. In fact all of the evidence is that she did not have an infection and I've got all -- you know, you only have to look at this observation chart here. All of it is absolutely as it should be, right up until she gets this projectile vomiting, no infection. Okay?

MR MYERS: Those are the questions I want to ask, Dr Evans.

I won't debate the evidence. That will come later.

Re-examination by MR JOHNSON

MR JOHNSON: Just two things, please, Dr Evans. I'm just trying to find a reference before I ask you.

It was suggested to you in cross-examination that you were adding the suggestion that the plunger on the syringe had been used and that this was really an addition to your evidence.

A. Mm.

Q. Okay? That was being suggested in the context of milk.

A. Mm.

Q. Can I just go to your report of 31 May, please, at paragraph 33. It's been suggested that you were adding the concept of forcing stuff in to help the prosecution case because you saw there was a problem. Okay?

A. Yes.

Q. In paragraph 33 of your report of 31 May --

MR JUSTICE GOSS: 2018.

MR JOHNSON: Yes, my Lord, thank you.

Three lines from the end of that paragraph, what do you say?

A. "[Baby G] had received far more than 45ml."

That one?

Q. Yes. Read that and the next sentence, please?

A. "(inaudible) NGT tube before she vomited she may have also received a bolus of air from the feeding syringe used for feeding."

Q. How can you get a bolus of air into a child without using the plunger?

A. You can't.

Q. Air won't go down under its own --

A. No, air goes up. Yes. So if the air had gone down, it needed a plunger for it to be pushed down. So yes.

Q. Well, I'm only mentioning this because it was suggested that this isn't something that features in your report, all right?

A. Yes, fine.

Q. You were asked about gastro-oesophageal reflux.

A. Yes.

Q. At one stage, your response was it doesn't develop between two three-hourly feeds.

A. Correct.

Q. Because the suggestion is, apparently, that [Baby G] had some, if not all, of her previous feed from 11 o'clock in her stomach when she was given the feed at 2 o'clock.

A. Mm.

Q. So let's deal with a couple of issues. If [Baby G]'s stomach had been full before she was fed at 2 o'clock, and [Nurse E] had aspirated something to check for a pH, what would [Nurse E] have got back?

A. She'd have got back some milk.

Q. Would it have been digested or undigested?

A. It would have still have looked like milk.

Q. And would the pH of that be 4?

A. It might be slightly acidic. A pH of 7 is neutral. Therefore a pH of 6 is slightly acidic, pH 5 is more acidic, pH 4 even more acidic. So you wouldn't have that pattern of acidity if -- because the milk would have partly neutralised the acid. And anyway, if she'd aspirated some milk, you know, it would look like milk.

Q. Gastro-oesophageal reflux, how does that start to develop in a child of 100 days?

A. It doesn't start overnight. If she had reflux -- you know, she was on half bottle feeds, if she

gastro-oesophageal reflux, a nurse would have noticed a bit of milk coming up between feeds, perhaps, a bit of milk coming up between feeds, that sort of thing.

Q. Let's just look at the feeding chart, if we may, which we have behind divider 7, I think.

MR JUSTICE GOSS: It's the second to last document in that section, J7012.

MR JOHNSON: There we have two days' worth of feeding at three-hourly intervals as you have told us.

We have a "vomit/asp" column for 2 days. Reading down from the top, we have -- well, what does it say, something acid?

"Positive acid. Positive acid. Positive acid."

A. Yes.

Q. Then pH 4 for the final NG tube. Is that indicative of -- is that feeding chart indicative of a child with gastro-oesophageal reflux?

A. No, not really. Anyway, you can't diagnose reflux on pH values. The other point by the way --

Q. What about the lack of vomiting?

A. She's not vomiting.

Q. What does that tell us about whether --

A. If she's not vomiting she hasn't got reflux, so how are you going to diagnose it? The other point -- sorry, go on.

Q. Sorry, does it go from nothing for 2 days to projectile vomiting in 3 hours?

A. It just doesn't. That does not happen, okay? That does not happen. Nothing -- this projectile vomit has nothing to do with gastro-oesophageal reflux, okay?

MR JOHNSON: Thank you.

Does your Lordship have any questions?

Questions from THE JUDGE

MR JUSTICE GOSS: The other thing that you were wanting to say. The other thing. You kept saying, "The other thing", and then Mr Johnson would cut you off.

A. Oh yes. Just for completion, really. If the milk goes in and is digested, you have a bowel action, and it comes out the other end. She had a number of bowel actions over these last 2 days, which is what you'd expect. So it goes in one end, is digested, the waste stuff comes out as a bowel action, and she had bowel actions. The last one was at 23.00 hours, so just 3 hours -- so all of that is indicative of normal gastrointestinal function. That's all.

MR JOHNSON: Thank you. I'm sorry I cut you off.

MR JUSTICE GOSS: Is it possible or not, I don't know, just to see this pattern of feeds and the comments in relation to the feeds, like demand fed, fed well, this sort of thing, as to whether there was any sort of difficulty, apparent difficulty, of [Baby G] in digesting these 45ml feeds?

A. No, this is about as normal as you get in a baby needing NG feeds. If I just looked at this in isolation, I'd

say, this is great, this is as good as it gets, to be fair. There are no red flags here, there are no concerning issues here. This is very satisfactory.

MR JUSTICE GOSS: Right.

A. It's as good as that.

MR JOHNSON: Thank you.

MR JUSTICE GOSS: Thank you, Dr Evans. That completes your evidence on this aspect.

... [Omitted] ...

Wednesday, 18 January 2023

(10.30 am)

(In the absence of the jury)

... [Omitted] ...

DR DEWI EVANS (recalled)

Examination-in-chief by MR JOHNSON

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

A. Dr Dewi Evans.

Q. Thank you, doctor. You have already told the jury that you have written several reports relating to [Baby G]; is that right?

A. Yes.

Q. And so far as the incidents of 21 September 2015 are concerned, you address those first in your report of 24 March 2019 --

A. Yes, that is correct. That is something I had

overlooked in my first report.

Q. Yes. Well, I'll come to that in a second, but can we just go back to your -- just to set the scene, as it were, and to remind the jury of [Baby G]'s progress. Can we look at your report of 31 May, please, 2018?

A. Yes.

Q. So far as that report was concerned, that followed your initial sift report, didn't it?

A. Yes, it did.

Q. Which was compiled, like so many others, in the latter part of 2017?

A. Correct.

Q. If you wouldn't mind, please, could you go to page 3 of 16 of your report of 31 May 2018. There you deal with [Baby G]'s clinical progress; is that right?

A. Yes.

Q. Your paragraph 6 makes it clear that she was born on 31 May 2015.

A. Yes.

Q. She was of very, very low weight at birth, 535 grams.

A. Correct.

Q. And she had been born at Arrowe Park Hospital, which of course we know is a tertiary centre.

A. Yes.

Q. There then followed a prolonged course of treatment at Arrowe Park.

A. Yes.

Q. Which included a transfer to Alder Hey Children's Hospital in Liverpool, where what's called a Broviac line was inserted to administer medication and feed; is that correct?

A. That's correct, yes.

Q. And [Baby G] was transferred from Arrowe Park to the Countess of Chester Hospital on 13 August 2015.

A. Yes.

Q. You reviewed her treatment from 14 August through to 7 September -- and 7 September, of course, was the occasion on which [Baby G] produced a projectile vomit, which got as far as the chair next to her cot --

A. Correct, yes.

Q. -- and also the floor. And 45ml of feed was removed from her stomach after the vomiting.

A. Correct.

Q. And you've already given us evidence about your views so far as that is concerned.

A. That is correct.

Q. I'd like to turn, if we may, then, to your report of 24 March 2019. So this was the third of your reports; is that right?

A. Yes.

Q. At your paragraph 5 onwards, did you conduct a further review of the clinical data relating to [Baby G]'s stay at Chester?

A. I did.

Q. Thank you. Did you note what you describe as a significant event on 21 September 2015 which in your previous two reports you had not addressed?

A. Correct.

Q. Just to give the jury some sort of idea of what you were dealing with, at paragraph 3 of that report, so just going back to page 2, you refer to the volume of material that you had received concerning [Baby G]'s treatment.

A. Yes.

Q. How many pages of material were there relating to this single child?

A. Just over 4,000.

Q. Yes. All right. So there you were in March of 2019 conducting a further review. I'm looking at your paragraph 6 now, Dr Evans. What did you note?

A. Well, having looked at it again, I found another event, as we already mentioned, on 21 September, and this is -- this occurred during the morning, around 10 o'clock in the morning, on 21 September, when she had what were described as two further projectile vomits. These were witnessed by nursing staff.

Now, a projectile vomit is where the baby vomits far beyond its body size, so therefore these were very significant vomits and, even more worryingly and more significantly, her oxygen saturation dropped and it dropped to 30%.

Now, normal saturation is over 90%, so an oxygen saturation of 30 is very, very low and is life-threatening. In other words, you've got to get the oxygen level back to normal as soon as possible.

Q. Yes.

A. So that is what happened on the morning.

Q. Thank you. Because it's a month since we heard this evidence, if Mr Murphy would help us, please, can we go to tile 50 first of all.

This is the note written by Lucy Letby relating to an event that she recorded as having occurred at 10.15. If we can just remind ourselves of what she wrote, please. The note says at 10.15:

"[Times] 2 large projectile milky vomits. Brief self-resolving apnoea and desaturation to 35% with colour loss."

A. Top right there. Top left, sorry.

Q. Top left, yes. So if we just go above that slightly, Mr Murphy, to take in the line above where it says:

"NG tube feed. EBM [expressed breast milk] given..."

Presumably that should say "at 9 o'clock" as [Baby G] was feeding (inaudible: coughing).

Then where the arrow is:

"10.15 x2 large projectile milky vomits. Brief self-resolving apnoea. Desaturation to 35% with colour loss. NG tube aspirated: 30ml undigested milk

discarded. Abdomen distended, soft. Doctors asked to review. Temperatures remain low. Tachycardic over 180 beats per minute. Mum states that [Baby G] doesn't appear as well as she did yesterday."

If we could just move on to put this into overall context to the next tile, please, Mr Murphy, and to the record of Dr Fielding.

We'll work off the analyst's typed transcription of the handwritten notes. We can see it says:

"[Baby G] had episode at about 10.20 where she had 2x projectile vomits witnessed by nursing staff, after which she was apnoeic for about 6 to 10 seconds. Went blue. Saturations decreased to 30%. Last feed 9 am. Nurse called for help. On going back to [Baby G], colour..."

Is that "normal"?

"... breathing plus crying."

So is that the material that you were referring to?

A. Yes, yes, yes.

Q. Thank you. So that's your paragraph 6, Dr Evans. Did you also in your report refer to other material from that particular date and events which had been recorded?

A. Yes. The important bit is that the examination of [Baby G] showed that the abdomen was distended, in other words the abdomen was larger than it should be, and that her bowel sounds were active. Now, bowel sounds active means that the intestinal system was working perfectly

well, but the abdomen was distended, which would occur if the abdomen was either full of milk or full of air or full of a combination of milk and air. So that's the pattern that occurred here and that occurred despite her having vomited, because by vomiting, of course, you'd expect any abdominal distension to reduce because some of the substance in the stomach had been vomited up.

Q. Yes.

A. So in other words, this was a very significant concerning issue, particularly in relation to -- particularly in association with the oxygen saturation dropping to 30% and that she went blue and she also stopped breathing for a few seconds.

Q. Yes.

A. So a concerning event.

Q. Yes. So what did you -- going to your opinion section, your paragraph 18 onwards, what conclusions did you draw from your review of all those circumstances?

A. Right. Well, I thought that, generally speaking, she'd had a potentially life-threatening episode of vomiting and oxygen desaturation. That was my overall impression and that there was one explanation for this, which is that [Baby G] had been given far more milk during her nasogastric tube feed an hour earlier. The plan was to give her 40ml of milk and she had been tolerating that amount of milk by bottle the previous day, 40ml or 45ml, so therefore if you -- if she had been given 40ml of

milk then it would not explain how she had two large vomits, two large projectile vomits, and on top of that there were still 30ml of milk left in her stomach.

So therefore my conclusion was that she had not received 40ml of milk, she had received a lot more than that, and it was the excessive amount of milk that she had received had caused this episode at 10 o'clock on 21 September.

Q. Did you limit your opinion to the substance being inserted into [Baby G] being restricted to milk?

A. Well, it could have been milk or it could have been milk and air. And there's no way of saying how much milk and how much air. Of course, you do not vomit air, you can only vomit a liquid, and therefore there was -- clearly a large amount of milk, over and above 40ml, had been given to the little babe, which is what caused her vomiting in the first place.

MR JOHNSON: Yes. Thank you, Dr Evans. Would you wait there, please, for some further questions?

Cross-examination by MR MYERS

MR MYERS: Dr Evans, just with regard to when this appears in the reports that you produced, we know you provided an initial report on [Baby G] on 16 November, didn't you --

A. That's correct.

Q. -- of 2017?

A. 6 November, actually.

Q. Sorry, 6 November 2017. And then you provided a second report on 31 May 2018.

A. That is correct.

Q. And as you've just explained to us, this incident on the 21st was identified by you in your third report on 24 March 2019?

A. Correct.

Q. The nursing notes are items that were provided to you from when you first began to consider the case, weren't they?

A. That's correct.

Q. Your view when you wrote the report, your second report, on 31 May 2018 -- bear with me one moment, please...

(Pause)

I'm looking at paragraph 27. Just to assist the jury whilst you turn that up, these first two reports both focused on the incident on 7 September, the first incident?

A. Yes, that's correct.

Q. And in the second report, having looked at the material, you said this at the end of paragraph 27:

"I scrutinised these entries [this is the rest of the clinical entries]. They record reasonable progress. I have not found any evidence of any acute life-threatening event."

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

A. That's correct.

Q. Now you did say that at a time when you had been able to read these nursing notes, didn't you?

A. Not really. What I did initially -- if we recall, I prepared about 30 reports which were done towards the end of 2017 and I concentrated -- 30 reports is a lot of reports and they were sift reports, as we've heard. And this case had 4,000 pages plus. That's about eight of these folders (indicating). And quite frankly, the event of 21 September, I overlooked it, didn't see it. And I didn't see it because I concentrated my review on the medical notes more than the nursing notes. So I overlooked it, simple as that.

Q. When you did make reference to this event in your third report, the one dated 24 March 2019, you also identified the 30 September as a date that required further consideration, didn't you?

A. I did.

Q. What you said at paragraph 20 was:

"There is a need to review the nursing and medical staffing present at the intensive care unit during the hours leading up to the events of 30 September 2015."

A. I did.

Q. Just so the jury can see what it is that had caught your attention then, I'm going to ask Mr Murphy, if he would, please, to put J7425 on the screens. Ladies and gentlemen, this isn't in the sequence of events, it's something additional, but it relates to this period.

If we go to the right-hand side of page 7425 -- we're there, aren't we? -- this is the section. When you did the report in which you identified 21 September, you also identified this, didn't you, Dr Evans?

A. Yes, yes, yes.

Q. And what had caught your attention was this: we can see it's 30 September, at 17.04, an entry by MT, who we know is Melanie Taylor and what we have is as we go down:

"Bottle fed [halfway down the report]. SVIA at start shift."

Is that self-ventilating in air?

A. Correct.

Q. "Having a few desats. Informed doctors before handover due to..."

Is that immunisations, "imms"?

A. I think so, yes.

Q. "1x profound saturation apnoea requiring position changed and oxygen this morning. Bottle fed very well this morning. Observations within satisfactory limits, no increased work of breathing. ROP this afternoon."

I'm not sure what ROP means. Can you help us?

A. I think it's retinopathy of prematurity examination maybe. Maybe. I'm not sure actually.

Q. It moves on:

"Dr Butcher does not need follow-up ROP screen. Has updated mum. Very sleepy after ROP. Increased desats so put onto nasal prong oxygen."

So that was something additional that you thought required further consideration; is that correct?

A. I did.

Q. Right. We can take that down, please, Mr Murphy.

With regard to the incident on 21 September, Dr Evans, particular points about that, it's described as projectile vomiting in the notes, isn't it?

A. It is.

Q. And it's that in particular that you have identified as a cause for concern, isn't it?

A. Yes.

Q. We don't have on this occasion any indication of the extent or distance of the vomit, do we? You didn't have that to work with like you did on the 7th?

A. No.

Q. The event itself on the 21st, the one we're talking about today, does appear to have been a relatively brief and self-resolving event, doesn't it?

A. I wouldn't call it self-resolving. They had to address the issue, her stomach was aspirated, the doctors were called. She was quite unwell during this period of time. So it wasn't one of these self-limiting desaturations, it was much worse than that. And of course, the key thing was that she actually vomited two large vomits.

Q. It was brief, wasn't it, relatively brief?

A. No, it wasn't. You see, the only thing that was brief

was that she stopped breathing for 6 to 10 seconds. Now, 6 to 10 seconds might not sound a lot but this was a baby by this time who was over 2 kilos and had been feeding by bottle the day before. So this was quite a serious event. I don't think it was as serious an event as the one we discussed before Christmas, but it was a significant event.

Q. Dr Fielding, whose notes we've just been to, and whose evidence we heard on 14 December 2022, was the doctor who came and attended to [Baby G] on this occasion, wasn't he?

A. Yes.

Q. Just so we can keep the evidence in mind because it's a while ago, he was asked that this had been a brief episode and there had been a relatively swift recovery, his answer to that was yes, Dr Evans --

A. Yes, I heard that. As I've said, I don't think this was as serious an event as the earlier one, yes.

Q. The air. You've mentioned air in the bowel or in the X-rays; is that correct?

A. Yes, yes, yes.

Q. It's a feature, isn't it, of [Baby G] throughout her stay in whichever hospital she was in that there were multiple occasions when there was air in her intestines or bowels over the months of treatment?

A. That is correct.

Q. Dr Fielding also described -- we can put up tile 51,

please, Mr Murphy. Can we go into the tile, please?

MR JUSTICE GOSS: Do you want to go to the document behind it?

MR MYERS: Please. Could we go to the notes, please, Mr Murphy? My fault.

MR JUSTICE GOSS: I've tried to do it on the iPad and it says it can't find the PDF. Are you the same?

MR MYERS: I can assist. We have seen this before, so I can simply read what it is that I wanted to refer to.

Dr Fielding recorded that [Baby G] passed a loose green stool about 10 minutes after the vomit.

A. Yes.

Q. Do you agree, Dr Evans, that it is possible that a loose stool -- thank you, here we have it.

It might in fact be over the page, please, if we can go over the page after all of that.

MR JUSTICE GOSS: Towards the bottom of that page, there's a reference to the episode.

MR MYERS: Yes. The reference I wish to make, I'm not sure it follows this or not, it's something he referred to. Is there a page that follows this, Mr Murphy? If we go down to the lower half of that page, we can see it says:

"Bowels open. Loose stool. Green colour."

A. Mm.

Q. Do you accept there are circumstances where that may indicate some poor health or some indication of becoming unwell?

A. Difficult to say just with one. Right. There are a few things this tells me. First of all, it tells me there's no intestinal obstruction. In other words, the vomiting is not due to some blockage because everything is going through and some of it is coming out the other end, so we can be sure of that.

One loose stool... loose stool. Babies have loose stools, you know.

Q. If we move, please, to tile 58 then, just following on. Just the pathology sample. We can go into this. Thank you.

Just look at the CRP, which is in the centre of the page. We understand a little bit about CRP, as we all do, Dr Evans, you may know a great deal more, but that is C-reactive protein, which can be a marker of infection potentially?

A. Yes.

Q. It is raised slightly at this point, isn't it?

A. Yes, it's over 10, so it's 18, so it's marginally raised, yes.

Q. All right. Thank you for those, Mr Murphy. Thank you, Dr Evans.

With regard to the vomiting, do you agree that once [Baby G] returned to the Countess of Chester from Arrowe Park there was a more marked history of vomiting from that point onwards?

A. Well, there's a huge change to [Baby G]'s overall health

following the event of 7 September. And this relates to the abnormalities found on MRI I think carried out on 15 September from memory. The brain scans carried out at Arrowe Park did not show any significant abnormalities and I think we had the report from the neuroradiologist, so her brain scans prior to 7 September were satisfactory.

Her MRI of the 15th showed very significant abnormalities. And therefore from 7 September onwards, [Baby G] was a completely different baby from a developmental point of view.

It's the events of 7 September that changed her significantly from a neurological point of view, in other words from the brain development point of view, and so, yes -- and I think -- well, we now know that [Baby G] receives feeding by tube. So in other words, vomiting has been a significant part of her life from mid-September.

Q. Yes, that's right. In your third report, paragraphs 13 and 14, you list some of the occasions from the notes in which vomiting features in the records that are kept of her at the Countess of Chester, don't you?

A. Yes.

Q. We may see a little of this later. There are numerous events after her return to the Countess of Chester on 16 September when she is recorded as vomiting, aren't there?

A. That's correct, yes.

Q. And therefore, whilst there is the vomiting on the 21st that you identify, conceivably that could be part of a pattern of vomiting which has continued thereafter as a result of earlier events?

A. No, I disagree with that.

Q. Okay.

A. The reason I disagree with that is to do with basic arithmetic. In other words, I'm sure that she had more milk than she should have on the 21st. The reason for that is basic arithmetic. If she had had 40ml in there was no way that she would have vomited -- had two projectile vomits, sorry, two large vomits, and there was still 30ml still left in the stomach.

So in other words, that does not add up. The only explanation for that is that she must have had more than 40ml in the first place before she had this crash, short-lasting crash compared to 7 September, before she deteriorated at 10.15 in the morning on the 21st. So that's the difference between that incident and all the other episodes of vomiting which we've discussed.

Q. We don't know, do we, how much milk actually came up in the vomits, do we? We don't know.

A. We don't.

Q. What we have is a description that says "two large projectile milky vomits".

A. That's pretty descriptive.

Q. It may be but there's no way we can get from that to say how much milk there was in the stomach at the time of the vomit, is there?

A. How much is a vomit? It would be more than 10ml. In other words -- I mean, 10ml is a tiny amount, tiny a volume, so, you know, no experienced nurse would describe two vomits of 5ml each, because that's what would have to occur -- I mean, 5ml is a teaspoon. I don't do a lot of cooking, but it's a small amount. So therefore it has to be that she had more than 40ml at around 9 o'clock or just before this episode. And of course, that would explain her distended abdomen as well. By vomiting she corrected the abdominal -- to some extent the abdominal distension. And by -- vomiting plus aspirating the milk from the stomach, that is what led to her recovery.

But the 21st September event is different to all of the other episodes. We just mentioned the 30 September one there, for instance, where she desaturated but there's no history of vomiting, for instance.

So 21 September is quite different to the other episodes in my report and in the notes.

MR MYERS: So the position is quite clear, my Lord, we don't accept that there is any way of measuring the vomit that was produced, but I've asked the question. I'm not going to repeat the question.

MR JUSTICE GOSS: It's clear what your question is and it's

clear what the doctor's answer is. I'm sure the jury understand the point. It's a description but it's not a quantified description.

MR JOHNSON: Yes. Does your Lordship have any questions?

Questions from THE JUDGE

MR JUSTICE GOSS: Only this: there has been reference to quite a lot of other entries about vomiting. Are there any other entries to projectile vomiting?

A. Not that I know, my Lord. I don't think so, no.

MR JUSTICE GOSS: I don't know, I'm just asking that, whether it's going to be dealt with or not.

MR MYERS: Yes, it will be dealt with with the next witness, my Lord.

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

MR JOHNSON: Your Lordship may remember that Dr Bohin actually did a vomiting review, if I can use that shorthand.

MR JUSTICE GOSS: Yes. Well, thank you, Dr Evans, that's it for now. Thank you very much.

... [Omitted] ...