

19 January 2023

Baby H

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Thursday, 19 January 2023

(10.30 am)

(In the presence of the jury)

Housekeeping

MR JUSTICE GOSS: Mr Astbury.

MR ASTBURY: My Lord has, I hope, an additional bundle of material to be read, beginning at page 29, I think --

MR JUSTICE GOSS: Right, thank you.

MR ASTBURY: -- which we've been able to agree. Could we begin, before I start reading anything, please, with a housekeeping matter from yesterday?

MR JUSTICE GOSS: Yes, certainly.

MR ASTBURY: The jury were provided with two feeding charts for the core bundle, but they are bundle 2, which didn't have the J numbers on, so can we perhaps turn to that now and invite everybody to endorse that. It's gone behind divider 8 and it'll be the last two pages in the bundle.

Bundle 2. It will have the yellow charts at the front. Hopefully behind divider 8, material marked "[Baby G]".

The pages I'm going to be referring to are the two loose pages you were given yesterday that you were asked to put at the back. They are not numbered so I'd just like you to number them, please.

MR JUSTICE GOSS: Do you remember? This is where I suggested that you remove divider 9 because 8 and 9 go together. So it should be just immediately in front of 10 if you did remove 9, or they should be. Right.

MR ASTBURY: The numbers, my Lord, are J7882 and the consecutive number J7883.

MR JUSTICE GOSS: So just so you have them in the right order, it's 3702 and 3703 in the bottom right-hand corner. Do you see that? Just to make sure we've got them in the right order, 3702 is J7882 and 03 is the other one. Thank you very much. Good, that's that sorted.

MR ASTBURY: We are going to begin by reading a statement from a Deborah Moore. That is on page 11 of my Lord's original bundle.

MR JUSTICE GOSS: Yes, thank you.

Witness statement of DEBORAH MOORE (read)

MR ASTBURY: This is a statement from Deborah Moore dated 21 February 2018. In it, she says:

"I am a band 6 midwife. I qualified as a midwife in October of 2004. In April 2010 I began working at the Countess of Chester Hospital and I've worked on the antenatal ward, post-natal ward, labour ward, community midwifery and antenatal clinic. I currently work in the delivery suite at the Countess of Chester Hospital. My role within the delivery suite is to triage and assess pregnant women who attend the hospital, I will give

advice to those who do not require admitting to the labour ward, and those who require admittance will be allocated a midwife who will monitor and support women during labour and look after mother and baby postnatally.

"My core role is to provide care to ensure maternal and foetal well-being. There are four different ways a baby can be delivered: they are normal birth, where the baby is born normally by a midwife; instrumental birth, where doctors are involved where forceps and ventouse are used; elective caesarean, where the parents elect to have the baby born by this method for a number of different reasons and this will have been agreed with a doctor prior to birth; and the fourth and final option, emergency caesarean. This is an emergency operation completed where there are complications with either the mother or baby and the baby needs to be delivered.

"As a midwife, if I am caring for a mother, I will be present during any of these procedures regardless of whether doctors or surgery is involved. Other than during my placements I have never worked on a neonatal unit and I have never worked on the neonatal unit at the Countess of Chester Hospital. During my normal duties if a baby is born requiring admittance to the neonatal unit, I will speak with staff on there to get updates on the baby's health and progress, which will then be passed on to the new parents.

"I have been asked to comment on the birth of baby [Baby H] who was born on 22 September 2015. Having reviewed the maternity notes, I can see that I attended at room 11 in the delivery suite at approximately 18.00 hours on this day to take [Baby H]'s mum, [Mother of Baby H], to theatre for an emergency caesarean procedure.

"[Mother of Baby H] was on a sliding scale due to her diabetes and the decision for an emergency caesarean was made as [Mother of Baby H] was struggling to manage her blood sugars which can have an effect on the placenta. A sliding scale is an insulin infusion, which is altered according to the mother's blood sugars.

"As a midwife I will ensure the mother is prepared for the caesarean procedure. The mother is then transferred to theatre, either by walking across or being transferred on a bed.

"A typical caesarean operation would involve an anaesthetist, assistant anaesthetist, surgeon, who was a registrar or consultant, surgeon's assistant, scrub nurse, midwife and runner.

"If an emergency caesarean is required at least one paediatrician is also present. All of these people need to be present for a caesarean operation to take place so they will have been present for the birth of [Baby H].

"[Baby H] was born at 18.22 hours and was in good condition, weighing 2,330 grams, which is acceptable for a baby born at 34 weeks.

"[Baby H]'s Apgar score was 7 at minute 1 and 10 at minute 5, which is good. The Apgar score is used to measure the physical condition of a newborn baby and includes skin colour, responsiveness, heart rate, respiratory efforts and muscle tone. Her cord gas readings were also normal. [Baby H]'s birth was an uneventful birth (she did not require any additional treatment or intervention).

"The placenta was delivered normally without complications. [Baby H] was transferred to the neonatal unit due to her prematurity. I do not recall having any other involvement with [Mother of Baby H] or [Baby H]."

Witness statement of DR JONATHAN FORD (read)

MR ASTBURY: Moving on, my Lord, please, to Jonathan Ford, who was a consultant. His statement dated is 21 September 2022:

"I am a consultant obstetrician and gynaecologist currently working at the Leighton Hospital. I was present and assisted with the birth of [Baby H].

"[Mother of Baby H] had diabetes, requiring insulin. She used an insulin pump for her diabetes. She was admitted to hospital at 34 plus 2 gestation. This was because her blood sugars were low and she was requiring less and less insulin. She had two doses of antenatal steroids administered for foetal lung maturity. Due to her declining insulin requirements and episodes of hypoglycaemia, she required a category 3 emergency caesarean section at 34 plus 4 gestation.

"The caesarean section was performed under a spinal anaesthetic and baby delivered on 22 September 2015."

And we know, my Lord, despite what the statement says, that was at 18.22 hours. I'm sure I can do that with agreement. There's an error in the consultant's statement:

"The caesarean section was uneventful and there were no complications. Baby was born in good condition with Apgar scores of 7 at birth and 10 at 5 minutes. Her cord gases were arterial pH 7.34, BE 0.3, venous 7.39 and BE 0.6..."

I think that's base excess as we heard, I think, earlier in the trial.

"... confirming good condition at birth. We perform elective caesarean sections at or after 39 weeks' gestation. Babies born by caesarean section before this gestation are more likely to have difficulty with their breathing (respiratory distress syndrome). They are more likely to struggle to maintain their body temperature. Her gestation and the presence of maternal diabetes meant that she was at high risk of developing hypoglycaemia in the neonatal period. It was for these reasons that the paediatricians were present in theatre for the delivery and that she was admitted to the neonatal unit."

That concludes his statement, my Lord.

Witness statement of DR KHALIL LUKE GEORGE VARGHESE (read)

MR ASTBURY: The next statement I am going to read is that of a Dr Varghese. That's at 34 of my Lord's bundle, so in the new section today.

Dr Varghese's statement is dated 6 March 2018. His full name being, I should say, Khalil Luke George Varghese. He says as follows:

"I have been asked to comment on the care and treatment of baby [Baby H] and in particular her care on 24 September 2015."

My Lord, I should say the next three statements that we are going to read are not represented by medical notes in the sequence of events chart. They set the scene, really, for the two events which the Crown allege in this particular baby's case. So these are setting the scene for the shifts of the 25th into the 26th and the subsequent shift, the 26th into the 27th if that helps.

MR JUSTICE GOSS: Right. You understand what Mr Astbury is saying? You don't have medical notes relating to what is being described in this witness's statement, but because it's agreed evidence -- obviously there are medical notes, they're just not in the sequence of events -- just listen carefully to it, but there aren't notes to which you can refer by way of documents as far as this is concerned.

MR ASTBURY: If anyone needs to return to them, they can be made available, but I don't think it's necessary.

MR JUSTICE GOSS: All right.

MR ASTBURY: "I have been asked to comment on the care and treatment of [Baby H] and in particular her care on 24 September 2015.

"I was working a night shift, the 23rd into 24 September 2015. I can't recall what nursing staff were present upon my attendance or accurately recall what nursery [Baby H] was in.

"Using the medical notes I can see that prior to my attendance, Dr Alison Ventress had documented that [Baby H] had been fine all night until 7 am. She had been on non-invasive ventilation, that being CPAP, but had then deteriorated, had poor gas, and was having profound desaturations with low oxygen levels.

"Her heart rate was fine and she was placed on more support, that being BiPAP, that being an abbreviation for biphasic positive airway pressure, which gives additional respiratory support. A cold light test was conducted to check for any air leak, but this was shown as normal.

"[Baby H] looked mottled and her capillary refill time was approximately 3 seconds. [Baby H] was given a fluid bolus. Her breathing was poor with a gasping pattern. [Baby H]'s oxygen level requirement was now 60% and Dr Ventress made the decision to ventilate [Baby H].

"As this was an elective intubation, having had experience of this procedure on previous placements with Dr Ventress, I asked if I could carry out the procedure.

"I made an entry on the medical records of [Baby H] at 08.10 hours that day, stating that I had completed the intubation checklist, which included prescribing [Baby H] the medicines as per the policy."

And then he specifies that that's the neonatal elective intubation checklist:

"I inserted a size 3.5 endotracheal tube through the vocal cords and into her lungs. It was 8.5 centimetres at the lips, but when I listened in, there was reduced air entry on one side, so I pulled back the endotracheal tube to 8 centimetres and ordered a chest X-ray.

"A plan was made to give [Baby H] surfactant once the chest X-ray confirmed the position of the endotracheal tube. Surfactant is a lung product which neonates who are born early will be deficient in and this may have been the reason why her breathing had deteriorated.

"At 09.00 hours I made a further entry in the medical notes of [Baby H] stating that although she was on a ventilator, she was desaturating despite being in 100% oxygen. There are a number of things to check to try and identify the cause of the desaturation, which include: is there an issue with the machine, is the tube placed correctly, or to monitor CO2 levels to check the tube is sited correctly. I conducted the carbon dioxide test with [Baby H], which showed that the tube was in the correct position.

"I would have listened to her air entry, which was present on both sides, but was reduced on the left side which had previously been noted. [Baby H]'s sats showed 70% despite her being on 100% oxygen.

"I did not feel comfortable dealing with such an unwell patient on my own so called for the registrar, who at this time was [Dr A]. [Dr A] attended to assist.

"He checked the endotracheal tube to ensure it was in the correct position, confirming it was through the cords. [Baby H] was given artificial breaths with a Neopuff with a longer inspiration time which appeared to have a good response from [Baby H], including increasing her tidal volumes, that being the volume of air displaced between a cycle of inspiration and expiration. On the ventilator as well..."

I read that without the brackets, my Lord:

"It was a good response from [Baby H] including increasing her tidal volumes on the ventilator as well as [Baby H]'s improvement in clinical condition was sustained. We were able to reduce her oxygen requirements from 100% to 50%. A cold light test was completed, which showed transillumination on the left side, which is consistent with a pulmonary air leak or pneumothorax.

"As [Baby H] was now settled, it was decided to wait for a formal chest X-ray to review the pneumothorax and then decide on the most effective treatment. I had no further involvement with [Baby H]'s care that day."

My Lord, that takes us to the morning of 24 September, the end of Dr Varghese's night shift.

Next, please, if we can read a statement from [Nurse B], which again is in the additional bundle that your Lordship received this morning. I'll just check the page number.

MR JUSTICE GOSS: 29.

Witness statement of [NURSE B] (read)

MR ASTBURY: Thank you.

[Nurse B] signed her statement on 23 February 2018 and stated as follows:

"Further to the statement I have already provided to Cheshire Police with reference to the investigation at the neonatal unit within the Countess of Chester Hospital, I would like to add the following.

"I have been asked to comment on [Baby H]. Having reviewed the nursing and clinical notes, I can recall [Baby H]. She was born after 34 weeks and was a good weight. Her mum had diabetes, which sometimes can contribute towards the baby's extra weight. [Baby H] had a chest drain fitted, but I can recall there would regularly be yellow fluid within the chest drain tube which would normally indicate infection. [Baby H] was on antibiotics to try counteract any infection.

"On 24 September 2015, I started a long day shift at 7.30 am. At the start of my shift [Baby H] was in nursery 1 (ITU) and she'd been on CPAP but her work of breathing was significantly increased, indicating the CPAP was not enough for her and, as a result, she was due to be intubated with an endotracheal tube which would be attached to a ventilator. A ventilator breathes for you, whereas CPAP supports your breathing.

"I took over designated nurse duties for [Baby H] from the night nurse, Lucy Letby. Due to the emergency intubation required for [Baby H] we had a very quick handover as we prepared [Baby H] for intubation.

"Also present was Dr Alison Ventress and senior house officer George Varghese. [Baby H] was given intubation drugs and I recall her being quite active, which is a good sign. I believe that the intubation process was completed with no complications. Once [Baby H] was settled and stable, I will have had a handover with Lucy, who will have gone off duty as she was the night staff.

"[Baby H] had a chest X-ray immediately after intubation to ensure the endotracheal tube was in the correct place. A capnograph was fitted to the endotracheal tube and if the tube is fitted correctly in the lungs this will turn yellow. If the endotracheal tube had gone down the oesophagus and into the stomach it would turn (inaudible). The capnograph for [Baby H] showed yellow changes, which indicated it was fitted correctly.

"I listened to [Baby H]'s chest using a stethoscope and could tell it was slightly quieter on the left side than the right. The doctor performing the intubation would pull the endotracheal tube back slightly, resulting in equal chest movement and air entry. At this point a chest X-ray would have been requested by the doctors.

"[Baby H] was on standard ventilation with not too high pressure or rates. She was on 50% oxygen and I recorded on my notes that she had never been in air prior to intubation.

"At 8.35 hours [Baby H]'s saturations dropped to 54% and she had quieter air entry on the left side but still had chest movement on both sides and the capnograph was still turning yellow. Senior House Officer Varghese was still on the ward at this time and increased the rate and pressures on [Baby H]'s ventilator, but there was still no improvement. He took over manually ventilating [Baby H] with a Neopuff in case there was a mechanical failure with the ventilator.

"We crash bleeped the duty registrar to attend and Registrar [Dr A] attended and increased the inspiratory time, which improved the oxygen saturations and [Baby H] was placed back on the ventilator.

"At 08.40 Registrar Dave Harkness was also present with [Baby H]. Registrar Harkness wanted to view the chest X-ray images on a computer screen to establish the most appropriate site for a chest drain. There was a delay in getting the X-rays on the computer screen and as a result I completed a Datix [that's a clinical incident] form.

"I did not leave the nursery while looking after [Baby H]. Had I needed to leave at any point then I would have arranged cover and a baby who was on a ventilator would never be left unattended.

"At 10.05 hours [Baby H] had an acute desaturation on the ventilator and was not responding to the Neopuff. Registrar Dave Harkness inserted an emergency chest drain after a positive cold light.

"A cold light is equipment which is placed on one side of the chest and if there is a pneumothorax within the chest, the light would spread all over the chest, which is called transillumination.

"Immediately after the emergency chest drain was inserted, [Baby H] showed signs of improvement. She had good tidal volumes [that's the amount of air into her lungs] and her oxygen

requirements were now 35%. [Baby H] was clinically much better after this procedure.

"Once a chest drain is inserted, a further X-ray is required to confirm the drain is in the correct position and that the pneumothorax is resolved. A pneumothorax is air outside of the normal lung tissue. A pneumothorax can be small or large. A pneumothorax can be a possible side effect of CPAP.

"Because [Baby H]'s mum was diabetic, [Baby H] was more likely to have a surfactant deficiency, surfactant being lubrication of the lungs, and as such was at greater risk of developing a pneumothorax. I recall apologising to [Baby H]'s parents when the first appropriate time was possible for not informing them of [Baby H]'s condition earlier. They then attended the unit at midday.

"Registrar Harkness was with me when I apologised to the parents. Dr Gibbs also apologised to them later on in the day. The priority in such situations is the medical welfare of the baby. We always try to inform the parents as soon as possible, but not if it is going to compromise the health of the baby. If we felt that a baby was going to die then the parents would be informed straightaway. There was never any indication of this with [Baby H].

"I next updated the nursing notes at 18.49 hours, noting that [Baby H]'s chest drain had initially fluttered for 2 hours but this had now ceased. This indicated a large pneumothorax.

"[Baby H] remained on the ventilator and remained in oxygen between 38% to 50%. Her heart rate had remained stable throughout all procedures. Since the chest drain [Baby H] was pink and well perfused when previously she had been pale and mottled. [Baby H] did not pass much urine at 5 pm, developing oedemas around her feet, eyes and chin as a result. This was reported by myself to Registrar [Dr A]. [Baby H] was agitated when being handled, which could be for a variety of reasons, but can also indicate that she is in pain. As a result, I increased her morphine infusion as prescribed by doctors.

"Registrar Harkness gave [Baby H] Curosurf, which is a surfactant and is administered through her endotracheal tube, to aid in gaseous exchange to improve oxygenation. At the end of my shift I handed over the care of [Baby H] to the night staff. I cannot recall who I handed over to that night.

"With reference to the early hours of 27 September 2015 I can confirm that I was on duty, working a night shift, but I am not noted on the nursing notes for [Baby H] that night and I didn't have anything to do with her care during that shift."

Next, my Lord, Dr Harkness' statement. In Dr Harkness' case there are some notes we'll refer to but once we get to the relevant point.

MR JUSTICE GOSS: Yes, certainly.

Witness statement of DR DAVID HARKNESS (read)

MR ASTBURY: My Lord, this is a statement from Dr Harkness that's dated 20 April 2018. It reads as follows:

"I have been asked to comment on [Baby H] and in particular her care on 24 September 2015. I can confirm that I was working a day shift on this day. Having reviewed the clinical notes, I can recall [Baby H].

"It has been handed over to me that she had some desaturations overnight. A recent chest X-ray was showing a left-sided pneumothorax and, at the time of my attendance for ward rounds, [Baby H]'s oxygen requirement had increased and she was starting to struggle, which suggested the pneumothorax was bigger than first thought. A cold light showed what had already been suspected.

"At this point the air from the pneumothorax needed to be drained quite quickly. I decided that a needle thoracocentesis was required to provide immediate release of air. This procedure involved the use of a butterfly needle attached to plastic tubing. The tubing is placed into sterile water to provide a seal whilst the needle is inserted underneath the middle of the clavicle, just below the second intercostal space. The sterile water should then bubble as the air is released. Completing this procedure showed an instant improvement to [Baby H]'s condition."

MR JUSTICE GOSS: The clavicle being the collarbone.

MR ASTBURY: Yes, thank you:

"Once the needle thoracocentesis is complete, you immediately insert a long-term chest drain line, which remains inside the patient, draining air from the pneumothorax. After this procedure, [Baby H] needed quite a lot on ventilatory settings and oxygen. An X-ray showed the chest drain was inserted correctly, inflating the lung. The plan was to do a blood gas 30 minutes later to ensure [Baby H]'s care was heading in the right direction and then start weaning her back down on the ventilation.

"All of my actions, reviews and plans were documented in the clinical notes and I had no other involvement with [Baby H] during this day."

Now, my Lord, having said that, if we go, please, to the EPE, and if we can go to tile 117, please. We can see a tile which deals with the morning of 25 September, the following day. If we go to the note itself, please, it's not covered in the statement, but I think we should look at it. It brings things up to date on 25 September. It's untimed, the note, but it begins "WR", which is the ward round, hence its position in the timeline.

My Lord will see in a moment that there is a request for a blood test, which is timed at 10.44, so it's assumed to be round about 10 am. That's why it appears where it does in the sequence of events.

It sets out the gestation period and present age of [Baby H]. The problems set out are a left tension pneumothorax, two chest drains and five needle thoracocentesis, RDS and, I presume, sepsis. I'm not going to go through the whole of the entry in any great detail unless I'm asked to do so, simply to point out, bearing in mind the issues, V is ventilation, and that shows a pressure of 20/5. And on the right-hand side, the oxygen concentration, which has been referred to by Dr Harkness and indeed other witnesses already this morning, is now at 28%.

If we look, please, at the chest drain section, if we can scroll up a little bit, please. It may be relevant with subsequent doctors. The chest drains are described as:

"Fifth space not swinging and serous fluid from drain. Seventh space swinging and bubbly."

I think it was Dr Harkness himself who explained that the next diagram is showing that the chest was clear with good air entry and good chest movement.

If we can scroll down again, please. We can just deal with the bottom of this page first. I know my learned friend would like me to deal with some matters on the next page. There's a reference there to TPN by way of nutrition, passing urine, bowels open. The diagram of the bowel -- sorry, the stomach was soft, no masses, bowel sounds plus. And on the right, bearing in mind the concern about blood sugars, we've got a BM of 4.5.

If we can go to the next page, please, Mr Murphy.

I understand CNS refers to central nervous system and next to that particular entry:

"Splints diaphragm and desats on all handling. No abnormal movements."

Before we leave that, we can see that the blood pressure in the -- mean blood pressure is 42 to 49.

Scroll down again, please.

MR JUSTICE GOSS: Would it be possible for -- we're going to have a medical expert --

MR ASTBURY: Yes.

MR JUSTICE GOSS: -- who can always be referred to these notes and explain to us in simple terms what they are and then Mr Myers can ask questions and highlight anything he wants to. I think that's a better way than doing it in this way -- no disrespect, but in this rather haphazard way at the moment.

MR MYERS: I said to Mr Astbury we can deal with this with witnesses, but we're grateful we've seen the document.

MR JUSTICE GOSS: The document is there in evidence and anyone can be asked any questions about what Dr Harkness has noted.

MR MYERS: Thank you, my Lord.

MR ASTBURY: If we go then next, please, to tile 118 and the document I referred to in introducing this is the request for the blood sample at 10.44. I don't think we need to look behind it, thank you.

Tile 138 next, please, as far as Dr Harkness is concerned. It's a rather short note. I don't think there'll be any difficulty with this if we just have a quick look at it, please.

It indicates that at 15.00 hours a long line was inserted. There's a sticker, I think, which we were told is taken from the long line as an audit trail.

There's a reference there to Dr Gibbs having been contacted at this particular point. It might become relevant tomorrow.

On the next page, please, we can see there, at the top of the form, the endorsement from Dr Harkness, confirming what we've just seen in the notes. That, my Lord, I think, completes Dr Harkness' involvement in these particular events.

MR JUSTICE GOSS: Thank you very much.

MR ASTBURY: My Lord, we've referred to chest drains. We've got a short video which may assist the jury in understanding this.

MR JUSTICE GOSS: I think it will. You heard earlier in the course of the trial of pneumothoraces, punctured lungs, and how the lung collapses and the difficulties that causes, but I think we're going to see a video.

MR ASTBURY: You will see how a chest drain is fitted, how it works. It's only a short video. We've held the cold light video until tomorrow where another doctor will deal with that in the witness box much more efficiently than I would. If we just play the video for now.

MR JUSTICE GOSS: Yes, certainly.

(Video played to the court)

MR ASTBURY: There isn't any sound, my Lord.

MR JUSTICE GOSS: Do you want to see that again or did you assimilate all the information? Anyone want to see it again? Well, you always can do later on if you want to.

Thank you.

MR ASTBURY: Thank you, my Lord.

My learned friend Mr Driver is going to call the next witness.

MR DRIVER: May we recall Dr Alison Ventress, please?

MR JUSTICE GOSS: Yes, thank you.

DR ALISON VENTRESS (recalled)

Examination-in-chief by MR DRIVER

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

VENTRESS: Dr Alison Lois Ventress.

DRIVER: I'm sure you appreciate you're still bound by the oath or affirmation that you took when you first gave evidence in these proceedings.

VENTRESS: Yes.

DRIVER: You've been invited back this morning to give evidence in relation to a baby called [Baby H].

VENTRESS: Yes.

DRIVER: Do you recall the patient [Baby H]?

VENTRESS: Yes, I do.

DRIVER: And I think there is one particular clinical reason why that baby will remain in your memory.

VENTRESS: Yes.

DRIVER: Is that correct?

VENTRESS: Yes.

DRIVER: Because she was the first baby that you undertook a certain medical procedure with; is that right?

VENTRESS: Yes.

DRIVER: The nature of that procedure?

VENTRESS: The full medical title is a needle thoracocentesis, but yes, putting a needle through the chest to aspirate air.

DRIVER: We'll come to the circumstances that led to you performing that procedure in an emergency situation, I understand.

You have had the opportunity, I believe, to refresh your memory from the clinical notes that were generated by this patient's stay at the Countess of Chester?

VENTRESS: Yes.

DRIVER: And so as to reorientate all of us, and with Mr Murphy's assistance, could we go to tile 2, please, and confirm that [Baby H] was born at 18.22 hours on Tuesday 22 September 2015. And then at tile number 4, it records that she was admitted shortly thereafter to the neonatal unit at 18.40 hours.

Now, as I understand, and could you confirm, please, Dr Ventress, that you were working a night shift that week?

VENTRESS: Yes.

DRIVER: If we go behind tile 5, we will see some clinical notes, which include notes that you made further down this page at J12533, please, Mr Murphy. Keep going until we see Dr Ventress' name. There we are.

So the notes were written in retrospect at 08.20 hours on the morning of 24 September 2015.

VENTRESS: Yes.

DRIVER: Have you re-familiarised yourself with this entry --

VENTRESS: Yes.

DRIVER: -- and the others you made? So if we take it slowly.

You were informed, does your first factual entry tell us, that [Baby H] had been fine all night, ie overnight, the 23rd into the 24th, until about 7 am?

VENTRESS: Yes.

DRIVER: The next entry, could you confirm, tells us that because she'd been fine, she'd been weaned down to CPAP in air prior to 6 am?

VENTRESS: Yes.

DRIVER: So does that indicate that the level of respiratory assistance she was receiving at this stage was diminishing?

VENTRESS: Yes.

DRIVER: Thank you. Then could you assist us then as to what you've recorded thereafter?

VENTRESS: Well, as you can see, I've written that since 7 am she deteriorated, had a poor blood gas, and then had a profound desaturation down to the 50s, so that's her oxygen level dropped into the 50 percents and needed bagging with a Neopuff.

DRIVER: Thank you. So the poor gas results, what was that indicative of?

VENTRESS: I haven't got the gas in front of me there.

DRIVER: Okay.

VENTRESS: It will be in the records somewhere.

DRIVER: What do you deem to be good gases or poor gases?

Could you decode that for us?

VENTRESS: There's two elements that you look at. You look at the respiratory part of it and then the metabolic part of it. So a

poor gas probably means she had lower pH than we'd expect and then I'd need to look at the gas to be sure if it was the CO2 that had gone up to cause that or one of the acid parts of the blood.

DRIVER: Very well. Perhaps we needn't dwell on that detail.

Apologies for taking you by surprise.

So she needed bagging, so use of the Neopuff --

VENTRESS: Yes.

DRIVER: -- to assist her? Her heart rate, how was that reading at the time and how did you interpret that reading?

VENTRESS: So I've written the heart rate remained above 100, which is a normal level for a small baby.

DRIVER: So notwithstanding that the profound desaturation/blood oxygen levels, her heart rate was settled?

VENTRESS: Her heart rate was -- I can't say that it was settled exactly the same, but sometimes when you get a drop in -- when you get a desaturation you get a bradycardia with it but in this case she didn't become bradycardic with it.

DRIVER: Thank you. She did recover, but slowly?

VENTRESS: Yes.

DRIVER: So the bagging, the Neopuffing, had its desired effect?

VENTRESS: Yes.

DRIVER: Though perhaps it took a little longer than one might have anticipated?

VENTRESS: Yes.

DRIVER: She was placed on -- is that BiPAP?

VENTRESS: Yes.

DRIVER: And so does that indicate that the level of respiratory support was now ratcheted up?

VENTRESS: Yes. So when I looked back in the notes she was on BiPAP at the beginning of the night shift and then we weaned her down to CPAP and then just put her back to BiPAP again.

DRIVER: Thank you. Was that a remedial or a precautionary measure?

VENTRESS: Um...

DRIVER: Both perhaps?

VENTRESS: Possibly a bit of both.

DRIVER: Thank you.

VENTRESS: Yes.

DRIVER: "Cold light neg." Does that inform us that you undertook a cold light test?

VENTRESS: Yes.

DRIVER: We've heard a little about a cold light test. We're going to hear some more about it during the course of your care and treatment of [Baby H]. So perhaps this might be an opportune moment to play a three-minute video, which demonstrates the nature of the test and what it is that we're seeking out.

So if you could bear with us, we'll watch this together, I might ask you to comment on it after we've watched it. I think there is some audio with this.

(Video played to the court)

Just pause there. The narrator mentioned that if a pneumothorax is present, there would be transillumination. Could you just describe to us what that means in this context?

VENTRESS: Yes. So when you put the light against the chest, the surrounding skin looks a little bit red or pink, but if there's a pneumothorax the whole of that chest will light up in that red-pink colour.

DRIVER: Is that because the light is illuminating the escaped gas?

VENTRESS: Yes.

DRIVER: Thank you.

Continue, please, Mr Murphy.

(Video playing continued)

Thank you, Mr Murphy.

So do you agree with all of that?

VENTRESS: Yes.

DRIVER: So first test is the cold light test, but almost always followed up by a chest X-ray?

VENTRESS: Yes, if you've got time, yes.

DRIVER: If you've got time, thank you. So could we please, Mr Murphy, go back to our tile 5? Thank you. And more importantly, Dr Ventress' notes behind it.

We got as far as confirming that a cold light test was undertaken with a negative, neg, result --

VENTRESS: Yes.

DRIVER: -- the next entry, does that refer to [Baby H]'s skin?

VENTRESS: Yes.

DRIVER: What did you note?

VENTRESS: So I've written she looked mottled and her CRT, capillary refill time, was 3 seconds. So it should normally be less than 2 seconds.

DRIVER: Right. So the refill time was a little higher than one would hope for. What's that indicative of?

VENTRESS: So her perfusion isn't as good as it should be.

DRIVER: Right. In turn, what is that indicative of?

VENTRESS: So there's lots of different reasons, but for some reason the blood wasn't flowing around the body as well as it should have been at that point.

DRIVER: And might that explain the mottled appearance?

VENTRESS: Yes.

DRIVER: Thank you. We know from other information we've heard that [Baby H] was admitted into the NNU partly because of her prematurity and partly because of her grunting breathing soon after delivery. Is your next entry a reference to that or to a subsequent development?

VENTRESS: No, that's a subsequent development.

DRIVER: Right.

VENTRESS: So I've put I gave her a fluid bolus of saline. That was to improve her perfusion. And then her breathing -- so a gasping pattern is not how I would describe grunting.

DRIVER: Forgive me.

VENTRESS: No, it's quite a specific term with babies. So it's more serious than grunting.

DRIVER: Right.

VENTRESS: Yes.

DRIVER: So indicative of a significant respiratory problem; is that right or not?

VENTRESS: Um... Yes. It can also be -- so gasping is sort of a whole body reaction and can just be -- or can be a spinal reflex causing it, so we sometimes see it in very, very unwell babies. It's not necessarily that her lungs are causing that, that it's a breathing problem itself, but it is an indication that she is unwell at that point, yes.

DRIVER: Thank you. So how did you respond to that presentation?

VENTRESS: So I've written that FiO₂, that's the amount of oxygen she was needing to be given, had increased up to 60%.

So with the combination of those things, I decided to intubate her.

DRIVER: We've already heard a statement read to the jury from the senior house officer, who you refer to here as SHO George.

VENTRESS: Yes.

DRIVER: His full name, please?

VENTRESS: George Varghese.

DRIVER: He intubated [Baby H] under your supervision?

VENTRESS: Yes.

DRIVER: And we can see the plan to take a chest X-ray -- as per the protocol, cold light first, check the chest X-ray.

VENTRESS: And after intubation you always do a chest X-ray.

DRIVER: Thank you. A further blood gas test was planned and some surfactant to be introduced once you were satisfied the ET tube was in a satisfactory position; is that right?

VENTRESS: Yes.

DRIVER: Thank you. I believe that was the extent of your direct involvement with little [Baby H] on 24 September.

VENTRESS: Yes.

DRIVER: Is it right that you were working the night shift again --

VENTRESS: Yes.

DRIVER: -- on the 25th into the 26th?

VENTRESS: On the 24th into the 25th as well, yes, so yes.

DRIVER: Thank you very much indeed. The 24th into the 25th. If we could go, please, Mr Murphy, to tile 44 and scroll down until we see Dr Ventress' handwriting, which is a note written in retrospect at 03.30 hours into the morning of the 25th.

My Lord, members of the jury, as we go through this note of Dr Ventress', and it's quite a long note, Dr Ventress has made entries that pertain to certain events at different times during the course of that morning. We have split them up to different tiles.

I'll state the tile number, but it'll be easier for us to follow it by just looking at the clinical notes rather than hopping from tile to tile. But if anybody wants to make a note, I'll state the corresponding tile number when we get to Dr Ventress' time entries.

So Dr Ventress, at 03.30 hours you noted a series of events that began for you at 01.14; is that right?

VENTRESS: Yes. Can I just clarify, is this the middle of the three nights? Just for my --

DRIVER: Yes.

VENTRESS: This night wasn't in my statement, so that's what confused me.

DRIVER: Right.

VENTRESS: I don't mind going through it, but I'm just clarifying that I've got the right night in my head.

DRIVER: Yes.

VENTRESS: So it's the 24th -- the first night was the 23rd into the 24th, wasn't it?

DRIVER: Yes.

VENTRESS: So this is the second night, yes?

DRIVER: Yes. And indeed we go on to other events that take place at 1 am on the 26th (overspeaking) --

VENTRESS: Okay.

DRIVER: You help us then: so your first paragraph summarises some developments; is that right?

VENTRESS: Yes.

DRIVER: And is this information that would have been provided to you by the nursing staff?

VENTRESS: Sorry, I did read this section but I didn't pay as much attention because it wasn't part of the statement, so I'll just refresh myself.

DRIVER: Please do and take your time by all means.

MR JUSTICE GOSS: Well, I think it would be best for you to have plenty of time just to read through the whole note.

I think that's going to be the best way so that you have familiarised yourself with its contents.

(Pause)

MR DRIVER: So if we could go back, please, to J12538 and Dr Ventress' entry written in retrospect at 03.30.

It begins with you noting that -- you observed or you were informed that there had been deteriorating gases since the start of the night shift.

VENTRESS: Yes.

DRIVER: Could you explain the next entries to us, please, the remainder of that first paragraph?

VENTRESS: So the ventilation settings had been weaned in the evening. I can't tell if that was me or the evening person who did it. So initially, I reversed the weaning, the changes that they'd made and increased the pressure and later the rate on the ventilator.

DRIVER: Right.

VENTRESS: And also requested the nurse to perform suction down the ET tube.

DRIVER: Right. So does it follow that the ventilatory support had been reduced, then her gases had deteriorated, and so the support was increased?

VENTRESS: Yes.

DRIVER: Next entry. Help us with that sentence:

"However, despite..."

VENTRESS: "Despite increasing [or 'in'] CO2 level, the oxygenation had been improving and the FiO2 [the amount of additional oxygen she was needing] had been reduced down to air by midnight."

So we think of two parts, really, with a ventilator.

One is the CO2 clearance, so we have to breathe in oxygen and breathe out carbon dioxide, so she was getting enough oxygen in quite easily, but we were having problems getting the carbon dioxide off.

DRIVER: Right. So input good, output --

VENTRESS: Yeah.

DRIVER: -- not so good?

VENTRESS: So different settings on the ventilator address those issues.

DRIVER: And can we take from that entry that whatever the problems had been, by midnight she was not deemed to require additional oxygen?

VENTRESS: No, she wasn't needing additional oxygen but she was needing higher ventilation settings, yes.

DRIVER: Thank you. And you came to her cot side at 01.14; is that right?

VENTRESS: Yes.

DRIVER: In response to an urgent bleep?

VENTRESS: Yes.

DRIVER: And were you informed that she had desaturated, that she had poor chest movement and had poor colour?

VENTRESS: Yes.

DRIVER: Was that information that would have been imparted to you or was that information that you would have derived from the patient?

VENTRESS: Um... Probably both.

DRIVER: Thank you. And what happened next with [Baby H]?

VENTRESS: So they used the Neopuff to provide breaths for her, so detached from the ventilator and used the Neopuff.

A positive capnograph colour change, which is the device you put on the end of the ET tube to detect carbon dioxide, so that confirmed to us that the ET tube is in the correct place.

DRIVER: Yes.

VENTRESS: I put "but slow change", so that's not ideal, but it is in the right place. The chest movement remained poor, but her sats did increase to over 90% with the Neopuff bagging.

DRIVER: Right. So --

MR JUSTICE GOSS: Sorry to interrupt you, Mr Driver.

Could you move the microphone a bit nearer to you, please? They're having difficulty hearing you. And Dr Ventress, could you keep your voice up a bit, please?

You are speaking quite quietly now and it makes it a struggle, actually, to concentrate on what you're saying. Let's all keep our voices up.

MR DRIVER: Of course.

So the capnograph, the device that measures or indicates carbon dioxide output, its colour changed, which is what you want it to do?

VENTRESS: Yes.

DRIVER: And then you note "but slow change"?

VENTRESS: Yes.

DRIVER: Should we read those two together? If there is a colour change --

VENTRESS: Yes. So there is a colour change, so we can take from that that the ET tube is in the windpipe, it's not slipped completely, but it's not changing as fast as we'd want it to, so potentially there is some obstruction or something that is not -- there's not as much airflow back as we'd want there to be.

DRIVER: Thank you. You monitored the rate of chest movement --

VENTRESS: Yes.

DRIVER: -- or the type of chest movement perhaps?

VENTRESS: Yes. I have written "chest movement remained poor". So that's looking -- just looking at her chest, how much it's going up and down.

DRIVER: Yes. Not moving as well as you'd like it to?

VENTRESS: Yes.

DRIVER: However, the next --

VENTRESS: However, her sats did increase to over 90%.

DRIVER: Which is movement in the right direction?

VENTRESS: It is.

DRIVER: And getting close to where you would like it to be; yes?

VENTRESS: Yes.

DRIVER: The next entry, please.

VENTRESS: So I've written:

"Unable to put back on the ventilator as no breath detected on the ventilator."

So the ventilator works by picking up when -- it picks up the flow in and out of the lungs, so it wasn't picking up that flow.

DRIVER: Right:

"Chest drain no longer fluttering."

Can you explain to the jury the fluttering of a chest drain and what it is that you'd like it to do?

VENTRESS: So the chest drain is a tube into the -- in between the ribs into the space between the lungs and the chest wall. If there's air coming out -- sorry, once it's in, you connect it to what we call a flutter valve, which is a little sort of piece of rubber, I guess, which when air comes out --

MR JUSTICE GOSS: We've seen it on the video.

VENTRESS: Yes. And when there's air coming out, it'll flutter, and when there's no air coming out, it just stays still.

MR DRIVER: And that's the objective, to remove the air --

VENTRESS: Yes.

DRIVER: -- as indicated by the fluttering of the valve?

VENTRESS: Yes.

DRIVER: So that chest drain wasn't fluttering, so from that did you infer that the flow of air outwards had ceased or at least diminished considerably?

VENTRESS: Yes. So that could be a good or bad thing. It could be that it's got blocked but it could be that there's no more air to come out.

DRIVER: Job done?

VENTRESS: Yes.

DRIVER: "Serous bloodstained fluid..."

Does that say "leaking"?

VENTRESS: "Leaking from the drain."

DRIVER: From the drain?

VENTRESS: Yes.

DRIVER: Is that a normal manifestation?

VENTRESS: Yes, it's not abnormal, yes.

DRIVER: Thank you.

VENTRESS: It's just some sort of watery, slightly bloodstained fluid. You do see that quite commonly when the air -- there's no more air to come out.

DRIVER: Right. So when you say watery, does that suggest that it was clear?

VENTRESS: Yes. By serous I mean kind of clear, yes.

DRIVER: We heard a statement from another practitioner that mentioned serous fluid and how a certain type could be indicative of infection.

VENTRESS: Mm.

DRIVER: Is clear indicative of infection or is clear what you'd hope to see?

VENTRESS: Um... It's not what I'd hope to see as such, but I wouldn't -- serous wouldn't mean infection to me. I'd expect it to be more sort of -- less clear -- I'd have said purulent or a bit pussy, you'd see an infection there.

DRIVER: Is turbid a phrase used?

VENTRESS: Yes.

DRIVER: In this context?

VENTRESS: Yes.

DRIVER: Does that mean cloudy?

VENTRESS: Yes, yes.

DRIVER: Thank you. Did you undertake a cold light test?

VENTRESS: Yes.

DRIVER: And what did that inform you of?

VENTRESS: So I've written the right side was normal but the left side showed -- I have written "slight transillumination".

DRIVER: So some cause for concern at the left lung, effectively?

VENTRESS: Yes.

DRIVER: Next entry:

"Chest X-ray requested and Neopuff bagging continued"; yes?

VENTRESS: You just need to go down on the next --

DRIVER: Forgive me, I'm looking at a piece of paper. Mr Murphy, if we could scroll down to J12539, please.

Sorry, Dr Ventress, I got ahead of the screen there.

Apologies:

"Chest X-ray requested and bagging continued."

VENTRESS: Yes.

DRIVER: The next entry refers to an event at 01.25 and if anybody's interested, on our carousel that's depicted at tile 45.

So could you, with the benefit or the assistance of your notes, Dr Ventress, tell us what happened at 01.25?

VENTRESS: So [Baby H] again desaturated and this time her sats went down into the 30s. She had an increasingly mottled appearance at that time. I've written she had poor chest movement but the capnograph was still changing colour. And I called the consultant to attend at that time. I'd have asked one of the nurses to call the consultant.

DRIVER: For what particular purpose?

VENTRESS: To come in and assist.

DRIVER: Thank you. What was your working theory at this point?

VENTRESS: So the next thing I've written was a question mark, query the tension pneumothorax had re-accumulated, so that was my thought of what was going on. So I performed an emergency needle thoracocentesis at 01.30.

DRIVER: Thank you. We know that previously a chest drain had been fitted.

VENTRESS: Yes.

DRIVER: Your cold light test a little earlier was indicative of a potential recurrence of the problem to the left --

VENTRESS: Yes.

DRIVER: And that was the basis of your --

VENTRESS: Yes.

DRIVER: -- your theory, working theory here, and the reason why you intervened in the way you did?

VENTRESS: Yes.

DRIVER: To drain the air out on an emergency, immediate basis?

VENTRESS: Yes.

MR JUSTICE GOSS: And this was the first time you'd had to do this particular procedure?

VENTRESS: Yes.

MR JUSTICE GOSS: At the very start of your evidence, you explained that's why you remembered [Baby H] because this was it?

VENTRESS: Yes. So I'd had the appropriate training and things, but that's the first time that I'd had to actually do it on a baby, yes.

MR JUSTICE GOSS: Exactly.

MR DRIVER: So a memorable event.

VENTRESS: Yes.

DRIVER: And so do you in the next entry give the detail of that procedure --

VENTRESS: Yes.

DRIVER: -- as undertaken by you at 01.30? And then the consequence, the results from it, that you aspirated 70 millilitres of air?

VENTRESS: Yes.

DRIVER: And how did that go?

VENTRESS: So 70ml of air is quite a lot for a baby that size. And things improved after that. Her sats improved to around 90%, although she was still requiring 100% additional oxygen.

DRIVER: So from that improved data, did that tend to confirm that your working theory that had caused you to act on an emergency basis was right?

VENTRESS: Yes.

DRIVER: And you'd solved that immediate problem --

VENTRESS: Yes.

DRIVER: -- there and then?

The next entry evidences that a chest X-ray was performed. I should say in terms of our carousel, the emergency procedure is noted at tile 46 and this X-ray is noted at tile 48.

So an X-ray was performed. You, it would seem, considered the radiograph.

VENTRESS: Yes. I would have seen it, yes.

DRIVER: And what did it tell you?

VENTRESS: It says it still showed a large left-sided tension pneumothorax but mainly in the lower chest area.

DRIVER: Thank you. So again, did that tend to confirm the underlying problem that you'd feared --

VENTRESS: It confirmed the diagnosis of a tension pneumothorax, but also showed that there were still a good amount of air remaining, despite the procedure.

DRIVER: So the 70ml was progress, but the problem not yet solved?

VENTRESS: Yes.

DRIVER: Thank you.

Your next entry is timed at 01.45, which is behind our tile 49. What did you observe at 01.45?

VENTRESS: [Baby H] had had a further desaturation. The butterfly needle, so that's the needle that I had used to aspirate the chest originally, the end was now underwater, which stops air going into the baby but still lets air out.

So that's a temporary measure. But that had stopped bubbling, so no more air was coming out of that. So we inserted a second

butterfly needle, slightly lower down, because on the X-ray we'd seen that the air was in the lower part of the chest.

DRIVER: Thank you. Is this right that -- so the butterfly needle was the equipment that you used for this emergency procedure?

VENTRESS: Yes.

DRIVER: Does the needle or a tube from the needle, is that submerged into liquid?

VENTRESS: Yes.

DRIVER: So as you can observe the escape of the gas, of the air from the lungs?

VENTRESS: Yes.

DRIVER: You see it go into the water and cause the water to bubble? That's what you want to see?

VENTRESS: Yes.

DRIVER: So it was under the water but the bubbling had ceased?

VENTRESS: Yes.

DRIVER: So that draining process had --

VENTRESS: Had stopped at that point, yes.

DRIVER: And because of what you'd seen on the X-ray, was it right that you deemed it appropriate to effectively repeat it but lower down --

VENTRESS: Yes.

DRIVER: -- in the chest --

VENTRESS: Yes.

DRIVER: -- to get at that air that was evident on --

VENTRESS: Yes.

DRIVER: -- the X-ray? And it worked, it would seem.

VENTRESS: Yes, we got a further 60ml of air, yes. And I've written her sats then recovered.

DRIVER: Right. So second phase problem solving?

VENTRESS: Yes.

DRIVER: And second phase progress?

VENTRESS: Yes.

DRIVER: Your note told us that you'd called for a consultant and this part of your note tells us that the consultant, Dr Jayaram, arrived at 01.50?

VENTRESS: Yes.

DRIVER: Which event is on our carousel at tile 50.

Talk us through your note, if you would, please, at this point, 01.50 onwards.

VENTRESS: So increased PIP, so increased the pressure that the ventilator was giving, to 28/5 -- sorry, on the Neopuff.

It's a similar setting to the ventilator but using the Neopuff. So it gave her more pressure. She was still being bagged on the Neopuff at this point. I repeated the chest X-ray, which showed still some tension pneumothorax, although a slight improvement from the previous one. Then we did a lateral shoot-through X-ray. Usually X-rays are done front to back, but you can do them side to side to look at it from that angle.

So that showed us that the pocket of air outside the lungs was very anterior, so right under the surface at the top.

DRIVER: Right. If anyone's interested, that X-ray is recorded at tile 55 on our carousel.

So consequently, was a third needle aspiration tried?

VENTRESS: Yes.

DRIVER: But without, this time, any consequent aspiration of air?

VENTRESS: Yes.

DRIVER: Moving forward in time, looking at your next entry at 02.40, which is behind tile 57, tell the jury, please, what this note informs us of.

VENTRESS: So I've written that the ET tube was removed as [Baby H]'s sats had reduced to 80% in 100% oxygen and the capnograph had stopped changing colour. So we'd assumed that the ET tube

was blocked or dislodged at that point if the capnograph is not changing colour at all.

DRIVER: Right.

VENTRESS: So therefore I removed the tube. And when the tube was removed, I've written it appeared completely blocked with a mucus plug.

DRIVER: Right. So your assumption was correct. So this is an additional problem?

VENTRESS: Yes.

DRIVER: So we've had the problem with the tension pneumothorax, which you've tried to address with varying degrees of success in the preceding hour or so. But then this is an additional problem, mucus blocking the ET tube?

VENTRESS: Yes.

DRIVER: So did you then seek to address that problem?

VENTRESS: Yes. We took the tube out and then re-intubated her a couple of minutes later, by the SHO, Dr Varghese again, and was successful on the first attempt. And it looked straightforward from the notes.

DRIVER: So she was re-intubated and did that work?

VENTRESS: I think so. I need to go down on the notes again.

DRIVER: Oh sorry. Apologies.

VENTRESS: Yes, so the chest movement was much improved and her sats improved and the amount of oxygen she was needing lessened. We put her back on the ventilator successfully that time.

DRIVER: Thank you. If anybody cares to make a note, the event at 02.40 is behind tile 57. The event at 02.45 is behind tile 58.

Then we have an entry noted at 03.00 and I think Mr Murphy very kindly has offered to put the next page up behind this and I invite him to do so. So we'll give Dr Ventress the opportunity to remind herself of the full note before we ask her about it. If we look at the bottom of J12539, please, Mr Murphy, so Dr Ventress can read the full flow of the sentence. And then overleaf.

(Pause)

So at 03.00 hours, which is an event behind tile 61 on our carousel, what happened at about 03.00 hours?

VENTRESS: So [Baby H] had another desaturation episode down to 26% oxygen, I've documented, this time.

DRIVER: Yes.

VENTRESS: Sorry, can I just go back to the previous page, the last sentence?

DRIVER: Yes.

VENTRESS: So we did another needle aspiration, this time in the 7th intercostal space, so even lower than before, which was successful.

DRIVER: Overleaf, thank you, Mr Murphy.

VENTRESS: And 85ml of air were aspirated and her sats improved.

So that was a successful procedure.

DRIVER: Thank you. So the earlier chest X-ray had shown an accumulation of air in the lower part of the chest.

You'd had one attempt to get at that without the desired result. So you went even lower?

VENTRESS: Yes.

DRIVER: And this time you hit the spot?

VENTRESS: Yes.

DRIVER: Thank you. Then the final entry here informs us that a further chest X-ray was taken. And for the note, that is recorded behind tile 66 at a time of 03.05 hours. What did that inform you of, Dr Ventress?

VENTRESS: So the ET tube position I've written was okay, satisfactory, and the left lung was much better inflated now compared with previous X-rays.

DRIVER: Thank you. A plan was drawn up?

VENTRESS: Yes. A plan to insert a further chest drain. She already had one, I think, at this point, and we planned to insert another one. But I've written, "No Seldinger drains available", which are the type I'd been trained on how to put in, so a different type of drain was inserted by the consultant.

DRIVER: Thank you. So taking a step back and considering all those events that you noted up at 03.30, but that took place between 01.14 and a little after 3 am, is this a fair summary, that there was a tension pneumothorax to the left --

VENTRESS: Yes.

DRIVER: -- as evidenced by a cold light and an X-ray?

VENTRESS: Yes.

DRIVER: And incrementally, you addressed that problem?

VENTRESS: Yes.

DRIVER: And managed to aspirate all the air?

VENTRESS: A good amount, yes. Have you had explained the difference between a pneumothorax and a tension pneumothorax before?

DRIVER: Please do.

VENTRESS: Just because that is, I think, an important point in this. So any pneumothorax is air around the lung between the lung and the chest wall. In a tension pneumothorax there's almost a valve that's -- it could be sort of the wound is like this (indicating), so it's letting air out of the lung but it's not letting any air back into the lung, so more and more air just fills this space and compresses the lung, can compress the heart and the blood vessels as well, whereas in just a straightforward pneumothorax you can get air in and out of the lung from that space.

A tension pneumothorax is a true emergency whereas just air around the lung itself isn't necessarily.

DRIVER: And in this context, does tension refer to pressure?

VENTRESS: Yes. It's pressure in that space between the lung and the chest wall.

DRIVER: And we'll see in some notes some clinicians noting whether or not the heart has moved?

VENTRESS: Yes.

DRIVER: Is that because that's a real worry?

VENTRESS: So in a tension, the heart and the midline moves over to the opposite side on the X-ray. That would explain why she was mottled and her capillary refill time was prolonged earlier on in the episode.

DRIVER: So the pressure, is this right, can compromise the effective function of not just the lung but also the heart?

VENTRESS: And the main blood vessels it can compress a little, yes.

DRIVER: Thank you. And that was one of the problems that manifested in these hours in the early hours of the 25th?

VENTRESS: Yes.

DRIVER: But you addressed them?

VENTRESS: Yes.

DRIVER: And at or during that period of time there was also the mucus-blocked ET tube?

VENTRESS: Yes.

DRIVER: Which was also addressed by removal and re-intubation?

VENTRESS: Yes.

DRIVER: So it was a rocky night for [Baby H]?

VENTRESS: Yes.

DRIVER: But were the causes for those problems identified?

VENTRESS: Yes. So a tension pneumothorax is something that does happen. We never can find the exact cause for it, but a premature baby needing CPAP or respiratory support, a pneumothorax and a tension pneumothorax is a known complication of that. So yes.

DRIVER: And the pressing problems were successfully addressed?

VENTRESS: Yes.

MR DRIVER: My Lord, we're now going to move on to a different shift where there were significant events.

If we are to have a break this morning, this might be a convenient time.

MR JUSTICE GOSS: Certainly, we will have a break now.

A ten-minute break then, please, members of the jury.

Ten minutes, thank you.

Doctor, a ten-minute break and then continuing.

VENTRESS: Yes, that's fine.

(12.05 pm)

(A short break)

(12.15 pm)

MR DRIVER: I wonder if I could ask Mr Murphy to put tile 210 up. Thank you. It informs us all that we've now moved forward in time to 23.50 hours on Friday, 25 September.

VENTRESS: Yes.

DRIVER: We're about to look at some of your notes, which inform us that you were working nights again.

VENTRESS: Yes.

DRIVER: The 25th into the 26th; is that right?

VENTRESS: Yes, that's right.

DRIVER: At 23.50, so approaching midnight on 25 September, you made the note that is in part on screen at the moment.

Is this a note that you've familiarised yourself with recently?

VENTRESS: Yes, it is.

DRIVER: Thank you. It begins by informing the reader that [Baby H] had had several episodes of desaturation in the previous 2 hours. The remainder of this note, which sets out those two -- those episodes, I should say, were they episodes that you observed and witnessed or did you receive a report of the episodes or can't you remember?

VENTRESS: I can't tell from those notes.

DRIVER: Okay. So the first of the recorded episodes, the note tells us, was:

"After gas taken (good gas) became agitated."

Could you explain that to us?

VENTRESS: Yes. So the first desaturation in this cluster, I would assume that was reported to me, but I can't be sure. It was reported to happen after she had blood gas taken, so would have had a heel prick blood test done. And then "good gas" indicates a satisfactory blood gas result at that point.

DRIVER: Right. So the baby became agitated after a heel prick test was undertaken?

VENTRESS: Yes.

DRIVER: And is that an uncommon response?

VENTRESS: No, it's not uncommon.

DRIVER: It was noted that yellow serous fluid was coming from the drain, quantity 8ml. Does the colour inform you of anything in particular?

VENTRESS: No. Yellow serous fluid doesn't sound anything worrying.

DRIVER: Thank you. And eventually, the baby improved with bagging, with Neopuffing?

VENTRESS: Yes.

DRIVER: Another of the episodes you note was associated with poor chest movement, a bradycardia, and in consequence, is this right, the ET tube was suctioned and a thick mucus substance was produced through that active suctioning?

VENTRESS: Yes.

DRIVER: And your note suggests that thereafter the chest movement improved and her saturation levels increased?

VENTRESS: Yes.

DRIVER: The next entry:

"10ml of air aspirated from pigtail drain."

Could you just expand upon that a little for us?

VENTRESS: So I'd attempted to aspirate air from one of the chest drains that [Baby H] had in because sometimes the chest drain could become blocked with fluid and there was air collecting

again. So I aspirated 10ml, so there was a little bit of air but not as much as the previous night when it was 70/80ml.

DRIVER: Thank you. You performed another cold light test and on this occasion that produced a negative result?

VENTRESS: Yes.

DRIVER: This note began by informing us there were several episodes, so you pick up upon that series of events by saying:

"Further episodes. No change in heart rate. Recovered with bagging on higher pressure."

And the ventilation was increased.

VENTRESS: Yes.

DRIVER: It speaks for itself. The next entry. What does that inform us of?

VENTRESS: So between these episodes of desaturation, [Baby H] was only requiring 30% oxygen to maintain normal saturation levels.

DRIVER: Thank you. A repeat chest X-ray was performed?

VENTRESS: Yes.

DRIVER: For the purpose, does it flow from your note, of seeking to establish whether there was still a tension pneumothorax evident?

VENTRESS: Yes.

DRIVER: Did you consider that chest X-ray?

VENTRESS: Yes, I will have done. I think the stickers are somewhere else in the note.

DRIVER: Thank you. The final note here, please, at 23.50.

VENTRESS: So I've put, based on the chest X-ray, there was a significant pneumo mediastinum. That was air in the central part of the chest surrounding the main vessels in the oesophagus and windpipe and things. That can happen when there's air leak in other places as well but you can't put a needle or a drain into that to solve it.

DRIVER: Right.

VENTRESS: So that just disappears on its own eventually. Then the second chest drain advanced back in to 4 centimetres as it was almost out. I have written that was done prior to the chest X-ray. So yes, it speaks for itself.

DRIVER: Right. Could you help us understand it? Does that indicate that the second chest drain was in a sub-optimal position?

VENTRESS: Yes. So it had almost fallen out of [Baby H].

DRIVER: And would that prevent or at least reduce its function?

VENTRESS: Yes.

DRIVER: So you fixed that problem --

VENTRESS: Yes.

DRIVER: -- by replacing it? Thank you.

For the note, that entry at 23.50 that Dr Ventress has just helped us understand is behind tile 210.

The next note is behind tile 216. I think possibly a slip of the pen here, Dr Ventress, but it's timed at 01.00 --

VENTRESS: Yes.

DRIVER: -- because you have said below therefore the date must be the 26th rather than the 25th.

VENTRESS: It happens surprisingly often on night shifts!

DRIVER: Yes. What is it that you noted at 1 in the morning on the 26th?

VENTRESS: So her oxygen requirements had gradually increased up to 70%, but I've written there's been no further profound desaturation since around midnight. Then she had a poor blood gas, which shows a low pH and a high carbon dioxide level. And by the time I'd written that, she was now in 100% oxygen.

DRIVER: Right. So the degree of respiratory support provided was being significantly increased; is that right?

VENTRESS: The amount of oxygen, additional oxygen, she was requiring had gone up, yes.

DRIVER: Thank you. What, if any, effect did that have?

VENTRESS: So I then increased the ventilation support and increased the rate of the ventilator and the pressure she was getting. But then her blood pressure started to drop, so the combination of needing more oxygen, more respiratory support and a drop in blood pressure made me think, had she got another pneumothorax like the previous night.

DRIVER: So did you undertake a test?

VENTRESS: Yes. We did the cold light test again, which showed it was slightly brighter in the left but not transilluminating the whole side of the chest. So I called the consultant that night, Dr Gibbs, for advice, and he said he'd come and review the patient.

DRIVER: Right. What is it about that -- what was it, I should say -- about that combination of data and the results of the cold light test that caused you to deem it necessary to call the consultant?

VENTRESS: I think if the cold light had given me a clear result that she had another tension pneumothorax then it would have been clear what treatment she needed, but because it hadn't given that clear result and she was clearly unwell, needing lots of oxygen, higher support and her blood pressure was dropping then I felt at that stage I needed additional advice at least on how to progress from then.

DRIVER: Thank you. We know that Dr Gibbs did attend. Dr Gibbs has made a note. Would you have been with Dr Gibbs when he came and examined [Baby H]?

VENTRESS: Yes.

DRIVER: In that case --

VENTRESS: I may not have been with him for the whole time he was there if it was hours, if I'd got called back to the paediatric ward, but I would have been there for the initial -- when he arrived, yes.

DRIVER: In that case could we go to tile 228, Mr Murphy? It is Dr Gibbs' notes, which in the clinical notes follows immediately after your entry that we've just considered.

Can you recall, were you part of this examination, did you interact with Dr Gibbs, did you act upon any of his conclusions or were you elsewhere or can you not remember?

VENTRESS: I can't remember exactly and these couple of notes do muddle up in your memory.

DRIVER: Right.

VENTRESS: But yes, as I said, I'd have been there when he arrived and given him a handover of what had happened during the night, but from that he's documented that he put another chest drain in, so at that stage I may have been elsewhere.

DRIVER: Right. We'll defer to Dr Gibbs then.

VENTRESS: Yes.

DRIVER: At least we've established in the timeline that a further chest drain was fitted --

VENTRESS: Yes.

DRIVER: -- at this point or thereabouts, 02.15. Your next entry in the notes follows on immediately from Dr Gibbs' entry. It's behind tile 243, which is, as we'll see now, a note made at 04.00 hours.

VENTRESS: Yes.

DRIVER: But a retrospective note, which begins by informing the reader that you responded to a crash call at 03.24 hours; is that right?

VENTRESS: Yes, that's right.

DRIVER: So upon receiving that signal, did you attend and go straight to nursery 1 --

VENTRESS: Yes.

DRIVER: -- where we know [Baby H] was housed at this point of time?

She, you were informed, am I right, had had a further desaturation which required Neopuffing?

VENTRESS: Yes.

DRIVER: That her sats, as recalled, had fallen into the 60s?

VENTRESS: Yes.

DRIVER: Is that a level of real concern, 60s?

VENTRESS: Yes.

DRIVER: Then help us, please, with the remainder of this note.

So her sats had fallen to the 60s?

VENTRESS: Then the heart rate had dropped to less than 100, so at that point the nurses put out a crash call. So I wasn't there for that part. I have written later on "on my arrival", so everything before that was before I arrived.

DRIVER: Thank you. Were you informed that, prior to this development, the baby was not being handled at all?

VENTRESS: Yes.

DRIVER: And no trigger identified?

VENTRESS: Yes.

DRIVER: Does that in a way echo the note we looked at earlier where there was a certain adverse reaction to the heel pricking?

VENTRESS: Yes. Desaturations aren't that uncommon in babies on a ventilator, but often there will be something, they've had suction, they've had a blood test, they've had their nappy changed, lots of things that have happened to them that might trigger it off.

DRIVER: So one of the things you do, am I right, you look for a stimulus to see whether there's a cause and effect?

VENTRESS: Yes.

DRIVER: The next entry, please, towards the bottom of this page.

VENTRESS: "No trigger identified. Not fitting."

So one thing that I would think about with regular desaturations where no cause is identified is could the baby be having a seizure, but there's no sign of that there.

DRIVER: Right.

VENTRESS: Then I have written she just finished a 10ml per kg saline bolus -- does that say 30 minutes before? So I think that had been prescribed by Dr Gibbs probably, but she just finished that 30 minutes before.

DRIVER: Is there any particular reason why you've included that in this note?

VENTRESS: Um... (Pause). I think it's just getting the timings involved. It's not particularly related to what happened at that time, but just to -- you know, I was aware she'd just had a fluid bolus, so there were concerns before that about her perfusion, I'd imagine, if she was given a fluid bolus.

DRIVER: Thank you. We will defer to Dr Gibbs on that in due course. But if we continue with your note, which goes on to another page, but Mr Murphy's very helpfully attached it to the bottom of this, so we could scroll, please.

This is a continuation of the same note that you've just assisted us with; is that right?

VENTRESS: Yes.

DRIVER: And talk us through this down to the heart rate reading, please.

VENTRESS: Yes. On my arrival to the neonatal unit, she was being bagged via her breathing tube. They were achieving good chest movement and the capnograph colour change was positive, so the tube was in a good position and effectively moving air in and out of the lungs.

DRIVER: Right. So if there was a problem it wasn't the --

VENTRESS: It wasn't that the tube was blocked.

DRIVER: No. The chest movement and capnograph indicator informed you of that?

VENTRESS: Yes.

DRIVER: Yet, is it fair for me to add that word, her sats were still at 60% and the heart rate was dropping --

VENTRESS: Yes.

DRIVER: -- yet further from 70 to 50?

VENTRESS: Yes, that's fair.

DRIVER: That's a very serious problem; is that right?

VENTRESS: Yes.

DRIVER: Your next entry times your intervention at 03.26. For the purpose of the note this is on our carousel behind tile 244, but we'll just stay with this note.

Please explain the events that you've recorded as of 03.26.

VENTRESS: So chest compressions, CPR, were started at 03.26, as her heart rate was less than 60, and Dr Gibbs was called back in. So he'd left at some time but I'm not sure when. We did the cold light test again. The left was brighter than the right, so given all the previous problems I wondered if she might have a recurrence of the tension pneumothorax, so inserted the needle, but only got 8ml of air and 2ml of fluid that time.

DRIVER: If we could break that down, please, Dr Ventress. We all, I'm sure, understand the CPR being commenced. In terms of the degree of that intervention, of that response to the data, does that indicate that this was a very, very real emergency?

VENTRESS: Yes. She was having full resuscitation, yes.

DRIVER: Because of what you'd observed the previous night, you understandably repeated a cold light test. What was the degree of the results of that cold light test?

VENTRESS: I have just written that the left was brighter than the right. I can't remember more than that.

DRIVER: Very well. You repeated the emergency procedure that you'd done for the very first time on an earlier shift.

And the results on this occasion were the aspiration of 2ml of air and 2ml of fluid. Again, in terms of degree, was that a very significant level of aspirate?

VENTRESS: No. There was 8ml of air and 2ml of fluid, but no, not significant enough to have caused the issues -- the state that [Baby H] was in at the time.

DRIVER: You then break down, on a minute-by-minute basis, the interventions which were part of the emergency response; is that right?

VENTRESS: Yes.

DRIVER: At 03.30 -- and if anyone's interested the 03.30 event is recorded behind tiles 245 and 246 -- you gave the child adrenaline --

VENTRESS: Yes.

DRIVER: -- 0.25ml. Again, Dr Ventress, was that something you'd done many times?

VENTRESS: Yes. This is standard advanced life support at this stage. So she's -- we treat a heart rate of less than 60 in a neonate of a cardiac arrest so this is basically a cardiac arrest treatment plan. She does have a heart rate, she's not got a zero heart rate, but less than 60 we treat as if zero.

DRIVER: So you go to the cardiac arrest protocol --

VENTRESS: Yes.

DRIVER: -- effectively?

VENTRESS: Yes.

DRIVER: And is that -- we'll go through them and is that what we will see --

VENTRESS: Yes.

DRIVER: -- recorded between 03.30 and 03.46?

VENTRESS: It is, yes.

DRIVER: Thank you. So adrenaline introduced at 03.30. A note made at -- sorry, referring to events of 03.32, which are behind our tile 247. Can you expand upon that note, please, the 3.32 note?

VENTRESS: So I've written the heart rate was reading 92 on the monitor and her sats were reading 70%, but as soon as the chest compressions were stopped the heart rate decreased again. So it would have been one of the nurses probably providing chest compressions and you do sometimes -- if they are providing good quality chest compressions you do get a heart rate and sats pick up from them because they are moving blood successfully round the body.

DRIVER: So the chest compressions had a positive effect whilst they were being applied?

VENTRESS: Yes.

DRIVER: However, once stopped, did things revert?

VENTRESS: Yes, the heart rate dropped again, yes.

DRIVER: So the underlying problem, whatever it may have been, had not been solved?

VENTRESS: No.

DRIVER: Hence at 03.35, and this is behind tile 248, a further dose of adrenaline was given?

VENTRESS: Yes.

DRIVER: Not in your notes, but Dr Gibbs' notes below will tell us that he arrived at 03.36, in between your two entries, and that event is recorded behind our tile 250.

So Dr Gibbs arrived but he supplies us with the time of 03.36.

VENTRESS: Yes.

DRIVER: Next, at 03.39, this is our tile 251, further adrenaline and then, 03.45, our tile 253, what was given then and why?

VENTRESS: So atropine was given, which is medication to prevent bradycardia. It's part of, again, the cardiac -- it's a... It's not a compulsory part, but it is part of the cardiac arrest algorithm, yes.

DRIVER: So a further and later stage?

VENTRESS: Yes.

DRIVER: And can we draw from the fact that it was given that it was deemed necessary to move to that further and later stage of this --

VENTRESS: Yes.

DRIVER: -- algorithm, this protocol; yes?

VENTRESS: Yes.

DRIVER: And then by 03.46, and this is our tile 255, what had happened and what took place?

VENTRESS: The chest compressions were stopped as the heart rate had improved to 120 and then to 160, and the heart rate stayed high and her colour started improving.

DRIVER: So the emergency response --

VENTRESS: Had worked, yes.

DRIVER: -- was, thankfully, successful?

VENTRESS: Yes.

DRIVER: Thank you. Dr Gibbs will give evidence in due course and will expand upon the note that he made.

Could we then move on, please. Just confirm, Dr Ventress, was that the last time you had direct involvement with [Baby H] as best you can recall?

VENTRESS: Yes, as far as I've seen.

DRIVER: Perhaps you would have been there whilst Dr Gibbs responded to your request for his attendance, but does it follow that he effectively would have taken --

VENTRESS: Taken the lead, yes.

DRIVER: -- taken the lead in the half an hour or so immediately after the event that you've just described to us?

VENTRESS: Yes.

DRIVER: Thank you.

Dr Ventress, as part of the timeline of these events that we've looked at, the jury have seen yesterday a number of text messages or other social media communications involving some members of staff at the hospital, including yourself.

VENTRESS: Okay.

DRIVER: I'm not going to go through them all, but can I just take you to a couple and ask you what you recall and to explain your communications rather than somebody else's.

Before I do so, to give it some context, you were clearly directly involved in the events that we've considered, in particular the one we've just considered a moment ago that called for CPR.

VENTRESS: Yes.

DRIVER: Did you subsequently have reported to you that there had been a further significant event involving [Baby H] whilst you were absent, presumably having some time off having done a series of nights? Do you remember?

VENTRESS: I can't remember. Probably.

DRIVER: If we could just look at tile 511, please. Just to get the time and date. We've just been looking at, haven't we, events that took place in the early hours of 26 September? We now fast forward in time to the morning of 27 September when

your colleague, Lucy Letby, it would seem, sent a message to you, saying:

"[Baby H] had resus again but not as long-lasting as it was for us. She went to Arrowe."

The events that we've just focused upon, that is to say the early hours of the 26th, do you recall whether Lucy Letby was in the nursery and involved in and around those events?

VENTRESS: I don't recall directly those events. I know from -- I know she was there at the intubation on the first one because her name was on the intubation checklist, but I'd have no direct visual memory of anyone who was there.

DRIVER: Very well. Nonetheless, it would seem this Facebook message was sent in your direction:

"[Baby H] had resus again but not as long-lasting as it was for us."

VENTRESS: Yes.

DRIVER: "She went to Arrowe Park."

The intubation event that you just alluded to, that didn't involve resuscitation?

VENTRESS: No, that was the first night, the 24th, I think it was, yes.

DRIVER: But of course the events at 03.30 or thereabouts on the 26th that we've just focused on, that was --

VENTRESS: Yes, that was resus.

DRIVER: That was resus, yes. The next tile, please, to see -- do you recognise this as your response to the message we've just looked at?

"Oh crap. Do they know why she did it this time? I'm glad she's been transferred! How are you? Really rough set of nights for you."

Do you remember that?

VENTRESS: I don't remember it but it looks like something I would have sent, yes.

DRIVER: For completeness, if we go to tile 518. Your question:

"Do they know why she did it this time?"

Answer:

"No. Did exactly what she did for us: desat and didn't pick up and dropped heart rate. Looked fine again after though but made decision to transfer, which I think was sensible!"

So that's the dialogue, as it were, but go back to 512, please, Mr Murphy. So question:

"Do they know why she did it this time?"

Did you know why she'd done it last time?

VENTRESS: No. I know from that and from reading the notes again I know that, you know, we followed the cardiac arrest protocol and she recovered, but we never found a reason why she got -- did that.

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

Cross-examination by MR MYERS

MR MYERS: Do you agree, Dr Ventress, that there are numerous reasons why a baby on a ventilator with chest drains may desaturate?

VENTRESS: Yes.

MYERS: And do you agree that a desaturation in those circumstances is not uncommon?

VENTRESS: Yes.

MYERS: You've been asked about a comment about "no trigger identified" that was in your notes.

VENTRESS: Yes.

MYERS: Do you recall that? Sometimes it's possible to see an action or a process that's taken place that leads to a direct negative consequence in a baby, isn't it?

VENTRESS: Yes.

MYERS: And if you can do that, and you gave examples like suction, blood test or a nappy change, if you can do that then you can draw the link and say that must be what's caused it or played a part.

VENTRESS: Yes.

MYERS: In fact, if we look at the days leading up to the event at about 03.20 on 26 September there's a good deal more than just suction, a nappy change and a blood test that had happened, isn't there?

VENTRESS: Yes.

MYERS: I'm going to summarise, we may look at some of the detail, but over those days there had been multiple desaturations of this little girl, hadn't there?

VENTRESS: Yes.

MYERS: And indeed, in the hours leading up to the event we're looking at, there had been a series of desaturations, hadn't there?

VENTRESS: Yes.

MYERS: And some of those desaturations had been what's described as profound?

VENTRESS: Yes, I'd agree.

MYERS: She had been suffering certainly at points, and maybe for prolonged periods of time, from a tension pneumothorax, hadn't she?

VENTRESS: Yes.

MYERS: And that can constitute a medical emergency, can't it?

VENTRESS: Yes, definitely.

MYERS: And that is likely to put a strain on the little body of a neonate like this, isn't it?

VENTRESS: Yes.

MYERS: She had also over the period leading up to this event had three chest drains inserted, hadn't she?

VENTRESS: Yes, that's right.

MYERS: We've heard that handling can play a part in putting a baby under distress so that they might desaturate; that's right, isn't it?

VENTRESS: Yes, handling.

MYERS: And would you agree, one chest drain is quite an event for a baby to undergo; that's right, isn't it?

VENTRESS: Yes.

MYERS: Three of them is a lot of pressure on that baby, isn't it?

VENTRESS: Yes.

MYERS: And the third of those chest drains was put in at about 2.15 on the morning we're looking at, wasn't it?

VENTRESS: Yes, if that's what the note say, yes.

MYERS: So a little more than an hour before this event?

VENTRESS: Yes.

MYERS: And in addition to chest drains, she'd also had what are called butterfly needles inserted --

VENTRESS: Yes.

MYERS: -- on multiple occasions, hadn't she?

VENTRESS: Yes.

MYERS: And even at 1 o'clock in the morning before this event, your opinion was that she was clearly unwell at that point, wasn't she?

VENTRESS: Yes, she's been clearly unwell throughout this, yes.

MYERS: All right. And even at 01.00 she needed lots of oxygen, didn't she?

VENTRESS: Yes.

MYERS: That's in the note, that's what you said, sorry. And her blood pressure was dropping at that point?

VENTRESS: Yes.

MYERS: When you come to look at the totality of what her body had gone through over a period of 3 days, that was a significant amount of strain on a baby, wasn't it?

VENTRESS: Yes, I agree.

MYERS: So it's right that we can't identify something like a nappy change or suction or a heel prick or something like that shortly before the collapse?

VENTRESS: Is this the arrest that we're talking about?

MYERS: Yes.

VENTRESS: That's not the bit that I said no trigger identified for, isn't it?

MYERS: What bit did that apply to?

VENTRESS: That was earlier on in the notes, wasn't it?

MYERS: We can see if you want to check. It's at tile 228.

Could we look there, please? We'll just be clear.

Thank you.

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VENTRESS: Oh yeah. Does that carry on into the arrest? Yes.

MYERS: That's it. So that is what we're talking about, isn't it?

VENTRESS: Yes. Thank you for clarifying.

MYERS: So what I said was correct, wasn't it?

VENTRESS: Yes.

MYERS: Thank you. So although we have no trigger identified at the note we understand why you put that there.

VENTRESS: Yes.

MYERS: The reality is, she had been through an awful lot of medical activity, hadn't she?

VENTRESS: Yes.

MYERS: And it is quite conceivable that a baby under that much intervention, having gone through what she had gone through, could suffer quite a significant collapse?

VENTRESS: Yes.

MYERS: So cumulatively, over 3 days, it could be said that did contribute to what happened?

VENTRESS: Yes. And babies do desaturate for reasons that we don't identify and --

MYERS: All right. Thank you.

I just want to deal with this, just to help, through you, the jury with some fixed times. I'm not going to expect you to remember all of this but we've had a lot of times and dates and with your assistance I'm going to help everybody with the exact times the chest drains went in --

VENTRESS: Okay.

MYERS: -- so we can follow that.

The first drain -- and my Lord this is as much to make a note of this, if we could, because I'd be grateful if we could have these times in our minds.

MR JUSTICE GOSS: Certainly, yes.

MR MYERS: The first drain, with which you were not involved, Dr Ventress, went in at about 10 o'clock on 24 September 2015, which is the day after [Baby H] had been born.

VENTRESS: Yes.

MYERS: I don't think there's actually a tile setting that, but it's not controversial. That's the first chest drain.

The second chest drain, which is inserted by Dr Ravi Jayaram, was put in at about 03.00 on 25 September 2015. That's referred to at tile 62 for everyone's notes, but you were on the unit at that time, weren't you?

VENTRESS: Yes.

MYERS: The third chest drain was put in by Dr Gibbs at about 2.15 on 26 September 2015.

VENTRESS: Yes, the following night, yes.

MYERS: The following night. So we've got one drain going in at 10 o'clock on 24 September, the second drain going in at 3 in the morning on 25 September, and the third drain going in at about 2.15 on 26 September, which is a little bit more than an hour before the collapse that concludes the area that you've looked at?

VENTRESS: Yes.

MR MYERS: Those are my questions. Thank you, Dr Ventress.

Re-examination by MR DRIVER

MR DRIVER: Just one point of further explanation, if you would. You confirmed in response to a question by my learned friend Mr Myers that desaturations are not uncommon with babies experiencing the sort of problems that we know [Baby H] was experiencing.

VENTRESS: Yes.

DRIVER: Are arrests as common as desaturations?

VENTRESS: No. Arrests aren't all that common. I'm not saying impossible, but they're not as common, no.

MR DRIVER: Thank you.

Sorry, my Lord, apologies. Do you have any questions for the witness?

MR JUSTICE GOSS: I have no questions. Thank you very much.

That completes your evidence in relation to this baby.

MR DRIVER: We don't believe Dr Ventress is scheduled again.

MR JUSTICE GOSS: I don't think you're required again.

VENTRESS: I am for the next one. I was -- well, who knows?

MR DRIVER: Dr Ventress has supplied witness statements in relation to --

MR JUSTICE GOSS: You may or may not be coming back. But thank you very much for coming and giving your evidence at this stage. That completes it and what I have said to you before still applies: don't talk to anyone about anything to do with this case or any evidence about it.

Thank you very much.

VENTRESS: Thank you.

(The witness withdrew)

MR JUSTICE GOSS: That's an appropriate time to break off, Mr Johnson, or Mr Driver.

MR JOHNSON: Yes, thank you.

MR JUSTICE GOSS: Thank you very much. We'll break for lunch then, members of the jury. Could you be ready, please, to continue at 2 o'clock, just over the hour?

Thank you very much indeed.

(12.58 pm)

(The short adjournment)

(2.00 pm)

(In the absence of the jury)

MR DRIVER: My Lord, there are two witnesses to be called this afternoon, the second of whom requires screens.

MR JUSTICE GOSS: That will be the break unless we've had it before then. Then we'll just have another one, but I think we'll try and make them coincide. Thank you.

Jury, please.

(In the presence of the jury)

MR DRIVER: My Lord, may I call [Nurse D], please.

MR JUSTICE GOSS: Certainly.

[NURSE D] (sworn)

Examination-in-chief by MR DRIVER

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

NURSE D: It's [Nurse D].

MR JUSTICE GOSS: Please keep your voice up because this is quite a large room and everyone's got to hear what you're saying. Thank you very much.

MR DRIVER: Would you like me to address you as Miss, Ms or Mrs [Nurse D]?

NURSE D: Ms.

DRIVER: Could you project your answers to the jury across the other side of the room if you would, please?

In 2015 is it right that you were employed within the neonatal unit of the Countess of Chester Hospital?

NURSE D: Yes, it is.

DRIVER: And your role within the unit?

NURSE D: A neonatal nurse.

DRIVER: Thank you. You've been invited here today to give evidence about events in late September 2015.

NURSE D: Yes.

DRIVER: Could you confirm that in advance of attending here today you've had the opportunity of refreshing your memory from a witness statement you made some time ago --

NURSE D: Yes, I have.

DRIVER: -- focusing upon 25 September 2015 --

NURSE D: Yes.

DRIVER: -- and a baby by the name of [Baby H] --

NURSE D: Yes.

DRIVER: -- who, as I understand it, was under your direct care during the day shift of 25 September?

NURSE D: Yes, that's right.

DRIVER: Does that accord with your memory? During the course of your evidence you'll be shown some nursing notes that you made during that shift and, in addition, some charts and the like that I'm sure you're very familiar with in terms of format. So they'll be available to you to refresh your memory as to details, so don't worry about that.

NURSE D: Okay.

DRIVER: Some of those documents are in the file there just to your left and I'll take you to them in due course.

Other documents aren't in the file but will appear on that screen just to your right.

May I begin, please, by inviting Mr Murphy to put tile 130 up, please.

Here, [Nurse D], you'll see your name in this graphic that we've produced here and if we click behind it, we'll see that as of 13.23 hours on 25 September 2015 you made some nursing notes which have been summarised or reproduced in part here. If we click behind one more time, you will see an image taken from those computerised records, which isn't the clearest on this screen.

If I could ask, please, Mr Murphy to focus in on the note in the middle of the right side of the document as we look at it. If we could magnify that. I anticipate we'll see a note made by you, created by you. Is that a bit clearer for you?

NURSE D: Yes.

DRIVER: Thank you. So created by you at 13.23 hours on 25 September, setting out what had happened and what you had done vis-à-vis [Baby H] prior to that during your shift, which, could you confirm, would have started at about 7.30 --

NURSE D: Yes.

DRIVER: -- or 8 am that day? So the jury are well familiar with this format of nursing notes and understand that much of the content has been derived from contemporaneous notes that you would have logged during the course of your care for the baby in question.

So was it your practice upon beginning the shift, as this note tends to indicate, to undertake checks upon all the vital equipment that was being used to help support the patient?

NURSE D: Yes, that's correct, at the start of the shift (inaudible) check equipment, fluids (inaudible).

DRIVER: You probably heard my colleague whisper. If you could keep your voice up. That way I won't need to keep repeating the questions.

NURSE D: Okay.

DRIVER: I invite you again to direct your answers to the jury, even though the questions are coming from your left.

Do you recall that [Baby H] was being nursed on a ventilator when she came under your care?

NURSE D: I don't specifically remember the dates (inaudible) [Baby H] but reading through my notes, yes, she was on a ventilator.

DRIVER: As part of the handover, would you have been appraised of the immediate history with the patient in the 24 to 36 hours prior to you being designated as her nurse?

NURSE D: Yes, I'd have been given a full handover.

DRIVER: Did you learn that in that period there'd been some deteriorations in her health; do you remember that?

NURSE D: Yes.

DRIVER: And that she'd required intubation?

NURSE D: Yes.

DRIVER: And by this stage had already had a chest drain fitted?

NURSE D: Yes, she had.

DRIVER: And do you recall a left-sided pneumothorax?

NURSE D: Yes.

DRIVER: And that she had been re-intubated overnight due to issues with her endotracheal tube; yes?

NURSE D: Yes.

DRIVER: Thank you. Plainly, therefore, you would have been alert to the fact, would you, that there were issues with her respiration?

NURSE D: She was on a ventilator and she was on -- her pressures and ventilator rate were set at the requirements she needed.

DRIVER: Thank you. I wonder whether Mr Murphy could take us, please, to tile 99 and the document that lies behind it.

Whilst we're doing that, we're going to look at some documents, [Nurse D], and in that folder nearest to you -- thank you -- there are a number of dividers.

Behind divider 10 you should see this document (indicating). Do you?

NURSE D: Yes, an observation chart.

DRIVER: And so you and the jury, of course, are very welcome to look at the paper documents in addition to the representation of the same documents on the screen in front of you. The observation charts are large and clear.

If we move forward three pages, [Nurse D], we'll see, perhaps less helpfully in miniature, a half page.

Do you recognise the format of that document?

NURSE D: Yes. It's the intensive care chart we use.

DRIVER: Thank you. It's probably a bit difficult to read because of the way it's had to be reproduced. If you look at the screen to your right you'll see the same thing, I hope, there.

NURSE D: Yes.

DRIVER: So the page on the screen and obviously the page in front of you is a page of two halves, fluids to the right and environmental safety check to the left; is that right?

NURSE D: Yes.

DRIVER: Can you see your signatures or your initials, I should say --

NURSE D: Yes.

DRIVER: -- on that document?

NURSE D: Yes.

DRIVER: And do you actually recall the completion of these checks and the filling of this form?

NURSE D: No, I don't.

DRIVER: Simply because too long has passed?

NURSE D: The period of time, yes.

DRIVER: Well, perhaps we won't dwell on the detail of that document in those circumstances unless strictly necessary to do so. So let's go back to the nursing notes.

Would you anticipate that the content of the nursing notes reflects in words that which you've recorded in numbers on these documents?

NURSE D: Yes, when I write my notes then I would refer to things that have happened throughout the day with [Baby H]: observations, ventilation changes, fluid changes, requirements, checking the sites of the lines, chest drain, et cetera, and document that in my nursing notes.

DRIVER: Thank you. Well, perhaps we'll focus on the nursing notes and, if and when required to do so, we'll go back to the original document for greater detail. So sorry to leap about, but Mr Murphy, could we please go back then to tile 130. [Nurse D]'s note is in the middle of the right of that page.

If you could just look at that to refresh your memory.

(Pause)

Have you taken that opportunity? Thank you. So what can you tell us about the ventilation and respiratory assistance that you gave or oversaw the giving of to [Baby H] on the morning of your shift?

NURSE D: So when I took over the care of [Baby H], she was on a ventilator on a mode of SIMV, which is simultaneous mandatory ventilation. She was on pressures of 24/4 with a rate of 50. Over the morning, following each gas, we were able to wean down the pressures and recheck her blood gases an hour after reducing the pressures.

Also she was reviewed -- the gases were reviewed by the doctors on the ward round and once again the tidal volumes were slightly raised so her pressure was reduced again and rechecked an hour after that. So the pressures were reduced as per [Baby H]'s requirements throughout the morning.

DRIVER: If we could go over that very briefly and break it down.

There were a series of blood gas tests undertaken; correct?

NURSE D: Yes.

DRIVER: And the results considered?

NURSE D: Yes, reviewed by the doctors.

DRIVER: And in broad terms, did they tend to indicate progress?

NURSE D: Yes, progress. The pressures were reduced following each gas.

DRIVER: Thank you. At 12.30 there was -- we're about four or five lines down to this note -- there was an event or some reaction from [Baby H] that was of note; is that correct?

NURSE D: Yes. The mode of ventilation had been changed to CMV, which is -- the SIMV allows the baby to put in some breaths themselves as well as what the ventilator is set for, whereas CMV will have the set rate of, in [Baby H]'s case, 50 breaths per minute. So she'd been put on that, on a previous gas, but had then begun to breathe against the ventilator as well so the doctors reviewed that and changed her back to the SIMV to allow her to put more breaths in independently as well. That was at 12.30.

And also, they increased the dose of morphine to help settle her a little bit more as well on the ventilator.

DRIVER: Right. So was that given to make her more compliant --

NURSE D: To help settle her a little bit more so she wasn't as actively breathing against the ventilator.

DRIVER: Thank you. A little further down, you noted that [Baby H] was stiff in posture occasionally.

NURSE D: I don't recall that, I'm just reading from my notes that I documented that at the time.

DRIVER: Very well. Let's move on from that then if you don't recall:

"Air entry equal. ET suction given..."

Is that twice?

NURSE D: Yes, twice.

DRIVER: "... as slightly creaky."

Could you expand upon that, please?

NURSE D: We listen into the baby's chest right side and left side to see that the airway is clear with the ET tube in place so that the baby is getting the full benefit of the breaths from the ventilator. They can build up secretions in which case they can be -- it can be clear if there's no secretions at all when we listen to the chest. If there are any secretions beginning to build up then it can be slightly creaky or we can hear it louder through auscultation on to the chest wall with the stethoscope. So we would check that to ensure that the airway was patent

really, the tube was -- the breaths were being delivered clearly.

DRIVER: Thank you. She was, it would seem, looking at your final entry in this paragraph, examined or at least considered during a ward round of the doctors; is that right?

NURSE D: Yes, that's right. The ward round is usually in the morning once the doctors take over from the previous shift.

DRIVER: And following that examination, what altered -- what, if anything, altered in the regime?

NURSE D: The doctors would have -- they commence the ward round around 9 o'clock in the morning, depending on their overall handover from the night shift. It would depend what time each baby was seen, depending on other babies on the unit as well. So following the ward round she'd -- her pressures were reviewed and reduced from the previous gases. Her fluids were increased from 90ml per kilogram per day to 120, which is a normal fluid regime, and to just continue with the morphine infusion and we would review the blood gases when they were requested.

DRIVER: Thank you. Could we please, Mr Murphy, scroll down to the bottom paragraph on this side of the page, in the heading of which we can see an addendum at 13.55. It's now a note made at 13.55, but reference to events that include something at 08.25.

NURSE D: Yes. I'd say I was probably writing notes initially and then filed them and just added on extra notes later on when I've got the opportunity. So that was just continuing on following blood gases that had been done through the morning. I have just documented about the blood sugars, that we've not managed to get a blood sugar initially on the first blood gas that I'd taken but with subsequent ones she'd had blood sugars of 4.5 and 7.5 millimoles.

DRIVER: Are they acceptable readings or are they cause for some slight concern?

NURSE D: They're acceptable. The 7.5 has gone up slightly but it still wouldn't require any treatment to lower that at all.

DRIVER: Thank you. She was to continue antibiotics due to her clinical condition. Can you recall what that condition was?

NURSE D: I don't recall, but I know from reading the notes previously she'd been screened, she was grunting and had oxygen and then she was obviously requiring respiratory support with a ventilator, so she was continuing on that. She also had peripheral line in and with the chest drains as well, the

antibiotics are often continued just to -- prophylactically because of the chest drain in situ.

DRIVER: A precautionary measure?

NURSE D: Yes.

DRIVER: Thank you. Either Dr Harkness and/or Dr Gibbs discussed the baby with you and it was deemed appropriate for a blood transfusion to be given later in the day.

Can you recall the underlying reason for that?

NURSE D: Reading through my notes, she'd had a low -- her haemoglobin had dropped so they wanted to transfuse -- a blood transfusion to help improve that.

DRIVER: She had two chest drains fitted -- somebody somewhere else is taking a note of my questions and your answers and very often I get scolded for not being loud enough and I think both of us are --

NURSE D: Sorry.

DRIVER: So if you lean into the microphone and speak up?

MR JUSTICE GOSS: You can flex it towards you. That might be better.

MR DRIVER: With regards to the chest drains, we're told that the flutter valve -- your notes indicate, forgive me, that the flutter valve was static and we heard evidence earlier today, is this right, that ideally one would like to see the flutter valve move to indicate the movement of air out through the chest drain; is that right?

NURSE D: When the chest drain is inserted, the point is to allow the air to escape. So if -- she'd had the chest drains in prior to my commencement of my shift, so I documented that I'd observed the flutter valve had been static, so there was no air movement through that drain. But the other chest drain was moving intermittently throughout the shift.

DRIVER: To assist those of us who aren't experienced in this field, where it says "the chest drain was swinging", does that actually literally mean it was swinging?

NURSE D: The two drains -- she had two different chest drains in place. So a flutter valve is a small plastic tube with like a gauze layer in and that will move as the air is coming out. With the trocar it's a longer, thinner plastic tube where there can

be bloodstained secretions within that tube and if -- by saying it's swinging it just means that there's movement of that fluid within the drain to show that there might be some air still escaping.

DRIVER: All right. So swinging is a reference to the movement of fluid rather than the movement of --

NURSE D: Yes.

DRIVER: -- the drain?

NURSE D: Movement of the fluid through the chest drain line.

DRIVER: Thank you.

Finally on this page, we can see that you have noted that at 16.00 hours, 4 o'clock that afternoon, you went up and relayed information to [Baby H]'s mum.

NURSE D: Yes.

DRIVER: Thank you.

Could we please go to J12577, Mr Murphy, which is the next page, and the note that you made in relation to events at 16.21. That's the one. Thank you very much.

So there was a significant event, was there not, at 16.21 that afternoon?

NURSE D: Yes, that's correct.

DRIVER: If you assist us with the notes, you have recorded that [Baby H] started to desaturate.

NURSE D: Yes.

DRIVER: "No air entry heard. ET tube suctioned and help summoned from a colleague."

NURSE D: Yes.

DRIVER: "Crash call placed for the doctors."

So were you monitoring [Baby H] at 16.21?

NURSE D: Yes, I was with [Baby H] at 16.21.

DRIVER: Do you recall these events?

NURSE D: I don't recall the events, but I've clearly documented them in my notes later on during the shift.

DRIVER: Thank you. If we continue with the note:

"No secretions obtained on suction."

Is that suction of the ET tube?

NURSE D: Suction of the ET tube, yes.

DRIVER: So was that an investigation as to whether it was blocked with mucus?

NURSE D: Yes. I couldn't hear any air entry listening to [Baby H]'s chest on the right and left side, so I attempted to suck out down the ET tube to see if there were any secretions there obstructing the airway. There was no secretions, I called out for some help from a colleague, and asked them to put out the crash call for the paediatricians.

Then used the Neopuff, with a capnograph attached, to give [Baby H] some mandatory -- some breaths and manual breaths but there was no colour change on the capnograph, which showed there was no -- indicated there was no carbon dioxide escaping as I was -- through the expiration of the breath. So that -- the tube was either potentially blocked with secretions or was dislodged. We couldn't hear any air entry either when we listened in as well with giving the breaths via the Neopuff.

DRIVER: So the tube was removed?

NURSE D: Yes.

DRIVER: Was it blocked?

NURSE D: I don't remember. I have not documented whether it was blocked or not.

DRIVER: So it having been removed, according to your note, the doctors arrived, [Baby H] was being bagged with Neopuff, and the next entry, spontaneously breathing.

NURSE D: Yes. She was making attempts to breathe for herself.

Whilst I had the Neopuff mask over her face giving her oxygen she'd started to breathe for herself as well and her saturations had improved to 100% whilst I was giving her 100% -- 30% oxygen, sorry, via the face mask.

DRIVER: So does it follow from that that there was desaturation, lack of respiration, until the ET tube was removed?

NURSE D: Yes, there was no chest movement and I couldn't hear any air entry either via the ET tube, so I felt the ET tube was either blocked with secretions or was dislodged.

But once I removed it I was able to give her some mandatory breaths and expand her lungs and increase her oxygen saturations.

DRIVER: And upon the removal of the ET tube and those interventions you've just described, things improved?

NURSE D: Yes.

DRIVER: Immediately?

NURSE D: I have not documented how long, but by the time the doctors arrived she was pink in colour and her saturations were good and making some respiratory effort as well.

DRIVER: Thank you. She was re-intubated by Dr Austin?

NURSE D: Yes.

DRIVER: Could you help us with this next entry of yours, please?

"On moving [Baby H] back in position, noted bedding to be wet and stained, probably with secretions from chest drain."

NURSE D: When we need to re-intubate a baby, in the incubator they lie lengthwise, but in order to do a procedure like re-intubation the doctors need to pull the tray of the incubator out, which the baby is lying on, on a mattress, on the tray, so we turn the baby to the side and then pull the tray out so that the doctor's view is not obscured by the perspex of the incubator. So we would have gently lifted, turned [Baby H] to the side, so she wouldn't have been in the same position as she had been lying previously, prior to the re-intubation, and I just noted that there was some staining on the sheet, which would perhaps have been some leakage from the chest drain sites where she'd been lying.

DRIVER: Right. Is that a common occurrence?

NURSE D: It can happen, yes, some leakage from the sites.

There's clear Tegaderm dressings placed over the chest drain insertion sites on the chest wall but there can at times be some leakage.

DRIVER: And when encountered, is that an issue that you are trained to address?

NURSE D: I'd have updated the doctors.

DRIVER: What is the solution to that problem?

NURSE D: If we observe the chest drain sites throughout the day anyway -- so when we moved her to reposition her to allow the doctors to re-intubate her -- so the doctors would have been there at the time anyway and seen the staining so -- and as I've documented later, we then had to redress or put a further dressing over one of the chest drain sites anyway.

DRIVER: If we look down three or four lines, is this a -- have you just made a reference to your sentence that begins "Further Tegaderm applied"?

NURSE D: Yes, when she'd -- once we've re-intubated a baby we will do a chest X-ray to check the position of the new endotracheal tube. And whilst the doctors were reviewing that it was noted that one of the chest drains had moved slightly, was slightly closer to the chest wall. The trocar chest drain has some holes towards the end of the chest drain and it was just slightly closer to the chest wall. So following that, we applied a new Tegaderm dressing to secure it a little bit closer to her chest.

DRIVER: Does it flow from that that chest drain was in a sub-optimal position?

NURSE D: That's not for me to decide, that's a doctor's decision.

DRIVER: Understood. But it was moved, it was repositioned?

NURSE D: At the time I'd not seen the previous chest X-ray, we just noted that from the position of it on the chest X-ray that had been taken then it was in a slightly different position: the holes were closer to the chest wall.

DRIVER: Thank you. Your note goes on to read:

"Both chest drains were bubbling ++ during re-intubation but only occasional movement since."

NURSE D: Yes.

DRIVER: Could you help us understand "bubbling ++ in" this context?

NURSE D: That may have been more air escaping from the chest drains following the procedure and the movement of [Baby H] to reposition her for the intubation. Then once she was settled back to lie lengthwise again in the incubator and settled down, the bubbling, which is the escaping of the air, had settled down again.

DRIVER: Thank you. We will hear from Dr Gibbs tomorrow, I anticipate, but you recorded that he used a cold light to the chest wall.

NURSE D: Yes. With the extra bubbling again of the chest drain he checked with a cold light, transilluminated the chest wall to see if there was any re-accumulation of the pneumothorax, but felt that there was no re-accumulation.

DRIVER: Thank you. So TPN, lipid and a new morphine were attached to the long line at 19.00, so we're moving through to the early evening now --

NURSE D: Yes.

DRIVER: -- and towards the end of your shift.

NURSE D: I have documented that [Baby H] had had a long line sited throughout the afternoon, which is a more permanent line for fluids. So that had been sited by the doctors and then I'd commenced new, clean fluids or new bags of TPN.

She had commenced on lipid as well now that she had a more permanent line and a new morphine syringe as well because we always attach clean -- new syringes and lines when we do a long line procedure.

DRIVER: Thank you. You noted that the line was occluding on and off.

NURSE D: Yes. So that can be with high pressures, so the upper pressures of the alarm limits on the infusion pump, the pressures were reaching the highest settings on and off through that time. So I'd handed that over to the other nursing staff I was handing over to and also to the doctors for them to review that.

DRIVER: So that was an issue that had been identified towards the end of your shift?

NURSE D: Yes.

DRIVER: So you passed that information on rather than involved yourself in addressing the problem; is that correct?

NURSE D: Yes. Sometimes it can resolve itself. It was -- the lines had just been commenced. Sometimes it can resolve by itself, other times the doctors would need to review it and perhaps flush the line.

DRIVER: Thank you. Currently, you say, at the time of writing, the baby was being reviewed by the registrar or that issue was being reviewed by the registrar. Then at 19.00, there was a desaturation to 56%; is that correct?

NURSE D: Yes.

DRIVER: And consequently, oxygen support level was increased; is that right?

NURSE D: Yes, that's what I've documented.

DRIVER: Which appeared to have the desired effect; is that right?

NURSE D: No. What I documented in my notes is that I'd increased the oxygen levels but when I listened in to the air entry it sounded a little bit muffled but when I lifted the tube holder -- there's a support to hold the ET tube in place which we tied on with a hat. Once I'd lifted that slightly, the desaturation improved --

DRIVER: Right.

NURSE D: -- and also the air entry improved.

DRIVER: Right. So the air entry was muffled, which is not desirable?

NURSE D: There may have been slight secretions there but not a great deal to need suction, but once I'd lifted the tube slightly, that resolved the problem.

DRIVER: Thank you very much. Could you just go to the paper document, please, and the observation chart at the front -- immediately behind divider 10, our front page there. Could you wait for everybody else to look at their corresponding documents if they so wish.

Could you identify your initials, which if I'm right begin just to the right of the centre of the page that correspond with the data, the entries, recorded at 08.00?

NURSE D: Yes, that's correct.

DRIVER: So you're [initials of Nurse D]?

NURSE D: Yes.

DRIVER: Begin there. They go to the right of the page and then if we turn over the next page, is it right you have made one column of entries --

NURSE D: One entry at 19.00.

DRIVER: -- there? And do you recall that you received the handover for [Baby H] from your colleague Nurse Letby and you handed back over to your colleague Nurse Letby?

NURSE D: I didn't recall who I'd handed back over to at the time.

I don't generally document in my notes afterwards who I hand back over to.

MR DRIVER: Thank you. They are the only questions that I have for you. My learned friend may have a question or two.

Cross-examination by MR MYERS

MR MYERS: [Nurse D], could I ask, please, in your experience how often, if it's possible to say, did you have a baby at the Countess of Chester neonatal unit who required a chest drain?

NURSE D: I don't know for sure, but I've looked after a number of babies with chest drains in my career and in my time at Chester.

MYERS: And you have been a nurse since 1990, haven't you?

NURSE D: Yes, I have.

MYERS: And the larger part of that has been as a specialist neonatal nurse, almost from the beginning, hasn't it?

NURSE D: I started working in the Countess in the spring of 1993.

MYERS: Right, thank you. That's what I was going to ask next.

It is unusual, isn't it, though, to have a total of three chest drains in one baby; would you agree with that?

NURSE D: Babies generally that I have looked after needed one or two chest drains that I have cared for before.

MYERS: So it's a pretty extraordinary state of affairs to have three in one baby, isn't it?

NURSE D: I think it's unusual.

MYERS: All right, we'll settle for unusual then.

I was just going to ask you some questions about the notes we've been looking at. So let's put, if we could, with Mr Murphy's assistance -- could we put up tile 144, because it seems to me that has both pages attached, Mr Murphy.

This is just material that you've already seen, [Nurse D].

NURSE D: Okay.

MYERS: Thank you, Mr Murphy.

Could I just start at the second of the entries that you have made, [Nurse D], which is the 13.55 one.

If we look down towards the end of it, you mention that:

"[Baby H] was due for a blood transfusion later today."

Can you see that just in the last three lines?

NURSE D: Yes.

MYERS: "Haemoglobin 122 [just at the end of the fourth line from the bottom] this morning. Discussed with Dr Harkness and Dr Gibbs. For blood transfusion later today."

NURSE D: Yes, that's documented.

MYERS: In fact, that blood transfusion didn't happen until late in the evening, until about 23.00 hours. Can you help us with why it was that the blood transfusion didn't happen soon to the time that your note was made?

NURSE D: I don't know.

MYERS: Whose decision is it as to when the blood transfusion should start?

NURSE D: It's the doctors who request and prescribe a blood transfusion.

MYERS: So where you're noting "For blood transfusion later today", is that a decision that the doctors had made?

NURSE D: I don't remember. But it would have been the doctor's decision for a blood transfusion following seeing the result of [Baby H]'s haemoglobin.

MYERS: So you've discussed this with Doctors Harkness and Gibbs and after that discussion you have made a note that there will be a blood transfusion later today?

NURSE D: Yes, that's what I've documented.

MYERS: And in your experience is there ever any particular period of time between when a decision is taken to give a blood transfusion and then when the transfusion takes place?

NURSE D: We usually give transfusions generally during the day but it needs to be a safe practice, so it needs to be when there's not other procedures going on on the unit.

We need to observe the baby very closely and do regular observations during a blood transfusion so from a nursing point of view it needs to be when we have the time to completely -- no other procedures and things going on.

MYERS: So one reason which may lead to a delay in a blood transfusion is if there's a lot going on in the unit, it may be simply too busy to do it right then and there (overspeaking) --

NURSE D: I need a second person to check the blood before it is given and check the name band, all the identification on the blood, the actual unit of blood as well. But one -- a haemoglobin of 122 is not a desperately low level, so it wasn't an urgent blood transfusion she would have required.

MYERS: No, but all I'm checking with you is the fact that there was delay until, as we understand, 11 pm might indicate how busy the unit was?

NURSE D: I have documented that it was to be given later that day, so 11 o'clock is still later in the day.

MYERS: I did ask you, "Does it indicate that the unit was busy"; do you agree it might do?

NURSE D: I don't recall how busy the unit was on that day.

MYERS: Well, I have asked that. Let's move on then, please.

If we look to the next entry, 20.31, just after 8.30, this is whilst you have completed your shift, isn't it --

NURSE D: Yes.

MYERS: -- you're making this entry?

NURSE D: My shift should end at 8 pm but it depends if I have -- once I've handed over and completed notes as well before I'd leave.

MYERS: So we can be quite clear at this point there are two chest drains in [Baby H], aren't there?

NURSE D: She had two chest drains in when I arrived on shift in the morning.

MYERS: And that remained the case during this shift, didn't it?

NURSE D: She continued with the two chest drains throughout the day of my shift.

MYERS: You went up to the -- it says the Cestrian -- to update mum at 16.00. Pausing there, is that a unit within the hospital?

NURSE D: That's the post-natal ward upstairs.

MYERS: So you went up to speak to mum. You were the nurse with responsibility for [Baby H], weren't you?

NURSE D: Yes, that's correct.

MYERS: But you were confident that at that point it was all right for you to leave [Baby H]'s cot and go to speak to her mum?

NURSE D: The registrar was doing a head scan of [Baby H] so he was directly with her and performing the head scan at this stage.

MYERS: And you felt in those circumstances you could leave [Baby H] safely, didn't you?

NURSE D: I left [Baby H] to go and speak to -- update her parents because the doctor was actually with the baby, carrying out a procedure, and I would have informed the shift leader to check it was okay to attend up to speak to parents whilst the doctor was present.

MYERS: If you thought there was a problem with [Baby H] or something was about to go wrong, would you have left her?

NURSE D: No.

MYERS: Right. That's what I wanted to confirm.

Let's move to the next page then, please. You have mentioned Dr Harkness was with [Baby H]. It says he's doing a head scan. Then it says:

"At 16.21 [Baby H] started to desaturate."

NURSE D: Yes.

MYERS: So this happened or must have happened very soon after you came back from the Cestrian unit; is that right?

NURSE D: I don't recall and I have not documented what time I returned from the Cestrian ward but I was with [Baby H] at the time she desaturated.

MYERS: Yes. We know you went up to the Cestrian ward at 4 o'clock.

NURSE D: Yes.

MYERS: And you spoke to [Baby H]'s mum, didn't you?

NURSE D: Yes.

MYERS: And then you came back?

NURSE D: Yes.

MYERS: So some time during that and before 16.21 is when you got back to the unit?

NURSE D: That's correct.

MYERS: Yes. This desaturation resulted in a crash call being put out, didn't it?

NURSE D: It did.

MYERS: So it's a serious matter, wasn't it?

NURSE D: Yes.

MYERS: And it's something which happened, do you agree, unexpectedly?

NURSE D: Yes.

MYERS: When you looked for signs of what could have caused it you were unable to identify any blockage yourself; is that correct?

NURSE D: I'd listened in to her air entry and couldn't hear any air entry so I had attempted suction down the ET tube but didn't aspirate any secretions either and there was no improvement in her chest movement. Then when I gave some breaths via the Neopuff with the capnograph there was no colour change, which indicated there was no carbon dioxide being excreted with the expiration.

MYERS: And we can see in the notes, the fourth line down, it says:

"[Baby H] bagged with Neopuff but no colour change on capnograph and still no air entry."

NURSE D: Correct.

MYERS: "No colour change on capnograph and still no air entry" is a matter of concern, isn't it?

NURSE D: Yes, so there was no expansion of her lungs at that time.

MYERS: Right. Just to assist, and to help us with the continuity, I'm going to look at a note by Dr Austin because it was Dr Austin who attended; is that correct?

NURSE D: I don't recall who attended.

MYERS: Just to help you, [Nurse D], if we look down we can see at the start of the next paragraph:

"Re-intubated by Dr Austin at second attempt."

NURSE D: Yes, I have documented that Dr Austin re-intubated but I have not documented which doctor attended the crash call who came at the time.

MYERS: Could we just put up tile 152. We will be coming back to this in a bit but tile 152. We'll just pop into that. If we scroll down a little bit, please.

We can see here:

"25 September 2015. 16.45. Called to nursery."

This is a note by Dr Austin. I don't expect you to be familiar with the contents, but it says:

"Desaturated, not improved..."

Maybe that's "with suction".

NURSE D: Yes.

MYERS: "ETT removed by N/S."

Does that say blocked at end?

NURSE D: I can't see. There's a -- it says "N/S", which would be nursing staff. I can't see what that little scribble is before "blocked".

MYERS: All right. Maybe we will check some other way if you're not sure.

You don't recall any blockage from what you saw; is that correct?

NURSE D: There was no air entry so there was occlusion of some kind. I don't recall whether the tube was blocked but it was -- once I'd removed it, the airway was patent with providing some manual breaths --

MYERS: All right.

NURSE D: -- through the Neopuff.

MYERS: So once --

NURSE D: It was effective.

MYERS: Once the tube was removed, you were then able to Neopuff [Baby H]?

NURSE D: Yes.

MYERS: Thank you. We can perhaps confirm what the state is with that, I won't ask you any more about that.

Could I go back to your note, please, [Nurse D], at tile 144. If we can enlarge that. The top left.

Thank you.

You have told us, [Nurse D], that when you inspected [Baby H] -- we see this roughly in the centre of the second paragraph, in fact about two or three lines down -- you noted:

"[The] bedding [to be] wet and stained, probably with secretions from the chest drain. Air entry good on right but not on left."

MR JUSTICE GOSS: "But none on left."

MR MYERS: I apologise, my Lord:

"... but none on left."

NURSE D: I'm just trying to find...

MYERS: Did it seem --

NURSE D: Sorry, I can't follow the --

MYERS: I apologise.

MR JUSTICE GOSS: On the left-hand side, second paragraph down, the paragraph beginning:

"Re-intubated by Dr Austin."

Three or four lines down from that.

MR MYERS: The second line down:

"Noted bedding to be wet and stained, probably with secretions from chest drain. Air entry good on right but none on left. Improved with tube held back slightly."

NURSE D: Yes.

MYERS: Was this the position then, that it appeared that one of these drains was in effect loose in its position in the chest?

NURSE D: Are you referring to the staining on the sheet or to the tube position?

MYERS: First of all, the secretions from the chest drain, which you noted where the bedding was wet and stained, is that secretions that had come through the hole on the outside of the chest drain?

NURSE D: It had possibly leaked through the dressing from the chest drain.

MYERS: Through the dressing from the chest drain. All right.

Is that something which was common with a chest drain or not?

NURSE D: There can be slight oozing from the sites.

MYERS: All right, thank you.

If we just carry on -- I'll read it through so we don't lose the sense of it:

"Improved if tube held back slightly. Doctors contacted and Dr Gibbs then pulled ET tube back to 8 centimetres as possibly slipped when tying in."

Pausing there, is that something that can happen with the tubes in the babies' mouths, even when tied in they can slip and move?

NURSE D: Whilst we were -- a baby wears a hat with ties on to attach to -- where the clamp is around the ET tube there's a tube holder. Whilst we are clamping the tube and tying the hat to the tube to hold it in position, occasionally it can move very slightly and that's -- I'm not sure what that -- that may have actually happened while it was being tied.

MYERS: All right. Carrying on --

NURSE D: We tie the ET tubes in while the doctors are still present at the time anyway. They are still there holding the ET tube within the baby's mouth.

MYERS: "Chest X-ray taken. ET tube in good position. Second chest drain noted to be in a different position and holes close to chest wall."

I just want to ask you about that where it says:

"Second chest drain noted to be in a different position and holes close to chest wall."

Do you mean that the second chest drain appeared to have moved from where it had originally been in some way?

NURSE D: Apparently, yes.

MYERS: It had moved? Right. And a chest drain, in your experience, is not meant to move about like that, is it?

NURSE D: Generally, no. It should be secured in with the dressings.

MYERS: And do you recall Dr Gibbs, a little later, having to fix that second chest drain securely?

NURSE D: I have documented that a further Tegaderm dressing was applied to hold the chest drain closer to [Baby H]'s chest, to hold it more securely again, to prevent movement.

MYERS: Was it you or Dr Gibbs who did that?

NURSE D: Possibly together. I don't recall, but possibly together. I would have been with [Baby H].

MYERS: So the dressing was put there to keep the drain secure so it wouldn't move; is that correct?

NURSE D: To prevent movement, yes.

MYERS: All right, thank you.

If we carry on in that entry. As it appears on the screen, three lines up from the bottom, we see that there was another desaturation just towards the end of your shift.

NURSE D: Yes.

MYERS: Is that correct?

NURSE D: That's correct.

MYERS: And this time there was a desaturation to 56%.

NURSE D: Yes.

MYERS: Again that's not something you were expecting at that point, is it?

NURSE D: It can happen at times. Babies can desaturate if they've got a build-up of secretions or I think what I have documented was that when I'd lifted the tube slightly again -- I had listened in initially and there was slight muffling on her air entry and when I lifted the tube slightly again the air entry was improved.

MYERS: All right. Certainly at the time it happened you weren't expecting that to be the case, were you --

NURSE D: No.

MYERS: -- a desaturation to 56%?

NURSE D: No.

MYERS: Now, looking a couple of lines above that, had you been involved in giving [Baby H] TPN, lipid and morphine shortly before that desaturation?

NURSE D: I've documented -- she was my patient and I've documented that I've changed those lines, so I would have commenced the new infusions, run the lines, and attached them to [Baby H].

MYERS: Right, so I'm looking at the note and I'll read the section. It's six lines up from the bottom of what we can see, it's the middle of it line and it says:

"TPN, lipid and new morphine attached to long line with sterile technique at 19.00."

NURSE D: Yes.

MYERS: "Line occluding on and off. Handed over to night staff. Currently being reviewed by registrar."

And you make the note:

"Desaturation at 19.00 to 56%."

NURSE D: Yes.

MYERS: Right. So that desaturation happened very soon after you had dealt with the TPN, lipid and new morphine being attached to the long line?

NURSE D: Yes.

MYERS: I'm not going to suggest and I'm going to ask you, nothing you did with that long line caused that desaturation to happen, did it?

NURSE D: No, I was just connecting the new fluids to the long line.

MYERS: But it just so happens you'd had access to the long line, which is intravenous, isn't it?

NURSE D: Yes.

MYERS: And very shortly after your access to that long line, [Baby H] collapsed with -- well, desaturated to 56% (overspeaking)?

NURSE D: She didn't collapse, she had a desaturation, but once the ET tube was lifted slightly again that resolved.

MYERS: And that's just a coincidence that that desaturation follows you dealing with the long line?

NURSE D: Yes, I have documented 19.00 for both. Perhaps I have signed for the -- I don't recall, but perhaps I have signed for the TPN, lipid and morphine at the rounded(?) number of 19.00. But the desaturation was at 19.00 hours.

MYERS: In fact, just so there's no question about that, could we put up tile 175, please, just to confirm what you've just said, [Nurse D].

If we scroll there down, please, Mr Murphy. It says date 26/9, but if we look to the right of that following across we can see:

"Babiven Maintenance, Solivito, Peditrace."

NURSE D: Yes.

MYERS: And we can actually see at the far right:

"25/9/15, 19.00."

NURSE D: Yes.

MYERS: And then is that your signature, the top signature?

NURSE D: It is my signature for the Babiven Maintenance and for the lipid.

MYERS: All right. So that refers to the procedure that you were carrying out at 7 pm that we see in the notes?

NURSE D: Yes.

MR MYERS: Thank you, [Nurse D].

MR DRIVER: I have no re-examination. Does your Lordship have any questions for the witness?

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

Is [Nurse D] likely to be required again?

MR DRIVER: I don't believe so.

MR JUSTICE GOSS: You're not aware of being required?

NURSE D: Not at the moment.

MR JUSTICE GOSS: Well, thank you very much for coming and giving your evidence to us today. But just in case you are required, but at the moment it's not anticipated you will be required to give any evidence in relation to any other child, would you please not talk about this case until it's finished?

NURSE D: Yes.

MR JUSTICE GOSS: Thank you very much indeed.

Wait there for a moment because we're going to have our break now. It's 3 o'clock and the next witness will in fact be screened, so we can get the screens put up during the break? A ten-minute break, please, members of the jury.

(2.59 pm)

(A short break)

(3.09 pm)

[NURSE A] (recalled)

Examination-in-chief by MR DRIVER

MR DRIVER: Could you state your full name for the record?

NURSE A: [Nurse A].

DRIVER: Thank you. And you appreciate you're still bound by the oath or affirmation you took when you were first with us?

NURSE A: Yes.

DRIVER: We would like to ask you some questions in relation to the shifts of the 23rd into the 24th, and the 25th into 26 September 2015.

NURSE A: Yes.

DRIVER: I anticipate you've had the opportunity to refresh your memory by reference to statements you made about those days.

NURSE A: Yes.

DRIVER: Which statements were made having refreshed your memory from the nursing notes?

NURSE A: And the medical notes, yes.

DRIVER: And the medical notes in relation to the baby patient [Baby H].

NURSE A: Yes.

DRIVER: Is it right that you worked night shifts on the 23rd into the 24th, the 24th into the 25th and the 25th into 26 September?

NURSE A: I believe so, yes.

DRIVER: And at the time you were a band 6 nurse and a shift leader?

NURSE A: Yes, that's right.

DRIVER: Does it flow from those facts that you would not have been allocated a specific baby to look after?

NURSE A: Not necessarily. I may have had a baby to look after as well -- in fact, I think I did on at least one of the nights, but I can't remember for sure.

DRIVER: Thank you. Focusing upon the baby [Baby H], however, and having previously looked at the nursing notes and your witness statement, is it right that although you were shift leader on the night of the 23rd into 24 September, you didn't have any direct involvement with that particular baby on that shift?

NURSE A: I don't believe I did.

DRIVER: Thank you. So we'll move on to the shift of the 24th overnight into 25 September. Do you recall anything about the treatment or care given to [Baby H] that night?

NURSE A: You may just need to refresh me on what happened on which night. I think this is the night she had a chest drain inserted.

DRIVER: Yes. Well, if I may remind you of the content of your statement, you recalled at the time of making the statement, if I may be allowed to lead you in this regard, that [Baby H] during this shift had to be re-intubated and have another chest drain.

NURSE A: A chest drain put in, yes.

DRIVER: Put in because an existing, previously identified pneumothorax --

NURSE A: Had re-accumulated.

DRIVER: Yes. We've heard evidence to the effect, and I think you stated that you recall, that it was Dr Alison Ventress --

NURSE A: Yes.

DRIVER: -- who carried out that procedure?

NURSE A: Yes.

DRIVER: And that Nurse Lucy Letby was the designated nurse for [Baby H] at that time?

NURSE A: Yes.

DRIVER: Did you play some part, provide some assistance?

NURSE A: Yes, I can't remember exactly whether I went and gathered the equipment but I know I was involved in that procedure, assisting with that procedure.

DRIVER: Thank you. Let's move on then to the following night shift, the 25th into 26 September. I'll take you to some entries in the notes that tend to suggest that you may have had some greater involvement, albeit limited --

NURSE A: Yes.

DRIVER: -- with [Baby H] in that regard. If, please, Mr Murphy, we could look at tile 198.

(Pause)

I think I can manage from my notes. You've got a working screen there, haven't you?

NURSE A: I have, yes.

DRIVER: Good.

MR JUSTICE GOSS: Just checking your screens are working?

Good.

MR DRIVER: I'm grateful.

So I'm inviting you to look, please -- and if we could scroll down, I think, Mr Murphy, to an entry at 22.02 on 25 September.

NURSE A: Yes.

DRIVER: There's a finger mark smudge in the middle of the page.

That'll help us identify the line. We can see from this document that a number of readings or sets of data have been recorded. Is that your initials at the end of --

NURSE A: That's my writing and my initials.

DRIVER: That's your writing. So having had your attention brought to those entries, can you decode for us what limited part you played in relation to [Baby H] at this time on this date?

NURSE A: So that's a blood gas sample, so I can't remember whether myself or someone else took the sample.

Probably given that Lucy was looking after [Baby H] on that night, it was probably more likely that she took the sample, passed the sample to me, I took it to the blood gas analyser, analysed it, brought it back, and wrote the result on the chart.

DRIVER: Thank you. Are you able --

NURSE A: You know, there is a chance I may have taken it and taken the -- it to the analyser.

DRIVER: We understand, and you don't -- I am not being in any way critical -- have a memory of this --

NURSE A: No.

DRIVER: -- event --

NURSE A: No.

MR JUSTICE GOSS: Someone might suggest it'd be extraordinary if you did given the number of readings that you must have taken over the years.

NURSE A: Yes.

MR JUSTICE GOSS: Anyway. You accept that clearly you've written it there and you don't know whether you've taken it yourself or you've just been given the readings to put on the chart?

NURSE A: Quite often we get -- if we were taking the sample, you get someone else to take it to the machine so you could comfort the baby, settle the baby, whatever.

MR JUSTICE GOSS: Right.

MR DRIVER: Thank you. Can I take you to another entry on [Baby H]'s notes, which we've housed behind tile 204, please, Mr Murphy. If we look at the tile itself first, please, which suggests that a blood transfusion --

NURSE A: Okay, yes.

DRIVER: -- was started with this baby [Baby H] at 23.05, late on Friday, 25 September 2015. If we click behind it, please:

"Date prescribed: 25/9/15."

The next column, is that the time of the prescription?

NURSE A: Yes.

DRIVER: Does that read 15.00 hours?

NURSE A: That does, yes.

DRIVER: Thank you, Mr Murphy:

"Type of blood. Dose. Rate of delivery: over 4 hours. Doctor's signature. Product reference number for audit purposes."

And the time that it was commenced. Is that your signature?

NURSE A: That's my signature for both bags, yes.

DRIVER: Thank you. Both bags. Would they have --

NURSE A: So because of the volume of blood that she required, 47ml, the packed cell bags that we get on neonates usually only have between 40 and 50ml per bag and you need blood to prime the line between the syringe and the baby. So we'd have needed more than 47ml to give 47ml.

So we've used -- drawn the blood up from two bags, which have the same product number, but that's why the number is there twice.

DRIVER: Thank you. We can see, is this right, that the transfusion process started at 23.05 on 25 September?

NURSE A: Yes.

DRIVER: That lasting 4 hours, as you've already indicated?

NURSE A: Yes.

DRIVER: Could you just focus for a moment on the time discrepancy between the time it was prescribed, 15.00, and the time the transfusion started, 23.05. So that's a little over 8 hours between the two. Is that surprising?

NURSE A: Not particularly, no. So there's a variety of things between blood being prescribed and it being administered. I mean, it can be less than that length of time, I don't know exactly why it was 8 hours, but when the decision's made to transfuse blood, the doctor will prescribe it and order it. It's then got to be prepared by the laboratory, checked that it's the right blood, that can take a little bit of time. Then it comes up to the unit before it's given. So there's always a little bit of a time delay.

Other reasons that could delay this was, I don't know, what venous access -- I don't know what cannulas or other access that [Baby H] had, but she may have needed an additional cannula for this to be administered. So that may have taken a little bit of time as well.

And I don't know exactly what was happening with [Baby H] in that time period because I -- you know, I can't recall, but there might be something in the notes that I could go, oh yeah, that's why there's a bit of a lag.

DRIVER: Events?

NURSE A: Events, yeah. Sometimes it's not that long, but it can be.

DRIVER: Thank you. Could we then, please, Mr Murphy, look at tile 235. Thank you.

At 02.50, I anticipate you'll see an entry there, so the morning of 26 September, 02.50. Is that your signature?

NURSE A: Yes.

DRIVER: What is it you're signing off there?

NURSE A: A 0.9% saline bolus of 23ml, which is 10ml per kilo, so that would suggest to me that it looked -- there was some indication that [Baby H] had poor circulation at the time, so we were giving her some extra fluid.

DRIVER: Thank you. I've taken you to those parts of the nursing notes where, on my analysis, your initials or signature features. Apart from them, do you have any actual recollection of the events concerning [Baby H] on the night shift of the 25th going into the 26th?

NURSE A: Um... She... She became unwell that night and needed some resuscitation.

DRIVER: Yes. You remember that?

NURSE A: It's... I've had three interviews on [Baby H], so I remember it now, but I think initially it may have been a memory from medical notes. But I know that I was involved in that.

DRIVER: And the circumstances of that event, did that give rise to, if I may select a neutral phrase, a difference of opinion between some members of staff?

NURSE A: Yes.

DRIVER: Was that difference of opinion a difference of opinion between, perhaps amongst others, yourself and your colleague Yvonne Griffiths?

NURSE A: Yes.

DRIVER: In very general terms, what was the subject matter of that difference of opinion?

NURSE A: Having a baptism for [Baby H].

DRIVER: Could you expand upon that a little?

NURSE A: Yes. [Baby H] had had this collapse and resuscitation and I don't remember being present when the baptism was offered. From memory of my notes it was Dr Gibbs that offered that baptism. Anyway, the parents wanted to have her baptised and it was the early hours of the morning and it can be arranged out of hours. I know me and Yvonne had a conversation and it wasn't -- I think we could both see each other's point of view, just two different ways of looking at it, that did it need to be done then because she'd stabilised, could it not have waited until the morning, the unit was very busy, we'd had a very busy time, you, just concerns, was it the most appropriate time.

But my recollection is I didn't actually offer it, I was asked to help organise it. So once it's been offered and accepted by the parents, you know, it wasn't appropriate to then say, "Oh, no, you can't have it", I didn't feel.

DRIVER: Was it the fact of the offering or the timing of the offering that generated the difference of opinion?

NURSE A: The timing more than anything, the fact that it was out of hours and sort of early hours of the morning, did it need to be done then, could it have been done in the day.

DRIVER: And do you recall, you may not, engaging in some text or social media communications with colleagues about this difference of opinion after the event?

NURSE A: There may well have been messages.

DRIVER: Thank you. If we could just prompt -- if we could go to tile 532, please, Mr Murphy.

This is part of a series of -- a text conversation, really, I suppose it is, between yourself and your colleague, Ms Letby.

NURSE A: Yes.

DRIVER: When we see this and we see reference to christening and the like, is this the context, the difference of opinion between yourself, and perhaps others, with Yvonne Griffiths about the timing of the offering of the christening to [Baby H] --

NURSE A: Yes. Sorry, is this from Lucy to me?

DRIVER: Yes. If we look at others, I just went to this one to try and short circuit this --

NURSE A: Yes, that's...

DRIVER: Does it ring a bell?

NURSE A: Yes. The whole situation rang a bell and, like I say, I don't want it to get blown out of proportion.

I wouldn't say disagreement. There certainly wasn't an argument, it was just a discussion of was it the most appropriate time.

DRIVER: That is the context for this conversation from which this particular message has been extracted?

NURSE A: Yes.

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

Cross-examination by MR MYERS

MR MYERS: [Nurse A], of course you won't recall specific detail without the notes and no one expects you to do so. But as a

general recollection, do you recall that [Baby H] was fairly unstable over the period of the 24th through to 26 September?

NURSE A: Yes, mainly due to pneumothorax, I would say.

I remember her having several chest drains and needing several aspirations of air from her chest.

MYERS: It's extremely unusual in your experience, would you agree, for there to be three chest drains in one baby?

NURSE A: Yes, it is fairly unusual.

MYERS: Yes.

NURSE A: I... Yeah, I've seen quite a few babies with two chest drains, one in each side, but it was the fact that we needed a second chest drain in one side that...

MYERS: In fact at one point did you find yourself thinking, how many chest drains can a baby have?

NURSE A: Um... Um... Quite possibly.

MYERS: Yes. Just so you know, I picked that turn of phrase because it's a turn of phrase that you used.

NURSE A: Yeah, I know...

MYERS: In fact, was there a concern at one point as to whether there were enough drains on the unit for [Baby H] to have at the time they were being fitted? Do you recall that?

NURSE A: I can't actually recall that but...

MYERS: Can I ask you this, do you recall you or any of your colleagues having to look for an additional drain and going to the children's ward to get one?

NURSE A: I don't recall that.

MYERS: All right. Or taking one from the resus trolley, you don't recall that?

NURSE A: We... We may well have done. I don't recall that from my statement.

MYERS: No, no, I'm just asking your recollection.

NURSE A: No.

MYERS: Don't guess.

NURSE A: No, no, I'm saying I don't...

MYERS: In something you said to us, just minutes ago, actually, you made reference to the fact that the unit was very busy, you had a very busy time at this point.

NURSE A: Yes, it was.

MYERS: Can I just ask, if we look at tile 177, please, Mr Murphy, and this just shows the personnel at the handover. Could we go behind that so that [Nurse A] can see that.

If we look at that, we can see, if it's clear to you, if you can see that, who's on duty that night.

You are the shift leader, aren't you?

NURSE A: Yes.

MYERS: Then there's Lucy Letby, Yvonne Griffiths, Valerie Thomas and Elizabeth Marshall; is that correct?

NURSE A: That's correct.

MYERS: If we scroll down to have a look at who's looking after the children, there's Ms Letby in nursery 1 with [Baby H].

NURSE A: Yes.

MYERS: Yvonne Griffiths is looking after four babies in nursery 2. Can you see that?

NURSE A: Yes.

MYERS: Elizabeth Marshall, one of the nursery nurses, is looking after four babies in nursery 3.

NURSE A: Yes.

MYERS: And then Valerie Thomas is looking after four in nursery 4.

NURSE A: Yes.

MYERS: And you didn't have any baby allocated because you're shift leader?

NURSE A: Yes.

MYERS: That's very tightly stretched staff for what's being looked after on that unit, isn't it?

NURSE A: It is. I... It may actually be within the BAPM, right at the limit of the BAPM recommendations, because I don't know -- of the babies in nurseries 2, 3 and 4 what level of care -- if they were all special care then that can be one to four.

MYERS: That's right.

NURSE A: But if any of those were HDU then --

MYERS: That's right. We know intensive care is 1:1. High dependency is 1:2. And special care is 1:4.

NURSE A: Yeah. I... I do seem to remember that at one point I'd asked if Yvonne could take over my baby. So I don't know whether I actually sort of took on one of those babies to ease -- I don't... I don't know.

MYERS: But would you agree that in terms of staffing for babies --

NURSE A: There's no slack in the system.

MYERS: It was stretched, wasn't it?

NURSE A: I can't say whether that's over the recommendation or just on the limit of the recommendation because I don't know the other babies' dependencies.

MYERS: On the night of the 25th into 26th, which is the night you've been asked about, we can see Ms Letby is looking after [Baby H].

NURSE A: Yes.

MYERS: We know that Ms Letby and you were friends.

NURSE A: Mm-hm.

MYERS: You knew her from being, in fact, a mentor to her when she was training, didn't you?

NURSE A: I did, yes.

MYERS: And she had nothing like the experience that you had, did she --

NURSE A: No.

MYERS: -- as a nurse?

NURSE A: No.

MYERS: And looking after a baby like [Baby H] was potentially quite a demanding job, even one-to-one, wasn't it?

NURSE A: Yes.

MYERS: And so we've seen how you assisted Ms Letby with a number of tasks that night.

NURSE A: Yes.

MYERS: Is one of the things that you were doing being on hand to assist her with what was happening, to check it was all right with [Baby H]?

NURSE A: Um... To a degree, not to the point where I'd be there all the time, because Lucy was qualified in -- a specialty neonatal nurse at this time and very competent. But yes, I'd certainly be there, on hand, and going into the room frequently just because she was on her own in there for a start, as I would with any colleague, to check did she need a hand with anything.

But she wasn't a totally inexperienced nurse and she was a good neonatal nurse, so I know -- you know, I trusted she would ask me if she had any problems.

MYERS: Thank you for explaining that. We've seen, for example, you're involved in some capacity with the blood gas readings just after 10 o'clock on the 25th.

NURSE A: Yes.

MYERS: You assisted with the blood transfusion that began at just after 11 o'clock on the 25th.

NURSE A: Yes.

MYERS: And also with the sodium chloride bolus at 02.50 --

NURSE A: Yes.

MYERS: -- on the 26th. In fact there's one of the observations -- I'm going to put up chart T217, if we could, please. Tile 217. There's just one other additional area where I'm going to ask you if we see your initials, [Nurse A].

Perhaps could we go to the top and identify 01.00 on the 26th. If you look at the chart there, [Nurse A], it'll be picked out for you.

NURSE A: I'd already spotted it.

MYERS: We can see, amongst the various observations, we see the LL initials, which are Ms Letby's, but there's an [initials if Nurse A] at the bottom there.

NURSE A: That's me.

MYERS: That's you as well, isn't it?

NURSE A: I knew from the top.

MYERS: That's right. So 01.10, you did that too. Thank you.

Thank you, Mr Murphy.

Can I just ask you about the blood transfusion, please.

NURSE A: Yes.

MYERS: You've been asked about the eight-hour delay that we've seen. There are various reasons why that might have happened and you've explained that.

NURSE A: Yes.

MYERS: Do you agree that ideally, if the transfusion has been prescribed at 3 o'clock, it should take place as near to that as possible?

NURSE A: Um... Yes. I can't recall what [Baby H]'s blood results were and why they decided to do a transfusion. And I can't recall what else was happening, but it might be that at 3 o'clock a review of what was going on determined there were several things that needed doing and it might be that that was the order, you know, and other things had happened before that and that was the order they were planned. They may all have been prescribed at the same time because they were going to happen. I can't answer that.

MYERS: All right. Is it possible that if the unit was very busy it's just something which got put back and put back until 11 o'clock and then it was done?

NURSE A: That is also equally possible. It could be either.

MYERS: Thank you. I'm just going to ask you about what you were asked about at the end of your evidence when you were being asked questions by the prosecution. In the early hours of that morning, there was an issue that developed on the question of a baptism, wasn't there?

NURSE A: Yes.

MYERS: And as you've explained, it was something which came up in conversation with the family and amongst the medical professionals as you were looking after [Baby H]; is that right?

NURSE A: Uh-huh.

MYERS: And an issue developed between you and Yvonne Griffiths as to whether that was the time to press ahead with it or whether it should have been put off to another time.

NURSE A: Yes.

MYERS: That's what that came down to, wasn't it?

NURSE A: Yes.

MYERS: And there were some messages afterwards, as we've heard, which come out of that disagreement; is that correct?

NURSE A: Yes.

MYERS: Okay. Could I just take you, please, to a couple of messages. We're going to go to tile 296, please.

We can see there's a message that is -- in fact, can we go to 297? There's a message there from Yvonne Griffiths to Lucy Letby. You are not party to that. What we see at 297, which is just after this shift finished on 26 September, Lucy Letby sends you a text forwarding it actually saying:

"Hope you have a good sleep. I just want to commend you for all your hard work these last few nights. You composed yourself very well during a stressful situation. It's nice to see your confidence grow as you advance through your career x"

NURSE A: Mm-hm.

MYERS: Then tile 298. Again, to you from Ms Letby:

"From Yvonne. What do I say to that?"

Then the next one we come to at tile 302, please, Mr Murphy. You send a message back saying:

"Wow!!! Maybe she wasn't glaring at you, just watching how you coped after I'd disagreed about the christening. She is absolutely right!! xx"

Pausing there, those messages refer to what we have just talked about --

NURSE A: They do.

MYERS: -- the issue that developed and the atmosphere between everybody; is that right?

NURSE A: Mm-hm.

MYERS: Thank you. Then can we just go to tile 303, please.

We've got a reply:

"Thank you for the message. It means a lot to me to hear you say that. Thank you for yours and especially [Nurse A]'s support over the last few nights. It particularly means a lot as several of the band 6 seem to think I'm not up to it. Do you mind if I show them this message and tell them to shut the fuck up?"

I'm not saying that to embarrass you. If we looked at everybody's texts, who knows what we'd find. That's not to create any embarrassment. As we see, the next text, 304:

"Bits in brackets optional lol."

That was you, as a friend, replying to Ms Letby perhaps tongue in cheek, suggesting --

NURSE A: Yes, it was --

MYERS: -- one of the options available to her?

NURSE A: Yes, definitely. The last bit was definitely tongue in cheek!

MYERS: Where it refers to several of the -- the last message:

"... several of the band 6 staff seem to think I'm not up to it."

Was there sometimes an issue with Ms Letby being relatively junior compared to others where there was some debate as to whether she'd go into nursery 1 and look after the seriously poorly babies? That would happen sometimes, wouldn't it?

NURSE A: Sometimes, yes.

MYERS: And there were sometimes a bit of an under-the-surface dispute about that; is that correct?

NURSE A: Mm.

MYERS: All right. That's what that related to?

NURSE A: Yes.

MR MYERS: All right. Thank you very much for dealing with that, [Nurse A].

Re-examination by MR DRIVER

MR DRIVER: Just one matter of clarification. Could we return to tile 177, please. You'll recall having your attention brought to this diagram and you were asked to consider -- if we go down. The number of babies, the allocation of those babies. You were asked to comment whether in your opinion the staffing levels were stretched.

NURSE A: Yes.

DRIVER: In which room would any intensive care babies be housed?

NURSE A: Usually in nursery 1.

DRIVER: How many babies were in nursery 1?

NURSE A: One.

DRIVER: What's the BAPM recommendation nurse to intensive care baby ratio?

NURSE A: 1:1.

DRIVER: Is that stretched?

NURSE A: No. I was also supernumerary so was able to go in and support, as discussed.

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

Questions from THE JUDGE

MR JUSTICE GOSS: Just two, please.

Your attention has been drawn to where you have signed on documents at various places and one of which you signed for was in relation to the blood transfusion.

NURSE A: Yes.

MR JUSTICE GOSS: How many nurses are required to be involved in a blood transfusion?

NURSE A: Two.

MR JUSTICE GOSS: Do you recognise the other signature?

NURSE A: It was Lucy Letby's.

MR JUSTICE GOSS: So it would need two nurses to do --

NURSE A: Yes.

MR JUSTICE GOSS: -- the blood transfusion?

Secondly, it has been shown that at 1 o'clock you've completed some entries on the observation chart.

NURSE A: Yes, that's right.

MR JUSTICE GOSS: Do nurses have breaks during the course of a shift?

NURSE A: They do. 1 o'clock is possibly a little earlier than normal but it might just be that I was in the room supporting Lucy and wrote the obs on the chart. It might be that she'd gone out of the room for a short time and I had said -- maybe she wanted to go somewhere for a couple of minutes and I said, "It's okay, you go, I'll do..." I don't know. But it's not unusual for somebody else to...

MR JUSTICE GOSS: We've heard in other cases of where nurses have been on a break --

NURSE A: Yeah, we may have both been in the room and I was just writing them down because she was doing them when I was in there, I don't know.

MR JUSTICE GOSS: Obviously, you wouldn't remember now, but it's not unusual --

NURSE A: No. She may have been on a break, but it just seems a little earlier than she would normally go for a break.

MR JUSTICE GOSS: Thank you very much.

That then completes your evidence, thank you.

I don't think unless you've been told --

NURSE A: I've been told one more, the next baby.

MR DRIVER: Things sometimes evolve in that regard.

NURSE A: I've been told Baby I right from the beginning.

MR JUSTICE GOSS: All right. Well, don't worry about it.

I'll say what I've said to other people in your situation: you may be required to come back and give further evidence and so please don't talk to anyone about this case until it's all over.

NURSE A: Okay.

MR JUSTICE GOSS: The signs I'm getting, you can't see them, but the indications I'm getting is that you're not actually required. But don't take it from me because I don't have any knowledge. All right?

NURSE A: Okay.

MR JUSTICE GOSS: I don't have as much knowledge as the people in front of me.

MR DRIVER: We'll give [Nurse A] a definitive answer very shortly.

NURSE A: I know I was warned for one more.

MR JUSTICE GOSS: All right. Thank you very much. Just stay where you are, as you have done before.

Now?

MR DRIVER: The remainder of the evidence is the reading, certainly of one, possibly two short witness statements.

MR JUSTICE GOSS: We'll do that then. This is just literally a two or three-minute break, this, just to remove the screens and let the witness leave court and then we'll hear some more evidence read.

(In the absence of the jury)

This is just literally 2 minutes, thank you.

Just stay where you are. When it's clear to go, you'll be told.

(Pause)

(In the presence of the jury)

MR DRIVER: May it please your Lordship, may I direct the court's attention to page 16 of the reading bundle, which is the first bundle provided to your Lordship a day or so ago. The statement of Dr Rhiannon Austin.

If I could ask Mr Murphy to return to tile 152, please, to provide context.

MR JUSTICE GOSS: My bundle isn't paginated.

MR DRIVER: The top right corner, very small numbering.

MR JUSTICE GOSS: Oh yes. I have it, thank you.

Witness statement of DR RHIANNON AUSTIN (read)

MR DRIVER: Thank you.

Members of the jury, to remind ourselves, we are looking behind tile 152 and an entry on [Baby H]'s clinical notes that an earlier witness had her attention taken to, a note at 16.45 on 25 September under the heading "ST3 Austin".

I'll read Dr Austin's statement, dated 5 March 2018:

"Occupation: registrar.

"I have been asked to comment on the care and treatment of baby [Baby H] and in particular her care on 25 September 2015.

"I remember [Baby H]. She was a little bit preterm and I recall she had pneumothoraces. I recall being called to treat [Baby H] on this day as her oxygen requirements had increased significantly and the nursing staff were unable to rectify the situation."

If we look at the screen we can see the first entry of the notes reads:

"Called to nursery 1."

"[Baby H] had been intubated and already had chest drains in situ to treat her pneumothorax. Upon arrival on the unit, the nursing staff had already removed the endotracheal tube from

[Baby H] and told me that it had been blocked, which can happen due to the build-up of secretions, et cetera."

If you look at the screen, you can see the corresponding note:

"Desat not improved [and then] suction. ETT removed by N/S
[[Nurse D] told us that is nursing staff] [squiggle] blocked at end."

You may think that note corresponds to the sentence I have just read:

"[Baby H] was being manually ventilated through a face mask (commonly known as bagging). She was trying to take some breaths and breathe for herself but they were not good breaths."

According to the next entry on the note in that regard:

"Bagging. Spont [that's spontaneous] breaths."

"Given [Baby H]'s history, she required re-intubation, which I completed, replacing the tube like-for-like with the tube previously used and what had been documented on her notes."

The penultimate line on the clinical notes on screen.

"I then ordered a chest X-ray to check the endotracheal tube was in the correct position."

The final line on the note:

"[Baby H]'s condition improved after the new endotracheal tube had been inserted. I cannot recall which nursing or other medical staff were also in attendance during the time I treated [Baby H]. This was the first time I had directly treated [Baby H]. I was working a normal day shift so will have handed over the care of [Baby H] to Dr Gibbs, who will have reviewed the chest X-ray. I do not recall any further involvement in [Baby H]'s care that day or attending at any formal debrief as a result of my attendance and treatment to [Baby H]."

Witness statement of DR JESSICA SCOTT (read)

MR DRIVER: The next statement to be read, my Lord, is the next statement in the bundle at page 18, Dr Jessica Scott. To my understanding, the content of this statement does not correspond to any entries on our carousel, our visual presentation.

She on 28 February 2018 stated:

"I am an ST2 (specialty training year 2) doctor, working at the Liverpool Women's Hospital in Liverpool. I started my specialty training in paediatrics in September 2015, applying to the Mersey Deanery.

"During my ST1 placement I completed 6 months at the Countess of Chester Hospital between September 2015 to March 2016. Whilst at the Countess of Chester Hospital as an ST1, I would work on the neonatal and paediatric wards, completing ward rounds and prescribing medication, completing discharge letters, assessment of new patients in accident and emergency or on the paediatric wards as well as working on the post-natal ward, assessing new babies.

"I have been asked to comment on [Baby H] and, in particular, her care in the early hours of the 26th and 27 September 2015. I don't recall [Baby H] or having ever met her parents, but reading the medical notes, I can see that I had previously seen [Baby H] during ward rounds on other days. I am not mentioned on the medical or nursing notes for [Baby H] on the days in question.

"However, I believe I may have been bleeped to the unit on one of these nights to assist Dr Alison Ventress and, when I arrived, the resuscitation of [Baby H] was already in progress in nursery 1. I cannot recall who else was present, but there were others present at this time.

"[Baby H] had been connected to a ventilator via an endotracheal tube, but this ventilator needed to be disconnected to treat [Baby H]. When this occurs, the patient still requires respiratory support whilst the treatment takes place and until such time that the ventilator can be reconnected.

"I assisted during this procedure by manually ventilating [Baby H] using a Neopuff [which we know is commonly known as bagging] which will have continued until [Baby H] showed signs of improvement or is connected back to the ventilator.

"During a collapse such as [Baby H]'s, a registrar would normally take the lead and direct staff involved in the resuscitation. However, you need to remain flexible in that you may be asked to switch roles or complete multiple tasks during the resuscitation procedure. Effective communication is key during such incidents.

"It is not uncommon for multiple people to be involved in resuscitation but only one person will write the medical notes at the time or retrospectively. I don't believe I remained with [Baby H] for the entire procedure, so don't know what the final outcome of her resuscitation was. I am unable to refer to the

medical notes to answer this question as I am unsure which night I had attended to assist treating her.

"I believe I had limited further care with [Baby H] after the mentioned dates."

And that concludes Dr Scott's very informative statement.

MR JUSTICE GOSS: Well, in fairness to her, she didn't have access to any of the notes or anything, but she assisted Dr Ventress in resuscitation.

MR DRIVER: She did.

MR JUSTICE GOSS: And the bagging, she was involved in the bagging procedure.

MR DRIVER: She was.

That's as far as we can sensibly go this afternoon, I'm afraid.

MR JUSTICE GOSS: Yes. That's all right.

Tomorrow, I think there was due to be a witness to give evidence who can't now give evidence because of --

MR DRIVER: That's right. Nurse Christopher Booth was scheduled to come tomorrow. For reasons I'm sure everyone will understand, staffing levels at many hospitals are very stretched at the moment and it would have caused disproportionate amount of disruption had we insisted upon his attendance.

MR JUSTICE GOSS: Well, I don't want anyone's clinical duties being compromised just to accommodate our convenience. So it may be a slightly shorter day than had been anticipated.

MR DRIVER: It may. There are some outstanding administrative exercises that we need to undertake with the jury in relation to documents for earlier counts, which will fill some of the void.

MR JUSTICE GOSS: Good. We'll obviously do as much as we can, but it probably won't be until this time tomorrow.

All right? Thank you very much.

So could you be ready, please, for 10.30 tomorrow morning as usual and, of course, you're subject to your obligations and responsibilities as jurors: no communication by any means with anyone about anything to do with this case and no research whatsoever. Thank you very much indeed.

(In the absence of the jury)

Mr Myers, someone is going to go down and see --

MR MYERS: I'll be popping down to see Ms Letby shortly, thank you.

MR JUSTICE GOSS: Someone will be seeing Ms Letby straightaway. Thank you very much.

(4.03 pm)

(The court adjourned until 10.30 am on Friday, 20 January 2023)