

6 July 2023 (Day 144)

Judge's Summing Up Day 4: Babies K, L, M, N, O & P

CONTENTS

SUMMING-UP (continued)

Housekeeping

Thursday, 6 July 2023

(10.30 am)

(In the presence of the jury)

SUMMING-UP (continued)

MR JUSTICE GOSS: When we adjourned yesterday afternoon I had reminded you about [Baby K]'s clinical condition following her birth at 02.12 on the morning of 17 February, which was essentially normal, good, although she was very premature, and her having been given surfactant, albeit late, and having been commenced on an intravenous dextrose infusion.

The swipe data reproduced on tile 63 in her sequence of events records that Joanne Williams, who you'll recall was her designated nurse, left the neonatal unit at 03.47, so about an hour and a half after [Baby K] was born. She said that she went to visit [Baby K]'s parents to update them and would not have left [Baby K] unless she was stable and was with other members of staff. She was quite stable.

Dr Jayaram said that he and Nurse Williams were happy that [Baby K] was stable and settled and a morphine infusion had started. Tile 50 relates to the intensive care chart recording that at 03.50 [Baby K] was given a bolus of morphine sulphate.

If you go to the second page in section 14 of your second jury bundle -- that's the reference, I'm not suggesting you do, that's where it is, there are paper documents there -- you have the neonatal intensive care chart for the relevant time and it shows the commencement of a morphine infusion at 03.30 and a bolus at 03.50. That was not, said Joanne Williams, in her handwriting. However, behind tile 69 is an infusion chart with an entry for 17 February at 2016 at 03.50, being for an infusion beginning at that time. Joanne Williams accepted in cross-examination that the infusion could have started at 03.50 after an initial bolus had been given.

Dr Jayaram said Joanne Williams had told him the defendant was babysitting for her. He said that at this point they were aware of unexpected events and the association of the defendant with them. He felt extremely uncomfortable. He was in the corridor

opposite nurseries 2 and 3, at a desk round the corner from nursery 1, writing notes he thought.

After 2 to 2.5 minutes, he got up from the desk just to check on [Baby K] and to prove to himself that he wasn't being ridiculous and irrational. He went into nursery 1, through the door that's not marked on our plan, and as he walked up, he saw the defendant standing by [Baby K]'s ventilator at the top end. She didn't have her hands in the incubator. Then he looked up at the monitor and saw that [Baby K]'s saturations were dropping. They were in the 80s and they continued to drop.

The ventilator wasn't alarming. The monitor, which is usually set to alarm when the saturations drop below 90%, wasn't alarming either. He recalled saying, "What's happening?" She looked and said words along the lines of, "She's having a desaturation". He could see [Baby K]'s chest, which had been moving with the breaths from the ventilator, but it was no longer moving.

The ventilator was still delivering breaths. He disconnected the ventilator from the ET tube, tested the tube and ascertained that it was not working as it should be, but it wasn't blocked, though he didn't recall looking in the tube to see if there was a blockage. As soon as he ventilated [Baby K] with Neopuffs through a face mask, her chest started moving and her sats picked up.

Dr Jayaram said usually babies will maintain saturations for 30 to 60 seconds before they start desaturating, so for her saturations to have been in the 80s and dropping he inferred that something had happened at least 30 to 60 seconds before he walked in.

Dr Smith remembered coming back in the room, having been out briefly, and saw Dr Jayaram on the right-hand side of the incubator as he walked in. The ventilator was disconnected and [Baby K] was being given breaths through a Neopuff. He re-intubated [Baby K] with a 2.5 millimetre tube, measuring 6.5 from the lips, after giving her a bolus of morphine and reconnecting the ventilator on basically the same settings.

Joanne Williams, on returning, remembered walking back into the unit and hearing the red alarm sound from nursery 1. She thought Caroline Oakley and the defendant were in the nursery. She helped with the re-intubation and noted that air entry was clear and equal and a large amount of bloodstained oral secretions, which now she had no recollection of but would have been something to be aware of and are sometimes not uncommon with multiple intubations. Her oxygen saturations were down to 40% and she was not improving.

Caroline Oakley has no recollection of the desaturation. After [Baby K] had been stabilised, Dr Jayaram asked Caroline Oakley how this had happened. She said to him she thought that the ET tube was secure but she wasn't there. She said tubes can be dislodged with movement and she didn't have a lot of experience of babies of 25 weeks' gestation. A UVC was inserted but they were not able to insert a UAC.

Dr Smith confirmed that doctors have knowledge of how to adjust the settings on ventilators, but the actual connection of all the pipes from the ventilator to the baby is done by the nurses. The doctor would still be close by, just to supervise and be on hand if the baby needed re-intubating, for example, but the actual connection is done by the nurses.

Stuart Eccles gave evidence that was agreed about the monitors in use in the unit, stating that monitors on the neonatal unit automatically default to neonatal settings, which cannot be changed. If the baby's monitor readings go outside of the set range it triggers an audible alarm. It is possible to deactivate the alarms on the Philips MP3 neonatal monitor for 1 minute using the alarm pause button on the touchscreen. This will then give a visible countdown display on top of the screen. Once the 1 minute has expired, the alarms will reactivate. If the user wants to further silence the alarm, they can press the alarm pause button again, which will give a further 1 minute of alarm silence, but this can't happen until the previous 1 minute has expired. If the user presses the pause alarm button again within the 1 minute time frame the alarm will no longer be paused and will begin to sound again.

Dr Jayaram's account of events was challenged in cross-examination. He was asked why he didn't confront the defendant at the time. He said it was his job to deal with [Baby K] and to notice patterns and raise concerns and this was added to the list of concerns that he and his colleagues had already noticed in relation to the association of the defendant with unusual events. They wanted to have this investigated but were unclear as to how to get that done.

It's not appropriate, he said, to document suspicions in clinical notes. He did put in a Datix report but concerns had been raised by Dr Brearey to senior executive level medical management in February and, after this incident, he said they were raised again. As clinicians, they put their faith in the system, in senior management, to guide them how to escalate concerns and investigate them. They were told, that's the clinicians, that it was unlikely that anything was going on and to see what happens.

In retrospect, he wished they had bypassed management and gone to the police and put in a Datix form. He was referred to the network service report in relation to transporting [Baby K] to Alder Hey, which recorded at 05.55:

"Call received from Dr Jayaram. Baby dislodged the tube and had to be re-intubated."

He could not remember what he had said and had not seen that note, but it was highly unlikely at her age that she had dislodged the tube herself.

When shown the morphine infusion chart, he accepted that his note at the time that she had been sedated did not accord with the charts, but denied that he had deliberately shifted his evidence to emphasise that [Baby K] was sedated at the time the tube became dislodged.

He repeated that she was not making any purposeful movements at that time. He also refuted the suggestion that he had picked up the time that Joanne Williams had left the nursery and worked that into his account, implicitly building a case against the defendant and changed things as he'd gone along.

He said he'd never seen the swipe data or known the specific timings. He accepted that things could have been done better, but said he was not trying to distract everyone from what was suggested to be a poor level of care by creating this issue and bolstering suspicion against the defendant.

The decision for [Baby K] to be born at the Countess of Chester, which you'll remember was one of the criticisms that was made, was, he said, made by paediatricians, which it was.

When interviewed about [Baby K] on 5 July 2018, the defendant said she recalled [Baby K] only because she was a tiny baby and was 25 weeks' gestation and the Countess of Chester would not usually have babies of [Baby K]'s age and weight on the unit. She did not remember the ET tube slipping, nor did she remember any subsequent collapses during the remainder of the shift.

In the interview on 12 June 2019, she was informed that Joanne Williams was [Baby K]'s designated nurse. She agreed that she thought Joanne Williams would not have left [Baby K] to update the parents unless [Baby K] was stable and her ET tube was correctly positioned. She did not remember being left alone with [Baby K] in nursery 1 or being at [Baby K]'s cot side or [Baby K]'s saturations falling. She could not remember whether the alarm was silent, although she agreed it should have been sounding if [Baby K]'s saturations had fallen into the 80s.

She denied dislodging [Baby K]'s ET tube and had no recollection of the tube slipping and said she would have raised the alarm when Dr Jayaram had walked in if she had seen the saturations dropping or the tube had slipped.

She thought it possible that she was waiting to see if [Baby K] self-corrected and explained that nurses didn't always intervene straightaway if levels were not "dangerously low".

In her evidence to you, in answer to her counsel, the defendant confirmed that she didn't have an independent recollection of [Baby K] on the unit, but did recall seeing her at one point because it was unusual to have a baby of 25 weeks' gestation. She denied interfering with [Baby K]'s tube at any time. There wasn't a time when she was in the nursery and Dr Jayaram came in to find her standing there close to [Baby K]. She did not recall an incident where she was present when [Baby K] desaturated and Dr Jayaram was involved at about 3.50 or any other time.

She referred to the neonatal review and said that she was doing obs and feeding GT, one of her babies in nursery 2, at 03.30; that's lines 115 and 116 and J30494. She also referred to J30497, GT's feeding chart, which recorded a bottle was offered and 55ml was given and the nappy was changed. She said this could take half an hour and the shortest time would be 20 minutes, it could take up to an hour.

When cross-examined, she agreed that Joanne Williams, [Baby K]'s designated nurse in nursery 1, had left and that the swipe data showed her leaving at 03.47, tile 63. There was also evidence that Dr Jayaram was speaking to someone from the transport service at 03.41, tile 59, and there were phones at the nurses' station. She had no recollection of [Baby K] desaturating when Dr Jayaram walked in when she was standing over [Baby K], so she could not confirm or deny it or whether [Baby K] was desaturating at that time or whether the alarm was sounding.

She did say that if she had seen [Baby K] desaturating, she would have waited to see if she self-corrected. She didn't believe the event did happen. She had no direct memory of it. She accepted that the morphine infusion had been running since 03.50. She said that although she had no memory of this event, if a baby of [Baby K]'s gestation and condition had been desaturating she would simply have waited, maybe 10 or 20 seconds, to see if she self-corrected. She knew that was common practice in the neonatal unit in Chester and Liverpool Women's Hospital, to wait and see if the baby self-corrected, if they are not at a life-threatening level.

The agreed evidence of Elizabeth Morgan, a nursing adviser, was that in her professional experience it is possible for an ET

tube to become dislodged in an unsedated or active baby or where securing ties have become loose and it is very unlikely a nurse would leave the bedside of an intubated neonate unless they were very confident the ET tube was correctly positioned and secure, the baby was inactive, and they'd only be away briefly and had informed a colleague who would attend the baby if an alarm should sound.

It was also her professional experience that when observing a falling oxygen saturation level in a baby of this age and gestation, it would be standard good nursing practice to immediately attend the bedside to actively observe the baby, ascertain any cause for changes in oxygen levels, and to take corrective action, calling for help to alert other members of staff of the situation if necessary.

A series of checks would be carried out immediately to ascertain why the oxygen levels had dropped. For example, has the tube become blocked or dislodged? Has the baby developed a pneumothorax or has there been an equipment failure? She did not believe that it would be normal nursing practice to wait and see if the baby self-corrected at this gestational age given the lungs are so immature and the risks associated with unplanned extubation.

At 06.15, it was noted that [Baby K]'s saturations began to drop and the indications were that it was a problem with ventilation. [Baby K] was extubated again. She responded to ventilation via a mask and a new 2.5 millimetre ET tube was put into the same length.

She was settled for the next 30 minutes. Then, at around 07.25, [Nurse B], who was going to take over as shift leader for the day shift, was at the nurses' station at that time before the handover when she received a call for help from the defendant, who was at the side of the [Baby K]'s incubator.

[Nurse B] entered the nursery behind Dr Jayaram and Joanne Williams. [Baby K] was having bradycardia and a desaturation and the defendant was Neopuffing her via her ET tube. Dr Jayaram's note behind tile 106 sets out the details. [Baby K]'s blood pressure dropped and, despite a saline bolus, her heart rate suddenly dropped to less than 100 beats per minute. It was noted that her tube was not in the same place as it had been, it was too far in, and was adjusted back to its appropriate place or position. She was taken off the ventilator and ventilated with the T-piece through the Neopuff down the ET tube. Cardiac compressions were started. She was re-intubated and she settled again.

[Nurse B] stayed with Melanie Taylor, who was then her designated nurse for that day shift, to assist with all the infusions [Baby K] needed during the course of the rest of the morning.

Dr Jayaram had rung NWTs, the hospital transfer service, at 03.15, about an hour after [Baby K] was born. The advice was to stabilise [Baby K]. The transport team arrived at about 09.00 and responsibility was handed over to them, both teams being responsible for her care, the transport team being a specialised team.

Dr Kamalanathan, a consultant neonatal paediatrician at Arrowe Park Hospital, received the handover. The UVC was low-lying but acceptable for the purpose of transfer. [Baby K] needed multiple medications to get her blood pressure up. Her oxygen levels couldn't be maintained within normal limits. Nitric oxide was introduced to her ventilation circuit to make the blood vessels in the lungs dilate, or enlarge, to help the lungs get oxygen.

[Baby K] left the Countess of Chester, having been stabilised by the transport team, at 12.50. The prosecution say [Baby K] was a settled baby who could not dislodge her own tube and it was dislodged.

Dr Babarao, who had been a consultant neonatologist since 2013, and specialises in treating babies from 22 weeks' gestation, and was also a consultant in neonatal transport with the transport team in 2016, was the consultant with responsibility for [Baby K] upon her arrival at Arrowe Park.

She arrived there at 13.15. Her condition continued to deteriorate. X-rays showed she had severe lung disease. Infection was not an issue. There was no record of dislodgement of her ET tube at Arrowe Park. Her blood pressure got worse and she was receiving the maximum amounts of medication and her sats were low.

In the early hours of 20 February, after discussion with her parents, the decision was made to stop [Baby K]'s intensive care, her ET tube was removed at 05.10, and [Baby K] died at 05.28.

The cause of death was certified as (1A), extreme prematurity, (2) severe respiratory distress syndrome.

Dr Babarao agreed that the outcome for [Baby K] may have been better if she had been born at a tertiary centre and that it was originally intended that she should be born in one, but it was unclear to him why she was not and may have been due to a shortage of maternity beds in Arrowe Park.

He was also asked about the golden hour, which is the initial hour after birth of a preterm baby, to give them the best possible next few hours and outcomes. It is good practice, not strict guidelines, that certain things have to be implemented within the hour. The key is to do the most essential things in the first few hours, let the baby settle, and take some time and then increase support as the baby needs.

He said that if intubating a neonate, surfactant should be given as soon as possible after intubation. Antibiotics should be given within the first hour. At the time of the golden practice, an umbilical line should be inserted in the first hour. However, Dr Babarao said neonatologists have now moved away from that and a peripheral cannula, which [Baby K] had, was equally enough. He said that her death wasn't avoidable because she was extremely sick right from the beginning. However, looking at the overall picture, had her care been optimal, her death was potentially avoidable, the main factor being her in utero transfer from the Countess of Chester to a level 3 perinatal or neonatal centre. That would have improved her outcomes as an extreme preterm baby. But as you know, it couldn't be done, and the advice from the tertiary hospital was that she should stay there and she should be born there.

When further interviewed on 10 November 2020, the defendant said she had no recollection of [Baby K]'s tube slipping at 07.30 on 17 February and suggested that maybe the tube had not been secured properly. She agreed that she searched for the name [Surname of Baby K] on Facebook on 20 April 2018, but could not remember having done so.

She explained that in her text messaging later she was complaining that the unit had been understaffed at the time of [Baby K]'s admission.

In her evidence she said she had nothing to do with the events at 06.15 and 07.25. She agreed that [Baby K] had been on a morphine infusion since 03.50 and that in order to create the computer note relating to her admission record at tile 104, which was created at 06.04 and closed at 06.10, she will have had to get [Baby K]'s medical notes from her incubator and return them there.

She could not dispute or agree with [Nurse B]'s evidence of being at [Baby K]'s incubator and calling her in to nursery 1 at 07.25.

At 06.49 she was updating the computer in relation to GT's, her baby, administration history, and at 07.00 she was making entries relating to another baby, AR, both GT and AR being in

nursery 2. She agreed she had no reason to be in nursery 1 at 07.25.

In relation to her Facebook search on 20 April 2018, she said she was looking because:

"You still think of patients you cared for."

Her only recollection now of caring for [Baby K] was giving the morphine infusion at 03.50. From memory now, she could not think of a reason. Nothing out of the ordinary happened that night. It was a busy shift, that was all she could say about it.

So the issue, as you have known, in [Baby K]'s case is a factual one. The prosecution accept that they cannot prove the defendant's acts caused her death, she was a very sick baby with obvious breathing difficulties, but allege that the defendant attempted to kill her. None of the radiographs, namely the three images taken on 17 February at 06.07, 07.55 and 11.28 respectively, assist in relation to the issues between the prosecution and the defence in her case.

I move on, therefore, to counts 16 and 17, [Baby L] and [Baby M]. At 10.13 on Friday, 8 April 2016, [Mother of Babies L & M], the wife of [Father of Babies L & M], gave birth by caesarean section to twins, [Baby L], referred to in the notes as twin 1, and [Baby M], twin 2. They were 33 weeks and 2 days' gestation.

It had been a routine pregnancy until March.

[Mother of Babies L & M] was then admitted to hospital for 2 weeks before the semi-selective caesarean section. Twin 1, [Baby L], did not appear to be growing at the correct rate.

The birth went well. Both babies were born in good condition and did not require breathing support in theatre, both weighed about 3 pounds. The defendant, who was working a day shift that day and the next, was present at their birth, as was Dr Bhowmik, then a registrar.

The twins were admitted to nursery 1 in the unit and the defendant was [Baby L]'s designated nurse for the rest of that day shift. This, as you know, is a second case in which the prosecution allege a baby, wholly and inappropriately and without medical approval, was given unprescribed manufactured insulin. It is alleged that the defendant attempted to kill [Baby L] by putting insulin into bags of dextrose solution, the first of which was set up 2 hours after he was born. As is common for premature babies, his blood sugar level was low.

The plasma from a blood sample taken later in the afternoon provided readings that are only explicable on the basis that [Baby L] had been given exogenous insulin. The infusion from that first bag of 10% dextrose continued until the following day, Saturday, 9 April. Another bag may have been put up at midday, 12.00 hours, and a new one, with a stronger concentration of dextrose, 12.5%, was put up at 16.30 on 9 April.

A further bag with a concentration of 15% dextrose was put up at 02.30 or 03.00 on 10 April and yet another was put up at 01.45 on 11 April. I'm going to go back to the chart in relation to this in a moment.

Professor Hindmarsh was of the opinion that the hypoglycaemic event continued from 9 April to about 15.00 hours on 11 April, with the insulin being infused intravenously by way of having been added to the infusion system in several bags that had been made up, which could all have been done at once. That's adding to the infusions.

On a conservative view, the addition of in the region of 10 units of insulin to a bag would be sufficient to produce the hypoglycaemic effect and also to generate the plasma insulin concentration that was measured in the sample on 9 April. The vials of insulin contain 100 units per millilitre, so 10 units is a tenth of a millilitre, 1% of the volume of a bottle, which would not be noticeable just on a routine stock check and, if added to infusion bags, the addition of one-tenth of a millilitre would not be noticed in a 500ml bag, nor would there be any change in the colour of the bag nor would you see any cloudiness in the bag itself.

Professor Hindmarsh was of the opinion that, depending on how many bags were hung, two or three bags had insulin added to them. If the plastic giving set isn't changed then insulin, being a protein, will stick very nicely to plastic so the giving set as well could potentially have insulin stuck on to the walls of the tubing, from which it could fall off over a period of time as well. He agreed that although sticky insulin could account for some of the insulin being infused from the walls of a previous giving set over time it would require additional insulin to maintain the levels up to 11 April. That's why he said it must have been in a number of bags.

In [Baby M]'s case, it is alleged that the defendant injected air into his abdomen on the second day of his life, Saturday, 9 April. There is an obvious overlap in the evidence relating to the respective events in their cases, but, as with other cases involving twins, there are separate sequences of events and the

evidence has been separated as much as possible. I remind you first of the evidence relating to [Baby L], count 14.

The defendant worked four long day shifts, starting on Wednesday, 6 April to Saturday, 9 April. She told you at that time she had moved into her house and drew attention to messages between her and Sophie Ellis and [Nurse E] on the evening of 8 April at tiles 57 to 63 relating to work and her taking Saturday the 9th as an extra day. The unit was still fairly busy, she said, but not quite as busy as previously.

Dr Bhowmik inserted a peripheral intravenous line into [Baby L]'s left hand at 11.15 on 8 April, an hour after he was born; his clinical note, made at 12.00 hours, midday, is behind tile 12. On admission to the unit, [Baby L] was generally well, being active and alert. His breathing rate was a little bit elevated at 65, but not a concern as it is common for babies born by caesarean section. His weight was low and his blood sugar at 1.9 was a bit low, but this was common for premature babies.

He was started on intravenous fluids with glucose. Behind tile 13 is the defendant's nursing note, written as his designated nurse at 17.42. In relation to the low blood sugar, she wrote:

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

The reference to the hypoglycaemic pathway was to the policy at the Countess of Chester to feed babies with milk before infusing them with dextrose. The decision was for Dr Bhowmik. Amy Davies had no concerns about this. Dr Bhowmik prescribed the dextrose. The infusion therapy prescription sheet is J17948 behind tile 10 and it's the first paper document in section 15 of your second bundle.

Dr Bhowmik wrote out the prescription and the rate of infusion. The first two entries were struck through by him and the third, at a rate of 4.4ml per hour, was the set rate, which was checked by the defendant and Amy Davies, who were responsible for administering it, each of them initialling the sheet.

In her evidence the defendant confirmed that dextrose bags of concentrations of 10% and 50% were kept in the cupboard in nursery 1 and said insulin was kept in the equipment room. 10% bags were very commonly used and were non-patient specific. She couldn't recall if any were kept under lock and key.

The first infusion started at midday, 12.00 hours, on that Friday, 8 April. It was a 500ml bag of 10% dextrose. The bags would normally be changed every 24 hours unless the concentration of dextrose changed, in which case a new bag would be used. The dextrose solution was then pumped through the giving set and a filter into the cannula that had been inserted by Dr Bhowmik into [Baby L]'s left hand.

Later that afternoon, at 14.35, the defendant and Amy Davies administered antibiotic medication to [Baby L]; tile 30. Amy Davies carried out the regular observations, noting and initialling the results on the observation chart between 10.00 and 18.00; J17987, the sixth page document in section 15.

Amy Davies denied having administered insulin to [Baby L] and was unaware of anyone else doing so. Insulin, she said, would usually only be given to a baby who has two consecutive blood sugars over 12 and is hyperglycaemic. Although it is not a controlled drug, the insulin would have to be prescribed by a doctor.

In section 6 of your first jury bundle you have a three-page table of blood sugar readings and the times, concentrations, rates and volumes of dextrose administered to [Baby L] from the records from 10.58 on 8 April, 45 minutes after he was born, until 23.00 on 11 April, some two and a half days later. It might be helpful for you to have that to hand because it is a good reference document. There you are, that one. The first bundle, section 6.

I'm going to make some specific reference to some of the entries, but I shall also refer to other things and you can then refer yourselves to that table as I go along as I'm reciting the history of events.

Professor Hindmarsh was asked to look at this case by Dr Evans. This was the 60th case that Dr Evans had been asked to look at and when in the notes he found the result of the plasma test with a very high value of insulin and a low value of C-peptide at 264, when, as you know, the readings should have been the other way around, he suggested, that's Dr Evans suggested to the police, that they should approach a specialist in endocrinology to review his findings.

Professor Hindmarsh told you that newborns and neonates have higher glucose requirements than children and adults and it is generally accepted that any reading of a blood sugar level of under 2.6, or according to some 2.4, millimoles per litre is a cause for concern. So it was in keeping with the low reading of 1.9 at 10.58 that an infusion of dextrose had been commenced; the first entry on the chart.

Behind tile 5 -- don't go to it, I'm giving you the reference -- you've got a paper copy, which is page 8 in section 15 of your other bundle -- are the blood gas results, which record the figure of 1.9, to which I have just referred as the first entry. You can now follow the readings on that chart.

At 12.14 to 12.15 it had risen to 2.5 and then at 16.00 it was 5.8, then fell back to 3.3 at 18.10. All those entries were signed for by the defendant on the document behind tile 5.

Tracey Jones, a senior lecturer in nursing and then working as an agency nurse at the Countess of Chester, covered [Baby L] as his designated nurse for the night shift of the 8th/9th. Her note of that shift is behind tile 78. There were no concerns. [Baby L]'s pre-feed blood glucose readings were all above 2 millimoles, as you've seen from the chart, all the readings up to the first thick black line on that first page. Therefore they were to discontinue monitoring as requested by the registrar. The registrar said there's no problem with the readings so you can discontinue having to take them.

The records against the initials of Tracey Jones were that his glucose level was 2 at 20.00 hours and 2.4 at 21.00 hours. No readings of blood sugar levels were recorded after 21.00 because, as I've said, they were told to discontinue.

However, there are what appear to be recorded blood sugar levels on the fluid balance chart J18031, just above the feeds row of, 2.3 at 21.00 hours, 2.2 at 22.00 and 3.6 at 24.00.

The observation chart behind tile 54 -- you have a paper copy at page 6 -- has Tracey Jones' initialled entries at the bottom of the page following on from those of the defendant's up to 06.00 on 9 April. No fluid bags were changed during the course of Tracey Jones' shift.

Mary Griffith took over from Tracey Jones and was the designated nurse for both [Baby L] and [Baby M] on the day shift of Saturday, 9 April. The defendant was also on that shift, so coming on to the unit at 07.30 for handover and was the nurse responsible for GT and TSB, who were also in nursery 1.

The clinical and nursing personnel on duty that shift are in your neonatal review and behind tile 88. Belinda Williamson, then Simcock, and Ashleigh Hudson and a nursery nurse, Angela McShane, were the other nursing staff. Mary Griffith said [Baby L] was stable in nursery 1. Behind tile 98 is the nursing note written at the end of the shift.

Towards the back of section 15 in your second bundle you have a paper copy of the fluid balance chart from 01.00 to 24.00 hours on that Saturday, 9 April. That is the document behind tile 97. The next document is the continuation chart for the following day, Sunday, 10 April.

Going back to the table that you have, you will see that the blood sugar readings, which were recommenced at 10.00 hours and which are recorded there, are reproduced below the -- in the bottom quarter of that page. You can see the entry at 10.00 hours.

Professor Hindmarsh's evidence was that [Baby L]'s blood sugar levels on 8 April were low in some cases, but basically acceptable. But by the first reading at 10.00 on 9 April, [Baby L] was hypoglycaemic, so against the 10.00 entry, that is when he is hypoglycaemic, and that insulin must have been added some time after midnight and by 09.30 that morning at the latest.

He explained it is fairly easy to get insulin into a dextrose infusion by drawing it up in a needle and syringe and inserting it through the portal at the bottom of the bag in the same way that the concentration of dextrose in a bag of 10% concentration is increased by adding some from a 50% concentration bag. You saw the video recording of that process being undertaken.

For reasons that I reminded you of in [Baby F]'s case, and having regard to the readings, Professor Hindmarsh said that at least three bags must have contained insulin. If the insulin had been infused by individual intravenous boluses to result in the blood sugar readings that were obtained, it would have required between 10 and 12 boluses at least. The bags could all have had insulin added to them at the same time, he said. A very small quantity of insulin was required. As I have said to you, it is 1% of a 10ml bottle of insulin added to a -- one-tenth of a millilitre added to a 500ml bag. Once in the dextrose bag, it would not be known that it was there from either smell or from appearance.

The agreed evidence of Karen Morris read to you was that in 2015 and 2016 Actrapid was the only insulin used in the unit at the Countess of Chester. It's a fast-acting insulin and came in a 10ml vial, which contained 100ml a unit. This is also relevant evidence relating back to the case of [Baby F]. You will remember I said I would come on to the other evidence relating to insulin when I came to [Baby L]'s case.

At that time a member of the pharmacy team would attend the unit once a week on a Friday and assess what amounts of stock drugs, which included insulin, were required. They would then replenish the unit's stocks later that day. Alternatively, unit staff

could complete a stock requisition book, requesting extra if they needed it. They no longer have any of those paper records. The reports show that in 2014 a total of three vials of Actrapid were issued: one in January, one in April and one in November.

In 2015, a total of six vials were issued: one in May, one in August, and two in both October and November.

In 2016, two vials were issued: one in April and one in July.

Mary Griffith said it was quite a shock when the blood sugar level dropped after the increase in volume of dextrose at 10.00 hours, the reading taken at 12.00 hours being 1.6 pre-feed. So at that time the volume of dextrose was increased to 3ml per kilogram.

The defendant in evidence said she couldn't assist with why there was a low reading at that time. She had nothing to do with insulin and the bags.

Mary Griffith was not prepared to say that the bag was changed at 12 midday. The volume was increased and she agreed that when it was put to her that the bags -- but she agreed when it was put to her that bags were normally changed every 24 hours.

The defendant said a new bag was commenced at that time by them. The defendant said she had nothing to do with the bags before then and couldn't explain the reading at 12.00 hours.

Mary Griffith said she also took a blood sample by way of a heel prick. This was some time after 12.00. She could not remember the exact time but she wrote in her notes that after the rate was increased to 3ml per kilogram:

"Blood sugar 1 hour later, 1.6. Blood taken for lab but due to emergency, not podded at once."

Podding was placing the sample in a plastic pod for putting into the air-driven system or chute, sending it straight to the lab. She said she gave the sample to someone for podding and that the emergency was the collapse of [Baby M], which was at about 16.00. She was making up a 12.5% dextrose bag for [Baby L] when [Baby M]'s alarm went off and he collapsed. The defendant went over to him.

You'll recall the playing of the video, to which I have already referred, about the process that is undertaken when a 12.5% bag is made up, adding dextrose from a 50% bag.

The blood sample was labelled as having been taken at 15.35 hours. The evidence therefore is that it was taken some time

after the recorded blood sugar of 1.6 at 12.00 and the labelling at 15.35.

Mary Griffith went to help with the resuscitation of [Baby M] and the doctors arrived soon after and she handed over responsibility for [Baby L] to Belinda Williamson. The only time that [Baby L]'s dextrose bag was changed, said Mary Griffith, was when the new bag with 12.5% dextrose was put up, which was after the blood sample had been taken.

The blood sample labelled as having been taken at 15.35 on 9 April for testing of insulin and C-peptide levels was received at the Royal Liverpool Hospital at 15.47 on 11 April. Had there been any mislabelling, Dr Anna Milan told you the sample would have been rejected and no analysis would have been undertaken. She confirmed all the quality control testing processes that are carried out in relation to the equipment before and after samples are analysed and the standard operating procedures and performance checks were carried out by the Royal Liverpool in relation to [Baby L]'s sample.

Reference was also made to external quality assessment routinely carried out by the United Kingdom Laboratory Accreditation Service, which, explained the scheme director of that service, Dr Gwen Wark, a highly qualified clinical biochemist, sends out a variety of samples to laboratories for testing, which they have already tested, every 6 weeks without them, that's the hospital laboratories, knowing that the service is the source of the request. The accreditation service then compares their results. The laboratories have two targets to achieve.

Dr Wark produced four reports: two covering the period relating to the testing of [Baby F]'s sample and two covering the period of [Baby L]'s sample. All results fell within the required targets. Dr Wark said that, based on the records in their laboratory in Surrey, in terms of accuracy and efficiency, the laboratory at the Royal Liverpool was performing very well in relation to the required criteria of testing.

In short, there is no evidence to doubt the reliability of the test results, you may think.

[Baby L]'s sample provided readings of 264 picomoles per litre for C-peptide and 1,099 picomoles per litre for insulin. The results are set out in J26995 and J26996, of which you have paper copies in the back of section 15. They were sent to the Countess of Chester who were alerted to a problem. As Dr Milan explained and Dr Gibbs and Professor Hindmarsh, those results were the wrong way round. I remind you again that normally your C-peptide should be five to ten times higher than the insulin if it's insulin and C-peptide that you have made yourself.

Dr Gibbs said that as his insulin level was 1,099, [Baby L]'s C-peptide level should have been somewhere between 5,000 and 10,000; in fact it was 264. So there was far more insulin than C-peptide, which is a reverse of the normal situation. This meant that most of the insulin in [Baby L]'s blood was manufactured synthetic insulin, which does not have C-peptide associated with it, and it had been given to him and was therefore exogenous insulin. [Baby L] had not had prescribed synthetic insulin and it would have been totally inappropriate to do so. To give it to someone was dangerous.

Both the insulin and C-peptide results were rung through by a colleague of Dr Milan, Dr Sarah Davies, to the consultant medic in the biochemistry laboratory at the Countess of Chester with the comment:

"Difficult to interpret without the concurrent glucose but if the patient was hypoglycaemic at the time it's a very inappropriate set of results."

[Baby L] was indeed hypoglycaemic. Dr Milan was not aware of anything that gave her any concern as to the accuracy of the results. She was asked in cross-examination about the possible effect on the stability of the sample if it was not stored properly and a possible failure to spin the sample to remove the cells or chill or freeze it as quickly as should be the norm. She explained that in the case of insulin, the consequence is the reading is more likely to go down, so if the sample had not been treated appropriately, the true insulin level could have been even higher than the recorded result. C-peptide is very stable, having a much longer half-life.

Professor Hindmarsh confirmed this was the case. A delay of 6 hours would -- so the reading itself was a minimum rather than a maximum.

Dr John Gibbs, referring to results of the analysis and the results on J18025 and J18026 behind tile 190, also confirmed that a low growth hormone, which can cause low blood sugar level, was not the cause in [Baby L]'s case and this was confirmed by Professor Hindmarsh. The cause for the hypoglycaemia was the exogenous administration of insulin.

In her first police interview, the defendant explained [Baby L]'s low blood sugar levels were not a huge surprise. Additional glucose and/or feeding would usually resolve the issue. She confirmed her signatures on the charts and agreed that she had had significant involvement in his care. She said a neonate would only be given insulin in the event of high blood sugar levels. She said very prolonged low blood sugar levels can cause

brain damage and even death. It wasn't a common thing to have a baby on insulin, but there were babies on insulin. She had completed a competency framework and they had the hypoglycaemia pathway policy on the unit.

Although insulin was kept in a locked fridge on the unit in the equipment room, the keys were simply passed between registered nurses and nursery nurses. There was no record of who had the keys or a requirement to keep a log of what was removed unless they were controlled drugs.

Any addition to an infusion bag was very rare. It would be added using a syringe via the port in the bag itself and would have to be prescribed by a doctor.

She confirmed her signatures on the infusion therapy chart behind tile 115. She denied having deliberately administered insulin to [Baby L] and did not believe that a mistake could have been made by administering the wrong medication with two people signing for the drug.

When it was suggested that the insulin was a deliberate act of sabotage, she replied, "That wasn't done by me". She didn't know how insulin could be given accidentally and said that if used inappropriately, it would cause hypoglycaemia. She thought an explanation for insulin in [Baby L]'s circulation was that it had been in one of the bags or the fluids he was already receiving and she denied responsibility for that.

Based on this evidence, the prosecution say there is incontrovertible evidence that, like [Baby F], [Baby L] was given manufactured insulin and that must have been done at some time prior to the blood sample being taken at 15.35 on Saturday, 9 April and the readings indicate it must have been before the 10.00 hours reading of 1.9 that day.

Their case is that insulin was added to the bag of dextrose that had been hung at midday on 8 April, the first bag, early in the shift of the 9th, and resulted in the analysis of the blood sample that was taken at 15.35 on 9 April and accounted for the blood sugar levels remaining persistently low from 10.00 hours, despite the dextrose infusions. This, they say, was done by the defendant when she was on shift.

The issue, therefore, is who was responsible and what they did by causing exogenous insulin to be administered to a newly born baby who was hypoglycaemic. The other nurses on duty in the unit over the relevant period, Tracey Jones, Mary Griffith, Belinda Williamson, [Nurse B], Bernadette Butterworth, Valerie Thomas, Minna Lappalainen, Clare Bevan, Ashleigh Hudson and Lisa Walker

all say they did not administer any insulin to [Baby L] and were unaware of any being administered.

Despite the increased administration of dextrose on the afternoon of 9 April, and I'm looking at the first page of the chart, at a concentration of 12.5%, [Baby L]'s blood sugar levels remained low. [Dr A] was on duty on the night of the 9th to 10 April. His notes at midnight behind tile 226 record that during his night review [Baby L]'s blood glucose levels were falling and he assumed he was called because falling levels can cause seizures, organ damage and brain injury.

[Baby L] was requiring more glucose than he would expect. Accordingly, [Dr A] wanted to boost the blood sugar levels. He adopted a holding position prior to inserting a long line at 01.30 hours. We're now on to the next page and you can see the readings as they went along.

Then he changed the fluids. He discontinued the 12.5% dextrose infusion and commenced a new infusion of 15% dextrose. The fluid balance chart, of which you have a paper copy, J18033, following on from J18032, records the discontinuing of the 12.5% bag at 03.00 on the 10th and the 15% dextrose then being infused via a long line and thereafter the blood sugar figure rises to 2.9 at 11.00 and then remains between 2.7 and 2.9 until 11.00 on that day when it is 2.8.

Professor Hindmarsh says that there must have been insulin in the 12.5% bag hung at 16.30 by Belinda Williamson and Ashleigh Hudson and in the next bag of 15% dextrose hung the following day at 02.30 or 03.00 on 10 April. It was after the second 15% dextrose bag was hung at 1.45 on 11 April, later that day, that the blood sugar levels improved.

The conclusion to be drawn, say the prosecution, is that from the time of the commencement of the second 15% dextrose bag he was no longer being infused with insulin.

At least one, and possibly two if there was a change of bags at midday on the 9th, of the 10% bags had insulin infused into them and one 15% bag was infused with insulin.

In her evidence, the defendant accepted that the results of the blood tests prove that somebody, for no legitimate reason, put insulin into [Baby L]'s dextrose if everything had been done properly in terms of testing and that the readings on 8 April showed there was a naturally resolving hypoglycaemia that was resolved by the administration of dextrose on the 8th and it had resolved by midnight on the 8th but then, after a gap in the taking of readings, there was an exceptionally low reading and a series of low readings from 10.00 hours on the 9th.

She also agreed that the only nursing staff in common between the shift on which [Baby F] received insulin and the shift on which [Baby L] was to receive insulin were herself and Belinda Williamson.

She accepted the activities of Mary Griffith, [Baby L]'s designated nurse, set out on page 3 of [Baby L] and [Baby M]'s neonatal review between 9 am and 9.30, from entry 21, that she was with other children, so out of the nursery where [Baby L] and the two babies for whom the defendant was the designated nurse in that nursery, but denied that she took this as an opportunity to poison [Baby M].

That completes my review of [Baby L]. I will deal next with [Baby M], but we'll break now and have the ten-minute break and then continue with [Baby M] after the break.

(11.42 am)

(A short break)

(11.52 am)

(In the absence of the jury)

MR JUSTICE GOSS: Thank you, Mr Myers, Mr Johnson. In fact, I haven't looked at the transcript, but did I say:

"In retrospect he wished they had bypassed management and gone to the police and put in a Datix form"?

MR MYERS: Yes, that followed.

MR JUSTICE GOSS: It's equivocal. That's the point.

MR MYERS: It's on the transcript as it is --

MR JUSTICE GOSS: I shall make it clear. I'm really grateful.

MR MYERS: It was just a slip.

MR JUSTICE GOSS: It's not a slip, it's infelicitous phrasing. It's wishing for two things, but it becomes slightly equivocal. I'll make it very plain, don't worry.

(In the presence of the jury)

MR JUSTICE GOSS: I said something that was unclear when I was reminding you of the evidence of Dr Jayaram and it's been brought to my attention. Do you remember I was reminding you of

the evidence when he was cross-examined about why he hadn't done certain things. I said to you:

"In retrospect he wished that they had bypassed management..."

This is in the case of [Baby K]:

"... and gone to the police and put in a Datix form"?

It's where you put the punctuation. There isn't any punctuation. What he was saying was in retrospect he wished they had bypassed management and they had gone to the police and he had put in a Datix form, but he didn't put in a Datix form. It's a bit like the book "Eats, Shoots and Leaves", it depends where you put the punctuation.

So [Baby M]. [Baby M] was born in good condition, crying, blue, good tone, was slow to pink up and had occasional shallow breathing. He was given five ventilation breaths at 3.5 minutes, then his sats improved, he pinked up. At 10 minutes his saturations were 93%. All this is to be found behind tile 2.

Although he was not an intensive care baby, he was placed in an incubator next to [Baby L] in nursery 1 in the top right-hand corner of the room as one enters. He too had a peripheral line inserted.

From tile 22 onwards, between 11.13 and 12.09 that morning, there was messaging between the defendant and [Nurse A] and [Nurse E] to which you can refer for the details if you so wish.

On the following morning, 9 April, the defendant did that extra shift -- that was the Saturday, you'll remember she volunteered to do the Saturday shift.

[Baby M] was given antibiotics that night; tile 74.

Tile 83 sets out the staff allocation for the day shift on that Saturday, 9 April. Mary Griffith was [Baby M]'s designated nurse. He was being fed expressed breast milk via an NGT at two-hourly intervals. Dr Ukoh saw [Baby M] on his morning ward round at 10.25. On examination, this is behind tile 88, he looked well and settled. He was mildly jaundiced, his abdomen was soft and normal.

Tile 91, he had a small posset with wind at 11.00. Tile 96, timed at 12.15, Mary Griffith noted his stomach was a little distended and his work of breathing was increased.

At 12.30, tiles 97 and 98, [Baby M]'s vital signs were recorded together with the data in the fluid balance chart by [Nurse B] because Mary Griffith had been sent on a break.

At 14.30 hours, J18866, Mary Griffith noted that [Baby M] was to be nil by mouth because she had aspirated 1.5ml of bile before a planned feed. This stopping of enteral feeds will have been the decision of a doctor.

[Nurse B] confirmed this and said [Baby M] was well at 14.15.

At 15.30, an intravenous infusion of 5.3ml of 10% dextrose was set up; tile 127. J18371, the first paper document in section 16, at the entry towards the middle of that sheet, records the defendant and Mary Griffith as the nurses setting up the infusion. At 15.40, the same two nurses were administering a 10% dextrose bolus to [Baby M]'s twin brother, [Baby L].

At tile 135, at 15.45, benzylpenicillin was administered to [Baby M]. The update in respect of that being made by both Mary Griffith and the defendant; tile 136.

Tile 137, a prescription was signed by the defendant and Mary Griffith at 15.45 for sodium chloride for [Baby M] with that being updated on the computer at that time; tile 138.

As I reminded you when I was dealing with the evidence concerning [Baby L], Mary Griffith said that about 16.00 hours she was preparing the 12.5% dextrose infusion for [Baby L] when [Baby M]'s alarm went off. The parents had left the nursery about 10 minutes earlier. The lights were flashing. The defendant went over to see and she said, "Yes, it's an event, it needs to be sorted".

Mary Griffith stuck her head round the door and asked for the resuscitation call to be put out. Ashleigh Hudson said the defendant asked her to crash bleep Dr Jayaram and she told the switchboard to put out a crash call.

[Nurse B] said she was by the side of the defendant who administered resus breaths via a Neopuff or an Ambu bag. Although the Neopuff produced chest movements, [Baby M] wasn't breathing for himself and didn't improve. Compressions were commenced and emergency drugs were administered.

The medical staff arrived pretty promptly.

[Nurse B] said her role was to draw up and check the resuscitation drugs. Notes were made of the drugs given and when.

She remained at the bedside but didn't have a direct vision of [Baby M]. She was shown a piece of paper towel, exhibit PMB8, on which a number of entries were made, which corresponded to the entries in the clinical notes behind tile 171 and were of the times and the medication administered. You have a paper copy in section 16 of your second bundle.

She recognised her writing of entries relating to doses of adrenaline given. That paper, that piece of paper, was subsequently recovered from a Morrisons bag beneath a bed in a bedroom at the defendant's home on Wednesday, 4 July 2018, as was a blood gas record timed at 16.22 for [Baby M]. Mary Griffith said she had never taken any notes or readings home.

[Nurse B] also confirmed that the rolling blood gas record reading had the information from 16.22 recorded on it. She confirmed that once the information has been placed on the rolling blood gas record, her practice was to put the original document in the confidential waste bin or the clinical waste bin, the contents of which both get incinerated. This led to the allegation put to the defendant that she must have taken that piece of paper out of the waste bin.

Belinda Williamson took over making the fluids up for [Baby L] and took no part in [Baby M]'s resuscitation. Dr Ukoh was one of the attending clinicians. Senior house officer Dr Barrett arrived shortly after Dr Ukoh.

She described [Baby M] as "pale and floppy and looked very, very unwell".

Dr Ukoh's retrospectively written note of the events is behind tile 149. He was in the unit when the unusual sudden and profound apnoeic episode and cardiorespiratory arrest occurred. He described [Baby M] as "Pale +++". Cardiac massage was started. Dr Jayaram arrived at this point. His notes written at 17.40 are behind tile 210.

By the time he arrived, three doses of adrenaline had already been given and Dr Ukoh had already intubated [Baby M] at 16.10, at which point Dr Barrett took over the task of giving chest compressions. [Baby M] was not breathing for himself, his cardiac output was not sufficient to pump blood round the body to supply the organs of his body. The entries relating to the resuscitation, which required six doses of adrenaline and other resuscitative drugs and saline, were contemporaneously recorded and he relied on the note of those details when he compiled his note.

The resuscitation took under 30 minutes and included taking over [Baby M]'s breathing following intubation and his connection to

a ventilator. The readings at 16.22 were taken during the resuscitation. There was a significant metabolic acidosis of cardiorespiratory arrest and they reached a point where they were going to have to think about withdrawing support and he might not survive.

Then [Baby M] suddenly recovered. His heart rate came up and he started breathing and they could stop CPR. Dr Jayaram said that he saw pink blotches or patches that would appear and disappear on [Baby M]'s skin and then other ones would appear and disappear. He noted them on his abdomen because that was the most obvious bit of his body that you could see because the rest of his body had people covering his chest, doing CPR. He noticed that when he got there during the start of the resuscitation. Once circulation was restored and his heart rate came above 100, they vanished. It was very similar to what he had seen with [Baby A], whose collapse was very similar.

He made no note of having seen it and first mentioned it in his witness statement. He said his priority at the time was dealing with the actual situation, explaining things to parents, working out his post-resuscitation care and he was thinking through things that could be going on. Infection, sepsis, hypovolaemia and pneumothorax were all issues that he addressed in the plan as set out in his notes.

He and colleagues started to say this was something different. The whole consultant body sat down two and a half months later on 29 June 2016. Someone mentioned air embolus and Dr Jayaram was prompted to do a literature search, where he found the paper to which reference has been made. The following morning, he emailed the link to colleagues because that paper described the skin discolouration that he and colleagues had seen. He had never seen anything like it before [Baby A] and has never seen it since [Baby M].

When cross-examined, Dr Jayaram said he told the police about seeing the discolouration when interviewed and remembered it because it was unusual but he had not appreciated the clinical significance of it at the time and that was why he didn't record it in the notes at the time.

He disputed that failure to note it was incompetent and rejected the assertion that he did not note it because it never happened. He was dealing with the clinical situation. In retrospect, the relevance is very clear: at the time there were other things going on, other events going on. These situations are stressful and busy. He denied it was a detail that had not happened and subsequently had been added by him for some reason. He denied that that was the case.

He agreed that shortly after the death of [Baby D] in June 2015, Dr Brearey, the neonatal lead, conducted an informal review of circumstances into the deaths that had occurred and he noticed that Lucy Letby was the nurse looking after these babies. He confirmed that he still worked with Dr Brearey and saw Dr Gibbs intermittently and saw members of staff, but said they did not discuss the case. They did discuss the impact it might be having on them and they supported each other because it was extremely difficult at this time to focus on what they needed to be doing and he said that he avoided media reports.

When interviewed on 5 July 2018, the defendant remembered [Baby M] and the day that he collapsed in some detail. He was the fifth baby in nursery 1, which usually only held four babies. Consequently, he was attached to a portable Masimo monitor and was in the corner of the nursery, which is not a usual place, and Mary Griffith was his designated nurse.

She recalled the monitor going off when she was checking drugs with Mary Griffith. She started an airway for [Baby M] while Mary went for help. She agreed that she had co-signed for medications at 3.30 and 4.45 pm but was not sure if she administered them. She was the first at his cot side when his alarm activated. She denied doing anything to harm [Baby M]. She took over as his designated nurse at the resuscitation as Mary Griffith was not ITU trained. She did not know why he desaturated. She recalled it was a busy day.

In a second interview on 12 June 2019, the following year, she confirmed she was drawing up medications when [Baby M]'s alarm sounded. In relation to the paper towel with the drug administration notes on it, PMB8, found at her home, she thought she must have taken it home inadvertently. She could think of no reason why she kept it but felt it was an error on her part, not emptying her pockets before leaving work and then inadvertently taking the note home.

She said it may have been put to the side and forgotten about and denied that it was to remind her of an attack on [Baby M]. She was shown her diary, NAC10, and agreed that she had recorded "LD", a reference to a long day, and "twins" -- so the entry is "LD and twins" -- on 8/4/16 because she said she attended their delivery. She'd also entered LD extra twin days -- sorry, I'll start that again, I apologise.

She also entered "LD, extra, twin resus" on 9 April 2016, 9/4/16, documenting this, she said, as she had done an extra shift and had documented what happened that day. The resus was a significant event.

In the third interview on 10 November 2020, she was asked about the messages she sent at that time to Mary Griffith and [Nurse E] and the reference to the unit being in a dire way with staff. She said staffing concerns were readily discussed amongst nursing staff and shift leaders.

In her evidence, the defendant said that the delivery of twins stood out in her mind because it was the first delivery she had been to where she was the allocated nurse for a baby by herself. They were very stretched that day in providing for all of the needs of the babies on the unit to make sure they were all cared for and [Baby M] wasn't in a correct space in the nursery.

Potentially, if [Baby M] had been in a proper space and they hadn't been as stretched with staff, maybe things would have been acted on quicker. He wasn't on a correct monitor and was just in a corner space, which wasn't ideal.

She had a direct memory of this event and remembered [Nurse B] and Dr Jayaram at the resuscitation, but said there was no discolouration, anything like that described by Dr Jayaram, and no discolouration was brought to her attention.

The lighting will have been on full, but it was harder for her to assess because she was not used to caring for Asian babies, so the colour change, if any, was difficult for her to see. She did not notice any colour change. Tile 152 was her note.

At 15.30, tile 127, she agreed she started a dextrose bag for [Baby M] with Mary Griffith, and it must have been after that, after 15.45, that the process of making up the 12.5% dextrose started. She denied that it was while Mary Griffith was getting sterile that she sabotaged [Baby M].

When reminded of the evidence of [Mother of Babies L & M] that it was about 10 minutes after she left the boys that a nurse called Yvonne came running up and said she had to go back and took her down in a wheelchair, she could not remember whether [Baby M]'s parents were there.

In relation to the resuscitation notes in the Morrisons bag, she said it was common practice for such notes to be written on pieces of paper and paper towels and they went home with her in her uniform and she could not recall specifically what she did with them.

Tile 171, the blood gas readings, replicated those from the readings from the machine printout which was found under her bed in her home. She said she will have put the blood gas machine printout in her pocket to write the readings up. It was an error on her part that it didn't go in the bin. She denied she had

take it out of the confidential waste bin, she had never done that, it will have gone home with the handover sheet. The notes were not something that she specifically kept or had any use for. She put it under her bed because she collected paper.

She continued to care for the twins quite frequently. She was the designated nurse for [Baby L] on the 16th, 17th, 24th and 25 April, over which time there were no adverse incidents.

[Baby M] was discharged from hospital on 3 May. She didn't want to harm the twins, she said.

I remind you briefly of [Baby M]'s recovery after he had been resuscitated.

[Dr A] came on duty that night and familiarised himself with the events of the afternoon. At 02.55 on 10 April, he carried out a night review of [Baby M]. His note is behind tile 300. [Baby M] was settled and had been all evening. He had no abnormal movements, his heart rate, respiratory rate and blood oxygen concentration in air were all normal. These acceptable observations were leading them towards taking him off the ventilator.

Morphine had been stopped at midnight so that he would have more respiratory effort of his own to allow him to be taken off the ventilator. He was extubated at 03.20 and put on BiPAP. At 06.00 he was moved down a step of respiratory support from BiPAP to CPAP. At 08.00 he was settled on CPAP. There was no respiratory distress and the plan was to review his progress on the ward round.

Samantha O'Brien, then a nurse in the unit, took over from the defendant as [Baby M]'s designated nurse for that night shift. She recalled the defendant describing it as a long resuscitation and told her that they had been just about to stop their efforts when they got a heart rate. She didn't recall being told why [Baby M] had collapsed. To her knowledge, it was never found out. She also confirmed that [Baby M] improved quickly during the night.

Laura Eagles said [Baby M] was in reasonably good health. There were no significant events in relation to [Baby M] on the 10th given the fact that he'd come off the ventilator quite quickly after suffering his collapse.

[Baby M] recovered well from his collapse.

Dr Gibbs first met [Baby M] at 09.35 on 10 April and examined him. His clinical note is behind tile 348. There was no explanation for his cardiorespiratory arrest. He had been

suffering recurrent brief bradycardias. He was on CPAP and breathing normally. There was an increase in carbon dioxide levels and he was a little bit acidotic. His breathing was a bit slow. A full blood count yielded normal results. His abdomen was soft and not tender.

At 10.15, Dr Gibbs was asked by Laura Eagles to look at [Baby M] because his breathing had slowed down and stopped briefly and he had desaturated to 60%. He responded to being Neopuffed. Dr Gibbs said he made a steady recovery but on that morning, the 10th, he still wasn't behaving normally, in that he was quiet and his breathing was slow, which was explicable for a child who had very nearly died the previous afternoon, so it could have been a consequence of that that he wasn't behaving normal and had some breathing difficulties. It could also be partly the consequence of all the medication he had received to be mechanically ventilated for 10 hours or so after the cardiorespiratory arrest. His recovery continued and he was discharged on 3 May, by which time he was feeding well.

Other possible causes of his collapse, namely NEC, an infection or any heart defect, were excluded, and the agreed evidence of Dr Shauq, a consultant cardiologist at Alder Hey, was that X-rays confirmed that a potential issue notice by Dr Brearey of a Eustachian valve was in fact perfectly normal. So it wasn't an issue.

The agreed neurological evidence of Dr Stivaros, the lead consultant neuroradiologist at Royal Manchester Children's Hospital, was that [Baby M]'s MRI scan of his brain on 27 May 2016 at the Countess of Chester showed abnormal appearances of [Baby M]'s brain, which was most likely caused by the cardiorespiratory collapse he suffered on 9 April.

His reading of the clinical history did not identify any other point in time when such neurological injuries are likely or even hypothetically likely to have arisen. The imaging could not determine the underlying cause of the collapse as to which he deferred to clinical opinion.

The damage to [Baby M]'s brain is, sadly, not recoverable, and over time he may well deviate from his peers in regards to attainment and cognitive or motor function.

Professor Arthurs received six separate radiographs, the most relevant being the first dated 9 April at 17.00, tile 192. The other was dated 9 April, the same day, at 19.12, 2 hours and 12 minutes later, tile 238. The radiographs were taken to check the line position. The lungs were clear and the bowel gas pattern was normal and the same comments applied to the second radiograph. So there were no radiographic features of these

images which could either support or refute the suggestion of an intravascular air embolus. Simply, they neither support or refute an air embolus, so there is no radiographic evidence to help you.

Dr Evans, on all the evidence, concluded that [Baby M] was a preterm baby, born in good condition and, prior to his collapse, there were no concerns regarding his clinical stability. The only concern was that his feeds, his oral feeds, were discontinued at 15.00 hours because of a bilious aspirate. There was no change in heart rate or respiratory rate, so the collapse was completely unexpected and quite precipitous, so Dr Evans did not think his collapse was in any way the result of the fact that there were a couple of millilitres of aspirate from the feed, especially as oral feeds had been stopped anyway so his stomach was empty.

He was surprised that [Baby M] did recover following a very, very robust resuscitation. This begged the question whether [Baby M] received some noxious substance prior to his arrest or whether he received a bolus of air intravenously via his long line.

His collapse could not be explained on the basis of pneumonia or any other infection. He was able to breathe within 4 hours of his collapse. If the collapse was due to pneumonia or other lung problem, such as aspiration or infection anywhere else, he would not have expected him to make such a prompt respiratory recovery. He was breathing well before the collapse and he was breathing well within a reasonable time after the collapse. He did have a few problems the following morning that were not as serious and not unexpected given his experience of nearly dying.

His other concern about him was that his collapse had caused some neurological damage, some brain damage, which is why the staff noticed stiffened posture in the limbs. His fingers and toes curled and his feet and hands inwardly rotated, which are the features to be expected in babies who have experienced lack of oxygen to the brain.

His opinion at the time was that his collapse was a consequence of some substance or air getting into his circulatory system; in other words, he received air intravenously. He explained air in a syringe injected into the bit of tubing between the bung and the end of the cannula going into the baby's vein, what he called the dead space, would then be pushed down by the fluid that was being pumped at whatever rate the pump was set to administer the fluid and enter the blood circulation some time later and cause a collapse at a later time.

So taking everything into account, including the descriptions from Dr Jayaram about what he saw and from the nurses about the circumstances immediately surrounding the collapse, in his opinion [Baby M]'s collapse was an air embolus, air having been administered to him some time before 16.02.

He excluded infection of any type as a reasonable counter-explanation, there being no evidence of infection and the blood tests that look for infection before and after his collapse all being normal. The difficulties in the 24 hours or so following his collapse were the result of oxygen deprivation to his brain and the complications arising from his hypoxic event, a lack of oxygen to the brain.

It was put to Dr Evans in cross-examination that air in the circulation will not dissipate within 30 minutes. He accepted that there was no empirical or research basis for the way air dissipates in blood after an air embolus has caused a cardiac arrest because you cannot carry out such research evidence and he explained it on the basis of physiology. The air gets into the baby's circulation, into the right side of the heart and into the lung. Cardiac massage will dissipate the bubbles of air in the lung, which will be absorbed there because it is a small volume of air.

He referred to the difference between the effects of air embolus in a baby and an older child or adult because of the baby's foramen ovale and air getting from the right side of the heart into the left side of the heart, then wherever it goes after that depends on a number of factors, but it will dissipate.

If it gets into the blood vessels supplying the abdomen, you'll get discolouration. If it gets into the blood vessels supplying the brain, you could find air in the cerebral blood vessels and you could also get neurological abnormalities. He agreed that in cases of air embolus, most do not survive. Whether you survive or not depends to some extent on how much air goes in and also the rate at which the air goes in, so therefore where you have catastrophic air embolus in cases that have been written up in the papers, the bolus of air is so large that the baby collapses and recovery is impossible.

Very little air is required to cause a collapse. He also agreed that the volume of the dead space between the bung and the end of the cannula would be a volume of about 0.32 of a millilitre.

Dr Sandie Bohin also concluded that [Baby M] was a premature infant who was stable and well immediately prior to his collapse. There was some early jaundice for which he was receiving phototherapy treatment, but there was nothing to suspect any medical problem was imminent.

The team had started intravenous antibiotics as a precaution because of the early jaundice, but actually there were no biochemical markers of infection, either then or later. She had to find some way to explain that a baby who was previously well had suddenly collapsed, had a very prolonged cardiorespiratory arrest from which he almost did not recover, and then, within a short space of time, appeared relatively stable again. She could think of no other things that could cause that other than an air embolus. The changes in skin discolouration by Dr Jayaram were compatible with an air embolus.

She explained there were three possible ways in which [Baby M] could have had air administered. Firstly, it could have been through the yellow self-sealing rubber bung that was the kind of T-piece used at the time with a needle and syringe.

The second was if a three-way tap was in situ through one of the bungs or with a syringe through the spare portal. If no three-way tap was in place, which she thought was unusual because [Baby M] was on antibiotics, then it would be used for administering antibiotics. Air could have been injected using a syringe directly into the T-piece once the IV fluids had been disconnected.

So at the time of administering antibiotics, if there wasn't a T-piece, you would have to undo the IV fluids and then give the antibiotics by attaching a syringe at that end so that antibiotics, other fluids or air could be administered in that way.

The actual volume of air that causes a baby to collapse and die is unknown but if a large volume of air was injected by whichever means, that would immediately cause some sort of air lock in the heart and the baby would have a cardiac arrest and die and would not be able to recover. If the amount of air injected was of a smaller volume and was not injected as in big a push but was in the dead space and then all of this was filled with air, which is a small volume, but the fluids were then reconnected, then that would take some minutes to get to the baby because [Baby M] was only on a very slow infusion rate of 5.5 or 5.3ml an hour of fluids, which is 0.8ml per minute. So if air was in these pieces of equipment it would take some minutes to actually get into the patient and to the heart to cause the collapse. But because the volume was not sufficient to cause the air lock and cardiac arrest, it didn't cause a sudden death. It did cause an arrest from which he was resuscitated.

Under cross-examination, Dr Bohin too accepted that most babies die from air embolus but said it was not inevitable. She denied that she had simply looked for some explanation and reached for

air embolus. She had looked for a differential diagnosis of possible causes and then either confirmed or excluded them. She couldn't think of a medical cause that was unascertained. She accepted there has to be consideration of the possibility of a medical cause that has not been identified, but looking at the entire history, as she did, nothing else came out of the history or his clinical presentation which would lead her to think that there was an underlying cause which, up until the point of his collapse, had not been discovered, not then, not since. Precipitous cardiac arrest in well babies is incredibly unusual.

She settled on air embolus principally because of the unexpected nature of rapid collapse and then recovery in a baby that was previously well and the findings of Dr Jayaram with the skin changes.

In relation to infusion through the T-piece, she explained that when a bolus of antibiotic or adrenaline is given, it will be flushed through with a few millilitres of saline, which will infuse the medication more quickly into the bloodstream.

That completes my review of that count, the attempted murder of [Baby M].

[Baby N], counts 17, 18 and 19, three further allegations of attempted murder, the dates being on 3 June and two events on 15 June.

[Baby N] was born at 13.42 on 2 June 2016 by planned caesarean section at 33 weeks' gestation. He weighed 3 pounds 11 ounces, 1.67 kilograms. His mother, [Mother of Baby N], is haemophiliac. In due course, blood tests confirmed [Baby N] was haemophiliac as well, but as I shall remind you, that had no relevance to the events relating to the counts in this case. His Apgar scores were recorded as 9 at 1 and 5 minutes respectively. He was admitted to the unit at 14.00 hours.

The prosecution case is that, when in the unit, [Baby N] suffered three unexpected and unusual collapses -- one in the early hours of 3 June, the day after he was born, which is the subject of count 17, and two episodes 12 days later on 15 June, counts 18 and 19 -- that are all attributable, allege the prosecution, by inflicted trauma by the defendant who was working on the unit at the time and were acts carried out with the intention of killing [Baby N]. In other words, they say, attempting to murder him.

The defence case is that the defendant committed no harmful act, there are inconsistencies in the various accounts, and there are explanations for the physical findings other than the conclusions reached by the expert witnesses on behalf of the

prosecution and so you cannot be sure that the defendant attempted to murder [Baby N].

Before I remind you of the profound desaturation at shortly after 01.00 on 3 June, count 17, I summarise [Baby N]'s history in the unit up to that point. The relevant observations on his administration to the unit at 14.00 on 2 June are behind tile 9. Caroline Oakley was his designated nurse on the day shift. Her nursing note is behind tile 10. His colour was pink and his readings were normal. Dr Bhowmik, the registrar, confirmed the initial observations were satisfactory.

Behind tile 15 are the clinical notes of Dr Ukoh written at 14.50 that afternoon, setting out the antenatal and birth history and [Baby N]'s transfer to the unit and his observations on examination at that time, 14.50.

He had some intermittent grunting, increased work of breathing, cool peripheries and some transmitted upper airway sounds, which are not unusual in babies born by caesarean section due to excess fluid on the lungs. The practice is to observe for 4 hours to see if these symptoms settle down before considering a sepsis screening. At 15.10, tile 19, it was recorded on the apnoea bradycardia fit chart that:

"Crying, dropped sats. 60% oxygen via Neopuff."

Ultimately, that desaturation went down to 67 and lasted for a minute, as recorded by Caroline Oakley.

At tile 20 are some nursing notes made by Caroline Oakley at 15.30, which record:

"Transferred to hot cot at 28.5 degrees. Dressed and nursed supine. Allowed to rest. Sounds very mucousy. Grunting intermittently. Saturations 93% to 100% in air. Temperature 36.4 when checked at 15.00. Hot cot increased to 39 [the maximum temperature]. Dropped saturations to 67% when upset. Temperature beginning to recover. Orogastic tube passed and donor-expressed breast milk, 9ml two-hourly, commenced. Reviewed by Dr Ukoh. Awaiting blood results before giving vitamin K."

That's the note.

Caroline Oakley said she had no recollection of events apart from what was written in her notes. There is nothing to suggest that the OGT, the orogastric tube, had been changed or physically once she originally inserted it. There is no indication to suggest that there were any difficulties with placement of the tube.

Count 17. The staff on duty and their allocation that evening, 2/3 June, are to be found behind tiles 52 and 53. Melanie Taylor was the shift leader. [Baby N] was in room 1 and his designated nurse was Christopher Booth. The defendant and Sophie Ellis were also on duty. The defendant was the designated nurse for two babies in nursery 4.

From tile 68 onwards the defendant engaged in Facebook messaging with [Nurse E], telling her they had a baby with haemophilia and that it was a complex condition. In her evidence, the defendant said that everyone was quite panicked about having a baby with haemophilia. She was asked about feeding her baby AF in nursery 4 at 20.30, reference J30921, which is AF's feeding chart, using two hands when she was at that time messaging [Nurse E] constantly from 20.00 hours, those messages being tiles 90 to 130, an exchange that referred to her being asked for advice for Mel Taylor and her use of the acronym FFS and a message from [Dr A], which involved a suggestion relating to "go commando", which she said she didn't know what that meant, and laughing emojis. She said the feed must have happened at a different time and refuted the suggestion that she had used one hand to push the feed through using a plunger on the end of the syringe.

Dr Jennifer Loughnane, then a registrar, now a consultant paediatrician, carried out a night review at 22.55. Tile 161 covers her notes on which she was reliant when giving evidence, having no direct recollection of events. [Baby N] was self-ventilating in air, had a respiration rate of 60, his sats were good and he was not needing any respiratory support. There was no grunting and zero distress. He had a normal heart rate of 140 beats per minute and his CRP was less than 1.

The notes also made reference to the test for haemophilia and delaying the administration of the vitamin K injection. He was pink and well perfused. Consideration was to be given to starting enteral feeds.

Christopher Booth, [Baby N]'s designated nurse, went for his break at about 01.00. He had no concerns at all for [Baby N] and handed the care over to another nurse, but he did not remember who this was.

Melanie Taylor, Sophie Ellis and Nursery Nurse Valerie Thomas did not have any recollection of the collapse of [Baby N], nor did they know who was caring for him whilst Christopher Booth was on his break. The defendant was the only other nurse on duty that shift.

Tile 173 documents Dr Loughnane entering the unit from the labour ward shortly before seeing [Baby N] at 01.10. She was asked to see him and was told, she couldn't remember by whom,

that he had got upset, he looked mottled and dusky and his sats had dropped to 40%, so they put him on 100% oxygen.

On her arrival, she noted he was in 40% oxygen and was screaming. He had sternal recession, a mark of increased work of breathing. The trace wasn't picking up very well on the sats probe, but he looked pink, so it sounded like he was recovering. A desaturation to 40% was quite a significant desaturation. A lot of babies will have the odd desat, she said, usually into the 80s and stuff. She couldn't recall how the 40% of oxygen was being delivered. It was probably in the incubator.

Because screaming is not a word she wrote often in notes, she usually wrote unsettled or crying, she suspected he was particularly upset, but she now had no direct recollection. They tried to settle him. Then Dr Loughnane was crash bleeped to the maternity ward at 01.20. She said she wouldn't have left if his oxygen saturation was 40%.

On her return at some time prior to 02.00, [Baby N] was self-ventilating in air, his sats were back to 100% and he was asleep. His work of breathing had improved. He was settled again and looked to be back to how he was previously.

Behind tile 179 are a set of capillary blood readings at 02.04. Compared to the earlier 17.15 readings, on the whole the gas was better. The only concern would be that the lactate had gone up, but that may be a consequence of it being a capillary sample, which can sometimes be higher because they are squeezing when they take the sample.

When Christopher Booth returned from his break, he was surprised to learn that [Baby N] had become very unsettled, had been crying and fractious and suffered a profound desaturation. By the time he returned and when he returned, [Baby N] had calmed down and his oxygen levels had recovered and he remained stable for the rest of the shift.

His nursing note behind tile 1272 was in these terms:

"One episode whilst I was on my break whereby infant [Surname of Baby N] was crying ++ and not settling. He became dusky in colour, desaturating to 40s, responded to facial oxygen within 1 to 2 minutes. Crying subsided within approximately 30 minutes and colour returned to normal. Pink. Dr Loughnane aware of this episode. No further episodes observed."

His update at tile 191, timed at 06.13, recorded that there had been no further episodes, oxygen saturations had been consistently mid-90s to 100% since, he was self-ventilating in air, his respiratory rate had been approximately 50 to 70,

minimal recession evident, only in view of earlier episode he remained nil by mouth on a 10% dextrose infusion via a peripheral cannula.

The prosecution case is that the defendant sabotaged [Baby N] in some way that caused this collapse. The defendant said to you that she had no memory of this event and did not know there had been an incident with [Baby N]. She agreed he'd been in good shape at the start of the shift and didn't believe it was a collapse that required resuscitation. She referred to tile 175, which timed her entering the unit at 01.15. She denied she used the absence of Christopher Booth from the nursery on his break to sabotage [Baby N].

Dr Bhowmik saw [Baby N] on the ward round at 11 am that morning, 3 June. Her note is behind tile 231. In summary, [Baby N] had been screened for sepsis the previous day due to persistence of the intermittent grunting and was now on antibiotics with a differential diagnosis of either TTN or possible sepsis. He had also been nil by mouth and was on intravenous fluids in view of his respiratory distress to prevent choking or aspiration.

On the ward round he was breathing without any support in room air and had oxygen saturations of 100%. His blood gas in the morning was satisfactory.

On examination, he had mild sternal recession, a common sign of increased work of breathing in newborn babies, especially those born prematurely, and a respiratory rate of 60 per minute with no nasal flaring or grunting. The rest of his examination was unremarkable: he was pink, well perfused with normal heart sounds and femoral pulses, normal abdominal exam, normal anterior fontanelle and no bruising. He was put on enteral feeds. He was receiving phototherapy now for the jaundice.

Christopher Booth was also [Baby N]'s designated nurse for the following night of 3/4 June. Behind tile 276, his note timed at 03.01 on 4 June recorded no significant desaturations, bradycardias or apnoeic episodes overnight. The two-hourly enteral feeds had been increased to 8ml donor-expressed breast milk and had been well tolerated. His IV fluids were reduced accordingly.

Nothing untoward ensued then until Wednesday, 15 June, when there were two events that give rise to counts 18 and 19.

The defendant said at that time she owned a house, had hobbies and had an active life. She referred to messaging on the 13th about going away on holiday with [Nurse E] and another which started on 16 June for a week. She worked shifts on the 8th to the 10th, the 11th and the 13th to 15 June.

[Baby N]'s designated nurse over the shift of 13/14th was Abigail Jeffels. Her nursing note is behind tile 8 in the second sequence of events for [Baby N]. He was stable and feeding on demand from a bottle. His weekly bloods had been sent off for analysis.

At the nursing shift handover to the day shift on 14 June, in other words at the end of the night shift, the defendant became [Baby N]'s designated nurse. Jennifer Jones-Key took over as his designated nurse the following night shift of the 14th to the 15th. There were no concerns as to his condition at that point.

Jennifer Jones-Key made notes towards the end of the shift on the 15th between 05.51 and 06.02. They record that he was taking his bottles well in his incubator, but was very unsettled in the early part of the night, which was up to midnight. He took 60ml of feed at 21.00. She noted:

"Just after the 01.00 feed he looked very pale, mottled and slightly veiny. His abdomen looked slightly bigger."

Belinda Simcock advised he be put on a saturation monitor.

He was reviewed by [Dr A]. Behind tile 80 is [Dr A]'s note. [Baby N] was settled. There was mottling to the torso and limbs, which could be signs of sepsis. Otherwise, his observations were normal. Capillary blood gas tests were undertaken and his lactate and blood sugar levels were slightly elevated.

[Dr A] directed observations be kept over the next 2 hours.

Tile 84 -- I should say, this is in the second sequence of events, there are three sequences of events for the allegations as far as [Baby N] is concerned. Tile 84 recorded that when he saw him at 03.45 [Baby N] had had five desaturations while on the monitor, his mottling had resolved, and all his observations were normal. There was a slight rise in his base excess, further blood tests were ordered.

There was a third review at 05.15. There was a prolonged capillary refill time of 3 seconds, which was a non-specific sign that suggested the blood flow to the skin was being directed elsewhere. His oral feeds were stopped and he was put on an infusion of intravenous glucose and given antibiotics. He was also given a saline bolus to improve circulation. The defence say that these were signs of his condition deteriorating.

Nurse Kathryn Percival-Calderbank had been the shift leader for that night of the 14th/15th. She said [Baby N] had been fairly

settled after the last review. The observations up to 07.00 were normal; J19314 behind tile 133.

At around 07.15 on the 15th [Baby N] had another desaturation, the event now the subject of count 18. The prosecution allege that just before handover, at 8 o'clock, the defendant did something to destabilise [Baby N].

There is messaging to which you can refer between the defendant and other nurses during the shift. Jennifer Jones-Key was at the computer at the desk opposite the nurseries. The defendant had arrived earlier and had gone into the room where [Baby N] was because, she said, as she had had him the previous day, in order to see how he was and had been allocated him again for that day shift.

Jennifer Jones-Key became aware that assistance was needed in that room. [Baby N] had had a profound desaturation to 48%, which was sufficient to affect his heart rate, which dropped to 80. Her nursing notes of this event are behind tile 141.

Tile 143 fronts [Dr A]'s note, which was written at 08.00. He said he was asked to see [Baby N]. He swiped into the unit at 07.16, tile 142. [Baby N]'s saturations had been 100% at 01.00, 05.00 and 07.00, being in 25% in oxygen at 05.00 and 07.00. He was being bagged using a Neopuff circuit. His mottled appearance had reduced. [Dr A] decided to move him to nursery 1 and continued to monitor his saturations.

The nursing shift was changing. In nursery 1 he attempted to intubate [Baby N] using a laryngoscope. He saw blood in the oropharynx at the back of the throat that prevented him from seeing the entry to his airway. He believed he visualised it on his first attempt to intubate but was not sure. The back of [Baby N]'s throat looked unusual. There was a degree of swelling. He couldn't discern where the blood was coming from. Not having had to perform this procedure on [Baby N] before, he wasn't sure whether this was long-standing or new. He made three unsuccessful attempts to intubate him, not being able to visualise the tracheal inlet, and suction did not clear the view enough to allow him to intubate and he didn't want to cause any mechanical trauma.

He didn't believe that he applied cricoid pressure and couldn't see a bleeding source. He remembered the defendant was helping with the attempted intubation.

[Dr A] then commenced [Baby N] on BiPAP and a further bolus of sodium chloride to help boost the circulating volume of his blood was prescribed. A chest X-ray he requested confirmed that

there was no pulmonary haemorrhage. He remained in contact with his colleagues and the defendant about [Baby N].

Moving on in time, tile 461 relates to 22.22 hours that night of 15 June when he sent an update to the defendant about [Baby N]'s condition and then another at 01.03 on 17 June 2016 when he sent a further medical update, which is behind tile 498. It referred to [Baby N]'s good progress in the intensive care unit at Alder Hey, which is where he was sent after a further event on the afternoon of the 15th, who were unsure, that's they at Alder Hey were unsure, how he became unwell. His blood cultures were good, which indicated the microbiology did not suggest infection, and they were optimistic that [Baby N] would be okay.

All right. I'll break off at that point and we'll resume again at 2 o'clock, please.

(1.00 pm)

(The short adjournment)

(2.00 pm)

MR JUSTICE GOSS: In her first police interview on 10 June 2019, the defendant remembered [Baby N] had an airway issue that was very unusual and they had to get a team from Alder Hey to come over. She couldn't remember any issue before that. He was a really difficult baby to intubate. She was his designated nurse in nursery 1.

She was asked about the intensive care charts behind tiles 172 and 238 in sequence 2 and the references to blood. She said that if the NG tube had been inserted forcefully, it can cause a bit of trauma going down that can result in a small amount of blood, about 1ml. She did remember [Baby N] bleeding when they were having difficulties with the airway, but agreed that the notes indicated that he did have blood before intubation, but she wasn't sure why.

In the second interview, which was 2 days later, both of these were in June 2019, she said she often arrived on the unit before 7.30 to be ready to start a shift at that time. On 15 June 2016 she said she went into nursery 3 to talk to Jen, which was something she regularly did.

In her evidence the defendant confirmed that she looked after [Baby N] on 14 June during the day, handing over to Jennifer Jones-Key. She didn't recall any concerns. She referred to tile 31 in which she noted that once phototherapy was completed he was ready for home. She also referred to the note of Jennifer Jones-Key relating to [Baby N] being very pale and having a

slightly veiny and mottled abdomen at just after 01.00, that's on the 15th, and the subsequent entries. His condition, she said, deteriorated during that shift.

When cross-examined she agreed that, as far as the charts were concerned, there was nothing suggestive of a problem, his observations were normal.

She swiped in through different doors to the unit at 7.10 and 7.12 prior to the morning shift on the 15th. That's tiles 136 and 137.

She recalled going to nursery 3 to talk to Jennifer Jones-Key, who was a close friend, who was in the room with another baby, not [Baby N]. She was stood at the doorway. It happened within minutes: [Baby N]'s monitor went off, she went over to him from the doorway where she was, he was in the cot space on the right-hand side, he was bluish and not breathing properly. She Neopuffed him, Jennifer came over, [Dr A] was on the unit straightaway, Kate Percival-Ward was around.

[Baby N] recovered, then the same thing happened again: there was a similar episode and he became very mottled.

The decision was made by [Dr A] to transfer him to nursery 2. She did not remember the reinsertion or re-passing of the NG tube. In nursery 1 he was not recovering, so [Dr A] decided he needed to be intubated. She started to get the equipment ready and her and Bernadette Butterworth started getting the drugs ready and they were administered at 8.06.

She recalled blood being seen and said her nursing note behind tile 233 read to her that blood was observed once intubation had been attempted. She referred to entries on the care chart behind tile 173 in relation to some blood and on her own nursing note behind tile 233 and other charts.

In her note in the family communications section of J19233 behind tile 233, which she started at 14.12, she wrote the parents were contacted, both phones were switched off and a message was left.

In cross-examination she was referred to her nursing note behind tile 151, written at 13.53, which made no reference to the event at 07.15. She agreed she had written out the events of her arrival in nursery 3 because, she said, she had taken over care from 07.30. She was asked about her note written at 13.53, which recorded:

"Fresh blood noted in mouth and yielded by suction ++."

And agreed that the suction would have been done by the doctors during intubation. The first time she definitely remembered seeing blood was prior to the I-Gel insertion, which was at 15.00, which was after the event that's the subject of the next count, count 19.

[Father of Baby N]'s, [Baby N]'s father, evidence was read, that he was at work and received a phone call from [Baby N]'s nurse, Lucy. Lucy said that, "[Baby N] had been a bit unwell in the night but is okay now". The defendant said she did not make such a call. This was the occasion to which I referred in my set of legal directions of evidence being read as agreed, where you don't have to resolve the issue. But here, in relation to this, it was not something that should have been agreed evidence, so she was saying something different, and so you have to decide who is telling the truth and who is reliable about this particular piece of evidence if you think it assists you in reaching your verdict on count 18.

In the third police interview on 10 November 2020, she had said she could not recall telephoning [Baby N]'s father on 14 June or telling him that [Baby N] was okay, it was a coincidence that [Baby N] became unwell that morning the moment when his parents left him to get food between 11 and 12.

A further episode of desaturation occurred at around 14.50 hours, after [Baby N]'s parents had left the unit that afternoon, which is charged as count 19, to which I now turn.

Dr Huw Mayberry was crash bleeped to attend. His clinical note is behind tile 245. He was told there had been a sudden deterioration after 3ml of blood had been aspirated from [Baby N]'s NG tube. His sats had dropped to 44%. On his arrival, he opened the airway and proceeded to bag [Baby N] to ventilate him. He was aware that [Dr A] had tried unsuccessfully to intubate him. He bleeped Dr Saladi and then attempted to intubate him. He could see the vocal cords, but was unable to get a clear view because there was a substantial swelling in the airway. It was unlike anything he had encountered previously. He didn't recall seeing any blood.

Dr Saladi's note said:

"Desaturated this afternoon at 2.50 pm with blood in the oropharynx and blood in the nasogastric tube. Improved with bagging, elective intubation planned, following pre-medication. Unsuccessful attempt with two registrars and two consultants."

Dr Brearey also then attempted to intubate [Baby N] without success. Advice was sought from the North-west Transport Service and the ENT team at Alder Hey for managing the difficult airway.

In due course [Baby N] was successfully intubated by Dr Frank Potter at his first attempt at 19.53, assisted by Dr Benjamin Lakin, having deteriorated significantly shortly before they arrived early that evening. Once placed on a ventilator and given medication he started to improve and was stabilised sufficiently to be transferred to Alder Hey intensive care unit that night, leaving the Countess of Chester at 23.20.

He had remained on the adrenaline infusion following the episode of effective cardiac arrest at Chester, which was fairly quickly decreased. He needed ventilation, but not in very much oxygen and not very high pressures over the course of that night and, he thought, the following day.

After 2 days in the intensive care unit he went to the high dependency unit and he continued to have episodes of apnoea but they were less frequent and altogether less troublesome. Further investigation was carried out when he was readmitted to Alder Hey later and no abnormalities were found.

The defendant's addendum nursing note written at 18.30, behind tile 233, records:

"Infant has had periods of apnoea during the morning requiring stimulation and increasing oxygen/PEEP. Improving by afternoon. Observations stable. Remains cool, so incubator temperature increased. Approximately 14.50, infant became apnoeic with saturation to 44%, heart rate 90BPM. Fresh blood noted from mouth and 3ml blood aspirated from NG tube. Neopuff commenced and doctors crash called. Events documented in medical notes. Unable to obtain secure airway."

In her evidence the defendant said that after the aspiration of 3ml of blood at approximately 14.50 she had some memory but not a great deal. The atmosphere was becoming increasingly chaotic, there was a sense of panic around the unit. About 10 or 15 people came. Once the ETT could not be inserted, it was decided the team from Alder Hey would come. She said there was no factor VIII left so some was brought from Alder Hey.

She referred to her note behind tile 233 that at 19.40, which was before the intubation, [Baby N] was stiff and his back was arching. She said he was the focus of attention of the whole unit at that time, they were all very worried about him. She was stressed and anxious because she had never experienced that before and if they couldn't get an airway, he would have to undergo surgery.

[Baby N] was reviewed regularly on nine occasions by Dr Saladi over the period up to 19 November. Apart from treatment for his

haemophilia there were no major issues regarding his physical or cognitive development.

I remind you of the relevant evidence of Professor Kinsey, an expert in paediatric haematology, who you'll recall gave evidence in the cases of [Baby A] and [Baby B].

Haemophilia is due to a reduction in a blood coagulation factor called factor VIII. The coagulation system is there to prevent us from bleeding catastrophically following injury. It's quite a rare bleeding disorder and falls into three ranges, severe moderate and mild. [Baby N] fell into the moderate range, which made him more likely to bleed and more sensitive to trauma than a non-haemophiliac and to have a need to be given factor VIII to help manage an injury causing bleeding on a "when it's required" basis rather than on a regular basis.

Being in the moderate range and in hospital and being closely watched meant there was no requirement for him to continue to be given factor VIII. No intracranial bleeding was identified on cranial ultrasound and MRI scans. Professor Kinsey did not identify any issue relating to [Baby N]'s blood that, on the evidence, had any impact on his collapse on 3 June, nor did she see anything in the time between the 3rd and 15 June which was caused by a potential issue with [Baby N]'s blood.

In relation to the events at about 07.15 of 15 June and the succeeding 3 hours or so, she said that a spontaneous bleed could not be explained by [Baby N]'s haemophilia because a baby of that range would not be in a position to damage themselves in the throat and with his level of haemophilia he would just not have a spontaneous bleed.

Any instrumentation potentially could cause bleeding. A pulmonary haemorrhage, which is a very serious condition in which the lungs bleed and fill up with blood and the baby becomes very compromised, was not a viable explanation for what the treating medics saw in [Baby N]. He had been well and suddenly became unwell and recovered very promptly.

The defence don't suggest this was a careful spontaneous bleeding or a pulmonary embolism. The issues in this case are when and how the bleeding that was seen by the witnesses was caused.

In relation to [Baby N] there were no radiographic images that could illuminate the issues relating to the first events in the early hours of the morning of 3 June. The images on 15 June, tiles 176 and 421, do not assist either. So radiographically, there is nothing to assist.

[Baby N] was the 29th case that Dr Evans was asked to look at. He noted his history, the events of the 3rd and 15th, and his recovery. The event of 3 June was a very sudden desaturation with a very quick improvement. Screaming was an incredibly unusual description and continuing to cry for half an hour was very unusual. It struck him that something had been done to the baby to cause him to scream. He frankly accepted that this was something he overlooked when he prepared his initial sift report. It struck him that something must have been done to him. He was not suggesting he had an air embolus: this was a sudden collapse and an equally remarkable quick recovery.

In relation to 15 June, although [Baby N] had signs of sickening for infection, the results in succeeding days did not disclose any evidence of infection. Dr Evans' opinion was that, on the assumption that the blood was there before the laryngoscope went in, the bleeding was a consequence of trauma. He thought the most likely cause was inflicted trauma to the mouth or pharynx.

Dr Bohin described the event of 3 June as a life-threatening desaturation. It was very, very unusual for a baby to cry for 30 minutes. She had never experienced a neonate crying for this long and never heard a neonate scream. He must have been in pain. There was nothing to account for a prolonged episode of distress. It could only be secondary to inflicted painful stimulus. She could go no further than that.

In relation to the events of 15 June, [Baby N] was bleeding. It was not a pulmonary haemorrhage or bleeding from the stomach. She couldn't identify any natural cause and thought there was some inflicted trauma to the oropharynx area that caused some bleeding.

In relation to 15 June, although he had signs of sickening for infection, the results in succeeding days did not disclose any evidence of infection.

I turn then to [Baby O] and [Baby P], counts 20 and 21.

On Tuesday, 21 June 2016, [Mother of Babies O, P & R] gave birth to identical triplet boys. She and her partner, [Father of Babies O, P & R], knew when she was 12 weeks pregnant that she had conceived identical triplets. She had routine steroid injections at 23 weeks, she went into labour at 33 weeks and 2 days' gestation, and the boys were born by C-section.

[Baby P] was the first born and [Baby O] was the second born at 14.24. I shall refer to each of the boys by their first names. [Baby O] died 2 days after he was born and [Baby P] died the following day.

[Baby O] was born in good condition and his Apgar scores were good. He weighed 4 pounds 7 ounces, described by [Dr D], the doctor assigned to him at birth, as "quite a good weight". He cried immediately. He was admitted to the unit at 14.45. Behind tiles 5 to 9 are the records of [Baby O]'s condition.

From 17.03 on that day to 13.00 the following day, there was nothing remarkable in his condition. At that time the defendant was on holiday in Ibiza. She was abroad from the 16th to 22 June.

Facebook messages were exchanged between the defendant and [Dr A]. There were also messages passing between the defendant and Jennifer Jones-Key. In the messaging the defendant said she did not mind being busy and enquired about the triplets. She also said she felt most at home with ITU, intensive care, and the girls knew she was happy to be in nursery 1.

I remind you that in your first bundle in section 7, you have the cross-references of the [Baby O] and [Baby P] sequence of events tiles, in other words where they are duplicated you can see where they are in those.

Samantha O'Brien was [Baby O]'s designated nurse on the day shift of 21 June, the day the triplets were born. Behind tiles 48 and 49 is her note made at 18.29 at the end of the shift. As I've said, nothing remarkable.

Amy Davies, a neonatal practitioner, was the designated nurse for both [Baby P] and [Baby O] on the night shift of the 21st to 22 June. She was not advised of any concerns at handover. Both were on CPAP. She had no concerns about them during the shift, nor did Caroline Oakley, who was shift leader that night, and said they were "fine and stable".

[Baby O] was moved from nursery 1 to nursery 2 on the day shift of 22 June. Caroline Oakley was also shift leader the following night, of the 22nd to 23rd, and Sophie Ellis was [Baby O] and [Baby P]'s designated nurse. Both were in nursery 2, both the boys.

[Baby O] had had a good day shift, going down from CPAP to Optiflow and starting on some enteral feeds, stopped his antibiotics and his blood results were okay; tile 89.

Tile 55 is the observation chart. His observations and saturations were very good and he was very stable. Behind tile 85 are Sophie Ellis' nursing notes for the shift. He was receiving TPN through a cannula and enteral feeds via an NGT. He was tolerating them well. She was just obtaining partly digested milk aspirates, which was under half of the feed volume four-

hourly, which was reassuring. Sophie Ellis said she would have noted if it was a concerning aspirate. The relevant fluid chart is behind tile 53.

Vicky Blamire gave [Baby O] his feed at 07.00. On the note behind tile 105 Sophie Ellis recorded:

"Abdo looks full, slightly loopy, appeared uncomfortable after feed. Registrar Mayberry reviewed. Abdo soft. Does not appear in any discomfort on examination. Has had bowels open. To continue to feed but monitor."

Dr Mayberry confirmed that he examined [Baby O], remembering him as a triplet, and said he was a child who was well in themselves. His abdomen was mildly distended but when palpated, as recorded in the nursing note, was entirely soft. He had no concerns.

Sophie Ellis said [Baby O] had had a very stable night. He had got up to full feeds, had a positive blood gas and his antibiotics were stopped. All positive things.

His full abdomen at just after 7.30 was noticed and reviewed and there was no imminent concern from that so they continued as they were.

In relation to the suggestion he was being overfed, she was referred to the feeding chart behind tile 167 and the entries that followed in the ensuing day shift's feeds and the reference to trace aspirates, which mean a very small amount of aspirates, at the 8.30, 10.30, and 12.30 feeds, which showed he was tolerating his milk feeds well.

Dr Mayberry was asked about and discounted free blood in the peritoneum and said there was nothing to indicate that [Baby O] was in discomfort from any injury at that point in time. Sophie Ellis' note was consistent with [Baby O] not being unwell.

The defendant accepted that [Baby O] was fine during the shift of 22 June and the ensuing night shift into 23 June. Melanie Taylor was the day shift leader on that day shift on 23 June. The defendant was the designated nurse for [Baby O] and [Baby P], who were in nursery 2 with their brother, [Baby R]. She was also the designated nurse for another baby in nursery 2 and was the only nurse in nursery 2. She had said in police interviews that she remembered [Baby O] and [Baby P] and had been their designated nurse in nursery 2.

In her evidence she said they were high dependency babies and the nurse ratio was meant to be 1 to 2. She also pointed out

that in nursery 1 there were two nurses for four babies when the intensive care ratio was meant to be 1 to 1.

However, in cross-examination she confirmed she wasn't suggesting that staffing levels or medical or nursing staff caused or contributed to [Baby O]'s collapse and that he was not a high dependency baby. It was her first day back after her holiday. She had a student with her on that day, Rebecca, referred to as Becky, Morgan, who was on the first day of her placement at the hospital. The defendant was her allocated mentor and said she had to take her on an induction process, explain procedures and show her round the unit and that she would be in close proximity to her most of the time but it was not fully direct supervision.

She was at a point, that's Becky Morgan, that she could conduct NG tube feeds. Becky Morgan confirmed it was her handwriting in the columns which bore her initials, RM, on the various charts and in other columns, those charts being the feeding and observation charts behind tiles 94 and 99.

Melanie Taylor confirmed there were no concerns at the beginning of the shift. She didn't recall any particular issues at that time.

Dr Katarzyna Cooke, who trained in Poland as the equivalent of a registrar and was then working at the Countess of Chester as an SHO, conducted a ward round at 09.30 on 23 June. Her note made at the time is behind tile 121.

There were no nursing concerns and [Baby O]'s observations were normal. Everything was reassuring -- this is at 09.30: the abdomen appeared full but not distended, was soft, non-tender, there were active bowel sounds and no masses. Everything was as it should be. She had no clinical concerns and he was making good progress.

In her evidence the defendant accepted Dr Cooke's evidence that an abdominal issue could be excluded and that there was not any haematoma on the liver at this time, so the injury to the liver must have been inflicted some time after that during the shift.

The result of the blood culture taken on 21 June came back negative after 5 days, indicating there was no infection.

Melanie Taylor said there was nothing of concern in the readings on the fluid balance chart behind tile 115. She recalled going into nursery 2 about an hour or two before [Baby O]'s collapse and feeling that [Baby O] didn't look as good as he had done. She said to the defendant, "I don't think he looks as well", and asked if they should move him to nursery 1, thinking if he was

going to deteriorate, there was more equipment on hand and emergency trolleys in there.

The defendant replied, "No", she felt he was okay and wanted to keep him in nursery 2 and to keep the triplets together. She was quite insistent. Mel Taylor felt put out because she felt the defendant was undermining her decision.

The defendant said she didn't recall any specific details about talking about [Baby O] going into nursery 1. Nursery 1 was very full and she didn't remember being dismissive to Mel about where [Baby O] needed to be. Mel was within her rights, she said, to override her and take the baby from her.

Tile 168 records that [Dr A]'s first review was at 13.15. He believed he was in nursery 3 when he was asked by the defendant to see [Baby O] as there were concerns his abdomen was distended and he had vomited. That vomiting, which was not a posset or reflux, was unusual. The feeding chart, the neonatal balance chart -- the paper copy is the last document in section 20 of volume 2 -- recorded feeds at 10.00 and 12.00 that are initialled by the defendant.

[Dr A]'s clinical note behind tile 168 recorded that [Baby O]'s heart rate was elevated, his respiratory rate was slightly elevated and his abdomen was distended. The blood gas readings revealed his blood was more acidic than [Dr A] was expecting, as was his base excess. His lactate was also elevated. He didn't know what had precipitated this. He re-cannulated him at a fresh site and commenced [Baby O] on intravenous fluids and prescribed antibiotics, having a concern of an early infection. There was in due course no evidence of an infection. He also directed an X-ray.

The defendant's nursing note is behind tile 169:

"Reviewed by Reg [Dr A] at 13.15. [Baby O] had vomited undigested milk. Tachycardic and abdomen distended. Nasogastric tube placed on free drainage. Septic screen carried out. Blood gas poor as charted. 10ml per kilogram saline bolus given as prescribed along with antibiotics. Placed nil by mouth and abdominal X-ray performed. Observations returned to normal."

There is an entry on the blood gas record, J23667, behind tile 170, at 13.20, that [Baby O] was on CPAP. He was not. The defendant accepted that putting a child on CPAP was a medical decision. She said she couldn't say why she wrote this, saying it should be he was on CPAP via Neopuff. The prosecution say this was a deliberate false record.

Dr Bohin could find no record of [Baby O] being put on to CPAP, which could, CPAP, cause some distension to the abdomen, but not to the degree that was to be observed.

In interviews, the defendant said she was present when [Baby O] began vomiting after his feed and was moved to nursery 1 and she continued to care for him. She remembered his abdomen becoming quite distended and him being intubated and having a drain put in his abdomen. She would have been present throughout the feed at 10.30 and 12.30, which would only have taken a few minutes. She did not recall who was present when he vomited.

Melanie Taylor said she didn't know where she was, but the defendant was in nursery 2 when [Baby O] collapsed at around 14.40. She couldn't recall whether it was a call or an alarm that alerted her to it, but when she went into nursery 2, the defendant was already there and [Dr A], who was in nursery 3, arrived after her.

The defendant, in her first police interview on 5 July, said that she discovered a collapse at 14.40 after hearing [Baby O]'s monitor sounding. She could not recall anyone else being present in the room at the time. [Baby O] was mottled all over, with a red abdomen. The mottling was sort of blotchy, purply-red rash, which was a deterioration and could be infection mottling.

The defendant's evidence was that she heard a monitor alarming and, when she went in, she found it was [Baby O]'s. She called for [Dr A] who was in the nursery next door. [Baby O] looked unwell and needed Neopuffing. He was more mottled, his abdomen was a bit redder. She said that mottling can be a sign of infection or cold; they see it quite often in babies.

The decision was then made to move [Baby O] to nursery 1. Melanie Taylor remembered pushing the incubator with [Dr A]. [Dr A]'s note of this event is behind tile 199.

There had been a desaturation and bradycardia, [Baby O]'s heart rate had dropped to 80 to 90 and his sats to 50 to 60. He was mottled, his skin looked unusual, which may have been caused by his low heart rate and oxygenation. He was bagged up and transferred to nursery 1 with a Neopuff requirement in 100% oxygen. The details are in the note behind tile 199.

[Baby O] was intubated at the first attempt between 15.03 and 15.08 and connected to a ventilator on normal settings for a preterm baby on 30% oxygen, antibiotics and boluses of sodium chloride had already been given and he was given a further bolus. [Dr A] planned to leave him for half an hour before taking further blood gas tests. He went to speak to the parents.

Behind tile 201 is the corresponding note made by the defendant:

"Approximately 14.40 [Baby O] had a profound desaturation to the 30s, followed by a bradycardia, mottled ++ and abdomen red and distended. Transferred to nursery 1 and Neopuff ventilation commenced. Poor perfusion."

She told you she did nothing to [Baby O] to introduce air and drew attention to the neonatal review at or around lines 97 and said that the entry relating to the administration of cefotaxime and a saline flush was after and not before [Dr A] had been called, as per his note, and that he was then given a further bolus after transfer to nursery 1.

Dr Brearey was present when [Dr A] intubated [Baby O] and noticed a small rash, 1 to 2 centimetres in size, on the right side of the chest wall, which was purpuric in appearance, which is very, very rare in neonates and is commonly a sign of sepsis. It was unusual that he also had good perfusion. He then appeared to be stabilising.

He did not have sepsis. The blood sample taken at 13.39 came back 5 days later with no bacterial growth.

The defendant said the description of the rash that Dr Brearey said he saw was not what she saw.

Professor Arthurs referred to the radiograph that is behind tile 197. It is untimed but it is accepted that it was taken at around 14.40, the time of the profound desaturation. The image revealed a lot of gas in the stomach and the small and large bowel, which he said could be caused by NEC or an infection, neither of which was applicable in [Baby O]'s case, or by the administration of gas down the NG tube.

At 15.51, [Baby O] went into neonatal arrest. The defendant's nursing note recorded:

"Doctors crash called at 15.51 due to desaturation to 30s with bradycardia. Chest movement and air entry observed. Minimal improvement. Re-intubated. CPR commenced 16.19 and medications/fluids given as documented."

[Dr A] was crash bleeped back to the ICU. He was bagged through his ET tube with minimal success.

[Dr B], the consultant on call, was present. His ET tube was removed and he was re-intubated at the first attempt. Good air entry was achieved and [Baby O] was recommenced on the ventilator on the same settings; the details are in the note behind tile 218.

At 16.15 [Baby O] had another episode of bradycardia and desaturation, tile 228 and the continuation sheet behind tile 228 are the relevant documents. His heart rate was 60 and his oxygen saturation was 50%. He was hand ventilated on a Neopuff circuit, cardiac massage was started at 16.19. He was given sodium bicarbonate, sodium chloride and adrenaline as noted on the resuscitation sheet.

Dr Brearey was called back at 16.30 during the resuscitation. Tiles 206 and 286 front his relevant notes. [Baby O] was baptised. Despite ventilation via a Neopuff and chest compressions, which were inflating his lungs, and the medication administered, there was no effective heartbeat. An intraosseous sample was taken from the right shin, which showed he still had a metabolic acidosis. His haemoglobin was low at 86 but not low enough to cause his collapses. His abdomen was still distended.

The rash had disappeared, so it was definitely not a purpuric rash, which was perplexing to Dr Brearey. He had never seen it before and he's not seen it since.

A radiograph taken at 14.46 behind tile 466 was examined by Professor Arthurs. In his opinion the NGT and ETT were appropriately sited. That was a view he expressed in his report and to which he adheres.

Because, unusually, they were getting no response to the resuscitation after at least 30 minutes, by agreement care was withdrawn, resuscitation was stopped and [Baby O] died.

It was, said Dr Brearey, deeply distressing for all involved. [Baby O] had been born in good condition like his siblings and was following a healthy path. His deterioration came out of the blue, two desaturations and bradycardia on a ventilator was exceptional. His rash was unusual. They excluded all natural causes.

[Dr A] said it was exceptionally unusual. Dr Brearey later held a debrief at which he said the defendant did not seem upset.

When interviewed, the defendant said she thought she was in the nursery with [Baby O] at the time of his final collapse at 15.51 and that [Dr A] had left to update [Baby O]'s parents. She was shocked and upset by [Baby O]'s death. She just remembered his abdomen kept swelling up and they ended up doing a drain and intraosseous access, which were not nice things to see. His death was unexpected, the day was particularly busy, the doctors were back and forth, being pulled in various directions. There was an element of delay each time a registrar had to be called.

In her evidence, she said she remembered [Baby O]'s death but not the precise moment that he desaturated and needed a crash call. She remembered parts of the resuscitation and them struggling to get an intravenous access, so an intraosseous needle was used, which is quite brutal thing to see, and they had to go and get the equipment from the children's ward.

She remembered Dr Brearey inserting a drain into the abdomen in view of it being so red and swollen; she had not seen that before. She did not remember the rash disappearing.

After [Baby O] died she said everyone was completely flat, there was a complete change of atmosphere. For her it was devastating. She said:

"You want to be able to save every baby in your care. It was not what is supposed to happen, you're not supposed to watch a baby die."

She explained that the messaging with [Dr A] in the post-indictment sequence from tile 111 on 30 June related to Dr Jess Burke and the suggestions that she had done something wrong. In the sequence of events for [Baby O], that's from tile 329, there were messages with [Dr A] in which, at 331, the defendant referred to her not having completed all the documentation and the notes being in her pocket. She said they were to come back the next day for completion of the documentation for drugs.

[Father of Babies O, P & R], [Baby O]'s father, said [Baby O]'s stomach was definitely swelling at one point:

"It was like ET's stomach, like a big pot belly, which went down and then there was another point where you could see all his veins. They were bright, bright blue, all of them, and they were going different colours and his actual body looked like he had really, really bad prickly heat and that got worse and then it went down again. It was literally like you could see something oozing through his veins."

You'll recall him pointing to his body on the video recording when he was describing that.

[Dr B] and Lucy were pretty much the main ones dealing with [Baby O]. There were loads of people rushing in and out, passing things. [Dr B] did not have an explanation, she couldn't give a reason why he had passed away and was quite upset and very apologetic.

The defendant, in her evidence-in-chief, said she didn't see anything like that described by [Father of Babies O, P & R]. In cross-examination she thought she had done some chest

compressions. She did not know how [Baby O] got his liver injury, she was not responsible.

When he was cross-examined, Dr Brearey was asked about the entry on the note behind tile 268:

"IV cannula inserted at McBurney's point to try to decompress abdomen. Small amount of blood."

And said he was nowhere near the liver and denied he had caused the bleeding that was found at the post-mortem. He said he was aware of confirmation bias and disagreed with the suggestion that he was biased against the defendant.

When the fact that the defendant had been present at three events was brought to his attention by Eirian Powell in June 2016, his comment in the meeting at that time was:

"No, it can't be Lucy, not nice Lucy."

The senior nursing staff at the hospital could not believe that it was true that anyone was harming babies and none of the senior staff wanted to believe it either. No one was red-flagging the deaths, but the senior clinicians, he accepted, were becoming increasingly concerned about the number and nature of the unexplained collapses.

He asked an external neonatologist to review them. It was his opinion, backed up from the BadgerNet data that they all use in the country for neonatal care, that there wasn't a significant increase in acuity or, as in a chicken or egg situation, you could argue that the cases themselves created an increase in acuity in the unit due to the more intensive care they were providing because of the sudden collapses, which he thought was much more likely.

Whilst emphasising that in every case of collapse they identified they identified areas where care could be improved upon, he said there was not a single case in which shortage of staff or sub-optimal care had an impact on any of the outcomes.

When he was challenged about not contacting the police, he said the reason was because they wanted to escalate this appropriately within the structure of the hospital rather than directly going to the police themselves without the support of the medical director and the executives in the trust. It was suggested that the reference in his witness statement made in 2017 to the defendant rejecting his suggestion that she take the weekend off after [Baby P]'s death was further evidence of confirmation bias. His response was that it was not, she did

reject his suggestion, in other words would not take the time off after [Baby P]'s death, which was the next day.

The Countess of Chester neonatal unit was redesignated from a level 2 to a level 1 on 7 July 2016 by their own decision for reasons of looking after staff and their welfare because everyone was very stressed and upset by all these events. They reduced the number of cot spaces from 16 to 12 and increased the gestational limit from 27 to 32 weeks. They still maintained the high dependency cot spaces in the unit, making them somewhere between level 1 and level 2 as a unit, but he agreed they were not taking the same volume of babies at the same acuity after that.

Melanie Taylor helped to prepare and draw up drugs at the resuscitation. She was asked about exhibit KDH2A, on one sheet of which were notes of the resuscitation of [Baby O]. None of the handwriting on any of those documents was hers. Once the details had been transferred on to the medical notes and records by being scanned or formally written up, the rough note should be put in the confidential waste.

Behind tile 498 is a Datix report submitted by the defendant in relation to [Baby O]'s death on 30 June to 1 July in which the issues she raised was:

"Infant had a sudden acute collapse requiring resuscitation. Peripheral access lost. Intraosseous access required. Resources not available on unit."

Dr Brearey explained that peripheral access was not lost and asked for the report to be corrected on 25 July. The reference to resources was probably to a EZ-IO device not being in the unit at that time, which was common, he said, in most neonatal units in the country, so the previous way, of using a screw needle manually, was used.

Dr George Kokai, consultant paediatric pathologist, conducted a post-mortem examination of [Baby O] at Royal Liverpool Children's Hospital at 14.00 hours on 28 June 2016. He made a written report on 25 September 2017.

Dr Marnerides, as with every other case, confirmed that he did not take into account the evidence relating to other children when drawing conclusions about [Baby O] and [Baby P]'s respective cases.

He took you through a presentation of the injuries to [Baby O]'s liver. The two red dots on the anatomical mannequin show where Dr Kokai in his report mentioned the presence of two subcapsular

haematomas, which are bruises underneath the thin membrane, the capsule, of the liver.

The post-mortem photographs showed the nature and size of the haematomas. Dr Kokai also described an area of blood clot and the remnants could be seen in another photograph.

Dr Marnerides said a pathologist would think this was a rather large haematoma also involving a large part of the substance of the liver. There was also much more haemorrhage into this liver when you actually looked at the undersurface and on one photograph, taken by Dr Kokai, at the margin of the bruises, there were superficial lacerations which, Dr Marnerides said, was most likely due to an impact injury. It could not tell him whether it was accidental or non-accidental impact.

Dr Kokai recorded that there was 25ml of free blood in the abdomen and there was a haematoma which measured 2.5 by 1 centimetres, which would equate to a 20ml blood clot. The distribution of the bruising and the pattern and appearance of the bruising indicated an impact-type of injury and he was fairly confident that it was caused by an impact injury.

In the neonatal care unit setting where people are trained how to give CPR, one may see bruising to the liver, but it would be very small areas of bruising and they will be distributed on the surface of the liver, typically on the anterior edge of the superior surface of the liver. They would be small and there wouldn't be extensive haemorrhage into the liver. The liver is not an anatomical area where CPR is applied. There is no way of measuring the force required, but it would be of the magnitude of jumping on a trampoline and falling.

He, Dr Marnerides, has only seen this extensive haemorrhage in livers in two children, not babies, who had been in accidents with bicycles: the wheel against the abdomen can cause this. He has seen it in babies who have not been in a neonatal care unit, who have suffered a non-accidental type of injury, typically with other injuries to the abdomen and injuries to the brain. In other words, cases of inflicted non-accidental injury.

He didn't think CPR could produce this extensive injury to the liver. In his experience and his understanding of the literature, this injury cannot be explained by CPR. He has never heard it being accepted that this sort of injury could result from CPR. Further, from the radiology review and the clinical experience review, the information and the assessment was that there was also profound gastric and intestinal distension following excessive injection or infusion of air via an NGT and further evidence from the radiology and clinical review that there was also embolism of air into the vessels.

So, Dr Marnerides concluded that the cause of death would best be described by combining the injury to the liver and the embolism of air in the vessels as the cause. There was no evidence from the post-mortem findings that could either confirm or undermine the likelihood of there having been an injection of air into the vasculature. You would not necessarily expect to see any sign on the skin itself overlying the site of the impact. It is very common that you see nothing from the outside, especially in babies who have the most devastating injury internally and yet nothing at all is visible externally. For the chest drain to have caused the damage to the liver there would have had to have been repeated episodes of touching and bruising the liver and not perforating it. He did not consider that to be plausible.

Dr Marnerides was of the view that the cause of death would best be given as inflicted traumatic injury to the liver, profound gastric and intestinal distension following acute excessive injection of air via the nasogastric tube and air embolus due to the administration of air into a venous line. In other words, an impact injury to the liver, air into the NGT and air into the circulation.

Professor Arthurs, whose evidence relating to the large amount of gas in [Baby O]'s radiograph taken at 14.40 hours on the afternoon he died I have reminded you of, also referred to radiographs from the post-mortem examination which were taken through the baby from right to left and showed gas in the heart, one of the great vessels, something that could not be seen on a radiograph taken from -- an image taken from the front, which the in-life images were. That, he said, was an unusual finding. You see post-mortem gas like this in babies who have sepsis and things like NEC, conditions [Baby O] did not have. It's also seen in conditions after traumatic events and in the case of older children who have undergone resuscitation, so this gas could be explained in [Baby O]'s case, either by trauma, if that was felt to be significant, or by resuscitation, if that was felt to be significant, to move some of the air in the body around. An alternative cause was an air embolus.

Dr Evans, in his report of 2 June 2018, felt that from the information he had at that time, there was some trauma to the liver, which had led to the collapse. He favoured this possibility because there was no reason why this baby could have collapsed and resuscitation was unsuccessful. Chest resuscitation carried out appropriately by experienced doctors doesn't get near the liver, therefore any cardiopulmonary resuscitation or pressing on the chest to get the heart going would not traumatise the liver and not be responsible for liver bleeding. He thought that the air in the abdomen seen on the X-

rays was excessive and could indicate air having been infused into his stomach via the NGT, which had tracked into the intestines, causing abdominal distension.

After this report, he was given further information by the police, causing him to write a further report dated 25 March 2019. He was told about Dr Mayberry not finding any concerning pathology at about 07.30 on 23 June and Dr Cooke had no concerns on her examination 2 hours or so later, as well as Dr Brearey's report that the rash disappeared a short time after he had noticed it, meaning it could not have been purpuric.

So Dr Evans, on revisiting the vital signs for [Baby O] on 23 June, to be seen on J23658, of which you have a paper copy in section 20, he noted the trends of rising heart and respiratory rates, which were markers that something was going on but didn't tell them the cause.

The precipitous collapse thereafter and the apparent rash which then disappeared was consistent with [Baby O] having received an injection of air into his blood circulation. He remained of the view that he may have sustained some sort of trauma. His conclusion was that his sudden collapse was likely to be the result of air embolus and the bleeding within the liver and into the peritoneal cavity, the abdomen, would have contributed to the collapse.

His opinion was that [Baby O]'s terminal collapse was consistent with him being the victim of an air embolus and he couldn't find any evidence where this could have occurred accidentally.

When cross-examined, he said that good perfusion at the same time is something that you do encounter in the course of an air embolus where the air will go -- where the evidence will go will vary. If the air went to a particular part of the abdomen or the chest wall, then you will find the abnormalities there. But if the air does not go to other parts of the body then those other parts of the body will be normally perfused.

He thought it was very unlikely that some injury to the liver was caused by vigorous chest compressions. He'd never seen it and never read about it.

Dr Bohin reviewed the chronology of [Baby O]'s progress until 13.30 hours on 23 June and noted the details of the various events, the acidosis and high lactate readings, and the resuscitations. She also had regard to the findings of the post-mortem and the opinions of Dr Marnerides and Professor Arthurs. [Baby O] was very well, was fully fed and receiving minimal support and was not giving the clinical team any cause for concern until he vomited at 13.30 on the 23rd.

Although there was a trend to an increase in heart rate and respiratory rate, this was not thought to be significant by the clinical team treating him at the time and they decided that they would watch and wait to see what happened.

The subsequent X-ray, taken at around 16.00, showed a huge amount of gas within the abdomen for which she could find no easily explicable natural reason; he'd not been bagged at that time. She concluded that the cause for the degree of abdominal distension and vomit was excessive air being put down the NGT into [Baby O]'s stomach. Alternative natural cause possibilities, namely bilious vomiting, NEC and a mid-gut volvulus, were all excluded.

She further noted the account of Dr Brearey in relation to the right side of the chest, the description of [Father of Babies O, P & R] and the opinion of Professor Arthurs, and concluded that [Baby O] had signs that were compatible with an air embolus: the discolouration of the chest, the ongoing discolouration of his abdomen, his failure to respond to routine resuscitation, and the air seen at post-mortem. She could not conceive of any innocent cause for an air embolus in the context of the treatment that [Baby O] had received.

She accepted in cross-examination that there are a small series of people that claim that there's damage to the liver after resuscitation, but she has never seen it in her many resuscitations of neonates over 35 years of practice, including working in a major cardiac unit.

She was challenged about having known about Dr Evans' conclusions and her not having performed an independent assessment. She refuted the suggestion that she did her best to support an allegation of Dr Evans as far as she was able to. You, as I have said before, will have to consider whether Dr Bohin was or was not striving to provide an independent opinion or whether her conclusions were a product of striving to support a case against the defendant.

On all accounts, [Baby O]'s was an unexpected death. The defendant in her evidence said she didn't know how he died and she didn't recall any causes for concern and confirmed it was not her case that staffing levels or medical incompetence contributed to his death. The prosecution say you can exclude natural causes and find that this was another case where there is evidence of deliberate, unlawful harm having been done to him and that the person responsible was the defendant.

She denies any wrongdoing and it is argued on her behalf that this was a natural deterioration and the findings relating to air could have been a result of acts of resuscitation.

The following day, [Baby O]'s older brother, [Baby P], died, and I shall turn to his case after the break.

(3.06 pm)

(A short break)

(3.16 pm)

MR JUSTICE GOSS: [Baby P] weighed 4 pounds 9 ounces at birth at 14.23 on Thursday, 21 June 2016. He was born in very good health. He cried spontaneously and was active. After 6 minutes of life, he was in normal air. His condition on examination are behind tiles 7 and 8 in his sequence of events.

[Dr A] described him as being in very good health for a baby of his gestation. Initially, [Baby P] went into nursery 1 with his brothers, but the next day, like [Baby O], he was moved into nursery 2. A collective decision was made to put all the triplets on antibiotics and CPAP as a precautionary measure because of the risk of infection and respiratory distress syndrome.

His venous gas results were acceptable for a newly born baby. By reference to [Dr B]'s notes made at 11.45 on 22 June, J23840, overnight and into the following morning there was no change. He was stable, on CPAP but now in air. His fluids were still being run through his peripheral cannula at the same rate. Nothing had happened that was a concern.

At 10.00 the following day, Saturday the 23rd, the notes of Dr Cooke, behind tile 64, recorded that there were no nursing concerns and his observations were normal. It was a systematic review. She did not miss anything and everything was correctly documented. His antibiotics were stopped, [Baby P] was self-ventilating in air, his feeding had progressed normally, he was being fed expressed breast milk by an NG tube. Everything, including a cranial ultrasound scan, was completely normal.

At 18.00, Dr Cooke reviewed [Baby P] with Dr Gibbs because of [Baby O]'s unexpected death at 17.47 and the concern that there was an infective process going on. The relevant note is behind tile 134. Dr Gibbs noted that [Baby P] had a normal breathing pattern and his abdomen was full, mildly distended but with tenderness, and had active bowel sounds. He appeared to have redness at the base of his umbilicus, which may have been due to

scratching caused by his nappy or cord clamp. It was not an uncommon finding.

Dr Gibbs also made the decision to do a full blood count, along with bilirubin, and to start him on second-line routine antibiotics and to have an abdominal X-ray, all as precautionary measures, especially in view of [Baby O]'s collapse and death. He said that [Baby P] appeared very well. It was also the plan that [Baby P] should continue on NG tube feeds, but if there were any concerns, they should be stopped and he should be fed intravenously.

The blood culture collected at 18.35 came back on 29 June after his death with no growth of any bacteria, so there was no infection, and the white cell counts were not high, so no suggestion of infection; that's tiles 145 and 181.

Sophie Ellis was the designated nurse for both [Baby P] and [Baby R] on the night shift of the 23rd to the 24th. She had been a duty the previous night and had learned that [Baby O] had died in the late afternoon of the 23rd. Her nursing note is behind tile 169 with an entry made at 01.31 and 01.48 on the 24th. His observations had, up until that point, at least been within the expected parameters. She noted that he had had one desaturation into the 80s and one episode of bradycardia into the high 90s, which had self-corrected, with no intervention required.

She said that sometimes preterm babies do have desaturations and bradycardias that can be due to immaturity or other factors. She kept a close eye on him because of [Baby O]. She also noted he did at times have a low-lying heart rate between the high 90s and 110, which she brought to the attention of the senior house officer, Dr Henton. This was not deemed to be a set of data of concern. Sometimes if the babies are in a deep sleep they can have a low-lying heart rate.

In relation to feeds, she referred to the fluid balance chart, which is behind tile 171, of which you have a copy in section 21 of your second jury bundle, documents J23981 and 23982.

[Baby P] was on two-hourly 15ml feeds via the NGT. On the feeds of 22 June, from 02.00 up to 20.00, there were small or trace amounts of aspirates, as recorded by the defendant or her student nurse Rebecca Morgan. At the 20.00 feed Sophie Ellis aspirated 14ml of milk aspirate with a pH of 3, so acidic, which she returned to [Baby P] and then fed him a further 15ml.

She placed him on his tummy because sometimes it helps with feed tolerance and she noted:

"To monitor aspirates and inform the nurse in charge"; tile 169.

That was Kate Percival-Calderbank, then Percival-Ward, or Kate Ward as she's referred to in the notes, a senior and experienced nurse practitioner.

There was a further feed of 15ml at 22.00 and then at the midnight feed she aspirated 20ml of milk, which again was acidic, which she discarded. She also noted that the abdomen was full but soft. The registrar, Dr Mayberry, was informed, and was going to see [Baby P] but was called to a resuscitation in A&E, so he thought the safest thing to do was to put him on to intravenous fluids. The aspirate was a significant amount but there was evidence that the gut was moving. Feeds were then stopped and [Baby P] was started on 10% dextrose infusions.

At 04.00, 25ml of air was aspirated by Kate Percival-Calderbank and noted by Sophie Ellis, and at 07.00, 5ml of air and 2ml of milk, which was acidic, was aspirated. If any of the aspirates had been bilious Sophie Ellis said she would have noted it. [Baby P]'s NG tube was then placed on free drainage so that any fluids or air in the stomach could be drained off.

In the last section of the note, towards the end of the shift, Sophie Ellis noted that [Baby P]'s abdomen had been soft and non-distended and Kate Percival-Calderbank noted that [Baby P] seemed comfortable and settled and seemed like a well baby.

Kate Percival-Calderbank recounted an occasion when she had allocated the defendant to an outside nursery rather than an intensive care one and she said that she was unhappy being put in the outside nurseries, saying that she felt it was boring and she didn't want to feed babies, she wanted to be in the intensive care nursery. They also found that when she was in one of the outer nurseries, if there was anything going on within nursery 1, she would definitely end up back in there, and they were worried about her mental health because it can be upsetting, emotional and sometimes exhausting as well and sometimes it's good to come out of that environment. She went into the outside nurseries but was not happy with the decision.

The defendant's evidence was that she never found other work boring and didn't recall having this conversation with Kate Percival-Ward/Calderbank.

Sophie Ellis handed over the care of [Baby P] to the defendant at the end of the night shift on the morning of Friday, 24 March. The others on that day shift are set out behind tile 258. Rebecca Morgan was also with her that day. The mood was a bit more sombre and sad. She noted the observations at 09.00, 11.00 and 13.00 on the chart behind tile 132. In the defendant's

nursing note behind tile 263, her first entry written in retrospect at 21.18, she wrote:

"Observations within normal range. [Baby P] nil by mouth. IV fluids, 10% dextrose, 50ml per kg, running via peripheral line. Line occluding, high pressures. NG tube on free drainage. Trace amount on tube. Abdomen full, loops visible. Soft to touch."

When asked about the similarity to a description about the abdomen she wrote in [Baby O]'s notes behind tile 105 in his sequence, she said it was not a fabrication and this note was a truthful observation.

In her first interview and in evidence she said she was asked to be designated nurse to give continuity of care for his parents and she thought that was the right thing to do.

Christopher Booth became the designated nurse for [Baby R], who was the only other baby in nursery 2 with [Baby P]. The babies, he said, had been quite stable overnight.

He recalled [Baby P]'s feeds had been stopped because his abdomen had been distended and aspirated. He was shown two sheets which were from PBM4, J23795, which he identified as the handover sheets that he received. Such notes, he said, should be thrown away in the confidential waste. On occasions he has taken them home in the pocket of his uniform but he's then taken them back on his next shift and destroyed them.

[Baby R] was stable, fully monitored in the far end of the nursery.

Dr Ukoh conducted his registrar ward round that morning at 09.35; his note is behind tile 289. On examination, [Baby P] was mildly pale, but had no recession, so was having no difficulty in breathing. On listening to the heart, there was a very soft murmur in a specific part of the chest, which was not untoward for a baby only 3 days old. He had a moderately distended abdomen and some bloatedness. The abdomen was soft. Although it wasn't normal to find a moderately distended abdomen that was bloated, because it was soft it was a bit less worrying.

The skin was slightly mottled, which might be poor perfusion or cold or mild acidosis. He ordered full blood tests, planned for trialling a long line for TPN, and keeping him nil by mouth for now. His overall impression was that he was a child that they needed to keep an eye on, being premature and had that distension, in particular, in relation to NEC and infection, but he wasn't particularly unwell.

About 20 minutes later, he thought, he was examining [Baby R] when he was called back to [Baby P], whose oxygen levels, which had been 100%, had dropped to 60% and his heart rate, which had been normal, had dropped to 80 beats per minute. Student Nurse Becky Morgan said she was at [Baby R]'s incubator when [Baby P] had an apnoea, bradycardia and desaturation with all the alarms going off. The doctor was writing his notes and no one else was in the room. The defendant was not in the room talking to her.

She helped the doctor take the lid off [Baby P]'s incubator. A lot of people appeared very quickly. She remembered Dr Jessica Burke and [Dr A] who both came in after the defendant.

Christopher Booth said he and Lucy Letby were there in the room when [Baby P] collapsed and in her evidence the defendant also said that she was. [Dr A] recalled being bleeped and asked to come.

Christopher Booth remembered that during the day [Baby P]'s stomach was distended. Becky Morgan did the scribing for a short time at the beginning, but became upset and left the room. [Dr B], the consultant on duty, was on a call to the coroner in relation to the unexpected events relating to [Baby O]'s death when she was asked to see [Baby P] again. Tile 625 fronts her notes of the events of the day.

Dr Ukoh proceeded to give some face mask ventilations with the Neopuff to support the breathing. When he arrived, [Dr A] came over, took over the airway and intubated [Baby P]. When he got there, [Baby P]'s heart rate and oxygen saturations were still at the level noted by Dr Ukoh. He was being bagged in air by a Neopuff circuit. At this time [Baby P]'s oxygen saturations were improved by using a Guedel airway. The intravenous line was lost and attempts by [Dr B] and Dr Ukoh to re-site it were unsuccessful, so intraosseous access was gained in both of the legs.

[Dr B] spoke to Dr Rackham, a paediatric consultant at Arrowe Park with a special interest in neonates, and then to the neonatal transport team, Contact North-west, who advised further vascular access be obtained, which [Dr B] succeeded in doing.

The blood gas results taken at 09.51 was a poor gas. It was a metabolic acidosis with some components of a respiratory acidosis. That suggested that over the previous 15 to 30 minutes [Baby P] had been working hard in part with his respiration.

He intubated [Baby P] with a 3 millimetre tube at the first attempt and started him on continuous mandatory ventilation, he said, on normal settings for a baby of his age and size, 75% oxygen.

Adrenaline was given at 9.55, 10.02, 10.08, 10.15 and 11.10 because of the poor heart rate and poor perfusion. A subsequent gas at 10.06 had a lower bicarbonate value than the previous one and at 10.15 he was given some bicarbonate for the metabolic acidosis.

He had been given morphine to sedate him at 11.10 and then was given pancuronium at 11.32 to paralyse him, which Dr Bohin said was entirely correct.

At 10.46 there had been an improvement; the relevant document is J23961 and you have a paper copy. His pH had improved, his carbon dioxide level was reduced because of the ventilation and it was no longer a respiratory acidosis, but the bicarbonate readings were now lower.

At 11.30, [Baby P] had a second episode of desaturation and bradycardia. CPR was recommenced. He was given adrenaline and pancuronium, a relaxant and paralysing drug, and spontaneous circulation was restored at 11.36, with the ventilator recommenced on the same settings.

[Dr B] did not understand what was going on. The blood gas at 12.08, tile 178, pleased [Dr B]. She recalled a conversation with the defendant in nursery 1 at that time, when, on telling her that the transport to Liverpool Women's Hospital would be arriving soon, the defendant said something along the lines of, "He's not leaving here alive, is he?" [Dr B] was shocked and said, "Don't say that". She thought they were winning at that point and found it a unusual comment and caused her real anxiety about what was going to happen to [Baby R].

In her evidence, the defendant said that potentially she could have said this, she had no recollection. She said that [Dr B] was becoming increasingly stressed as the events occurred, she was the same. There wasn't any clear plan from the doctors. It was beyond their level of care, she said.

At 12.28 [Baby P] had a further desaturation and bradycardia; tile 420 is the relevant tile. CPR was commenced and he was bagged via Neopuff again. He was given boluses of adrenaline. The capnograph indicated a problem with the ET tube, which [Dr A] said could have been coated by secretions or may have been blocked by mucus. [Dr B], who recalled being in the kitchen with [Dr A] making a drink, and the defendant was with [Baby P], ran back to the nursery. [Baby P] was desaturating and it looked like he had dislodged his tube. [Dr B] accepted there was no reference in the notes to a tube being dislodged. She found it highly unusual that a child who'd been paralysed had dislodged a tube.

In her evidence the defendant, who said she had no recollection of the event and relied on her nursing note, which was behind tile 292, said that from her recollection there was no reference to a tube dislodging. It was removed and replaced by a 3.5 millimetre tube at 12.32.

There is no evidence of anyone checking whether or not it was blocked after it had been removed. All episodes of desaturation and bradycardia were accompanied by a profound colour change and poor central and peripheral perfusion, which suggested that his heartbeat and his cardiac output were insufficient to maintain normal colour, either within the central circulation and more extreme at the peripheral, both fingers and toes.

A radiograph had been taken at 11.57; the image is behind tile 401. It was not viewed by the clinical team until 12.30, after the collapse a few minutes earlier. It showed a moderately sized right pneumothorax, a partial collapse of the right lung, which was decompressed by a thoracentesis, putting a small cannula into that space, which was a temporary measure to relieve the air and allow the lung to re-inflate. It was not a tension pneumothorax, nor was it life-threatening. The bowel gas was within normal limits with no evidence of obstruction or perforation and no gas to suggest NEC. The ET tube could safely be advanced by a further 10 to 12 millimetres.

A radiograph behind tile 434, taken at around 12.30, confirmed that the ET and NG tubes were satisfactorily positioned, a right-sided chest drain was in situ, and Dr Wright noted there was a shallow residual right pneumothorax at that point.

At 12.51 further bicarbonate was administered followed by another bolus of saline at 12.55. Because of concerns about blood pressure and cardiac output, an infusion of dobutamine, which improves heart contractility, was started at 13.10. At 13.25 another bicarbonate dose was given after advice had been given to [Dr B] by Dr Rackham.

[Dr A]'s memory of [Baby P] between 12.50 and 13.25 was that it was very, very busy, both in looking at [Baby P] and seeing how he was progressing and he would have been setting up, ready to put a chest drain in as a definitive treatment for his pneumothorax.

At 13.30, Dr Brearey carried out an ECG to see whether there was a possible cardiac cause for [Baby P]'s deterioration. There wasn't. He had a normal heart with good contractility. There was no evidence of any congenital heart disease that might cause a sudden collapse or pulmonary hypertension or of fluid around the lining of the heart.

At 14.30, metronidazole and hydrocortisone were both given, the latter because of concerns about cardiac output and blood pressure and the metronidazole was further treatment for any presumed infection as this was potentially still an episode caused by sepsis.

A dose of 240 milligrams of Curosurf was given down the ET tube directly into the lungs. Up until to point the work of breathing and the effect that the inefficient breathing was having on the blood gases, making him acidotic, was a major component of his problems. There was no apparent or clearly identifiable cause as to what was going on.

At 15.00 a pigtail drain was inserted in the chest. Dr Rackham arrived at that time, bringing another baby to the Countess of Chester and to collect [Baby P].

In her evidence, the defendant said she recalled the pneumothorax and said there was a general decline.

About halfway through section 21 in your second volume is document 23955, the neonatal unit resuscitation record up to 12.55, on which times of chest compressions and the administration of various medications are recorded. Amongst the drugs given was adrenaline. By reference to the adrenaline prescription note J23917, which is behind tile 385, and you have a paper copy in section 21, and the infusion prescription and infusion chart, which is behind tile 286, and again you have a paper copy, the next document in that section, you have a record of timings and doses of adrenaline given.

It was apparent that there was a miscalculation in the infusion prescriptions as a result of which the rate of infusion was twice the intended prescribed amount following the collapses at 11.30 and 12.28. Dr Rackham agreed that an excess of adrenaline can lead to a greater rise in blood pressure than expected and can cause blood vessels to constrict and lead to lactic acidosis, but said that during his time with [Baby P], from 15.00 or 15.15 onwards, and during his resuscitation, he saw no evidence of an increased heart rate nor was he getting any information that [Baby P] had side effects of too much adrenaline, which would be fast heart rate, excessively high blood pressure or an abnormal heart rhythm.

At 15.14 [Baby P] went into a cardiac arrest, CPR was administered. The details are behind tile 545. In the final X-ray, taken at 15.36.53, behind tile 574, a pigtail drain was in situ and Dr Wright reported:

"Tubes again satisfactorily positioned. Right chest drain in situ and the pneumothorax has fully resolved."

Dr Rackham confirmed that there was no breathing effort from [Baby P], his perfusion was poor, his heart rate fell gradually over the 1 to 2 minutes after the initial collapse, and his heart rate dropped below 60 beats a minute. Compressions were started and resuscitation was carried out by the team from the Countess of Chester with him and the nurse with him.

Between 15.15 and 15.54 [Baby P] was given seven doses of adrenaline, three doses of sodium bicarbonate and one dose of phenobarbitone, a drug to treat fits or seizures as they had no explanation for why [Baby P]'s condition had changed and on the small chance this was actually being caused by a seizure or a fit. It had no effect.

He was also given a fluid bolus and a dose of atropine to try to speed up the heart. He was continually monitored and being reassessed by the team throughout the ventilation and air entry remained good. There was no problem with the airway. Intermittently there was an audible heartbeat and an irregular heart trace.

The point was reached, following discussions with [Baby P]'s parents, where resuscitation was stopped at about 16.00 hours. [Baby P] was passed to his parents and died.

[Mother of Babies O, P & R] said [Baby P]'s stomach looked very similar to [Baby O] with his discolouration and his prominent veins, but his stomach wasn't swollen like [Baby O]'s.

[Father of Babies O, P & R] said that when they got down to the room it was like pandemonium. It was worse than the day before. There seemed to be more people on hand.

[Dr B] couldn't give them a reason for why [Baby P] had passed away. She was quite upset and apologetic, saying there was nothing more they could do, they tried everything and they didn't any answers for them, but they were going to get to the bottom of it. "It was the same again", he said, "It all started the same and it was all very similar to how [Baby O] went", apart from he couldn't remember [Baby P] going all different colours in the veins and his stomach swelling. What he could remember was seeing [Baby P] struggle for his life.

Dr Cooke, though not referred to in the note, recalled assisting with CPR on [Baby P] following his collapse.

The deaths of both triplets was the first time she had seen a neonatal death in her career and left a lasting imprint on her

memory. It was unexpected, especially as she did not recall any concerns raised by nursing staff, nor the night team of doctors on call.

Dr Rackham said no cause for [Baby P]'s collapse was identified and they did not have a reason to explain the collapse. And he felt that they had carried out the resuscitation well and in accordance with all the appropriate guidelines.

He explained that because of the two unexplained deaths and not knowing what had happened, they felt it was most sensible to observe [Baby R] in an intensive care unit. Dr Rackham examined [Baby R], who was on high-flow humidified oxygen, was stable, pink, well perfused active and alert with normal tone, his chest was clear, his saturations were at 100%, his abdomen soft and not distended, and his bowel sounds were normal. He was stable for transfer to Liverpool Women's Hospital.

[Dr B] thought that was the only way that [Baby R] was going to live. It was put to [Dr B] this was something she was coming up with to dramatise the situation for your benefit. She denied that she was trying to dramatise anything, it was tragic enough as it was.

She was aware at that time that the data being presented that their mortality rate had been higher and they were an outlier, but she heard nothing of any physical harm being done by a particular member of staff and knew nothing of the concerns of Dr Brearey and Dr Jayaram. She'd heard gossip and comments about the defendant but nothing concrete implicating her in deaths or raised mortality rates. She had no reason to believe that she was responsible, she said, before [Baby O] and [Baby P]'s deaths.

The defendant, when interviewed, said she felt panicked when [Baby P] deteriorated. She remembered it being very chaotic. It was devastating for all of them when [Baby P] died, it was an unexpected death.

In evidence she said she gave a lot of medication that day. Notes were made on pieces of paper or paper towels and then written up in the relevant charts. She didn't remember any discolouration. There was an increasing sense of anxiety on the unit and a great relief when the transport team arrived.

In her third interview, on 11 November 2020, she said she liked being in intensive care and having babies all the way through. She liked the variety.

She recalled sending the message to Sophie behind tile 645 about [Baby P]'s downward spiral, similar to [Baby O]'s, and the

message to [Nurse E], tile 333, in [Baby Q]'s sequence about being worried in case there was a bug in the unit. She said this was something that was discussed on the unit. She denied having done anything to harm [Baby P].

Dr Gibbs said that the death of two of the [Surname of Babies O, P & R] triplets was the tipping point for his realising that something was very abnormal and wrong. Before that point, the defendant's involvement by being present on the unit or most often caring for the baby concerned in some of the unusual or unexpected collapses had been noted by him Dr Brearey and Dr Jayaram. They worked as a team and he knew that Dr Brearey, as lead clinician for neonatology, had raised concerns with the management.

After the deaths of [Baby O] and [Baby P], safety measures were introduced, one of which was the consultants insisting that the defendant be removed from the neonatal unit. They had to resist repeated attempts by senior managers for her to come back to the unit.

Dr George Kokai carried out a post-mortem examination of [Baby P] an hour after he commenced the examination of [Baby O] and made a written report on [Baby P] the same day as he made the report on [Baby O], 25 September 2017. As reported on by Dr Kokai and depicted in the images he took at the post-mortem, there were injuries to [Baby P]'s liver. Having gone through the histology and the findings of Dr Kokai, Dr Marnerides said he had no morphological evidence, that is no naked eye visible evidence, and no microscopically visible evidence to indicate a natural disease that would account for [Baby P]'s death.

Dr Kokai reported that there were three small subcapsular haematomas, so bruises, on the front edge of the right lobe of the liver and a very small haematoma on the underside. The three haematomas on the front edge of the right lobe could be a rare manifestation of prematurity.

The very small haematomas on the undersurface cannot be explained by anything from the medical side of things. The alternative would be a form of injury to the liver. There weren't features of a severe impact to this liver because there wasn't a huge bruise or haemorrhage into the liver or the superficial lacerations related to the bruise, so he could not say there had been huge impacts to this liver. It could be some sort of impact, for example, due to cardiopulmonary resuscitation, so he didn't feel, viewed on its own facts and in complete isolation, he could have a confident answer on what the explanations for these were. It could be a combined effect of haematomas of prematurity and cardiopulmonary resuscitation and

he didn't have enough to say it was an impact, an inflicted injury.

From the pathology point of view there was evidence from the examination of the lungs of features that would be consistent with a pneumothorax complication, but he felt confident that he could attribute that to the contemporaneous medical intervention. Otherwise, there was no morphological evidence indicating an acutely occurring natural disease process that would explain why [Baby P] collapsed. He had no explanation and could not see how a natural disease could have resulted in that.

His understanding of the clinical assessment was that there was no clinical evidence of a natural disease accounting for this being consistent with a natural cause of death. Having had the benefit of the discussion with the experts, both from the prosecution and from the defence, and of considering other proposals in terms of potential explanations, Dr Marnerides came to the conclusion that there was gastric and intestinal distension following excessive injection or infusion of air via the nasogastric tube, either splinting the diaphragm or stimulating the vagal nerve.

Professor Arthurs reviewed the radiographs in [Baby P]'s case. The best image of the bowel dilation was the second of the three he reviewed, taken on 23 June at 20.09, behind tile 173. The first was taken on his birth date, which was a chest X-ray and which was normal. The second taken on the evening of 23 June showed a nasogastric tube going into the stomach which was moderately dilated with loops of small bowel and large bowel going all the way down. This was gas throughout the gut, very similar to the appearance of [Baby O]. This degree of gas was quite unusual in a baby like this. It didn't show obstruction, it didn't show NEC, and there was a nasogastric tube in situ. He did not suffer from infection, NEC or obstruction to the bowel that you can be born with, so one was left with other causes, such as administering air via an NGT.

Professor Arthurs was not asked to comment on the three X-rays taken on 24 June at the various stages of [Baby P]'s collapse.

Dr Evans said [Baby P]'s lung function prior to the events of 24 June were "as good as it gets", but he was concerned about the air in the intestine over the night of the 23rd/24th. He commented that despite the aspirations of air at 04.00 and 07.00 and the addendum note at the end of the night shift made at 06.39 by Sophie Ellis, behind tile 249, that the abdo had been soft and non-distended, the defendant's nursing note at 08.00 behind tile 263 recorded:

"Abdomen full, loops visible, soft to touch."

He was at a loss to explain how [Baby P] had collapsed. He was of the opinion that he was resuscitated appropriately and the pneumothorax, which was a leak and not a tension pneumothorax, was caused and most likely increased by the bagging.

In relation to his final collapse, when he was preparing his main report, the only thing he could think of was that he'd suffered complications from the pneumothorax. The ECG of Dr Brearey excluded the possibility of pulmonary hypertension, so looking back he wondered whether the excess gas may not have been natural and he had been given air down the NGT, which could have contributed to his not absorbing his milk during the night but not compromised his breathing, and thought that he had more air on the morning of 24th.

There was no credible natural cause for his collapses: no sepsis, no significant haemorrhage, no NEC, no brain problem.

He referred to and was cross-examined on the guide issued by the Resuscitation Council UK entitled Newborn Life Support, which, on page 63 under the heading "Where should I press?", states:

"Compress the sternum over its lower third. If you press too high on the sternum, the heart is not compressed. If you press too low, you risk damaging the liver. Place your thumbs or fingers on the sternum, just below an imaginary line joining the nipples."

He said an experienced or competent clinician or nurse would not cause any damage to the liver and he had never known damage to be caused in a resuscitation.

He was again challenged by the defence that he was simply coming up with theories and the fact that in his reports he linked the potential infusion of air before the night shift to the collapse the following morning at 09.40 without reference to nursing notes at 06.39 and 08.00 showed this.

He was also referred to the normal gas readings at 20.27 on the 23rd, behind tile 178, but repeated that the air could have compromised his ability to digest milk and not his breathing. He repeated that the compromising of his breathing recurred with the splinting of his diaphragm the following day as a result of an additional volume of air, prior to which he was stabilising by 07.00 the next morning, and said that, since his reports, he had now a far better understanding of the sequence of events. He was not trying to shunt things forward to implicate the defendant or anyone. He had raised concerns about the night shift and the start of the day shift.

Dr Bohin, having gone through the events and confirmed that the infusion rate of adrenaline was twice the intended dose, said that the apparent overdose of adrenaline didn't have any adverse effect. The infusion was started after [Baby P] had had at least two of his collapses and already had a metabolic acidosis by then. After the adrenaline was started, albeit at double the dose that was intended by the prescriber, his blood pressure didn't go up, save for one reading at 13.00 of 81, which was high, after which it dropped down. His heart rate didn't go up briskly, or at all, and he already had a lactic acidosis, so it was impossible for her to estimate what contribution this dose of adrenaline made to the lactic acidosis, but it certainly didn't affect his blood pressure or his heart rate adversely.

In relation to the acidosis she explained that the blood gases were taken after [Baby P] had had cardiac arrests, which inevitably will have increased the lactate on their own, regardless of whether there was adrenaline infusing. That why it's impossible to establish the contribution that an adrenaline infusion was making to the blood lactate.

She was concerned about the additional abdominal X-ray taken at 20.09 on the 23rd as a precautionary measure on the instruction of Dr Gibbs and the amount of gas within that X-ray, which Professor Arthurs described as "moderately full of gas". But there was gas that goes from the stomach and there's abdominal distension right the way through the bowel to the rectum.

Subsequently, over the course of the night, [Baby P] started to become intolerant of feeds and the abdominal distension reduced but the defendant recorded his abdomen as "distended and loopy" before he had a collapse, followed by subsequent collapses, the cause of which were difficult to explain.

The X-ray should have been done sooner, after the first collapse, and there was an issue about whether attention should have been paid to that pneumothorax sooner. It was possible that it was caused by the bagging or high ventilator pressures and could have contributed to the collapse at 12.28. She thought that the abdominal distension observed by the defendant splinted his diaphragm and adversely affected [Baby P]'s breathing and caused his collapse and that the air in his abdomen the night before was abnormal.

She could find no reason for that amount of air to be in his abdomen and felt that the air had been introduced via the NG tube and was not naturally occurring air. Her conclusion was that the air had been injected into his NG tube at some point or points, which led to splinting of his diaphragm, which subsequently caused his collapse. She could not explain why he went on to have further collapses and could not think of any

naturally occurring phenomenon that would have led to those further collapses. Neither the ventilatory strategy nor the adrenaline administration caused the collapse.

[Baby R] was removed, as I've told you, from the Countess of Chester the day after [Baby P] died.

[Baby Q], the subject of the final count on the indictment, count 22, suffered a sudden and unexpected collapse, but we will break off there, it's 4 o'clock. It's been a long day. On Monday we will start at 10.30 because we're not sitting tomorrow. You should, the usher will tell you, bring your refreshments with you because you will be beginning your deliberations before the lunch break, probably after about an hour. More from me on Monday morning. All right? But the usher will explain to you and I will give you a series of more directions -- not in writing, I'm not giving you any more paper -- some more directions about the procedures during retirement.

Thank you very much indeed. 10.30, Monday morning. Remember your responsibilities as jurors.

(In the absence of the jury)

Housekeeping

MR MYERS: We would like a visit.

MR JUSTICE GOSS: Yes, please.

MR JOHNSON: You may recall, my Lord, on Friday, just after Mr Myers finished, I raised the issue of the exhibits and what the jury have access to in retirement. I'm happy to say that we've now reached agreement between us as to what there is. What I will do, before the jury retire, please, though, is formally exhibit everything that's in the digital file, make that declaration, if I may, by agreement --

MR JUSTICE GOSS: Yes.

MR JOHNSON: -- so that just in case something is in the -- everyone has checked the digital file, but just in case there's something in there that wasn't formally exhibited in the trial, it doesn't have the catastrophic consequence that otherwise it would have.

MR JUSTICE GOSS: All right. I'm very grateful for that then. I will also confirm before I send the jury out -- probably what I'll do is complete my summing-up, have a short break for the jury, and then give them the directions in relation to what's

going to happen after the ushers have been sworn to act as bailiffs. So we'll try and get everything organised.

MR JOHNSON: The only other thing that I did mention a long time ago was that we have digital photographs. They're not of a particularly high standard, but digital photographs of all the witnesses when they actually came to give evidence and they were generally taken downstairs. They are available. I'm not suggesting that it should be suggested to the jury, it's not evidence, if they require it in retirement, it's just --

MR JUSTICE GOSS: Well, Mr Myers can think about it. He can say whether he thinks that's --

MR MYERS: Well, I understand from what Mr Johnson says that it's really there just to assist the jury if they require to be reminded what a witness looked like or who they were. It's not something to be given to the jury as an aid to begin with and we wouldn't seek that.

MR JUSTICE GOSS: Are you content for me to make the offer if they did require to look at a photograph to remind themselves or what?

MR MYERS: Certainly I don't invite your Lordship to do that. It's something the prosecution did, but most of these witnesses have appeared on multiple occasions and one imagines they've left some impression. If there is a problem with recalling a witness and the jury convey that to us then we have this facility if it assists. But we would rather they not embark upon or in any way interpret it as an invitation to embark upon looking at photographs.

MR JUSTICE GOSS: Well, it shouldn't be mentioned then, should it?

MR MYERS: No, I would be grateful if your Lordship didn't.

MR JOHNSON: The only reason I asked for it to be done was because a jury in another case that lasted a long time that I was involved in, a lot of medical evidence, asked for photographs.

MR JUSTICE GOSS: That's fine. They're there. If they do, they do, but I'm not going to excite them into the idea of doing it.

MR JOHNSON: No.

MR JUSTICE GOSS: All right, thank you very much.

(4.06 pm)

(The court adjourned until 10.30 am on Monday, 10 July 2023)