

3 July 2023 (Day 141)

Discussion, Judge's Summing Up Day 1: Introduction, Babies A, B & C

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Discussion
SUMMING-UP

Monday, 3 July 2023
(10.00 am)

(Delay in proceedings)

(10.06 am)

(In the absence of the jury)

Discussion

MR JUSTICE GOSS: Mr Johnson, Mr Myers, may I confirm I've received your respective documents.

Subject to one or two queries, I don't know what you are specifically inviting should happen, Mr Johnson.

MR JOHNSON: I was inviting my learned friend initially to make corrections but I know his position is that there is nothing that requires correction. It's a document that points out issues we have raised.

MR JUSTICE GOSS: Can I say that there were points during the course of the speech that I was going to remind the jury of the actual evidence upon so I am not going to pursue any suggestion of pointing to something and identifying it. I shall simply in my narrative, which as you will learn shortly, is going to be a recitation of the evidence with very little, if any -- well, there will be a little bit of comment here and there but substantially no comment and no reference to it.

There is just one matter upon which I do need your assistance. That's to do with Dr Evans and the radiograph with air in the brain. There's one, isn't there? You say there are two, Mr Myers says there's one.

MR JOHNSON: It was the heart, I think, not the brain.

MR JUSTICE GOSS: Sorry, in the heart. There is reference to air -- yes, all right.

MR MYERS: Proper [sic] Arthurs, yes. There were two references which the prosecution identified: one during cross-examination relating to [Baby E], one during cross-examination relating to [Baby O]. It's item 3 in the prosecution's list and also item 3 in ours.

It's apparent when one goes back to the evidence that item 1 with [Baby E] actually came out of questioning about that image from the Lee and Tanswell document.

MR JUSTICE GOSS: So it was in relation to the image, not to an actual radiograph?

MR MYERS: The image, yes.

MR JUSTICE GOSS: I just want to confirm with Mr Johnson that you accept that.

MR JOHNSON: I must say, I hadn't picked up that detail if that's right.

MR JUSTICE GOSS: I've seen what you have said, Mr Myers, and that's what I understood the situation to be.

MR JOHNSON: If that's right then that's right.

MR JUSTICE GOSS: That's that. Then the other point in relation to this, as I understand it, is that Dr Evans, when he referred to the great vessels, when he was talking about air in the great vessels --

MR MYERS: Dr Arthurs, my Lord.

MR JUSTICE GOSS: Dr Arthurs, sorry -- was referring to air in the great vessels, he was not specifically identifying the heart as such, but he made this comment in relation to one of the radiographs that there was air to be seen in the heart and that was it, but then he didn't actually address that in any further detail.

MR JOHNSON: Well, one of the points my learned friend makes is that the prosecution haven't actually relied on air in the heart and we never did because --

MR JUSTICE GOSS: Exactly.

MR JOHNSON: -- it's a non-specific finding. The issue arose because, we say, it was being turned into a point.

MR JUSTICE GOSS: All right. There we are.

Then there's one other thing -- and I just didn't have the wherewithal over the weekend, because I was quite busily engaged, to confirm one thing.

Sorry, there is another matter, Mr Myers. Whether Dr Evans and Dr Bohin are neonatologists. You expressly did not contradict their assertion that they were neonatologists. Their qualifications, which I shall recite, are that they have been neonatologists.

MR MYERS: We accept Dr Bohin, by training at least and experience on the face of it, is a neonatologist. Our cross-examination of Dr Evans, and in fact I'd be grateful if this is a matter to deal with, to give your Lordship the correct references, but it was plainly directed towards the fact that he didn't have -- we questioned that he had the relevant experience and that he was a paediatrician by training. His evidence was that he had spent a lot of time working in neonatal units, but we were drawing that distinction most definitely. It would help probably if I could find your Lordship that reference.

In the course of submissions to the jury we said he was not a neonatologist. We didn't actually say that about Dr Bohin and the passage identified by the prosecution was a reference to them not being in the same league as Dr Babarao and we dealt with that in this response under item 1.

MR JUSTICE GOSS: Right.

MR MYERS: It's important because the prosecution's document had taken a passage from my submissions and it said that -- I'd like to just explain this to my Lord. One moment, please.

(Pause)

Yes, it's right under item 1 where they say there are several things that were said and they put the quote from my speech:

"Dr Evans is not [and it has square brackets] a neonatologist, no matter how he boasts of his credentials, nor is any other prosecution in this case."

We understand that by putting it in square brackets the prosecution were shortening what was said, but what was said he is not a neonatologist -- and we put this is at our page 6 in our response:

"Dewi Evans..."

We didn't say "not a neonatologist", we said:

"Dewi Evans is not in that league, no matter how he boasts of his credentials, nor is any prosecution witness in this case."

MR JUSTICE GOSS: I don't want to get involved in the semantics --

MR MYERS: No, I know --

MR JUSTICE GOSS: All I wanted to do is to tell the jury what the actual situation is, not what they may or may not be described as.

My proposed summary, and I would be grateful if counsel could listen to this, would say that:

"He is a consultant paediatrician who was in full-time NHS clinical consultant paediatric practice in Swansea from..."

And then I need help on from when it was. I've noted 1980. There's another reference to 1986 somewhere and I'm just wondering if someone could look at the report to confirm exactly what the correct date is, but we can pass on that:

"... to 2009 and was responsible for setting up, supervising and leading a neonatal intensive care service in Swansea from his appointment, developing intensive care services from scratch. His experience was very much hands-on. His operational and managerial roles including serves as clinical director of paediatrics and neonatology in Swansea between 1992 and 1997, and 2004 to 2008. Neonatology is the care of babies up to around 4 weeks of age."

I hope that accurately represents what his experience and qualifications are.

MR JOHNSON: Yes. It's 14 October, which is Day 8, and it's page 7 of the transcript. I can read what he said.

MR JUSTICE GOSS: If you would, please.

MR JOHNSON: "I qualified from the Welsh National School Of medicine in 1971. I carried out my first paediatric post 18 months later. So my paediatric junior training took place in Swansea initially, then in Cardiff and in Liverpool. Each phase of my training involved specific training working in a neonatal unit."

Then he says:

"I was appointed consultant paediatrician in Swansea in 1980. The most significant part of my brief, I think, was the

development of newborn services for babies, particularly developing intensive care services for babies, which we did from scratch, really."

Then I asked:

"How would you define your role in the development of those neonatal intensive care services in South Wales?"

He said:

"Swansea was one of the bigger units in South Wales so we covered the area extending throughout the whole of South-west Wales over time. Initially it was very much a matter of getting on with it, trying to get good equipment, getting the nursing and" --

MR JUSTICE GOSS: I don't need that.

MR JOHNSON: And then:

"So therefore we developed all those services during the 1980s and the 1990s in Swansea..."

MR JUSTICE GOSS: I think I've summarised it accurately and fairly. It was just the date of 1980 I wanted --

MR JOHNSON: Yes.

MR JUSTICE GOSS: -- which I had written down and then somewhere else I saw 1986, but there we are.

So your complaint, Mr Myers, or your criticism of him, is that he essentially trained as a paediatrician, specialised in neonatology, but doesn't have -- that is the extent of his experience as I've summarised it?

MR MYERS: It is. My Lord, just so it's plain, the way we dealt with it, and I found the reference, when we cross-examined Dr Evans on 14 October last year -- and this is for your Lordship's reference at page 70, line 12, on Day 8, 14 October, through to page 71, line 18 -- we established with him that he's not a consultant neonatologist, it was put to him:

"You're not a consultant neonatologist, are you?"

He said:

"Answer: I'm a consultant paediatrician, that's correct.

"Question: You are a consultant paediatrician and you have significant experience in neonatology of over 30 years.

"Answer: Yes."

We went through that with him. It was put to him:

"Question: The bulk of your experience in neonatology is via the unit you set up in Swansea?

"Answer: Correct.

"Question: And that was during the 1980s into the 1990s?

"Answer: [And he added] And the 2000s."

So it was over that period, from the 1990s to the 2000s:

"Question: So in that sense [we went on to say] you weren't someone who was working exclusively in neonatology?

"Answer: That is correct."

So that was the type of issue.

MR JUSTICE GOSS: I understand. I'll refer to that, thank you very much. I don't think there are any other matters that I need to continue with unless there's anything you want to say, Mr Myers.

MR MYERS: We don't enlarge upon the written material your Lordship has had. We understand the process your Lordship is engaged within and our concerns were there. I won't reiterate all of that now. Your Lordship has that and we can proceed as your Lordship sees fit.

MR JUSTICE GOSS: I'm not going to engage in a process of correcting. All I'm going to do is tell the jury what the evidence is and say, "This provides the context of the submissions that you have heard", in other words, I'm contextualising the submissions.

MR MYERS: Yes, we understand that. With that in mind, your Lordship knows we don't accept the description of correcting, although I won't descend to the arguments which were given to your Lordship, but we have put the corresponding evidence and issues alongside those and we may do that yet if we have the opportunity with the other matters that were raised, though we take it that your Lordship does not take these as a guide to what is said in summing-up.

MR JUSTICE GOSS: What I will do is simply, when we have breaks, of which there will be quite a few over the course of the next few days, I will invite counsel, if they wish to correct anything that I have said which is erroneous, I'd be very grateful for you to correct me. But what I will not engage in is seeking to advance arguments, you wouldn't expect that in any event, but simply any corrections, and I hope there will not be many, but there is a huge amount of material, and of course this is a summing-up, this is not a recitation of all the evidence, and I can't -- I'm not going to descend to arguments and counter-arguments, I will simply set out the general positions of the prosecution and the defence and then remind the jury of the evidence, giving them references, but not -- and I'll tell you this now so that no one is in any way surprised, I'm not going to invite them specifically to look at documents as I'm going through my summing-up because they have the documents. I shall make references and invite them to note references if they so wish but I am not going to start, because if I started where would I stop and we would be here for weeks.

MR MYERS: Yes.

MR JUSTICE GOSS: So that is, as you will hear in a moment when we start, the format of the summing-up. As I say, I would, please, welcome corrections --

MR MYERS: My Lord, we understand.

MR JUSTICE GOSS: -- which can either be done in the presence or the absence of the jury. It might be better if they're done in the absence of the jury, I think.

MR MYERS: We agree.

MR JUSTICE GOSS: All right.

Would anyone object to the usher distributing -- is it easier for you to distribute when the jury are in place?

(Pause)

(In the presence of the jury)

SUMMING-UP

MR JUSTICE GOSS: I see that each of you collected a copy of my second set of legal directions, "Legal Directions 2", to which I shall come in due course and I shall refer you to those directions as and when they are appropriate, all right? But don't for the moment trouble to look at those directions.

In 2015 and 2016, there was a significant rise in the number of babies who suffered serious and unexpected collapses in the neonatal unit in the Countess of Chester Hospital.

The prosecution case is that these collapses were not natural events but were caused by the defendant, Lucy Letby, using various means to harm babies, intending that they should die. Some died, others were resuscitated or, in the cases of alleged poisoning by insulin, the source was removed.

A number of the babies were subjected to what the prosecution allege were repeated attempts to kill them. After a year, it became clear that, of all the nursing staff and doctors, the defendant and her alone was at work on the unit at relevant times and was sometimes present when unexpected collapses occurred.

Following the deaths of [Baby O] and [Baby P] and the collapse of [Baby Q] on successive days on the 23rd to 25 June 2016, the defendant was confined to clerical work and stopped from patient nursing duties.

As I have told you already in my written Legal Directions 1, you have to consider a total of 22 alleged offences and return verdicts on each of them, applying those legal directions. There are other directions of law relating to the evidence that I must give you and they are in writing and headed "Legal Directions 2", to which I have already referred.

I shall refer to those directions at the appropriate relevant times during the course of this summing-up, which obviously is going to take some time, as I said to you before counsels' speeches, but it will not be exhaustive. I repeat and emphasise that it is your view of what is significant and relevant to the decisions you have to make and your resolution of the conflicts in the evidence you have to make that is important.

I begin by reminding you of the background and context of the events giving rise to the offences alleged on the indictment. The Countess of Chester Hospital is, and was in 2015 to 2016, a busy general hospital with a maternity unit within which was the neonatal unit, in which premature and sick babies were cared for at that time and to which I shall refer as "the unit"; that's the neonatal unit.

Given that we are concerned with the hospital structure and layout of the unit in 2015 to 2016 and events at that time and the prevailing situation and practices, I shall use the past tense in my summary. Even though it's still a functioning hospital, I shall refer to it in the past tense.

In the Cheshire and Mersey Neonatal Network, which adopted the prevailing standard NHS structure in England and Wales, a three-tier system of hospitals was operated, the tertiary system, with which you are now familiar and it is set out in section 1 of the agreed facts, which are in your second jury bundle. You needn't refer to it now, if you need to remind yourselves about the system, that's where it is.

The Countess of Chester was a designated level 2 unit and routinely provided care for babies of 27 weeks' gestation and babies that required intensive care for up to 48 hours.

You have a plan in your first jury bundle, section 4 of the ground layout of the neonatal unit and some adjacent areas. It's a guide and not a scaled and wholly accurate depiction of the unit. You also have photographs and walk-through recordings, one being close to the time of the events and a more recent one recorded on 3 October 2021, when equipment had been removed and the unit had been vacated.

One room, marked on the plan as room 1, was the ICU room and was often referred to as "nursery 1". There were four incubators and two computers in there as well as other equipment. Nurse Melanie Taylor remembered it as shown in the walk-through recording.

Room 2 was the high dependency unit, the HDU, often referred to as nursery 2, and rooms 3 and 4, nurseries 3 and 4, were special care babies' rooms.

The details in relation to the rooms and the means of entry and reliability of swipe data are set out in section 3 of the agreed facts. Also in that section are the details relating to the medical staff.

The very last evidence you heard in the case was from Lorenzo Mansutti, an estate plumber for the hospital since 1986. The Women and Children's Building, of which the unit forms part, was built in the 1960s. There have been issues with the drainage system in that building, assorted and various blockages, maybe once a week, he said. There was one occasion in 2015 to 2016 when he believed a hand basin in nursery 1 in the unit backed up with foul water.

He was also taken through plumbing incident reports, including one on 26 January 2016, when at 02.30 hours the floor of nursery 4 was flooded because a mixer tap was switched on and a sink was blocked by waste products having been put down it. That was not on a date or around the time of any incident in the indictment.

There were nine other incidents in the Women and Children's Building, not all of which were in the unit.

The doctors and nurses all worked on a shift system. The doctors comprised the conventional grades of hospital doctor, consultants at the top, with specialist doctors in training below, identified by a T number, registrars being next and senior house officers in the lowest grade. The number of years registrars and senior house officers had undergone specialty training reflected their level of experience. The doctors would cover the children's ward and the neonatal unit, so would not necessarily remain within the unit for the full duration of a shift.

There were seven consultants at that time. Dr Gibbs explained that every specialty in the NHS wanted and wants more staff. An increase had been planned for many years and was necessary because of the need to comply with the European Working Hours Directive, which was applicable at that time. This was a nationwide problem in paediatrics. Dr Gibbs said it would have been better if more consultants were available, but he refuted the suggestion that there was any compromise of the appropriate level of care given at that time.

There was a consultant of the week, who covered both the paediatric ward and the neonatal unit. That style of cover was common for a district general hospital and one that they had followed for many years prior to 2015.

He said they weren't complacent about whether they were offering appropriate care for babies on the unit. They carefully monitored activity on the unit and each year they would look at the outcome measures, a crude but important one being the number of babies who died on in the unit.

And every year, up to 2015, the number of deaths on the unit were within the expected number for a unit of their type in the region, which was less than the national average. Yet with those same consultants, in 2015 to 2016, the number of deaths increased significantly, with a marked difference in both the number of deaths and in the unusual and unexpected nature of the deaths.

The defence contend that this was a consequence of the increased number of neonatal babies at that time and the higher acuity of those babies. As I shall remind you, as the number of such cases increased, the clinicians started to think the unthinkable, as it was described, that these were not naturally occurring, sudden collapses but the consequences of deliberate harmful acts.

Generally, there would be paediatric consultants on duty between 09.00 and 17.00 hours each day and one on call at night, who was

within 10 minutes of the hospital. I shall use the 24-hour clock at all times to avoid confusion with AM and PM and I won't say "hours" each time, I will just give you the numbers.

Registrars and senior house officers were always either in the paediatric wards or in the unit and the registrars, who would have up to 11 years' post-qualification experience, generally provided the senior medical cover overnight.

In her evidence the defendant was asked about her relationships with other members of staff. She confirmed that, apart from [Dr B], who was very involved in the attempt to resuscitate [Baby P], count 21, and with whom she didn't have the best working relationship, she had no problem or issue with any of the doctors and had a normal working relationship with them at the time of the events in this case.

She loved [Dr A] as a friend, but was not in love with him.

Later, she characterised Dr Stephen Brearey, a consultant and neonatal lead at the hospital, as "a bastard" after the investigations had begun. He, she said, was one of four consultants, the others being Dr Jayaram, [Dr B] and Dr Gibbs, who have conspired together falsely to apportion blame on her and, she believed, to cover up the failings at the hospital.

Nurses who worked at that time in the unit generally fell into one of four bands in the hierarchy below the ward manager; agreed fact 12 in section 3. Band 6 nurses were at the top. Below them were band 5 nurses who were split into those who had done special training in caring for ICU babies and those who had not. Below them were band 4 nurses, also known as nursery nurses.

The nurses worked in shifts. It was the general rule that a nurse who started on a shift in the unit remained there for the whole shift. The day shift generally started at 07.30 with the preceding night shift ending half an hour later at 08.00, during which time a handover would take place.

Melanie Taylor, a band 6 nurse, often referred to as Mel, was the first member of the hospital staff to give evidence. That was on 19 October last year. She was the first of many witnesses who gave evidence screened from others in the courtroom. She explained the handover process. I remind you of the oral direction relating to a witness being screened, which I gave you at the time and which you now have in writing. It is legal direction 1 in the second set of legal directions, and I have to read through them, although you have a copy of them, so I'll read through each of these directions as and when they are relevant.

A witness giving evidence from behind a screen is permitted by law and is now commonplace, the purpose being to assist the witness to give their best evidence. It has no relevance to the quality of their evidence as a witness and you should attach no significance whatsoever to a witness giving evidence in such a way. You judge the witness in exactly the same way as you judge any other witness. You certainly do not hold it against the defendant or her case that a witness has given their evidence in this way.

And I'm sure you wouldn't do that and you probably can't even remember which witnesses were screened and which weren't, certainly all of them. You'll remember some, not all of them. So attach no significance to the fact that there were screens for some witnesses.

Other witnesses, some other witnesses, gave evidence over a video link, sometimes from other parts of this country or from overseas, Switzerland and Australia, you will remember. This was purely for the convenience of those concerned and was an obvious cost and climate-saving measure. Of course, you do not attach any significance to any of them giving evidence in this way. You judge them as witnesses in the same way as you judge any other witness in the case.

You've heard from a number of nurses that all the nurses coming on duty would have a huddle in a separate room, which the shift leader of the previous shift would pass on general information in relation to all babies. The nurses would then go to their own designated baby or babies for a one-to-one with the designated nurse coming off shift, who would give them an in-depth handover and provide handover sheets for the babies.

In accordance with the British Association of Perinatal Medicine, BAPM, standards, there would generally be one nurse to one baby receiving intensive care, one nurse to two high dependency babies, and four special care babies to one nurse.

At the cot side of each baby there would be a clipboard with that baby's charts, such as observations and fluid charts. Those charts were completed at the time and the times were recorded on them. Caroline Bennion said observations take about 10 to 15 minutes if straightforward and could take up to 25 minutes if care or repositioning had to take place. The time recorded for the readings and observations were taken around the time of the observations and not precise to the minute. The general nursing notes were written up on a computer retrospectively. In her evidence, the defendant confirmed that these were the procedures and you have now become very familiar with all the various hospital documents.

When making nursing notes, you did have an accurate electronic time of the time of starting to make that note and the completion of that note.

Staffing levels. A number of neonatal practitioners, [Nurse A], Caroline Bennion, [Nurse B] and Caroline Oakley and Kathryn Percival-Ward, now Percival-Calderbank, and Belinda Williamson, then Simcock, were asked about staffing. [Nurse A] said there were periods when they were short-staffed and they didn't always reach the BAPM guidelines, to which I shall refer, as they have been during the trial.

Ideally, there should be two band 6 nurses on any shift. Sometimes there were potentially more babies in the unit than there were meant to be. When a shift was a bit short of staff, a nurse might be asked to staff a shift or do an extra shift and there would be flexibility with the rota. [Nurse A] also said they always had a lot of senior staff who supported the junior staff, but 2015 to 2016 was a busy period with more babies requiring a higher level of care, higher acuity, and there were times when the BAPM gold standard could not be achieved.

Melanie Taylor remembered there were a lot of busy shifts around that time. [Nurse B] also said the unit was very busy in 2015 to 2016, admissions seemed to increase and they had far more intensive care babies. It wasn't always possible to follow BAPM guidelines on staff ratios, but staff were giving up breaks to provide care.

Caroline Oakley didn't remember the unit being unduly short-staffed, there were always a lot of babies and it was always quite busy.

Kathryn Percival-Ward, now Percival-Calderbank, said there were a lot of babies that became sick at that time and they were particularly busy.

Belinda Williamson said at times it was difficult to get hold of a doctor when needed, particularly at night if the paediatric ward was busy, but in relation to nurses she said it was rare for there not to be two band 6 nurses working on any shift as the BAPM guidelines provided.

In his evidence, Dr Stephen Brearey accepted that staffing levels were lower than BAPM standards during this period when the College reviewed their care in September 2016. It was also noted in that report that this was similar to other units and, at the time when these events happened, their staffing levels were better than all the other local neonatal units in Cheshire

and Merseyside at that time. Those units didn't have the same mortality problems as the Countess of Chester.

A good deal of questioning by Mr Myers, and his submissions to you, was directed towards staffing levels and the level of care provided by both medical staff and neonatal practitioners and, in some cases, their level of experience in dealing with some of the more vulnerable neonates. There is evidence of occasions when, contrary to the standard, a nurse on a shift was the designated nurse for more than one intensive care baby. There is also evidence of occasions when nursing staff complained about particular shifts and when care was sub-optimal; in other words, not as good as it should have been.

The potential relevance of this evidence in this trial is whether any specific or identified failing of or by any of the clinical or nursing practitioners, whether by way of inexperience or competence or numbers on duty at any time or by error, was or may have been relevant to the deterioration of any baby or to an event that you are considering.

In particular, whether a failure of care or mistake may have been causative of the sudden deterioration in the condition of any of the babies in this case or adversely affected their chances of recovery and, if so, which. For example, there was an admitted failure to give [Baby D] antibiotics after birth and a delay in giving surfactant, about which I shall remind you.

In the great majority of cases of the babies in this case, the defendant herself accepted that staffing levels or negligence in their care or treatment of them played no or no causative part in their collapse and/or death. I shall review all the cases for you, identifying in each of their cases the history of the baby, their condition and the circumstances in which they variously required emergency resuscitative treatment, what was done and what was not, and the expert evidence in relation to the way that the clinicians and nursing staff treated the babies and what the defendant said about any potential nursing or clinical mistakes.

It will be for you to determine the relevance of these matters to the deteriorations, collapses and deaths. In his address Mr Myers said there was plenty of sub-optimal care, that the doctors at the hospital have resisted criticism, and he repeatedly suggested that they were blaming the defendant for failings in what had happened and had gone out of their way to damage her and use it as an opportunity to cover bad treatment and poor outcomes.

He submitted that the evidence in relation to alleged types of harm inflicted was inconsistent with an intention to kill, suggesting:

"Why use different ways when an early alleged harmful act has been successful? Why change what worked?"

These, and other propositions he advanced, are not evidence in the case, rather they are inferences or conclusions he invites you to draw which proceed from and are based on the defendant's position that she did nothing to harm any baby.

As I have already directed you in my written directions 1, it is your determinations of who is, and who is not, telling you the truth, and reliable, and the conclusions you draw from all the evidence that you make your decisions.

I shall endeavour fairly to refer to relevant evidence, some of which will involve you having to contextualise counsels' submissions, so you must concentrate on the detail and, if you wish, refer to documents, charts and notes. I am not going to put a single document up on the screen for you to look at during the course of this summing-up because you have them all on your iPads and can look at any you consider are or may be relevant when you are deliberating on your verdicts.

In the case of two of the babies, there is evidence of unprescribed insulin having been administered when it was wholly inappropriate; they are, of course, [Baby F], count 6, 5 August 2015, and [Baby L], count 15, 9 April 2016, each of whom was a twin.

In their cases, the prosecution invite you to conclude that there can be no doubt that someone intentionally added insulin to the nutritional food and the dextrose that was being given to [Baby F] and [Baby L] respectively, and the chance of there being more than one person acting in that way can be entirely discounted. Medical negligence or accidental want of care could not, they submit, on any view have played any part in those cases.

The defence, consistent with the defendant's case that she was not responsible for adding insulin to infusions for either baby, put the prosecution to proof in relation to the fact that manufactured insulin was deliberately introduced to both those babies and that it was the defendant who was responsible for that and, if you are sure that it was, that she intended to kill.

They invite you to question the evidence of the taking of the samples, their handling and testing and, given the potential

consequences of insulin poisoning, the lack of harm caused. I shall, therefore, remind you of the evidence relating to the blood sampling, testing, the results and the associated processes and other linked evidence when I come to those counts.

The prosecution say that this evidence is of major significance, being incontrovertible evidence, if you accept it, that someone was deliberately and knowingly doing something that was completely contrary to normal practice and very dangerous and which must, they allege, have been done with the intention of endangering the lives of those children.

They say that this assists and informs you in relation to the cases of other children who suffered sudden and unexpected collapses for which there was, at the time, no apparent medical explanation or where, for example, infection was suspected as a possible cause, but then later excluded by the test results when they came through.

The prosecution submit it is key evidence in relation to the issue of whether these collapses were natural occurrences or rather the consequence of deliberate, malicious and wrongful acts, characterised by Mr Johnson as sabotage, by someone intent on fatally harming the children.

By reference to my legal directions relating to circumstantial evidence and coincidence, at the conclusion of his address Mr Johnson gave you the lists of features in relation to the various collapses of the children that the prosecution say amount to circumstances that, taken with the clinical evidence and expert medical evidence, as well as the features of messages, the retention of medical documents and the notes that the defendant made and kept, leads you to the conclusion that these children were deliberately targeted and one person was responsible for their sudden collapse and, in some cases, their deaths.

The defendant's case is that she was a dedicated, caring and conscientious nurse who never did anything to harm any child. Babies do collapse for no apparent reason and there are, it is submitted, potential medical reasons for at least some of the collapses. If there was such a person intent on harming children, it was not her.

Lucy Letby was born on 4 January 1990 in Herefordshire and was brought up in Hereford by her parents. She is now 33 and was 25 to 26 years old at the material time between June 2015 and June 2016. She went to a local sixth form college, she always wanted to work with children, and picked A level subjects to enable her to study for a degree in nursing.

She studied for her three-year nursing degree at Chester University, working at the Countess of Chester Hospital twice during her training in 2010 and 2011. In 2012, she started as a band 5 nurse at the Countess of Chester, working predominantly in nurseries 3 and 4.

[Nurse A], a band 6 neonatal practitioner who qualified in 1992, was the defendant's mentor when she was in training. They became good friends. The defendant said she always strove to go on every course she could. She, in turn, was a mentor to student nurses from 2012, responsible for teaching them, carrying out paperwork on the competencies that they need to achieve.

In March/April 2015, having completed a six-month course that involved a university module, assessments, assignments and a placement at Liverpool Women's Hospital, a level 3 hospital, the defendant qualified in the specialty enabling her to care for the sickest babies on the unit or those requiring the most intensive care.

In 2015, she and Bernadette, often referred to as Bernie, Butterworth, were the only band 5 nurses on the unit with that specialty. All band 6 nurses had that qualification as well. So in other words, the band 6 nurses and two of the band 5 nurses with that special training, of whom she was one.

I turn next to the next legal direction I must give you, which relates to character. Legal direction 2. As you know, the defendant has never been in trouble with the police and has no criminal convictions, reprimands or cautions recorded against her; that is set out in agreed facts section 10, fact 59.

Not having previous convictions of any kind does not, of course, provide any person on trial with a defence, but it is something which you should take into account in her favour in two ways. First, it may make it less likely that she would deliberately harm any babies being cared for at the hospital. Second, it is also something that you should consider in her favour when deciding her credibility, in other words, whether she was being truthful in her evidence to you about these events. It is entirely for you to decide what weight, if any, you attach to the defendant's previous character in the light of all the circumstances and the facts as you find them to be.

The defendant said that over a 12-month period she cared for probably hundreds of babies and never did anything that was meant to hurt any of them. She only ever did her best to care for them. Hurting a baby was completely against everything that being a nurse is. She was there to help and to care, not to harm, she said. She always prided herself in being very competent.

Christopher Booth, Chris Booth, confirmed she was very conscientious, hard-working and willing to help. [Nurse A] described her as highly professional and dedicated to the work she was doing. They would talk a little about babies on the ward and it was quite usual for them to message each other. [Nurse A] also said that sometimes she remained friends with the parents of babies she had nursed on Facebook and confirmed that sometimes a nurse went to the funeral of a baby who had died if that was what the parents wanted. Another nurse, Jennifer Jones-Key, said she was a good friend of the defendant at the time. She said the defendant was a capable and hard-working nurse who gave a high level of care. Eirian Powell, the ward manager, described her as an exceptionally good nurse.

In her evidence the defendant said that during the period 2015 to 2016, she was predominantly allocated to intensive care babies because there were a lot of them on the unit and because of the available skill mix of the nurses. She was newly trained and could bring her skills from the tertiary centre for other people to learn from. She had a kind of passion for that area of work, she said. She enjoyed all aspects of her work, but she particularly enjoyed the intensive care side and staff knew she enjoyed that area.

She said she never used her phone when in any of the nurseries. It's apparent from the evidence of messaging that she would message friends and colleagues, both when at work on the unit and at home.

Her health over this period was generally good. She had no time off work. She did have a condition called optic neuritis, which is inflammation of the optic nerve, and it caused pain and discomfort and blurred vision at one point in 2015 and she was under the ophthalmology team at the Countess of Chester and also the Walton Centre in Liverpool, but it resolved itself.

She was very flexible, living on site in accommodation at Ash House from when she first started in January 2015 until 15 March 2014, when she moved into a flat in town until 1 June 2015, before moving back to Ash House, as recorded in her diary, and living there until 6 April 2016, when she recorded moving out from there to the house she had bought at 41 Westbourne Road.

So at the time of the events we are concerned with, she lived first at Ash House, then moved to her home in Westbourne Road just before [Baby L] and [Baby M] were born.

She was often asked to do more than the prescribed 13 shifts per month. She was particularly friendly with [Nurse E], Minna Lappalainen, [Dr A], [Nurse A] and Jennifer Jones-Key. Some of

those people supported her after she was moved to non-clinical duties and that was very important. She said they were the only form of support she really had.

She was devastated when she was taken off clinical duties in July 2016 and being told that there was going to be testing of competencies. She had always prided herself in being very competent.

It really affected her, being taken away from her support system and given a non-clinical role. She registered a grievance on 7 September 2016 about her redeployment. It was at that time that she became aware that she was being held responsible for deaths on the unit, receiving a letter from the Royal College of Nursing. She said it was sickening, devastating, and she changed as a person. Her mental health deteriorated and she felt isolated. She was only allowed contact with [Nurse E], Minna Lappalainen and [Dr A]; the latter was a close friend.

She was first arrested on 3 July 2018 at her home at 06.00, as set out in agreed fact 25. She was then interviewed over 3 days before being released on bail and went to live with her parents in Hereford.

Her house and that of her parents were searched and various documents, including shift handover sheets and resuscitation notes, diaries and sheets of closely written notes were found and seized, to which I shall refer in due course.

She was rearrested on 10 June 2019, further interviewed, and further searches were conducted and again she was released on bail.

Finally, she was arrested a third time on 10 November 2020, interviewed and charged, and has remained in custody since then.

The arrests, she said, traumatised her. She accepted that a large proportion of the prosecution papers were served on her in early 2021, though not all, and that by February 2022 she knew the important features of the allegations. A defence statement was confirmed by her on 11 February 2022. Some of its contents appear to be different to what she said in evidence to you, and I now refer you to the next legal direction, legal direction 3, "Defence statement".

Just as the prosecution must disclose all of the evidence upon which they intend to rely, the defence must also serve a formal defence statement which informs the court of those parts of the prosecution case with which the defendant disagrees and the facts upon which the defendant is to rely in their defence. This is to enable the issues to be identified and for each side to

prepare for the trial so that neither is taken by surprise. In this case the defence statement was served in February 2022. You have been provided with a copy of the relevant parts of it.

The prosecution asked the defendant about things she said in that statement compared to what she was telling you in evidence. If you find there is a material difference in what she said in her defence statement and what she said in evidence to you, just as with any witness, you are entitled to ask yourselves why.

The defence say that there was a vast amount of material to be considered and digested and there have been significant delays between when the events occurred and her receipt of all the prosecution material, which made her task more difficult.

It is for you to assess the reasons put forward by the defendant. If you find any inconsistencies to be without significance or you accept that any account was or may be true then you should ignore the differences. It's only if you are sure that there is a significant material change of account and the reason for it is that she is not telling the truth to you about the matter that you may take that change as providing some support for the prosecution case, but you must not convict the defendant wholly or mainly on the basis of such changes. It's always for the prosecution to make you sure of guilt.

Before I turn to the evidence relating to the events, I need to give you two further legal directions which relate to delay and expert evidence. These are directions 4 and 5. Sorry, you put them down, take up the document again.

Legal direction 4. I did say when we parted company last week that I was going to check that you have all the documents. We'll come back to that in a moment. You do have all the documents, I'm confident of that, including my first legal directions, and as and when I refer to documents, which will be very rare, you can refer to them.

Legal direction 4, "Delay". There have inevitably been delays between the events giving rise to the allegations and the defendant -- the taking of witness statements, her being questioned about them by the police and then giving evidence some 7 or 8 years after the events. All witnesses, including the defendant, have been dependent on, in part, contemporaneous records and notes and what they recalled when making statements closer to the events.

Some have clear recollections of certain events by reason, they say, of their unusual and memorable nature. For all, the passage of time is likely to have affected memories about exactly what happened and the ability to recall all detail of events, even

with the benefit of contemporaneous records, so make appropriate allowances for that and take account of the delay and, in particular, any disadvantage caused to the defendant in relation to being able to recall with precision what took place and remembering details which may have assisted her.

You know from agreed fact 57, for example, there was no swipe data for entry to the unit available for the period between 17 July and 22 October 2015. I just point out that that's something that is missing: there's simply no evidence because there's no swipe data. So if it's relevant, you take it into account.

So that's the direction in relation to delay. Then expert witnesses. This is a long direction, as you will see, and I'll go through it with you and you can refer to this if you so wish when you are deliberating in due course.

Expert witnesses. Expert evidence, given by someone with specialist knowledge, is given in order to help you with matters which are likely to be outside your knowledge and experience. You have heard evidence from experts in the following disciplines, namely in paediatrics and neonatology, Dr Dewi Evans and Dr Sandie Bohin. In paediatric haematology, Professor Sally Kinsey. In paediatric radiology, Professor Owen Arthurs. In paediatric neonatology (sic), Professor Stavros Stivaros. In paediatric endocrinology, Professor Peter Hindmarsh. In forensic pathology, Dr Andreas Marnerides.

You would expect to hear evidence in a case such as this from people with an expertise in these particular areas. They provide you with evidence about medical matters that is within their own area of knowledge and expertise. Each owes a duty to the court, as an expert witness, of independence and their role is to be a witness and not an advocate. Each has an expertise gained from their accumulated knowledge and research in a particular specialised area of medicine.

Although you know that experts were instructed on behalf of the defence, and there were meetings between experts, the only witnesses from whom you have heard were called by the prosecution. The defence have addressed you on what they submit is the limited expertise of the prosecution witnesses as well as the extent and reliability of the body of medical and scientific material relied on by some of them, in particular Dr Evans and Dr Bohin, and their approach to their role as an expert witness, including their independence and duty to act as a witness and not an investigator. I shall remind you of the limitations and criticisms relied on by the defence when I come to their evidence.

You are entitled to, and no doubt will, consider the respective opinions of each expert when coming to your own conclusions about the case. However, as with any witness, it is for you to decide whether you accept some or all of the evidence of any expert witness. It's your view as to the significance and reliability of this evidence that is important.

In this case the factors that you should take into account in determining the reliability of the expert opinion include the extent and quality of the data and material upon which the expert opinion is based, the validity of the application of the evidence by the expert to the known medical criteria.

In relation to part of the evidence from Professor Arthurs relating to the cases from the records of Great Ormond Street Children's Hospital, he reviewed the extent to which any opinion based on that material has been reviewed by others with relevant expertise, the extent to which the expert's opinion is based on opinion forming outside the expert's own field of expertise, the completeness of the information available to the expert, and whether the expert took account of all relevant information in arriving at his or her conclusion.

You should be astute to any potential flaws in an expert's opinion which detract from its reliability. For example, the extent to which it is based on a hypothesis which has not been subjected to sufficient scrutiny, including experimental or other testing, or on an unjustified assumption or relies on an inference or conclusion which has not been properly reached.

The expert evidence is part of the case and you should have regard to all the evidence, including but not confined to the expert evidence. Put another way, you do not consider expert evidence in isolation. Each expert was giving opinions purely from the viewpoint of their own specialised knowledge. Each was obliged to confine their opinions to conclusions they could draw from their own specialism.

You do not consider the opinions of the individual expert witnesses in isolation. Rather, you consider them in the context of all the other evidence in the case, including other medical evidence, both expert and clinical, and any relevant circumstantial evidence in order to determine the cumulative weight of all the evidence.

The expert evidence is given, of course, by reference to the evidence of the clinicians, the doctors and nurses and nurse practitioners of various levels of qualification and experience, and all the clinical and other data about which I shall remind you when I summarise their evidence in relation to individual children.

The medical practitioners were making clinical judgements and acting on them in real time as the various events occurred. They, the clinicians, do not give expert opinion evidence as to the cause or causes of the events, though they can, and did, give evidence excluding possible causes as a result of observations, that's observations at the time, and the results of tests, scans and radiographs on the basis of their knowledge and experience.

I hope you understand that. As I say, you can go through it again. In a sense it's obvious, but it's important that is how you have regard to the expert evidence when you come to make decisions in this case.

I shall deal, as I've said, with each baby in turn. A great deal of what I say shall be by way of summary because it is not controversial. It will be dense and factual, not out of insensitivity to the human situations of those involved, the very understandable emotional reaction to what happened and the personal trauma and loss, but because you are making decisions on the facts, be they agreed or you find established by the evidence, and the conclusions you draw from admitted or proven facts. It refers back to those original written directions I gave you about not trying this case on emotion but on evidence.

I shall refer to tiles in the sequence of events and to J documents so that if you think a particular document may be important, you may note it. But remember, my review will necessarily be selective and is not exhaustive. It is your view, I repeat, of what is important and what is not and the conclusions you draw from all the evidence that matters.

I am very conscious of the fact that you have already listened to 9 days of speeches. Those speeches were necessarily selective of and focused on parts of the evidence that each party submitted was relevant to your decision-making. I shall provide a narrative of events, endeavouring to put matters in sequence and in context so that you have the evidence and you will have notes and you'll be able to refer to documents in relation to these events as they were proceeding in time.

I begin by reminding you of the evidence relating to [Baby A] and [Baby B], the subject of counts 1 and 2, being respectively alleged offences of murder and attempted murder.

Count 1, [Baby A]. The twins [Baby A] and [Baby B] were born by emergency caesarean section on the evening of 7 June 2015 to [Mother of Babies A & B] and her fiancé [Father of Babies A & B].

Because [Mother of Babies A & B] had been diagnosed in February 2011 with antiphospholipid syndrome, to which I shall refer by the acronym APS, which is a rare autoimmune disease that afflicts about 0.05% of the population, it was a high-risk pregnancy and she was under the care of both the University College London Hospital and the Countess of Chester Hospital.

The pregnancy was fine until the 28-week point when [Mother of Babies A & B] was admitted to the Countess of Chester Hospital and monitored. On the afternoon of Saturday, 7 June, due to increasing blood pressure, she underwent an emergency caesarean section procedure under general anaesthetic.

[Baby B] was born first at 20.30 hours and weighed 3 pounds 11 ounces, 1.66 kilograms. I'll always give you the different measurements as some work in metric and some work in the old weights. She needed medical assistance to start breathing. [Baby A] was born a minute later and weighed 3 pounds 12 ounces, so just over 1.66 kilograms.

The babies were at 31 weeks and 2 days' gestation when delivered. There were no complications of delivery and blood loss was minimal. It was a straightforward delivery.

Just over 24 hours after he was born, at 20.58 hours on 8 June, [Baby A] was pronounced dead. The cause of death, following a post-mortem examination carried out by a pathologist at Alder Hey Children's Hospital, was unascertained.

Professor Sally Kinsey, an expert in paediatric haematology, confirmed that the twins' mother's condition of APS did not pass to either [Baby A] or [Baby B], so can be discounted as a relevant consideration in either of their cases.

The prosecution case is that [Baby A] did not die from any natural disease or cause but had air administered exogenously, in other words injected, into his venous system through a line by which he was being given intravenous fluids. This must have been a deliberate act, and one which all nursing staff, including the defendant, knew was dangerous, and that the intention was to kill him.

The defence case is that although it is accepted that the defendant took over as [Baby A]'s designated nurse and was at his cot side when his Philips monitor sounded because he had collapsed and stopped breathing, she did nothing to harm him and never introduced air intravenously into him, and has raised the possibility of the delay of the insertion of a long line, meaning that he was without fluids for some hours, as compromising him.

I summarise the evidence as to the events surrounding [Baby A]'s short life. A good deal of it was read to you as being agreed, so I will not burden you with all the sources. When born, he was assessed to be of good tone, not floppy, and blue/pink in colour, which was normal, but no heartbeat could be heard. A Neopuff mask was applied and he was fully breathing by himself regularly with a small amount of pressure by 10 minutes after birth.

He was in good condition, on continuous positive airway pressure ventilation, CPAP, which is the acronym I shall adopt rather than reciting the full name of it, which is breathing assistance that is regularly given to premature infants, and he had a cannula inserted, providing intravenous access to his blood system.

Senior Neonatal Practitioner Caroline Bennion, who now has nearly 30 years' experience in neonatal care, was at the delivery of the twins. She provided care for [Baby B], but also carried out some observations for [Baby A] at 04.00 hours that first night in room 1, the nursery for intensive care babies, with whose location you are familiar, as marked on your plan.

[Baby B] was in incubator 1, to the right as one enters the room, and [Baby A] was in the adjacent incubator, number 2, on the back wall. [Baby A], she said, was clinically stable when reviewed at 23.50 that night. He had been commenced on antibiotics and intravenous fluids. Blood cultures taken later came back negative. His heart size was normal. X-rays of his lungs showed a slight haziness of both lung fields in keeping with mild respiratory distress syndrome of prematurity, but nothing of note.

Now, that's something about which we heard a lot during the course of this, mild respiratory distress syndrome of prematurity, and I'll refer to it in relation to the babies to whom it is relevant.

The nasogastric tube was inserted by 3 centimetres by nursing staff on the direction of Dr Brunton.

Dr Theresa MacCarrick, a senior house officer doing paediatric training at that time, came on duty at 08.30 hours on 8 June, the day after the birth. The plan was to keep [Baby A] on CPAP, but to start to feed him through a central line to provide ongoing parenteral nutrition.

Under supervision by the registrar, Dr Sally Ogden, Dr MacCarrick inserted an umbilical venous catheter, a UVC, into the umbilical vein, which leads to a much larger vein, the inferior vena cava, which brings blood back to the heart,

thereby enabling [Baby A] to receive nutrition, fluids and medication directly into his blood system.

There was no problem with the catheter and it was used by nursing staff. However, the X-ray taken that afternoon revealed the catheter had deviated from its intended course and was sited in the hepatic circulation, as can happen, because there is no ability to control the path of the catheter when it has been inserted. Do you remember? Very early on in the case you heard this evidence: it was put in and quite often it would deviate and not go into the vein.

Two subsequent attempts to re-site it both resulted in the catheter again sitting in the hepatic circulation and so the catheter was not used after the first one had been removed at around 16.00 hours.

As I shall remind you in a moment, a long line was later inserted at 19.00 by Dr David Harkness, another registrar who was then in the fourth year of his neonatal training, an ST4.

Melanie Taylor had come on duty at about 7.30 that morning, 8 June, taking over as designated nurse from Ashleigh Hudson, and was the designated nurse for both [Baby A] and [Baby B] on that day shift. [Baby A] was stable and satisfactory. His respiratory rate was elevated at times but this was not unusual for a baby on CPAP. She had no concerns about him. She confirmed that [Baby A] had no fluids intravenously after 16.00 hours because that's when the UVC was removed, but had some expressed milk at 18.00.

Mel Taylor's shift ended at 20.00. She handed over to the defendant, who had swiped in at 19.22. She, Mel Taylor, had no direct recollection of that handover but will have handed over from the records between 19.30 and 20.00 and said there were no concerns, save to get some fluids into him.

By reference to tiles 172 and 174 she confirmed that a 10% dextrose 500ml bag had been prescribed and was to be given via the long line that had been inserted by Dr Harkness at 19.05. That's tile 154, the insertion of the long line.

All three babies in that nursery, [Baby A], [Baby B] and the other baby, had a requirement for long lines to be inserted, so three lines had to be inserted, one into each of the babies.

Dr Harkness had come on duty at 17.00, [Baby B] was the first to have a long line inserted, followed by [Baby A]. Dr Harkness succeeded on the first attempt to insert the line through the vein to the front of the elbow, the antecubital fossa. You heard from another registrar, Dr Gail Beech, in relation to another baby, [Baby C], the child the subject of count 3, that a

registrar can have two or three attempts to insert a long line before a consultant needs to be called.

At the time Dr Harkness was unsure, until an X-ray was taken, as to whether the positioning of the line was exactly where it needed to be. He thought it was imperfect but good enough to use. Dr Dewi Evans said that the long line was not a cause of any problem and there was no evidence of any tamponade, which is a puncture of the lining surrounding the heart that causes fluid to get between the lining and the heart and will restrict the ability of the heart to contract properly. If there was or had been such damage, he said, it would show up on a post-mortem examination. There was no damage.

Dr Sandie Bohin, in her report, said that the line was not in the best position. In her evidence she explained it was not in the optimal position but it was in a safe position and not a dangerous position, it was perfectly safe to use.

As required, there were two signatures for the dextrose, Melanie Taylor's and the defendant's, and the infusion through the long line commenced at 20.05. Mel Taylor thought it was after the dextrose infusion had been started, when she was sitting at the computer in room 1, that [Baby A] started to deteriorate. There are recorded times of her entering events on the computer for [Baby B] at 20.14 and 20.18 behind tiles 177 and 178 respectively, which is evidence of the time she was at the computer.

[Baby A]'s heart rate dropped and his saturations dropped. The defendant was standing by the cot. The alarms sounded. When [Baby A] didn't recover, Mel Taylor went over, thinking he was going to recover, and at some point she said the defendant was giving him Neopuffs. Mel Taylor said she performed a support role, drawing up emergency drugs, but was not directly involved. She said it was a bit of a blur. She had a very vague recollection of what happened. Her notes made retrospectively are behind tiles 169 and 170, made at 21.28 hours.

In her evidence, the defendant told you she was not expecting to work on 8 June, but received a request at 09.21 that morning from Yvonne Griffiths to work that night; tile 69. Being flexible and with no commitments, she was happy to help. She was the designated nurse for [Baby A]; tile 162. She remembered going to nursery 1 to get the handover from Mel Taylor. Dr Harkness was in there doing a procedure.

There was a lot going on. Mel Taylor was preparing fluids for [Baby A] and explained that he had been without them for some hours and, being the sterile nurse, started to run fluids through the line. The defendant was told by Mel Taylor and Dr

Harkness that the long line, the cannula which was coming out of his left arm, was suitable for use. She was responsible for hanging the bag and setting the pump and confirmed, co-signing the prescription sheet behind tile 174 timed at 20.05. She then had the handover from Mel Taylor, who went to the computer, and she, the defendant, went to [Baby A]'s cot to do equipment checks.

She said she noted he was jittery, which is involuntary jerking movement of the limbs, and an abnormal finding. His Philips monitor sounded. She noticed his colour had changed and he was apnoeic. The most important thing she noted was his hands and feet were white. He wasn't breathing. She started to Neopuff him. Her nursing note, written in retrospect and behind tile 228, referred to "centrally pale and poor perfusion".

She explained his limbs were white and centrally he was pale but not as white as his limbs. Mel Taylor and Dr Harkness came over and Dr Harkness told them to stop the fluids, which she did. An emergency crash call went out. Dr Jayaram and [Nurse A] came very quickly.

[Nurse A] was the 20.00 hour shift leader that night and the designated nurse for two other babies in the unit. She was out of the unit, in the staff toilets, when [Baby A] suddenly deteriorated. Her swipe card recorded her entry through the unit doors at 20.20; tile 180. Dr Rachel Lambie came into the maternity ward at 20.22.

[Nurse A] said she could see on the monitor that [Baby A] was apnoeic. She gave him chest compressions. She had never seen a baby look that way. He had a discolouration she had never seen before:

"Very white with sort of purply blotches and very cyanotic [blue] as well."

When cross-examined, it was drawn to her attention that in her witness statement, made in May 2018, she said:

"He was centrally very pale and unusually his limbs were what I can only describe as white."

She accepted this differed from her evidence. In a further statement, made 2 months later in July 2018, she added that [Baby A] looked like [Baby B], which was:

"Very pale, blotchy discolouration, pretty much like all over, very like her brother."

She thought there was maybe a lot of discussion at the time about what the rashes were because it was so unusual. She told you that no one had ever suggested what she should say about the events with [Baby A] and [Baby B]. If anyone had, she said in all probability she would have told the police.

The defence draw these inconsistencies in her account to your attention and I need to give you a legal direction about witnesses generally giving accounts of events at different times that are or may be inconsistent with each other, and this is legal direction 6, which is the last of the evidential legal directions, "Inconsistent statements". This applies to, as I have just said, any witness where you find there is a difference between what is said in evidence and what has been said on a previous occasion.

What a witness says in the witness box and in any witness statement he or she made about events is all evidence in the case for your consideration. Where there are or appear to be differences in accounts, it is for you to decide how different they are and whether or not the differences, or any of them, are important. If you decide that any differences are not important then you should ignore them. If you think that any differences are important you should consider the reason given for the difference or inconsistency. If you are sure that the explanation is valid, you may accept what the witness said in their evidence in the witness box. If you reject the explanation or you are not sure they are telling the truth, you should treat both what the witness said in their statement and what they said in the witness box with caution.

If, having done so, you are sure that what the witness said in their evidence is accurate and reliable, then you may rely on and take it into account. If you are not sure whether any version is accurate then you should not take any into account because you wouldn't be sure of any account.

You do not have a copy of the witness's statement when they were questioned on it, just as you do not have the statement of any witness.

So this is really no more than a commonsense approach, but it is a legal direction that you must apply and must consider and treat, where there are inconsistencies, evidence with caution and assess where the truth lies.

[Baby A] was intubated at 20.28 by Dr Harkness so that he could be put on a ventilator. Good air entry was achieved, his heart rate dropped to 60 to 70, that's beats per minute, and compressions were started. He was given saline and boluses of adrenaline on several occasions.

Dr Jayaram, the on-call consultant, had arrived at 20.23. It was agreed that the UVC should be pulled back slightly. It was fit to be used in the short term but it had, of course -- that is what Dr Jayaram said -- already been removed. There continued to be good chest movement and air entry but no heartbeat could then be heard. Chest compressions continued for 10 to 15 minutes, before a collective decision was made to stop the efforts at resuscitation. [Baby A]'s life was pronounced ended at 20.58.

Dr Harkness said [Baby A]'s death was incredibly unexpected. He was a well baby who had no reason to suddenly deteriorate. He described very unusual patchiness of his skin, which he had never seen before. The patches were a kind of purple/blue colour, there were red patches and white patches. They were all over the body and were there from shortly after the event when the heart stopped beating. The only other time he has seen this was later, in the case of one of the [Surname of Babies E & F] twins, to which I shall come in due course.

Criticism was made of his not referring to these features at the time in the notes that he made and the defence challenge his evidence, saying that you cannot find it reliable, it not having been put into the notes at that time.

I'm going to continue for a little bit, not that long, but certainly about another 5 to 10 minutes, and then we'll have the mid-morning break. I'll come to a convenient point in the narrative to break off.

Dr Rachel Lambie, now a consultant community paediatrician in Crewe, was a senior registrar at the hospital in her sixth year of specialist training in 2015 and was the paediatric registrar on call on 8 June. Her card swiped in to the unit at 20.28. Active resuscitation of [Baby A] was taking place, which went on for 30 to 40 minutes and she helped, but there's nothing more she could add.

The consultant, Dr Ravi Jayaram, who had been in post at the Countess of Chester since 2004, and had become the administrative head of paediatrics in 2009, was on call when [Baby A] collapsed. [Baby A] had stopped breathing when he arrived. His heart rate was 90 to 100 beats per minute and electrical activity was normal.

[Baby A] was pale and had unusual patches of discolouration, which Dr Jayaram had also never seen before. He was quite floppy as well, he was very pale to blue, but there were very unusual pink patches, mainly on the torso, which would flit around. Babies, he said, very rarely have a heart problem. It was very unusual that, despite appropriate and timely treatment and blood

going round his body, [Baby A] was deteriorating. And even when he was intubated his heart rate began to drop when it should have been going up.

In his notes at the time Dr Jayaram said:

"Legs noted to look very white and pale before cardiac arrest."

His explanation for not referring to the unusual pink patches was that he had not considered it clinically significant or clinically relevant. He made no reference to the patches in his statement to the coroner made on 24 July 2015. He explained that his statement had to be factual and based on what was written in the notes and he was not aware at the time of the clinical relevance of them. It was, he said, a matter of regret that he had not mentioned them.

His concluding remarks were that he could not explain how this death had happened. In his witness statement to the police, made on 18 September, he referred to:

"Unusual discolouration, flitting patches of pink area, the blotches were fairly ill-defined and on a background of blue/grey."

He became aware people were talking about a rash on [Baby B] and he looked up many things and did a literature research. He accepted that colleagues, as a group, had been talking about the deaths. He was referred to a paper in a medical journal by Lee and Tanswell; this is document J24946 -- there's been quite a lot of reference to the Lee and Tanswell document and that's the reference, J24946 -- which mentions:

"Blanching and migrating areas of cutaneous pallor."

And:

"In one of our own cases we noted bright pink vessels against a generally cyanosed cutaneous background."

Dr Jayaram said he had not been influenced by that paper in his subsequent descriptions in his witness statement in 2017 and in his evidence to you.

I'm going to break off there because I'm going to come to what the defendant said about this at this stage.

I just want to correct something I said about the UVC having being removed. It hadn't of course been removed, it was left in place but not to be used. So sorry, Dr Jayaram's note was right,

it was still in place. So that's what was used during the attempt at resuscitation.

We'll have a ten-minute break now. As you'll appreciate, it is quite dense, but I'm hoping it's providing a helpful narrative for you to work from. Thank you very much.

(In the absence of the jury)

MR JUSTICE GOSS: Anything thus far now that I've corrected that one obvious error that I made? Thank you very much. We'll start again at about midday.

(11.48 am)

(A short break)

(12.03 pm)

MR JUSTICE GOSS: Thank you, Mr Myers, I will correct that.

MR MYERS: It's clear to everybody.

MR JUSTICE GOSS: I'm very grateful. It was a slip of the tongue and I'll correct it.

Actually, just before the jury are brought back in, there's been a request from members of the media to have my written -- a copy of my written legal directions, the second version. I don't quite know... I don't have a problem with that, but they'll have to check their notes because I did add slightly to it and make odd comments along the way.

MR MYERS: There were a few additional comments, yes.

MR JUSTICE GOSS: Yes, exactly, but the substance is not different and, subject to this correction, which in fact was on the original document.

MR MYERS: Yes, it was.

MR JUSTICE GOSS: I misread it.

MR MYERS: Easily done, my Lord.

MR JUSTICE GOSS: It's not you, Mr Pilling, I know. All right, thank you.

(In the presence of the jury)

MR JUSTICE GOSS: As you probably noticed when I was giving you the expert direction, going through that expert direction with you, I misread what Professor Stavros Stivaros' specialty is: it's paediatric neuroradiology. I'm having to correct that for the transcript. You will have seen that and you have the written document.

Returning then to [Baby A], the defendant was first interviewed by the police about [Baby A]'s case on 4 July 2018. You have the agreed transcriptions of the relevant parts of that interview at the beginning of your lever arch files, interview bundle 1 from [Initials of Baby A] 1 onwards. I'm not going to go through this now or refer you to the details of it. There follow in that bundle the transcripts of the interviews relating to the babies in indictment order.

In addition to reminding you of the defendant's evidence about individual babies, I shall give you a very brief description of the summaries of the interviews, but as I've said before, you consider all the evidence and you decide what is important. If I've referred to something in a summary you consider unimportant, ignore that and attach significance to anything you think is important.

In a nutshell, she remembered [Baby A] and the handover from Mel Taylor and said he was a little bit jittery in his appearance and his limbs. Mel said the doctors had confirmed the long line ready to use and fluids were run. Within minutes, maybe 5 minutes, his colour changed and he became quite pale and mottled in his skin, almost white. She remained by his cot side and Mel Taylor remained in the room, writing her notes, she thought.

Dr Harkness was in the room dealing with [Baby B] and Caroline Bennion was also in the room. She could not remember if the alarm went off. In her evidence, as I have just reminded you, she said the Philips monitor had sounded. The mottling she saw was blotchy, red and purple, almost a rash-like appearance, like blotchy red marks on the skin, which she thought could be a sign of infection, low blood sugar, being cold or low blood gas, and they appeared on his hands and feet and the left side of his body where his line was, but he was centrally pale.

She thought it was still there when she called Dr Harkness and Caroline Bennion and they were advised, that's the nurses, to stop the fluids on the long line straightaway. She went to [Baby A] and found he was apnoeic and not breathing. She did not recall the resuscitation. She thought there might have been a problem with the long line or the fluid attached to it, which she believed Mel Taylor had attached. She thought it was her who gave [Baby A] to his parents.

She had seen two very preterm babies pass away at Liverpool Women's Hospital's when she was training there.

[Baby A]'s death was not expected or anticipated. Her concern was that maybe the bag of fluid that he was being given was not what they thought it was and she believed Mel was the one who connected it, but they checked the bag together.

She found the process after death, of completing [Baby A]'s handprints and footprints and taking photographs, quite a nice thing to do for the baby and she saw it as a way of giving parents memories. She didn't keep in touch with the family after [Baby B] left the unit. She said the handover notes were usually disposed of in the confidential waste. She didn't recall what she did with [Baby A]'s. She didn't remember anyone else giving [Baby A] care between the handover to her, which was the first time she met him, and his collapse.

She was asked further questions on 11 June 2019; [Initials of Baby A] 24 onwards. From her memory it was Mel who connected the fluids to [Baby A] she confirmed she was standing by his incubator when he collapsed. She did not know how he would have received a bolus of air. It would be very hard to push air through a long line. She did not know a lot about air embolisms. She knew that when priming lines they were always taught to prime the line fully, to make sure that the lines didn't have any air in them because that would be dangerous to the patient and all nursing staff were very meticulous about checking the lines:

"You don't want air going into the bloodstream [she said], you don't know exactly how it would affect the baby."

In questioning on 10 November 2020, [Initials of Baby A] 28 onwards, she denied having pushed air through [Baby A]'s peripheral line or his UVC and wasn't aware of any way air could be accidentally inserted through the UVC and couldn't explain how it got there. She was unaware of the physical effects of an air embolism and any changes to the appearance of the skin.

Her relationship with the parents of the babies in this case on the unit was only ever professional. She could not recall using social media to research the parents. She could not explain why she had searched for [Mother of Babies A & B] on Facebook on three separate occasions in June 2015 and once on 2 September 2015, not remembering having done so or why she had done so. She thought she may, in September, have been looking for a update on [Baby B].

In her evidence the defendant repeated she could not remember the resuscitation clearly. She did remember his death being a

huge unexpected shock. Because she was the designated nurse it was her role to assist parents after the death. [Nurse A] helped her with the hand and footprints and she started the memory box.

After he died, she felt they should retain the bag of fluids and infusion line for checking and testing. She labelled the bag and the attached line and put it in the sluice room. She did not know what happened to the bag after that.

She was stunned. [Baby A]'s death was a complete shock to all of them. She contacted people to talk, they were her support team. The sort of messaging behind tile 248, when [Nurse A] said she "did amazing", and 249 would happen frequently.

She had witnessed two or three deaths before [Baby A]'s. She said staffing levels contributed to [Baby A]'s death, identifying the amount of time he was without fluids and the line insertion. These factors would, she said, have put him at increased risk of collapse, making him less able to fight off infection on any procedures. He was left with a UVC that was not being used and the line was not removed.

As I shall remind you shortly, the expert evidence is that these factors made no difference at all. She said that if there was an air embolus, Mel Taylor was responsible because she, the defendant, did not have access to his lines. She would never put air into a line. She was at his cot side when he collapsed checking the equipment and the incubator but could not touch the lines because his incubator was closed.

She disagreed with the descriptions of the discolouration of Dr Harkness and [Nurse A]. She said he had purple patches and white patches and a discolouration pattern she had seen before which she didn't consider abnormal. She considered the colour change came on very suddenly.

Well, the defendant searched for Facebook for [Mother of Babies A & B] at 09.58 on 9 June; that's tile 231. She said it was, she thought, curiosity: she wanted to see people involved in that awful event. She accepted having also searched the following day and on 25 June. It was a common pattern of behaviour for her, she said. [Baby A] and [Baby B] were on her mind quite a bit at that time.

I turn to the expert evidence, reminding you that you have my written direction in relation to such evidence. The expert evidence was all called by the prosecution. It was explored, tested and challenged under cross-examination and you should examine it with care in order to determine its reliability.

Some of the propositions put to the witnesses were accepted. Some were not. As I directed you in my first set of directions, the proposition in any question only becomes evidence if and only if the witness agrees with it.

Mr Myers, as well as being critical of the hospital, the clinicians and the experts, repeatedly expressed his opinions in his submissions to you on the merits of the expert evidence. That, of course, was his right but it has to be by way of submission to you. He cannot give evidence as to whether it is right or reliable, that is for you to determine.

As I have said, it's right you should consider the expert evidence with care and, in the way that I have directed you in writing, you're not bound to accept it, there is no burden on the defence to disprove it, but there is no evidence from any defence expert.

Dr Rajeev Shukla, a consultant paediatric pathologist, carried out a post-mortem examination of [Baby A] at the Royal Liverpool Children's Hospital at 12.30 hours on 10 June 2015 and made his written report on 14 September 2015. His findings included those set out in paragraph 20 in section 4 of the agreed facts. I shall not go through them, but will summarise them as they are explained by Dr Marnerides. If you want to have them open, by all means do: they're in section 4 of the agreed facts, paragraph 20 of the agreed facts, but I shall dovetail Dr Marnerides' evidence into the findings of Dr Shukla.

Before I turn to that evidence, though, I go first to other expert evidence in [Baby A]'s case, reminding you of the evidence of Professor Owen Arthurs. Professor Owen Arthurs is a paediatric radiologist. A paediatric radiologist is a specialist in the interpretation of radiological images in children. He is a consultant paediatric radiologist and professor of radiology at Great Ormond Street Children's Hospital, a fellow of the Royal College of Radiologists, a fellow of the Royal College of Paediatrics and Child Health, and the holder of a doctorate in imaging. He was asked to consider the cases of a number of the children in this case. He considered the case of each child on its own merits and his findings on the images in that child's case related to that child only and were based solely on the imaging and were confined to his own expertise in the discipline of paediatric radiology.

He was provided with four radiographs or X-rays of [Baby A], taken at different times when he was alive. They are behind tiles 31, 128, 142 and 156 in the sequence of events. They were all slightly different, but there was nothing particularly remarkable about them in terms of his heart and lungs.

He did, however, note that the umbilical catheter was in slightly the wrong place. Images taken on 10 June, after [Baby A]'s death, showed that in addition to the normal expected gas you would see in a baby post-mortem, there was also a line of gas just in front of the spine in one of the large vessels of the body, which he pointed to and could be seen running along the length of the spine.

That, he said, was an unusual finding. It was so unusual that Professor Arthurs reviewed several of his cases that they had had at Great Ormond Street to try and identify in what circumstances it might occur. In several hundred photographs of babies who had died of natural causes, gas was not seen in that location. If there had been a severe fracture -- not a simple fracture, somewhere in the body, such as a fracture through the skull base in a road traffic accident -- which might also break blood vessels then gas could be introduced and then circulated round the body. That explanation could obviously be excluded in this case.

The other circumstances in which it might be seen is overwhelming infection in most of the organs of the body, sepsis, but in such a case there would be clear identifiers from the pathology at the autopsy as to whether the baby had overwhelming infection. [Baby A] did not have any such identifiers.

Occasionally, and very occasionally, babies die from SUDI, sudden unexplained death in infancy. It is a recognised phenomenon that occurs in babies of the age of about 3 to 9 months. This, of course, was not such a case; [Baby A] was only 1 day old.

Occasionally, medical staff have seen it when a baby has undergone extensive resuscitation, the hypothesis being that there is some natural gas in the body after death and it is possible that the resuscitation could circulate it around if the resuscitation was successful in moving blood with gas in it.

Gas can also be introduced through cannulas, long lines and umbilical catheters. It was possible that it was introduced via the long line, which was in place until it was removed during resuscitation, or via the UVC. The appearance of the gas in the post-mortem image was consistent with that method of introduction and that would be an alternative explanation in the absence of any other.

Professor Arthurs has never seen this much gas in a child's body that has not been explained, save in one of the other children in this case, [Baby D], the subject of count 4.

From a radiological point of view, the appearance of gas in [Baby A]'s large vessels was, said Professor Arthurs, consistent with air having been administered to him but not diagnostic of it. In other words, the finding was consistent with air having been administered but it does not, as a radiological finding in itself and considered on its own, determine that it was the cause. You understand, therefore, the difference between consistency and diagnosis from a single finding.

In cross-examination, Professor Arthurs explained in more detail how he reached the conclusion that it's unusual to have this radiological finding. He had looked at a published paper, to which I shall refer in a moment, and then went through 500 cases from the Great Ormond Street Hospital where he looked at the children's X-rays and found six cases where gas was identifiable in the large vessels, five of whom had had traumatic injuries and the sixth had died of sepsis. He then narrowed his search down to 100 who were under the age of 1 year when they died, of which 38 were under 2 months. Of those 38, he found eight cases where they had gas in the great vessels and who had died of trauma, road traffic accidents, sudden unexpected death in infancy, SUDI, congenital heart disease and disseminated malignancy. He found no unexplained cases of gas in that location after a detailed review. He accepted this was an observational study and could not be a controlled study, in other words a study in which you would administer air to a baby and then observe the consequences and radiological findings. That, for obvious reasons, could not be a study which could be undertaken.

He also accepted the cases were not representative of babies who are 1, 2 or 3 days old but it was representative of the typical deaths that are encountered that are referred to Great Ormond Street Hospital, and whilst not being representative of every neonatal unit in the country, it was, he said, representative of perinatal autopsy in the types of babies who need a cause of death established.

When he gave evidence on the second occasion on 3 February this year, Professor Arthurs gave further evidence about the published paper to which he had referred in relation to how common it is to see post-mortem gas in some of the great vessels of the body, the aorta and the IVC. It was published in the Journal of Forensic Pathology and Imaging in 2015. He was one of the authors. It was not designed to answer that specific question and was not addressing the direct question of air embolus which was something that was very rare, that is air embolus.

That paper looked at post-mortem CT scans, which, the professor explained, was creating a three-dimensional image of each child

using lots of different X-rays at the same time in a large range of children, several of whom were older children, and to see whether any of those were particularly relevant to the babies in this case.

As a result of my query as to how many of the babies were very young and premature, he'd gone back to the paper and said of the 48 cases presented, six were of relevant age, being less than 6 weeks old, and of those six he only found gas in two of them and in both of those cases there was an explanation. And I've already given you the various explanations that he had found when he looked at that.

One died with a twist in the small bowel, so a clear explanation of why there would be gas in the great vessels near the bowel, and the other baby who was premature had a very small locule of gas in the IVC, so not the sort of thing you would see on an X-ray, and had died of NEC, necrotising enterocolitis, and infection. There were no unexplained cases of post-mortem gas in the great vessels.

He was asked in cross-examination about the image from the Lee and Tanswell paper, J4946. He explained it showed a pulmonary vascular air embolism, which is a specific type of air embolism that comes from the lungs. It was of a child who had lung disease to the point where the lungs have burst or some of that air has entered into the blood supply around the lungs. They also have a big chest tube in, so they have two points of entry of air into their system. As a result of that, the air is then circulated and the child has a pulmonary air embolus, which could be an example of air entry that is iatrogenic, that is being in the course of medical procedures. It could have been either the chest tube or it could have been a complication of the ventilation given the lung disease that that child had.

When Professor Arthurs gave evidence a third time on 16 March this year, he gave further evidence about the air embolus and X-rays radiographs. Radiographic evidence of air embolus is rare, both seeing any radiographic evidence of air embolus is rare and in cases where air embolus is suspected, seeing anything on the radiograph is rare. If you cannot see it on an X-ray, that doesn't mean there wasn't an air embolus.

In his experience, most air embolus occurs as a result of the introduction of air during the manipulation of lines, so it is iatrogenic, being caused by the medical profession.

In relation to the timing of an air embolus and the taking of radiographs, if a baby were to have an acute air embolus event, they would need to be resuscitated fully and the event of resuscitation might take so long as to prevent you getting a

radiograph. So he explained one of the reasons you don't have imaging evidence of acute air embolus is because the imaging of the event isn't the important thing at the time. The priority of the medics is to save the life. If all the air had dissipated within half an hour, or something like that, then an X-ray taken an hour later won't show anything.

Also, there is no reliable guidance anywhere as to the exact quantities of air that are needed to induce air embolus or for how long it lasts in the circulation.

Dr Andreas Marnerides is a consultant perinatal and paediatric pathologist, based at St Thomas' Hospital in London. A pathologist has an expertise in interpreting specimens from the living, such as biopsies to help clinicians make a diagnosis and in performing post-mortem examinations. A perinatal and paediatric pathologist has the sub-specialty of dealing with the paediatric population; that is the time around a woman's pregnancy and the early time after the baby is delivered, and children.

He carries out about 250 perinatal and paediatric post-mortem examinations a year, about half of which are forensic examinations, in other words being requested by the police and coroners. He obtained his medical degree from the University of Athens in 2002, then trained in forensic medicine there, before training in paediatric and perinatal pathology at the Karolinska Institute in Stockholm, before becoming a consultant at St Thomas' Hospital, which is one of the main teaching hospitals in London, in January 2013. He's a fellow of the Royal College of Pathologists and holds the diploma of medical jurisprudence from the Royal Society of Apothecaries in London.

He told you about the process of post-mortem examinations, which typically start with a post-mortem radiology examination, followed by an external examination looking for dysmorphic features -- that is something that has not formed in the way they expect it to form, for example ears being lower than normal -- and noting of injuries and marks of medical intervention. And many will make a detailed or less detailed assessment of how the post-mortem phenomena, that is decomposition, has developed and may take samples and swabs.

The pathologist then proceeds to an internal examination, making an incision exposing the internal organs of the body, taking photographs and samples of the organs and outside it, where appropriate, as well as samples. He explained that in the case of each of the babies in which there was pathological evidence, he considered their case in isolation and did not use any findings in relation to one in the case of another. He also explained that he was provided with accumulating evidence, which

added to the knowledge he gained from his initial information and that he accepted and acted on clinical information and opinion provided by clinicians, including, where relevant, evidence and opinions from radiologists, and relied and acted on their opinions unless, by reason of his pathology findings, he was not satisfied with their opinions.

In other words, if he was told by a clinician about something and he said, well, the pathology doesn't support that, doesn't confirm that, then he wouldn't rely on the clinician, otherwise he would rely on the clinician.

His expertise therefore is the pathology of conditions that have resulted in death. That's a carefully worded phrase in response to what Mr Myers submitted to you about how he's not concerned with the living, he's only concerned with the dead. His expertise is in the pathology of conditions that have resulted in death.

It may help you to turn to agreed fact 20 in section 4, page 7 in jury bundle 1. I said there would be an occasion when I refer you to documents. So if you would, please, in section 3, turn to the agreed facts. It'll make it easier as I go through this evidence. Jury bundle 1, section 3, sorry -- I said section 4. Section 3, yes. Page 7. All got it?

Internally, the pulmonary arteries in [Baby A]'s cardiovascular system were found by the pathologist Dr Shukla, who carried out the post-mortem, to be crossed. You can see that under the heading "Cardiovascular system":

"Pulmonary arteries are crossed with the left pulmonary artery originating to the right and above the origin of the right pulmonary artery."

Dr Marnerides said that was an isolated malfunction and had no clinical consequence:

"As to be expected, the foramen ovale was patent."

In other words, open. That closes in later life.

In relation to the respiratory system, the lungs, which Dr Marnerides said will have been about the size of a plum, contained more blood than what would be expected to be seen, but that was a very common, very non-specific finding.

Microscopically more capillaries were seen to be full of blood and there was blood between some of the balloons in the lung, called the alveoli, some of which had collapsed. The alveolar ducts appeared dilated and contained squames, indicating

amniotic fluid aspiration. This, he said, was normal as babies ingest amniotic fluid in utero, when they are in the womb, and [Baby A] was only a day old.

There was no evidence of infection, bacterial or viral. There were no other abnormalities.

In relation to the histology, in two sections -- that is very thin slices taken from the samples of tissue from the lungs -- Dr Marnerides could see occasional, very occasional, relatively large spherical empty spaces or globules within the lumens, that is the inside of the ring of the vein. When the slide was stained with the appropriate substances they were empty structures which meant it was either fat or air. He excluded fat by testing and concluded that it was more likely than not that these spaces represented air. He saw a similar thing in a section from the brain. He could see that the lumen was surrounded by blood, which told him, not categorically, but it was most likely that this bubble of air went there while this baby was alive because there was a response to it; it's a haemorrhage, bleeding. But he emphasised these findings could not be taken as absolute proof of an air embolus.

He considered the question of whether the air present was the result of decomposition and said it was highly unlikely that it was not (sic) because for decomposition to result in air into the vessels you need to have evidence of decomposition, which is typically visible to the naked eye. So you see in decomposing bowels a greenish discolouration of the abdomen.

Most importantly, on histology, that is under the microscope, the structures look autolysed and you can say whether there has been significant decomposition or not. In this case there was not decomposition.

The other reason is that a haemorrhage around that vessel in the brain wouldn't be expected if that was due to decomposition, so although he could not categorically say it wasn't, he could confidently say it was highly unlikely to be a result of decomposition.

Splinting of the diaphragm and stimulation of the vagal nerve, or both, are the two known potential mechanisms known to result from the distension of the stomach and bowels. From a pathology point of view, Dr Marnerides could not say whether or not these had occurred. What the pathology could do was exclude reasons for the air to be there, such as decomposition.

When asked about air in the circulation system, Dr Marnerides said that because the foramen ovale is typically open in babies, and was in [Baby A], his understanding was that the difference

in pressure, left to right, between the two chambers in the heart makes it more likely that instead of air going up into the pulmonary arteries, it will travel into the left atrium of the heart and then into the left ventricle and then into the systematic circulation, the arteries. So that is how air in the venous system can get into the arteries, because of the foramen ovale being open and going into the heart, a different chamber in the heart.

In relation to tamponade, if there was evidence of tamponade at post-mortem, one would have seen haemorrhage or bleeding into the sac that surrounds the heart, which is called the pericardium. Dr Shukla did not see blood there and there was no such blood in the photographs, so there was no evidence of tamponade.

[Baby A] didn't have pathology features of pulmonary hypertension, but because he died so young, even if he did have pulmonary hypertension, Dr Marnerides would not expect him to have features of pulmonary hypertension because they would not have had enough time to develop. Whether he did have such features was a matter for clinicians.

Dr Marnerides said he had general knowledge that the insertion of a long line can induce arrhythmia. Dr Marnerides' understanding from the clinical review was that there was no evidence of any natural cause of death. From the pathology review, there was no evidence indicating a natural disease, so there was, overall, in his opinion, no evidence that a natural disease could explain [Baby A]'s death. On the basis of the clinical information and the findings, with the caveats that he explained in relation to how these findings can be interpreted and which I've summarised, he took the view that [Baby A]'s death would be explicable on the basis of air embolism which, on the information, would appear to have been by injection, the insertion of air into a vascular access line.

Dr Dewi Evans was the first outside expert to become involved in the case. He was asked by the National Crime Agency in 2011 (sic) to review the unusual number of deaths of stable babies who collapsed and in respect of whom resuscitation was unsuccessful at the Countess of Chester. He is a consultant paediatrician who was in full-time National Health Service clinical consultant paediatric in Swansea from 1980 to 2009 and was responsible for setting up, supervising and leading a neonatal intensive care service in Swansea from his appointment, developing intensive care services from scratch. His experience was very much hands-on, he said. His operational and managerial roles included serving as clinical director of paediatrics and neonatology in Swansea between 1992 and 1997 and 2004 and 2008.

And he said those duties eventually covered the whole of South Wales.

Neonatology is the care of babies up to around 4 weeks. Neonates have specific anatomical and physiological features. He has not been in full-time clinical practice since 2009, but has often acted as an expert witness.

I'll tell you more about him as an expert witness. As well as making an overarching statement in respect of all the children, in the case of [Baby A] Dr Evans wrote a number of reports.

His role was to look at the clinical evidence. He was told that there were normally three or four deaths a year. He asked for notes on any baby who had died or collapsed where there was no explanation. On the whole, he said, babies don't suddenly collapse.

He looked at 35 cases, looking for the cause. He obtained copies of their case notes. In some of the cases he found there was an obvious cause: infection, a blocked tube or a collapsed lung. [Baby A]'s was the fifth case he dealt with and he found the cause of collapse and death to be unusual. Having received ongoing information about individual children, a pattern became apparent. In some cases additional information caused him to change his mind. He relied on the information that he received.

Dr Evans' evidence has been and remains the subject of repeated criticism by the defence. In general terms they contend he is not a neonatologist, having qualified as a paediatrician, although his specialty, as I've just summarised, was in neonatology for almost 30 years. He has not been in practice since 2009. His expertise, they say, is not good. He has constructed theories designed to support the allegations on the indictment rather than to form and present an independent opinion on the basis of the facts. He's acted as an investigator and has given evidence in a manner that, it is said, was improperly subjective, dogmatic and biased.

They point to his putting himself forward to assist in the case at the outset and suggest that you can infer he was not telling the truth when he said he had not been told by the police that clinicians expected air embolus as a potential cause of some of the collapses.

In any prosecution there is a duty on the prosecution to disclose to the defence any material in the possession of the prosecution or of which they are aware which undermines the prosecution or assists the defence case. And that will be a note saying, "This is what he was told and when he was told that". No such note has been disclosed in this case.

You are entitled to draw inferences in the case, as I have already directed you in my first set of legal directions, but you must not speculate. The prosecution point to the context of his instructions. At the outset there were a large number of incidents that required review and sifting in order to identify those cases in which there was no identifiable medical cause or apparent reason for a baby's event or death.

They point to Dr Evans' long clinical experience in neonatology. That initial sift identified such incidents and Dr Evans expressed preliminary views as to possible mechanisms on the information then available to him, his sift reports.

As a result of the sifting process, he identified that in two cases, those of [Baby F], count 6, and [Baby L], count 15, a baby was deliberately and wholly inappropriately given unprescribed insulin, thus providing, say the prosecution, clear evidence of someone in the unit deliberately harming babies.

Further, his opinions were given without knowledge of the other material in the case relating to shift patterns and potentially incriminating material relating to the defendant. And there is evidence from other experts supporting some but not all of the conclusions he reached. In other words, he wasn't looking at all the evidence, he was just looking at the clinical evidence as to case where, on the notes, a death or an event appeared to be unexplained.

That's a bare summary of the respective arguments in relation to the evidence of Dr Evans and I shall remind you of more details and specific criticisms in the individual cases as and when I come to remind you of them. It is, I repeat -- and I know this is becoming tedious for you to hear, but it is very important -- it is for you to assess the reliability of the evidence of any witness, be they a witness of fact or an expert giving opinion evidence, and the weight to attached to it in the light of all the evidence in the case. It's important therefore, as with all witnesses, to assess their conclusions in the context of all the evidence relating to the child in question and the opinions of others who have a relevant expertise in that child's case and, of course, the evidence in the case as a whole.

In the case of [Baby A], Dr Evans noted that at about 08.20 hours [Baby A] was apnoeic; tile 183. Dr Harkness' note was, he said, a very good standard resuscitation procedure and Dr Jayaram did exactly what should be done.

Before he collapsed, [Baby A] was in a stable position and as well as could be expected. He was in air -- that's breathing in

air -- not requiring oxygen. The repeated efforts to insert the UVC, though upsetting, would not have caused his deterioration, nor would the insertion of the long line. Babies sometimes do forget to breathe. If they do, they start again. It's apnoea of prematurity and you move a leg, jig it up a bit.

At the time of collapse, there was no evidence of infection or lack of oxygen. He was breathing well. His loss of potentially 16ml of fluid by reason of not having anything put down a line would not make a material difference or cause a sudden collapse. If a baby is seriously ill by reason of lack of fluid, the heart rate goes up. Heart rate is a very good marker of well-being. The elevated heart rate and variable respirations behind tile 28 on J1123 were when [Baby A] was being handled and all other markers were stable and he wasn't requiring additional oxygen.

An air embolus interferes with the blood supply to the heart and lungs, blocking off the blood supply. The usual combination of babies in collapse is being blue and white. A bright pink is very unusual and is attributable to having red cells in air in circulation.

Discolouration of itself is not diagnostic of air embolus. You cannot confirm an air embolus from discolouration alone.

He referred to and was asked about a paper, the paper by Lee and Tanswell, published in 1989, which addressed what phenomena, what items are associated with infants who definitely had pulmonary vascular air embolism. In five of the 50 case studies there was discolouration. Blanching and migrating areas of cutaneous pallor were noted in several cases. And in one of the author's own cases, as I've already reminded you, there was the bright pink vessels against a generally cyanosed cutaneous background.

Dr Evans denied that he had been influenced in reaching his conclusion of air embolus in this case on the basis of that report. There is no way air could have got in by accident. Dr Evans had no clinical experience in his 30 years of neonatal care in Swansea of air embolus, though there was a case of an anaesthetist injecting air into the stomach of a baby a few weeks old, having inadvertently attached the syringe to the intravenous line and then injected air into the circulation. Resuscitation was unsuccessful and the baby died.

In [Baby A]'s case there was a combination of sudden and unexpected collapse, stopping breathing, a change of colour, cyanosis, bradycardia and death. The major features were the unusual skin discolouration, air in various parts of the body, and no other explanation. To some extent, he did rely on a diagnosis of exclusion of other possibilities. He was the first

person who thought of air embolus. There had to be intravenous access and it was probably a bolus of air down the intravenous line, is what he said.

Dr Sandie Bohin is a member of the Royal College of Physicians and a fellow of the Royal College of Paediatrics and Child Health, having qualified as a doctor in the mid-1980s. She trained as a neonatologist, a doctor who looks after small babies, when she was a senior registrar working at the University of Leicester University Hospitals. She worked there from 1996 until the end of 2008 as a consultant neonatologist. That was a large tertiary neonatal unit that covered 10,000 deliveries of babies and had about 600 admissions a year at that time. It covered all aspects of neonatology.

In 2009 she moved to Guernsey in the Channel Islands and became a consultant paediatrician with neonates there. Latterly she also worked at the University of Bristol Regional Intensive Care Unit for between 2 to 4 weeks a year where she just does neonatal intensive care and high dependency and some transfers.

She has written and contributed to research papers with Professor David Field and latterly contributed to chapters in books on neonatal respiratory function and on neonatal transport.

The defence accuse Dr Bohin of lacking independence. They say she was instructed to peer-review Dr Evans and what she has done is, they say, to go as far as she has been able to go in enthusiastically supporting him and the prosecution. She knew what was coming because she generally heard all the cross-examination of Dr Evans. She repeatedly denied these assertions and said that her views were her own.

Any expert witness, including any defence expert witness, if called, hears all the evidence, including cross-examinations, and are under the same duty to the court of independence regardless of by whom they have been instructed. It's for you to judge the validity of the criticisms of her evidence.

She was asked by the National Crime Agency to look at the cases and case notes of the babies where there were concerns about collapses and deaths that people considered to be unusual and to try and find a cause for potentially why they had collapsed and also to comment on whether she agreed or disagreed with Dr Evans' findings or made some additional findings herself.

She was provided with the medical reports, including imaging relating to the children under consideration, and the reports of many experts such as Professor Arthurs and the pathologist Dr Marnerides and, in the case of [Baby A], a statement from

Professor Kinsey, a haematologist based in Leeds, and part of a witness statement from the notes made by Dr Jayaram dated 18 September 2017 and the medical notes made by Dr Harkness and the post-mortem report written by Dr Shukla from Alder Hey.

Having been born 10 weeks early, it would be anticipated, said Dr Bohin, that [Baby A] would have some problems, but he didn't have them. He was a stable baby, not in oxygen, his heart rate and temperature were stable throughout. His respiratory rate, in terms of breaths per minute, was slightly at the upper end of normal but was stable at that rate, so this wasn't an escalating respiratory rate, it was stable. He was handling well when the nurses routinely cared for him, changed his nappy or cleaned him. He didn't suddenly deteriorate, he tolerated all those things really very well, so he was extremely stable.

Neither the UVC nor the long line contributed to his collapse and death. He wasn't being troubled by apnoea of prematurity and wasn't unstable in that way and none of the other causes of apnoea were pertinent to [Baby A]. He was so well that the treating team decided to give him some feeds.

Collapsed babies do not have a pink blotchy rash that came and went. There are potentially lots of causes for rashes in babies, particularly babies who have collapsed in the way that [Baby A] did and, unfortunately, if you see lots of babies who have collapsed, you are aware that they are grey/blue, they may be white, but they don't have the type of rash that was described in [Baby A]'s case: a pink blotchy rash that seemed to fluctuate and come and go.

So in her experience, things like infection, sepsis and hypoxia could not cause that type of rash. Dr Bohin came to the conclusion, looking at a differential diagnosis, excluding the other possible causes as she could, air embolus was the only plausible explanation.

Air can get into the venous system in one of two ways: either accidentally or deliberately. Her experience is that nursing staff and medical staff, who either put in the lines or who subsequently care for the lines and change fluids, are absolutely meticulous to prevent any air getting into those lines. So the lines and the little connecting ports are filled with saline so that even the tiniest air -- I'll start that again.

So the lines and the little connecting ports are all filled with saline, so even the tiniest air bubble can't get into the line, is something that is just ingrained in nursing and medical staff. So she thought that air getting into accidentally was extremely unlikely.

In addition, the pumps that are used to administer bags of fluid have an alarm on them, so from the bag to the pump, the tubing then goes to the patient. Those pumps have alarms that detect air coming down the line, so if air inadvertently got into the line it would stop at that pump because it would pick that up. So the only way air could get into a baby would be further down the line after the pump.

Studies dealing with volume and speed of emboli are to be treated with caution, said Dr Bohin, because the studies are mainly either in adults or they're animal studies, they're not studies that have been done on babies. The information from adult and animal studies would seem to suggest that if you have a large, fast injection of air, you get a different set of clinical results than if you have a slow infusion of air.

The papers that she had relied on on this subject have suggested that 3 to 5ml per kilogram of body weight would or could be fatal to a baby; [Baby A] weighed 1.6 kilograms.

Under cross-examination, she said she had seen one case of air embolus in clinical practice in Leicester as a registrar. She didn't know of any genetic condition that could have caused [Baby A] to collapse and die within 24 hours of life. His raised respiration was an alert but nothing was done because nothing needed to be done. She would not expect the heart rate and the respiration rate to track each other, which they weren't. The long line was in a safe but not optimal or best position. Not giving fluid for 4 hours was not okay and not optimal, but handling in a baby on respiratory support can make respirations go up. Although air embolus is reported as a known risk from venous catheters in adult literature, she has never known it to be a risk in neonatal practice because the bore of the tubing is so small, nor has there ever been an alert sent out to neonatal clinical teams that it is a risk.

I only have, in relation to [Baby A], to remind you of the evidence of Professor Kinsey, but I'll do that after we break off and then I will move on to [Baby B].

Could you be ready, please, to continue at about 2.08? Some time shortly after 2 o'clock. An hour and 5 minutes. Thank you very much.

(In the absence of the jury)

MR JUSTICE GOSS: Mr Myers, is there anything?

MR MYERS: Nothing from me, my Lord.

MR JUSTICE GOSS: It was very helpful, if I may say so, that you sent an email in relation to the correction that was necessary, so I'm very happy, if I do make any errors, for them to be sent by email.

MR MYERS: We can do that, particularly when it's something formal like that.

MR JUSTICE GOSS: Exactly. I was very grateful for that.

Nothing, Mr Johnson?

MR JOHNSON: No, thank you.

MR JUSTICE GOSS: Thank you very much.

(1.03 pm)

(The short adjournment)

(2.05 pm)

(In the presence of the jury)

MR JUSTICE GOSS: I'm conscious this is very detailed, so we'll have a break at about 3 o'clock and then we'll do a final session. We won't go on late because your ability to concentrate will diminish as the afternoon progresses, obviously, but I'll keep an eye on you.

Professor Sally Kinsey, an expert in haematology, explained that an embolus is something that shouldn't be in the circulation. The most common form of embolus is from a blood clot. Another form is a fat embolus, where bone marrow from fractured bones gets into the circulation.

If air is injected into a vein it will go into the venous side, the blue side of the diagram that she showed you. In the case of a young body, particularly a preterm baby, where the foramen ovale, the flap to which I've referred several times, is still open some of these little bubbles can get into the arterial circulation, that is into the red side of the diagram, so that you can start to see bubbles in the blood being pumped out by the heart. I referred to that this morning.

The bubbles will go down the arterial system in the big vessels first, going right up to the smallest capillary, until the air bubble is lodged, not being able to go any further because the blood vessel in front of it is smaller; that blocks the arteriole. The space in front of that blockage is then bloodless because no blood is getting through, so it becomes pale.

The stagnant red cells behind the blockage will release their oxygen and then gradually will re-oxygenise others, so when the red cells lose their oxygen they go a bluish colour and then, because they're near a bubble with oxygen in it, they will absorb that oxygen and then turn pink again. That will then disappear into the tissues and it will go blue again so a fluctuating colour distribution and pallor can be seen.

Professor Kinsey confirmed that in terms of [Baby A]'s blood properties there was no explanation for spontaneous bleeding. That did not mean that he might not have had a gastrointestinal haemorrhage for some other reason unconnected with blood clotting or haematology and her assessment did not establish the cause of bleeding.

The conclusions that she did draw were from the descriptions of the doctors who attended [Baby A] and the features of the blotchiness on the skin, particularly the commentary about pallor and pinkness and blueness on the skin. She was quite brought up short by this and her concerns were cemented by the comments of those present at the time of [Baby A]'s collapse, particularly what Dr Jayaram said in his witness statement made 2.5 years after the event, and not the description that he noted at the time. That description was consistent with air embolus.

She qualified this opinion by saying she is a haematologist and not an expert in air embolus. The expert you would want when an air embolus happened would be an anaesthetist, there with a needle, to remove the air from the right ventricle of the heart if you had time. She was taking a standard understanding of circulation and gas exchange and seeing how that might apply to what is alleged in this case.

Air embolus features in the skin are very rare, she has never seen it herself. She has seen what little there is about it in medical literature but it was a pretty stark description of what she took to be an air embolus.

The prosecution case is that the defendant caused that air embolus by injecting air intravenously and killed [Baby A], intending to do so. The defendant says she did no such thing.

The following day [Baby A]'s twin sister, [Baby B], collapsed and I therefore turn to count 2, attempted murder.

I remind you that [Baby B]'s birth weight on the evening of 7 June was 3 pounds 11 ounces, 1 ounce lighter than her twin brother. She was born blue and floppy with a low heart rate, which persisted and progressed, needing resuscitation, as set out behind tile 2 in the sequence of events. She was transferred

to the unit, the neonatal unit, intubated and placed in an incubator and on a ventilator in nursery 1. She progressed well, was on CPAP and remained stable.

The allegation is that the defendant attempted to kill [Baby B] by injecting air into her venous system during the night shift of the 9th and 10 June.

[Nurse A] came on duty at 19.30 on 9 June, the evening after [Baby A] had died, and was [Baby B]'s designated nurse. On handover there were no concerns. [Baby B] had had a good day and continued to improve. Mum and dad had had cuddles. She was receiving CPAP and hourly observations.

Tile 150 in her sequence of events fronts [Nurse A]'s retrospective note of the shift from 20.00 to 02.00 hours, so in other words the first six and a third hours of the shift:

"No bradys or desats. She was tolerating 3ml of donated expressed breast milk two-hourly. All observations were satisfactory. She was active and handling well."

The defendant was also on duty that night. Tiles 145 and 146 identify those on duty for that shift and their allocated babies. The defendant was the designated nurse for two babies in nursery 3, EB and HT. She said in evidence that she had no recollection of which babies she was responsible for. Tile 210 fronts the note [Nurse A] wrote in retrospect at 07.28 on 10 June, setting out that at shortly before midnight [Baby B] desaturated to 75%. She was found to have pushed her CPAP prongs out of her nose and they had to be repositioned, something that is not uncommon. Sometimes, as the babies start to feel better, they push the prongs out themselves. It took a little while and a little bit of oxygen to recover. Her heart rate remained stable and she had a good respiratory rate throughout.

Once she had settled, her capillary blood gas was taken and was normal. She was stable. She had a long line with a drip infusion which included total parenteral nutrition, TPN. The product name was Babiven, a product with which you became very familiar during the course of this case. The pump infuses at a set rate and can detect any air bubbles coming down the line and stop the infusion if it detects one.

At 00.05 hours, 5 minutes past midnight on, 10 June, [Nurse A] and the defendant signed for lipid, a form of fat that is infused -- your reference is tile 213 -- which was something the defendant agreed she had done when first questioned by the police about [Baby B] on 4 July 2018.

There was a strict rule that two nurse practitioners must sign for any prescribed medication and check it against the prescription. The lipid is supplied in a syringe which is connected to the infusion line. If there are two lumens, that is two separate sides running down one line, they join the infusion line after the pump. [Nurse A] could not remember if it was a double lumen.

At 00.16, the defendant took blood gas readings for [Baby B]; J1668, behind tile 215.

At 00.30 hours, [Nurse A] had her gloves on and was standing up across the room by the half wall in room 1, nursery 1, drawing medication up and could not see [Baby B]. Her alarm started.

The defendant went over to [Baby B] and said, "She's apnoeic, she's not breathing", and asked [Nurse A] to go and get help. Sometimes, said [Nurse A], babies do appear apnoeic and quite often they recover quickly. [Baby B] didn't. They had to use Neopuffs because she wasn't breathing for herself. She suddenly looked very ill, very pale and had a blotchiness to her skin. She looked like her brother, [Baby A], with pale, white blotchy discolouration generally all over.

In her nursing note behind tile 218 [Nurse A] wrote:

"00.30. Sudden desaturation to 50%, cyanosed in appearance, centrally shut down, limp, apnoeic, CMC [continuous mechanical ventilation] via Neopuff commenced and chest movement seen. Colour changed rapidly to purple blotchiness with white patches. Started to become bradycardic [slowing heart rate]. Emergency call for doctors put out. Continued with Neopuff via Guedel airway until Dr Lambie arrived."

In her evidence the defendant said although she didn't have a good recollection of the shift, [Nurse A] and her were in nursery 1. She accepted from the charts that she had been in nursery 1 and had involvement in the setting up of a new bag of Babiven and lipid for [Baby B].

The observation chart for [Baby B] behind 237 has some incomplete recorded observations at 12.00 hours, with no initials at the foot of the column. The ones up to that time bore the initials [Initials of Nurse A], [Nurse A].

She confirmed in evidence that the 01.00 observations were recorded and initialled by her, the defendant. Contrary to [Nurse A]'s evidence, she said that [Nurse A] alerted her to the fact that [Baby B] had deteriorated by calling her over. [Baby B] had become quite mottled and dark all over her body, a dark mottling colour. She said it was like general mottling they see

on babies. It was not unusual but she said they were concerned about her. [Baby A] had been pale and white; [Baby B] was more purple. She did not see what [Nurse A] said she saw. She accepted that she had the opportunity to have access to the IV lines of both [Baby A] and [Baby B] just before they collapsed, but said she didn't access the lines.

The defendant was first interviewed by the police about [Baby B] on 4 July 2018; that's in your interview file, obviously, behind the tab [Initials of Baby B], the next one along, page 1 onwards. She said she could not remember the shift with any clarity other than from the notes. She did not remember her involvement with the care of [Baby B]. She confirmed having signed the nutrition prescription behind tile 213 with [Nurse A], who was [Baby B]'s designated nurse, and the record of infusion behind tile 241, and recording observations on the observation chart behind tile 237 at 01.00.

She did remember [Baby B] displaying some mottling that looked a bit similar to that seen on [Baby A]'s appearance the day before. It was more extensive and covered more of her body. It was like a purply-red patchy rash-like appearance. She thought [Nurse A] may have alerted her to [Baby B]'s appearance. She observed this before any resuscitation began. She could not recall if [Baby B] was attached to a monitor but assumed she would have been. She did not recall any alarm sounding. She did not have any recollection of her interactions with [Baby B] or how she got to the point of collapse, nor did she recall having any concerns for her.

[Baby B] was in nursery 1 and she would have attended to her if her designated nurse was on a break or engaged with another baby. She confirmed that she would have handled [Baby B] to an extent to give her the medication and attach lines because it needs two people to connect to a long line or a UVC.

She recalled being with [Baby B]'s parents in the nursery and how upset [Baby B]'s parents were. They had waited a long time for [Baby A] and [Baby B] and they were much-wanted babies.

She had not kept in touch with them. She had kept in touch with one or two families from Liverpool Women's when she did her placement there. She did not remember any collapse event on that particular shift.

When interviewed 11 months later, on 11 June, page 17 onwards, she said it was possible she took the gas readings shortly before [Baby B]'s collapse. She did not do anything deliberately to harm [Baby B].

The third interview was on 10 November 2020. She had no explanation for [Baby B]'s collapse. She was asked, page 21, about messages between her and [Nurse A] in which she said:

"Odd that we lost three in different circumstances."

She said she didn't recall that message conversation or saying that she couldn't get -- sorry, she couldn't recall -- I'll start that again. She said she didn't recall the conversation or saying that she couldn't get her head around [Baby A].

Dr Rachel Lambie, who is now a consultant paediatrician in Crewe, was then a senior registrar at the hospital. She received a crash bleep, which directed her to [Baby B]'s bedside. When she arrived, [Baby B] was on bag-and-mask ventilation, having had, she was told, a sudden and unexpected apnoea. The most memorable thing, said Dr Lambie, was [Baby B]'s colour. She was a very dusky, pale grey colour and, as they were helping her, she was then developing widespread blotches, patches of a purple/red colour. They would flush up, last about a few seconds, 10 seconds, and then disappear and appear elsewhere. They were flitting around her body, all over.

After about 10 minutes, [Baby B] started moving for herself and recovered, but it took about an hour and a half for her colour to improve. So the patches weren't there for 30 minutes, but it took that time for her general greyness to disappear and her normal pink colour to return.

In her clinical notes, to be seen behind tile 243, written at 02.30, Dr Lambie described a:

"Widespread purple discolouration of the skin with white patches."

She inserted the breathing tube, the Guedel, to which I've referred. The vocal cords were normal. Urgent blood tests were taken to look for infection. When they came back there was no overwhelming infection. The blood clotting figures were normal and cell numbers were normal.

Dr Lambie said this was a very unusual event that she had not seen before and hasn't seen since and recovery was rapid. She wondered whether there was a widespread sepsis or a problem with her blood clotting, coagulopathy, but the test results ruled that out. Professor Kinsey confirmed that the results did not support any coagulopathy. The gas results also came back as normal.

The defendant said that she had been asked by Dr Lambie to get a camera, which she went to get from the manager's office, and she

said she got it very quickly. On her return, [Baby B] had stabilised and her colour had returned to normal. So that was an occasion where a clinician was asking for photographs to be taken of what was to be seen, but the event was concluding by that time the camera arrived according to the defendant.

[Dr B] was the consultant on call that night. She had been a consultant at the Countess of Chester since 2005. She was called out at 00.37 and arrived at about 00.50. Dr Lambie reported to her what had happened and [Baby B]'s appearance. When she arrived, there was purple blotching to the right-hand mid-abdomen and the right hand. Her notes are behind tile 233 for your reference purposes.

The heart rate had picked up to 143, which was a good sign. The acid level was sub-optimal and the carbon dioxide level was a bit high. The blood count was okay, there was no sign of infection, no bleeding problems, the X-ray showed the ET tube was okay, there were diluted loops of gas in the bowel, which are often seen and not significant. [Dr B] was puzzled by the cause of the discolouration.

If a baby has an infection, the skin changes do not resolve. If the baby has sepsis they are really sick. This rash was so florid, it came out of nowhere and resolved quickly. It was also very unusual that a baby who was quite stable suddenly stops breathing, responds to treatment, and then in a couple of hours is almost back to normal.

The following night, [Nurse A] was back on duty. [Baby B] had been extubated and taken off the ventilator and was back on CPAP and did well thereafter.

Professor Arthurs examined six photographs, which showed some changes in the lungs, which were of premature lung disease, which would be expected, and no other abnormalities. It is very rare to see air embolus as a cause of death or as a radiological diagnosis, as I've already explained to you, and the absence of air embolus in a radiological image does not mean that it didn't happen.

Dr Dewi Evans noted that [Baby B] required more resuscitation at birth, but from then on she was stable, requiring little by way of support. All the markers of well-being were satisfactory and she was considered well enough to be taken out of the incubator and to be given to her mother for love and attention. She was prone to desaturations.

He, again, formed a differential diagnosis, which was that her collapse was either the result of smothering, in other words obstruction of her airways, or an air embolism. The

discolouration of her abdomen was very striking and quick. If the cause was hypoxia, starvation of oxygen to the brain, or sepsis, it tends to stay, it doesn't just come and go. He considered it may have been the result of a small volume of air being injected into her long line. The pattern of collapse was very similar to [Baby A]'s, so it was more likely that the cause was the same.

In [Baby B]'s case, the fact that she survived suggests that either the volume of air was less or it got into her circulation more slowly, or a combination of the two. There was no sepsis and nothing else to explain this collapse, which was so sudden and unexpected. There was no evidence of any problem with her lungs or heart.

Dr Bohin concluded from the clinical notes that at birth [Baby B] was clearly compromised and needed some help to establish a normal breathing pattern. She required resuscitation at birth, which would not be particularly unusual for a baby born at just after 31 weeks' gestation, and she responded very well to appropriate resuscitation provided by the medical and nursing team and stabilised very quickly.

Initially, she was on BiPAP, which is a specific form of CPAP. It is CPAP with a little bit of extra support, but she did very well on that. She was then converted to CPAP but was in air and her blood gases were normal. She was very stable and able to have times off CPAP, for 2 hours on the first occasion, with no changes in the readings and almost 2.5 hours on the second, having skin-to-skin contact with her mother, and for feeds to be started. She went back on to CPAP after the second period off because of increased work of breathing, though this wasn't reflected in the observation chart because that simply records the number of breaths per minute. There was nothing in the observation chart that would suggest that she was compromised in any way.

The circumstances of her collapse was very concerning. Sudden collapse is not something you see, you usually get prior warning. There was no connection between the nasal prongs being dislodged earlier and the sudden desaturation. There were no other warning signs that would herald an imminent collapse. She discounted infection and cardiac arrhythmia and was left with the conclusion that this was an air embolus, partly on the basis of a diagnosis of exclusion, but also because of the florid skin changes and the differences from anything she had seen before. She looked, she said, at each case on its own merits.

Professor Sally Kinsey confirmed that all blood results in [Baby B]'s case were normal for her age and at the time of testing. She reached the same conclusion that she advanced in the case of

[Baby A] in relation to an air embolus. The account in terms of features was consistent with those discussed in the medical literature, including the paper by Lee and Tanswell.

She was referred to the descriptions of those present: Dr Lambie describing a widespread purple discolouration of skin with white patches and [Dr B] noting purple blotchiness of the right mid-abdomen and right hand and, towards the end, the purple discolouration had also resolved.

In her note the defendant described her as "cyanosed in appearance". It was pointed out to Professor Kinsey that there was no reference to pink or bright red patches.

The prosecution say that this wholly unexpected sudden and otherwise unexplained collapse was caused by air embolus as a result of air being injected into her by the defendant, who accepted she had access to the lines of both twins before their respective collapses.

The highly unusual features of discolouration observed by medical and nursing staff, including the defendant, which was similar to that seen on [Baby A] the previous day, in the context of the expert evidence and the absence of any other medical explanation can lead you, they submit, to the conclusion that she attempted to murder [Baby B].

The defence say it's not as straightforward as that and, for the reasons that were advanced to you by Mr Myers, they say that you cannot, on the evidence that is before you, exclude this having been a natural event.

I move on to count 3, [Baby C]. He died in the early hours of 14 June 2015, 6 days after [Baby A] died and 4 days after [Baby B]'s collapse. As I shall remind you, the experts found it difficult to identify the cause of death, but Dr Marnerides concluded it was the excessive injection or infusion of air into the nasogastric tube.

The defendant says she did nothing harmful to [Baby C] and the defence say you cannot safely exclude a natural cause, such as a gastrointestinal blockage. They say [Baby C] should have gone to a tertiary unit, been examined earlier than he was, and there was a failure to react to bile aspirates and vomiting, complacency and a lack of care.

[Baby C] was born at 15.31 hours on 10 June 2015 at a gestational age of 30 weeks and 1 day to [Parents of Baby C]. His growth in the womb was not as it should have been. There was IUGR, intrauterine growth restriction. [Mother of Baby C] was admitted to hospital on 5 June with raised blood pressure. A

scan early on the morning of 10 June revealed that there was no blood flow through the cord, reverse end-diastolic flow, reverse EDF, ie the blood flow from the placenta to [Baby C] was at times going back on itself, so he needed to be, and was, delivered that day by caesarean section.

[Baby C] was taken to the Resuscitaire. Dr Sally Ogden, then a paediatric registrar level ST3, was present at the birth. [Baby C] weighed 800 grams, just over 2 pounds 2 ounces, which was a low weight for a baby of his gestation. It was accepted by the clinicians who were involved with his care that he was on the borderline for remaining at the Countess of Chester.

He was born in good condition, no resuscitation was needed. He was pink, well perfused and his circulation was good. His Apgar scores were pretty good: 7 at 1 minute, 9 at 5 and 10 minutes.

He was taken to nursery 1 in the neonatal unit. Dr Sally Ogden's notes made at 17.00 hours are within the documents behind tile 5, J1910. There were no risk factors and he was started on antibiotics; tile 10.

Because he displayed signs that he was working hard to breathe, which is often seen in preterm babies and is not in itself unusual, he was intubated and placed on a ventilator. Dr Ogden's plans for the next steps are set out in the notes at J1901 behind tile 8. Her shift ended at 17.00 hours. Dr Brunton made notes at 18.00 hours.

Dr Yoxall, a consultant at Liverpool Women's Hospital, was spoken to, and he was happy for [Baby C] to stay at the Countess of Chester.

At 18.00 hours that day, [Baby C] was taken off the ventilator and commenced on CPAP, which, according to the nursing notes behind tile 11, he was tolerating well. A UVC was inserted, as recorded on the nursing notes behind tile 12, which had to be pulled back; tile 13.

Professor Owen Arthurs examined a radiograph taken at 18.19 hours. The tube was indeed slightly too far in and should be pulled back. There was gas in the stomach and small bowel and nothing abnormal to be seen.

A radiograph taken at 22.38 hours that night showed the tube had been withdrawn slightly and there was normal gas in the stomach and small bowel. The left lung was white, which was consistent with a clinical sign of a left-sided chest infection. The right lung was normal.

Bernadette Butterworth was [Baby C]'s designated nurse for the night shifts of the 10th to the 11th and the 11th to 12 June. J913 behind tile 15 is the relevant document for the night of the 10th/11th. Although he was unsettled at times during the night, [Baby C] was the same at the end of the shift as he had been at the beginning.

Dr Ogden was on the day shift the following day, the 11th, and undertook a ward round at 11.00. Another of the documents behind tile 15, J914, is the relevant one to which you can refer for the details: readings were normal and very stable for a preterm baby, save for a high level of lactate at 4.3. His metabolics were just over the treatment line, so phototherapy treatment was to be started to address jaundice. He handled well and observations were normal. He was responding as expected.

A cranial ultrasound was carried out by Dr Gail Beech and shown to Dr Saladi, a consultant. No abnormalities were detected on that ultrasound.

Bernadette Butterworth was back on duty again for the night of the 11th/12th, as I've just reminded you. [Baby C] was unsettled at times and his UVC was out when she took bloods on the morning of the 12th, but not for long, because the bed was not that wet, and she had carried out hourly observations. The abdomen was distended, soft to firm, but not hard. He was quite unsettled at times and kicking. He was desaturating and requiring a bit more oxygen, but was pretty much the same over her two shifts. In other words, over the night before and this night.

Dr Gail Beech made entries on the clinical notes at 10.15 on 12 June. J1917 is the relevant document. There were no infections or sepsis. There were some things that needed watching: the CRP, capillary refill time (sic), had increased; the white blood cells were low; he was slightly jaundiced but phototherapy seemed to be working; lactate was on the high side but was coming down, which is a positive sign; and he was having skin-to-skin contact with his mother. Looking at all the data together, nothing stood out as worrying or concerning, but a few things did need to be watched. There was a plan to start cautious trophic feeds if certain conditions were met; J1918.

At 12.45, a long line was inserted, at the third attempt, into the left saphenous vein to a depth of 11 centimetres. An X-ray was taken at 12.38 on 12 June; it is J1996. It was centred on [Baby C]'s abdomen and Professor Owen Arthurs told you the most striking thing was the dilatation of the stomach, which was full of gas and unusual.

Professor Arthurs' evidence was that the radiographs show left-sided chest infection but also marked dilatation of the stomach

and the small bowel. There were several potential causes, he said, which would include CPAP belly, sepsis, NEC or exogenous air administration. Professor Arthurs said it was the small bowel that was inflated.

He agreed with Mr Myers that a twist in the gut can cause an accumulation of air. There was no marker of a blockage, no evidence on the imaging, nor any clinical sign of a blockage, and none was found on autopsy, which it would have been had there actually been any blockage, nor was there any evidence of NEC.

At 14.15 hours, Dr Catherine Collins examined [Baby C]; J1919 is the relevant document. His readings were unremarkable and he was on 40% oxygen. His anterior fontanelle was soft, which is good, and no abnormalities were detected. His abdomen was soft.

Yvonne Griffiths, the neonatal unit deputy manager and a band 6 senior nurse practitioner, was [Baby C]'s designated nurse on that day shift of 12 June, taking over from Bernadette Butterworth; J1950 is her note.

At 18.30, bile was noted on [Baby C]'s blanket. The NG tube was aspirated and 2ml of black stained fluid was obtained. Had he been having enteral feeds at that time, they would have stopped them, but he wasn't. He didn't desaturate.

Melanie Taylor took over as [Baby C]'s designated nurse on the night of 12/13 June. His data, behind tile 24, looked stable. Two entries, she said, were slightly out of normal but not unusual or any cause for concern. The data behind tile 40, J2009 and 2010, included entries of 0.5ml of dark bile from the nasogastric tube at 21.00 hours and a vomit of dark bile at 24.00.

He was fairly stable on CPAP. Bile aspirates was a concern, she said, but is not unheard of in neonates and is not necessarily a major cause for concern.

J1945, behind tile 45. Melanie Taylor wrote at 00.03 the tummy was soft, not distended, which was a good sign. At 05.25:

"Platelets low. Doctors aware."

He was a stable baby. In relation to these entries Dr Gibbs said that the vomit of dark bile was a worry, but the aspirates were not increasing, the vomiting did not persist, he had a soft abdomen and his overall observations were satisfactory. Had there been an obstruction it would have been expected to be found at the post-mortem.

Dr Katherine Davis was the senior registrar on duty that night shift, the 12th to 13 June. Behind tile 20 on J1920, [Baby C] was noted at 21.20 to be nil by mouth due to bilious aspirates. A blood culture was taken. There was no growth at 36 hours, which was obviously after his death. CRP was slightly raised. The phototherapy for jaundice, which she said was very common in newborn babies, was stopped at 17.00 hours because he didn't need it. He handled well on examination and was active. His abdomen was soft, he had bowel sounds and was not discoloured. She said they were aware of the dark bile aspirate and vomit but there was no other suggestion of NEC. If he had NEC she would have expected [Baby C] to look very different and NEC was not the only explanation. He was possibly a baby with sluggish bowels. Black bile was not normal but not unknown in premature babies.

Dr Sally Ogden was on duty again on Saturday the 13th. Her clinical note is J1921 behind tile 77. There was reference to the very dark bilious aspirates. These she said were findings of a concern and may have indicated NEC or an obstruction in the gut or infection. She noted his bowels were not open and the abdominal X-ray showed a loopy bowel and was distended. CRP was elevated, which was a marker for infection. The blood cultures were negative. He could not have the planned lumbar puncture because his platelets were low. He was still pink, well perfused, his heart sounds were normal, his chest was clear, he had no increasing problems with breathing, no hernias, his abdomen was soft and not distended, which she said was a reassuring sign. Bowel sounds were heard. She auscultated -- that's listened -- to his abdomen and heard normal bowel sounds, which was a normal finding. If they had been abnormal she would have noted it. His weight had dropped to 717 grams.

The notes go on to refer to [Baby C] being reviewed by Dr Gibbs and the starting of intravenous ranitidine, a medication which targets stomach acids.

Dr John Gibbs was a consultant paediatrician working at the Countess of Chester from 1994 until his retirement towards the end of 2019. He saw [Baby C] several days over the first days of his life. Had he had any concerns he would, he said, have noted them. He saw him on the morning of 13 June. The notes, J1921 and 1922, are behind tile 77. They are the relevant ones.

Dr Gibbs had no particular concerns about [Baby C] that day. The gastric aspirates were not a particular concern at that time. They were not copious and the stomach naturally produces some acid and stomach secretions. There can be aspirates in a baby that has not been fed. Aspirates can irritate the stomach, as

can the nasogastric tube. When babies are developing NEC, the abdomen hardens.

At 15.55, he carried out an ultrasound scan of [Baby C]'s head and will have had to examine him. The scan was normal and he recorded nothing of concern.

Joanne Williams, a band 6 neonatal practitioner, took over nursing care of [Baby C] at 08.00 that morning, of Saturday, 13 June. Her notes are J1947, behind tile 69. [Baby C] was on CPAP -- nasal CPAP in 26% of oxygen. His capillary blood gas was very good. He was very unsettled in the morning, but that was not uncommon. He had skin-to-skin contact with his mother and calmed down straightaway. Optiflow, a less invasive form of assistance, but which can still lead to a build-up of air in the belly, was commenced at 13.00.

He was very settled that afternoon though there was a slight increase in his respiratory rate. His platelets had improved slightly but were still low. Clinically, he remained stable and was on free drainage from his NGT to stop the accumulation of air in his stomach and so they could see any aspirates. Tiles 83, 96, 102, 116 and 120 front the various charts, records, notes and reports relating to events that day to which you can refer for details. I'll repeat: 83, 96, 102, 116, 120.

At 18.00 hours his CBG, capillary blood gas, had improved, and there was a plan, if aspirates reduced, to commence enteral feeds that night. [Baby C] had done well during that day shift.

We come to the shift of the night of 13/14 June when [Baby C] suddenly collapsed and died. The messaging showed that the defendant offered to work that shift. In the messages she sent behind tile 18 she wrote:

"I need to throw myself back in."

By which she said she wanted to get back into the unit and back into looking after babies because that was what she was taught at Liverpool Women's: when you have difficult shifts or babies pass away, the way to sort of overcome that is to go straight back into the environment and carry on.

In a further message behind tile 20 she said:

"Think from a confidence point of view I need to take an ITU baby soon."

She wasn't allocated an ITU baby for that shift that night. Sophie Ellis took over as [Baby C]'s designated nurse the night shift of 13/14 June. She was a band 5 nurse and not intensive

care trained, but was supported on the shift by a band 6 nurse, Mel Taylor, who was the designated nurse for another baby in nursery 1.

Mel Taylor said Sophie Ellis was a very competent nurse. [Nurse B] was the shift leader. The defendant was the designated nurse for babies JE and PE in nursery 3. In a message to Jennifer Jones-Key behind tile 152, the defendant said to her that she felt she needed to be in nursery 1. At the handover, the hope to start [Baby C] on feeds was discussed. [Baby C]'s observations at 20.00 hours were satisfactory. His respiration rate was 58 to 73, elevated at times. He was pink and well perfused, active and alert.

Sophie Ellis' nursing note is behind tile 139 and again, later, behind tile 231. The registrar, Dr Katherine Davis, agreed to start trophic feeds. At 21.00 hours in the ICU chart at J2009, there is noted dark bile. Dr Davies said they were aware of this but there was no other suggestion that [Baby C] had NEC, which was a possible explanation, but if he had NEC he would have been expected to look very different. He was possibly a baby with sluggish bowels.

Dr Gibbs was also asked about this vomit and said he was not concerned by one vomit. If there had been a blockage he would have had repeated vomits.

At 22.34, the defendant sent a message, tile 161, saying she had done a couple of meds in 1, nursery 1. She also thought Sophie Ellis didn't have the skill and experience of premature babies; J2010.

The intensive care unit chart behind tile 169 records that at 23.00 Sophie Ellis gave [Baby C] 0.5ml of expressed breast milk. She had aspirated the tube first and there was some very small, light green bile. Until that time, he was doing well, a feisty little baby who was very active. Then tile 182, fronting J1950, he:

"Had two fleeting bradys (self-correcting, not needing any intervention) shortly before prolonged brady and apnoea requiring resus."

The time was 23.15. She explained she had left the room for a short time and was at the nurses' station when she heard [Baby C]'s alarm. She heard an alarm, she didn't know which one, go off so she went back in and she saw the defendant standing by [Baby C]'s incubator and she said, "He's just had a brady and desaturation". This was not something that Sophie Ellis put in the nursing notes, it was a detail she gave to the police when she made a statement in January 2018. She said she'd forgotten

when she made the notes as she had had a traumatic event, obviously what followed.

She couldn't remember what the defendant was doing at the time. The brady and desat resolved quite quickly. Sophie Ellis said she didn't do anything to [Baby C] or see anything done to him. She went over to the computer in the room but the wall prevented her from seeing [Baby C]. The defendant was in the room, she didn't know if anyone else was. [Baby C] had a further brady and desat and an apnoea, which he didn't resolve, so they had to intervene. The defendant was stood at the incubator on the right-hand side.

[Nurse B] was alerted to the crisis in nursery 1 by a shout for help. She immediately went into the room and believed she saw Mel Taylor and Sophie Ellis were beside [Baby C]'s incubator, but she could not say she was 100% sure. They had a Neopuff and tried to ventilate him. He wasn't breathing and his oxygen saturation levels were very low. He was very blotchy. She wasn't aware of the defendant being in the room.

Sophie Ellis said that when she re-entered the room [Nurse B] asked her to take over chest compressions. It was put to Sophie Ellis that the defendant was not present at the first fleeting bradycardias and desaturations or at the start of the second. Sophie Ellis said she didn't know. She didn't know whether Mel Taylor was there or not. She didn't remember Mel Taylor going to assist [Baby C] or helping Mel Taylor assist [Baby C]. She didn't agree that the defendant came in at some time after her and Mel Taylor were dealing with [Baby C].

Mel Taylor said in evidence that when she first approached [Baby C]'s incubator, the defendant was already there, but she thought Sophie was there at some point and may have called her over. In her witness statement to the police on 8 February 2018, she said that when [Baby C] collapsed she was pretty sure she was in nursery 1, feeding another baby and remembered being called over by Sophie, making no mention of the defendant at all.

In her evidence she said the defendant suggested using a Guedel airway. She said she had never used one before and thought the defendant inserted it and then they used it to apply Neopuffs. They started chest compressions before the doctors arrived.

In her evidence, the defendant confirmed that she was the designated nurse for JE and PE in nursery 3 and said she had very little independent memory of events. Page 3 of 9 of the neonatal review showed at 23.00 she was looking after JE and PE in nursery 3. She said she was first alerted to any problem when she was called to help, she believed by Sophie Ellis. She wasn't

in nursery 1 and wasn't aware of doing anything for [Baby C] before she went for help.

She was asked about passages in her interview when, from page 11 onwards, she said she didn't remember specifically when she entered the room or why. She said she answered as she did because Sophie Ellis had placed her in the nursery. In fact, she told you, she had no recollection of being there with the alarm sounding and saying anything to Sophie.

She believed she asked Sophie Ellis to put out a crash call. Mel Taylor was looking after [Baby C], he was apnoeic and needed respiratory support. She did have some recollection of [Nurse B] being there. Sophie Ellis put out the crash call. Sophie Ellis' evidence was that [Nurse B] asked her to put out a crash call, it was not the defendant who asked her.

The defendant said from that point, full resuscitation commenced and she did perform some chest compressions.

I'm then going to move on to the evidence of the clinicians as to what followed from that point onwards, so that's a good point to have a break. I'll continue the narrative in relation to [Baby C] after a ten-minute break. Thank you.

(3.03 pm)

(A short break)

(3.13 pm)

(In the absence of the jury)

MR JUSTICE GOSS: Thank you both, you're absolutely right, I realised actually as I was reciting both: one was an ad lib in fact, the other was just a mistake, for the reason that you actually anticipated, so I shall first correct both those matters and then continue.

MR JOHNSON: I recognised it because it was a mistake I have made myself amongst others.

MR JUSTICE GOSS: I'm just going to ask -- well, I'm going to make a decision that we might finish just slightly before 4 o'clock because I don't want to start another baby this afternoon. I'd rather do each in turn. They will have had quite a lot today. Thank you.

(In the presence of the jury)

MR JUSTICE GOSS: I shall break off maybe just slightly before 4 o'clock this afternoon, in fact, because I want to complete a baby and not start another one and go halfway through. It's better that you can sort of compartmentalise each case.

Before I continue with my narrative in relation to [Baby C], I must correct two things, and I'm grateful to the barristers who are listening very carefully, as you are, to what I'm saying. As I was actually saying one part of the summing-up I realised that I thought I had transposed evidence that in fact relates to another baby.

May I take you back to [Baby A]. At the very end of my summary of the evidence I referred you to what Professor Kinsey had said about blood properties and saying about spontaneous bleeding and the like. That did not relate to [Baby A]'s case, that in fact related to [Baby E]'s, but she was giving evidence on the same day about those two babies and I just put that passage into the wrong baby. So just ignore that part.

Professor Kinsey had -- I'd reminded you of what she had said about [Baby A] earlier on, but the abnormal blood properties I shall repeat and remind you of in relation to -- or lack of them in relation to [Baby E]. So don't attach any significance to that, please.

The other error I made was that I referred to CRP and I said capillary refill time. It's not, it's C-reactive protein. Some of you had picked that up. That was a slip of the tongue, all right? Apologies for that.

If and when I make more mistakes, they will be corrected as soon as they are brought to my attention. All right?

So back to [Baby C] and the clinicians. Dr Katherine Davis arrived and took over the airway. When she asked for chest compressions to be stopped briefly, there was no heart rate or respirations. Dr Gibbs was called; that was at 23.28. The three attempts of Dr Davis to intubate were unsuccessful because the vocal cords were very swollen. There were clear oral secretions but no blood. The absence of any heart rate continued.

After that, [Baby C]'s mum entered the room. Sophie Ellis said that she got upset at this point. It was the first time she had ever been involved in that situation and it was just completely overwhelming. It was very sudden and very unexpected. Lucy Letby was stood opposite her and said, "Do you want me to take over?" Sophie Ellis said yes, left the room, and didn't re-enter the room after that, took a minute to sort herself out, and went to look after some of the babies in nursery 2.

Mel Taylor was then asked to take over as [Baby C]'s designated nurse. When Dr Gibbs arrived at 23.35, [Baby C] was pale with purply-blue mottling, which is common for a person in cardiac arrest because there is no circulation. There were no signs of life. He succeeded in intubating [Baby C] and gained good entry to his chest. [Baby C] was given a succession of seven boluses of adrenaline, three boluses of saline, two of sodium bicarbonate and one of calcium gluconate. Whilst they were waiting for the priest to arrive to baptise [Baby C], he showed some fairly minimal signs of life. He was baptised, taken off the ventilator and given palliative morphine and lived for 5 hours, dying at around 05.00.

Dr Davis said even the smallest, sickest babies would respond to the resuscitative treatment he was given for a short time. Dr Gibbs confirmed that. Even if he had suffered a collapsed lung, it wasn't compromising his resuscitation. He had no bleed on the brain.

Dr Gibbs couldn't think of any natural disease process that would allow a heart to restart later on when you hadn't been able to get that heart to restart with full intensive care and multiple doses of adrenaline. So whatever catastrophic event led to his death was reversing or had reversed after they stopped resuscitation. He didn't understand that to be from a natural disease process.

The evidence of [Parents of Baby C] was read to you as agreed evidence. [Mother of Baby C] was requested to go and see [Baby C] urgently and when she got to the unit she could see CPR being performed on him. Two or three doctors were present and several nurses were present. She was told [Baby C]'s heart rate had suddenly dropped and he had stopped breathing without any warning, it had been very sudden and unexpected. She contacted her husband and told him to come to the hospital urgently. She didn't really know what was happening and didn't take in the severity of it until she was asked by a neonatal nurse, somewhat unexpectedly, whether she wanted someone to call a priest. She felt quite shocked and she asked the nurse if she thought he was going to die, to which the nurse responded, "Yes, I think so". She had never met the nurse before and was surprised to receive this information from a nurse rather than a doctor.

The nurse did not tell [Mother of Baby C] her name. She was in her mid to late 20s with a fair complexion and brown hair tied back in a ponytail. [Father of Baby C] arrived on the unit whilst they were waiting for the priest. [Baby C] was still in his incubator and remained there until after he had been baptised. The resuscitation stopped but he continued to breathe. They were taken to the family room and [Baby C] was given to them, they took it in turns to cuddle him.

Their respective parents were also called to the hospital and joined them. They remained with [Baby C] in the family room cuddling him, waiting for him to die. Two neonatal nurses were with [Parents of Baby C] throughout this time. One was the nurse who had asked whether they wanted to call for a priest, the prosecution say that's the defendant, and the other whose first name was, she thought, Mel.

The nurses would check on them and took [Baby C]'s hand and footprints for them to keep. At one point one of them, who [Father of Baby C] thought could have been the defendant, because he'd subsequently seen her picture and name in a newspaper, but he was not 100% sure, came in with a ventilated basket and said words similar to, "You've said your goodbyes now, do you want to put him in here", referring to the basket. That shook them. [Mother of Baby C] said, "He's not dead yet". The nurse then attempted to backtrack and diffuse the situation. They didn't want to leave him while he was still alive.

There were a series of text messages from the defendant from tile 294 onward in response to [Nurse A]'s reference to something "being odd about that night and the three others that went so suddenly". I shall not repeat the detail to which you were referred, it's in the evidence.

When interviewed on 4 July 2018, the defendant remembered [Baby C] as a small baby who deteriorated not long after his first feed by one of the nurses in which she was not involved. Her only involvement was in the resuscitation. She could not recall handling him prior to that. She was not working in room 1 that night. She had a vague recollection of doing [Baby C]'s hand and footprints while he was sat with mum and dad but did not specifically remember and could not be certain. She would have had some interaction with the parents. She found [Baby C]'s death quite hard because he lived for several hours and she had not seen that before.

She accepted that she had made Facebook searches for both [Parents of Baby C] approximately 10 hours after the death, but could not remember doing them or why.

In relation to the series of WhatsApp messages between her and Jennifer Jones-Key on the evening of 13 June 2015, she agreed she wanted to go back into nursery 1 as it could be hard to go back into an ITU environment after having a sick baby so she preferred to go straight back in.

She said she had no recollection of making that comment relating to putting [Baby C] in the basket and questioned whether she was

the nurse who said that. As far as she knew, she did not say that comment to the parents. She was very sad for them.

In her evidence she said she couldn't recall any specific contact with the parents, though did she recall them being at the resuscitation. She may have had contact after that, but could not recall it.

She said she made a Facebook search at 15.52 hours on 14 June for [Parents of Baby C] and said she did that because the family were very much on her mind. "When you go home from work", she said, "you don't forget about the babies that you've cared for and what's happened." She carried on searching over the ensuing months because there were times when they would enter her mind. She said that what the parents had been through was unimaginable.

[Nurse B] said that the neonatal unit was extremely busy between 2015 and 2016. The admission rate seemed to increase and they had far more intensive care babies, the staff manager was fighting for more staff, and it wasn't always possible to follow BAPM guidelines in relation to nurse allocation. However, she refuted the suggestion that [Baby C]'s level of care was compromised by staff shortages. [Baby C] was provided with one-to-one care that night and the level of care he was given was not influenced by staffing levels.

She thought JE was the most poorly baby on the ward on that night and she instructed the defendant to carry out hourly observations on JE. She was alerted to a crisis in nursery 1 by a shout for help. She went in and saw Mel Taylor and Sophie Ellis beside his incubator. They had a Neopuff device and tried to ventilate him. He looked very unwell. He was mottled and a crash call was put out. The defendant was in the room when that call went out.

After [Baby C] died, [Nurse B] asked Mel Taylor, as designated nurse for [Baby C], to carry out the job of offering the memory box and she took over the baby that Mel had been caring for. She also asked the defendant to focus back in nursery 3 on baby JE because she was still heavily concerned about him. She asked her to do that more than once and to leave [Baby C]'s family with Mel. However, the defendant went into the family room a few times. It was not part of the defendant's responsibilities to go into that family room at this time, she said.

When interviewed on 4 July 2018, the defendant said she could not recall being told by [Nurse B] to stop helping Melanie Taylor in the aftermath of [Baby C]'s death and to go and look after her own designated baby.

Dr George Kokai, a consultant paediatric pathologist, carried out a post-mortem examination of [Baby C] at the Royal Liverpool Children's Hospital at 10.00 hours on 16 June 2015 and made a written report on 25 September 2015. His findings are at paragraph 21 in section 4 of your agreed facts. In the abdominal cavity he noted that:

"The stomach and all loops of bowel and mesentery showed a normal rotation pattern, apart from the descending colon, which crossed the midline into the right lower abdominal cavity."

Which Dr Marnerides explained is not an abnormality, it is very often seen in babies and is seen in adults.

The only complication it may cause is called volvulus, which is when the colon is allowed to twist around itself. Complications of volvulus could be that the baby starts to vomit or not produce any stool. They are in severe pain, they have a fever and it is something that you don't miss and is obvious. So in the absence of a volvulus, which there wasn't in [Baby C]'s case, this was not an abnormal finding. Although it descended in a different way, it wasn't an abnormality relevant to his demise.

On the histology examination, there was evidence of acute pneumonia. Dr Marnerides explained that one can die from pneumonia but one can also die with pneumonia, meaning pneumonia was present but was not the cause of death.

On the information he initially had, Dr Marnerides came to the conclusion that it was reasonably plausible that [Baby C] had died from pneumonia. After having received further clinical information, which indicated that the clinical assessment was that [Baby C] had pneumonia but clinically he was stable, he was responding to treatment and was giving no indication that collapse was imminent, and taking account of the meeting between all the expert witnesses, prosecution and defence, he reviewed his opinion.

The descriptions pathologists receive from neonatologists of babies dying from pneumonia is of a deterioration of a baby which is progressive and not responding to the treatment, which was not the presentation that he was informed of in the case of [Baby C]. The clinical assessment was he was stable, responding to treatment and suddenly collapsed, which was not consistent from the clinical point of view that the baby could have died from pneumonia.

He relied on and took account of the clinicians' observations of massive gastric dilatation -- ballooning, basically -- of the stomach, and considered the reports by the radiologists, both

from the defence and the prosecution, who agreed that there was an infection and pneumonia but there was also massive gaseous dilatation of the stomach, and the bowel loops were dilated, so sorts of air in there. And having heard the discussions at the meeting and having considered the potential explanations about how such a dilatation could have been caused he revisited the cause of death. He also took into account the digital photographs taken at the post-mortem examination which showed a distended stomach and distended bowel loops in the left part and, to a little extent, crossing the midline. There was no evidence of NEC, which he excluded, as did the other experts.

Professor Arthurs was of the view that it was the small bowel that was dilated in the radiographs. Dr Marnerides explained that there was no evidence, either from the post-mortem of Dr Kokai or from the photographs or from the radiology, that there was a stenosis, which is the bowel being narrower than it should be, or atresia, which means a complete block of the lumen. He came to the conclusion that the most likely description was of a dilated stomach and bowel for which the only other possible explanations were post-mortem gas and CPAP belly.

He confidently excluded post-mortem decomposition as the source of the gas. The bowel looked normal at post-mortem. There were no microscopic findings to suggest that decomposition was of any significance and, most importantly, the sampled segments of the bowel that he looked at on histology looked normal.

[Baby C] had been off CPAP for over 12 hours. The blood gas record behind tile 121 tells you when [Baby C] was on various forms of assistance with his breathing. No air had been attained from aspirates shortly before his collapse.

In relation to CPAP belly, he expressed himself with caution as he was not the expert on how CPAP actually works in babies and he relied on the clinicians. From his experience as a pathologist dealing with neonates and discussing cases with neonatal care unit doctors and from reading the literature, he had never, in over 10 years, come across a description or a suggestion of CPAP belly accounting for the arrest of a baby, nor has he been asked by any of his colleagues at St Thomas' Hospital could this be a possibility. So he thought that, though it was a theoretical possible alternative to air being put down the nasogastric tube, he had never come across such a description in any published material, never seen it and could not think of a reasonably plausible mechanism.

In Dr Marnerides' opinion, the explanation for [Baby C]'s sudden collapse against the background of his pneumonia was the excessive injection or infusion of air into the nasogastric tube.

Dr Dewi Evans explained that, from birth, [Baby C] had two significant risk factors: he was a vulnerable baby and he had retarded growth, so required careful management, nursing and medical care and monitoring over many weeks.

Addressing the various concerns in turn, his breathing stabilised over a number of days, respiratory support decreased, he was more or less breathing on his own, the support having been decreased from CPAP to Optiflow, his oxygen requirement had decreased to 25%, and when he was having skin-to-skin contact he was breathing in air.

In relation to feeding, all babies born 10 weeks premature require a nasogastric tube in order to be fed milk. Aspirates and the abdomen should be checked. The aspirates were not increasing and he had had only one small vomit. There was no indication of an obstruction. The description of [Baby C] being feisty was not consistent with an intestinal problem.

So far as infection was concerned, he had a lung infection as seen on the X-rays. His CRP had increased and his platelets value had fallen. He was, however, being treated for his pneumonia.

In relation to his metabolism, all save one glucose value were within the normal range, his gas values were acceptable, and there were markers that he was getting satisfactory oxygenation. His jaundice values were very satisfactory and his infection was under control, so breathing and feeding issues could not explain his collapse.

The pneumonia infection did not cause his collapse. If the treatment for pneumonia is not working, a baby gets worse. The heart rate did not increase, the respiration rate stayed within the norm, his oxygen saturations remained where they should be. His collapse was difficult to explain. Initially, Dr Evans reached no conclusion. He agreed that [Baby C] was at great risk of an unexpected collapse and he could not exclude the role of infection in the cause of his collapse. But the infection was under control and he was suspicious of the gaseous appearance.

He said:

"A baby can tolerate a certain amount of gas in its abdomen but if it gets to a significant amount of air in the stomach it can cause splinting of the diaphragm. [Baby C]'s collapse was consistent with a volume of air being put into the stomach, splinting the diaphragm and stopping the diaphragm from moving and so preventing the lungs from filling."

This was a conclusion he had never mentioned before he gave his evidence. That was the first time he gave his conclusion, Mr Myers addressed you about it last week. It was not advanced in any of his eight reports in [Baby C]'s case or in the joint report.

Dr Evans said that he'd seen the report of Dr Marnerides and discussed it with him and had taken it into account in reaching his conclusion but denied he was coming up with things now as he went along to try and support an allegation of harm on 13 June. His opinion was based on the suddenness of the collapse:

"His pneumonia was under control, he was on antibiotics, requiring hardly any additional oxygen and his saturations were spot on."

You may remember the points towards the end of cross-examination when Mr Myers and Dr Evans were interrupting and speaking over each other -- that occurred more than once when he gave evidence -- and Dr Evans was pressed on the features he relied on to reach his conclusions and he went on to explain differential diagnosis and said that, from an academic point of view, air embolus could not be excluded. He'd not mentioned that before but said it was his role to give an impartial view, looking at all the issues, not to prepare partisan reports. You'll recall Mr Myers' criticisms of those very late references to these possibilities.

Dr Sandie Bohin readily acknowledged that [Baby C] was potentially at risk of complications and required assistance with breathing most of his life but said that in the early days he did well, he was a baby that was improving:

"Clearly, he had an infection [for the reasons that Dr Evans referred to] but he still continued to improve and was being treated with antibiotics. Babies with pneumonia will slowly deteriorate, often there are signs of a very slow decline. Pneumonia did cause him to collapse and did not kill him. Having an underlying illness will have made resuscitation more difficult and contributed to his not surviving resuscitation."

Dr Bohin looked at the records and noted there was no recording of air amounts being aspirated and there was a fleeting mention of air on free drainage. Bile amounts were small. It was known that, on 13 June, [Baby C] was aspirated, but it is not known if any additional air was aspirated.

Her conclusion in relation to the possible causes of why it was that [Baby C] had this bubble in his stomach on 12 June was that if the nasogastric tube was not on free drainage and was not

aspirated, then it could well have been down to accumulation of gas by CPAP.

The blood gas record behind tile 121 sets out the various forms of breathing assistance he received. The alternative explanation was that there was a deliberate introduction of air down that tube. The medical staff at the time were clear that the abdomen was soft, that the baby was well, so they didn't appear to be concerned about the abdomen. [Baby C] didn't have the kind of conditions that could have caused problems with the gut and, in any case, they would not have caused the sudden and catastrophic collapse, which was unresponsive to resuscitation:

"Premature babies do get infections and do become unwell. It would be rare and very unusual for them to collapse in this way and they are usually responsive to resuscitation."

In her opinion, [Baby C] died with his pneumonia, which could have made him less responsive to resuscitation but not because of pneumonia.

In response to questioning about a potential obstruction of the bowel, Dr Bohin said that if he had had a bowel obstruction, [Baby C] would have been expected to have a distended abdomen and either no bowel sounds or abnormal high-pitched sounds known as tinkling. From Dr Ogden's note, "Abdo soft, not distended, bowels sounds heard", there was no obstruction.

The defence referred to there being no description of the bowel sounds. Dr Bohin's response was that if there were no sounds or they were abnormal she would have expected that to be recorded. There were, in her opinion, no clinical indicators of obstruction. She accepted, Dr Bohin, that she had not identified a cause of [Baby C]'s collapse.

Just in relation to the question of dying with pneumonia and not of pneumonia is concerned, I remind you of my first legal directions relating to a cause, not necessarily the only cause, but a cause of the death. I'm not going to ask you to look back at that now, but you'll remember the specific passage -- I don't have my copy to hand at the moment -- about the act or acts of the defendant would have -- you'd have to be sure were a cause, not necessarily the main cause or the only cause, but a cause of the death. So you understand that. So that's the importance.

If you do not exclude pneumonia entirely as a cause of death then that doesn't arise. You've got to essentially exclude pneumonia as the sole cause of death. I hope that's clear. You'll see it when you come back to it and address those questions that I set out for you in my first legal directions.

The next baby is [Baby D], count 4 on the indictment. I cannot complete my summary of the evidence relating to her in the next 15 or 20 minutes; it is going to take longer than that, it will take about 40/45 minutes, I should think. So in those circumstances, as I indicated to you at the very outset, I'm conscious of the fact that you've spent consecutive days now listening to people and you've spent the best part of the court day listening to me, so we will turn to [Baby D]'s case when you're refreshed at 10.30 tomorrow morning. Thank you very much.

Please remember your responsibilities, as I'm sure you do, as jurors in this case: no communications with anyone and no research about anything to do with the case. Thank you very much.

(In the absence of the jury)

MR JUSTICE GOSS: If there is anything, please just send me an email and I'll deal with it tomorrow morning. Thank you very much.

Did someone want to come --

MR MYERS: Yes, we would, thank you for asking, my Lord.

MR JUSTICE GOSS: A visit, please. Thank you.

(3.46 pm)

(The court adjourned until 10.30 am on Tuesday, 4 July 2023)