

## TRANSCRIPT OF PROCEEDINGS

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### **INQUIRY INTO THE CONVICTIONS OF KATHLEEN MEGAN FOLBIGG**

**WEDNESDAY, 20 MARCH 2019 at 10.00am**

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#### **PRESENT:**

##### **Legal representatives**

15 **Gail Furness SC**, Senior Counsel assisting the Inquiry

**Ann Bonnor**, counsel assisting the Inquiry

**Sian McGee**, counsel assisting the Inquiry

**Jeremy Morris SC**, Senior Counsel for Ms Folbigg

**Robert Cavanagh**, counsel for Ms Folbigg

**Isabel Reed**, counsel for Ms Folbigg

20 **Kate Richardson SC**, Senior Counsel for Dr Allan Cala

**Ian Fraser**, counsel for NSW Health

**Ragni Mathur**, counsel for Professor John Hilton

##### **Witnesses**

25 **Professor Johan Duflou**, Forensic Pathologist

**Dr Allan David Cala**, Senior Staff Specialist at the Newcastle  
Department of Forensic Medicine

**Professor John Miller Napier Hilton**, Former Forensic Medicine  
Consultant

30 **Professor Stephen Cordner**, Professor of Forensic Pathology  
International at Monash University and head of International Programs at  
the Victorian Institute of Forensic Medicine

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SPECIAL INQUIRY

THE HONOURABLE REGINALD BLANCH AM QC

5 WEDNESDAY 20 MARCH 2019

**INQUIRY INTO THE CONVICTIONS OF KATHLEEN MEGAN FOLBIGG**

**PART HEARD**

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<JOHAN DUFLOU, ON FORMER AFFIRMATION, ALLAN CALA,  
JOHN HILTON AND STEPHEN CORDNER, ON FORMER OATH(10.01AM)

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JUDICIAL OFFICER: Yes, Ms Furness.

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FURNESS SC: Thank you, your Honour. Professor Duflou, I apologise again for my voice. Before the break yesterday I was asking you questions about your evidence concerning the time of death of Caleb. Do you recall that?

WITNESS DUFLOU: Yes.

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FURNESS SC: In your report at paragraph 9 page 5 you say that on 19 February Caleb was given a feed and put down to sleep in a room adjacent to the parents' bedroom and he was checked by his mother at about 10am.

WITNESS DUFLOU: 10pm.

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FURNESS SC: 10pm, I beg your pardon, and appeared to be well and was checked again at quarter to 3 in the morning. Your evidence is that he was fed obviously on the night before he died?

WITNESS DUFLOU: Well, I think that's fair, yes.

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FURNESS SC: I take it that that timing is upon which you base your views as to the emptying of the stomach. Is that right?

WITNESS DUFLOU: Yes.

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FURNESS SC: Can I refer you to the evidence of Kathleen Folbigg which is in a statement of hers which is part of the exhibits before the trial in which she says that he was fed at 1am. I'm happy to show you that if you wish. There's another piece of evidence which is in the ERISP she was involved in. At question 7 she spoke again of an early morning feed and in a diary entry she spoke of Caleb being finally asleep at 2am. That evidence suggests that indeed he was fed probably some hours later than what you assumed in your report. Does that change the evidence you've given as to the time of death?

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WITNESS DUFLOU: Well, I suppose I wouldn't call it an assumption that I've

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made. It's based on factual information provided.

FURNESS SC: Perhaps then you can tell us the facts that you relied upon to say that he was fed the night before.

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WITNESS DUFLOU: Well, he was checked at 2200 hours. If that is the latest possible time - what I'm saying is I'm not making assumptions, I'm basing it on material that I had. I was not provided with that other material that you now give me.

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FURNESS SC: Well, then, assume then what I've told you to be true--

WITNESS DUFLOU: Yes.

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FURNESS SC: --that he was fed at 1am or early in the morning and finally went to sleep at 2am. It means, doesn't it, that your conclusion as to the time of death must be wrong? Do you accept that?

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WITNESS DUFLOU: It would be obvious that death could not occur prior to 2am then.

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FURNESS SC: Thank you. I move on to Patrick and as with Caleb I'll indicate what I understand to be known from the trial and if anyone has a different view please tell me. Patrick was born on 3 June 1990 and he had an acute or apparent life-threatening episode on 18 October 1990 at age four months and 15 days and he died on 13 February 1991 at age eight months and ten days. As with his brother, he was full term. He was not underweight. His mother did not smoke and he was found on his back with his face uncovered in his own bed. There were again no signs of neglect and the family was not socioeconomically disadvantaged.

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Differently from Caleb, not surprisingly, his mother was 22 years of age when he was born and he was vaccinated and used a dummy albeit the timing of the dummy is unclear. Again, the evidence is his father smoked outside. Because of the death of Caleb, he underwent a sleep study when he was one and a half weeks old the results of which, according to Dr Cooper who conducted it, were entirely normal. Dr Cooper also gave evidence that an ECG which was taken was normal and according to Professor Berry's statement there was I think a barium test of some sort and no reflux was found.

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In addition, Dr Marley gave evidence that he saw Patrick five times for routine childhood illnesses and injections and he said of Patrick that he was no different from any other children. He saw him for minor respiratory infections. This is all obviously before the ALTE. Then there's evidence from Dr Dezordi who was the neonatal consultant who examined Patrick when he was brought in to the hospital after the ALTE and he gave evidence about his various views about it.

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So, can I first start with you, Professor Corder, and if you could tell us your opinion as to the cause of Patrick's ALTE.

5 WITNESS CORDNER: I think it's unknown. The clinicians were, I think, uncertain. There's a little bit of confusion in my mind about the clinical course in the day or so after it because there's a reference to Patrick being almost back to normal at one point but at other points it seems as though there's a continual sort of deterioration really and the development of seizures and fits. They were concerned about encephalitis and they did lots of studies to try and see if that was the case.

10 FURNESS SC: Wasn't the encephalitis a result of the ALTE rather than the cause of the ALTE in terms of the investigations that were carried out?

15 WITNESS CORDNER: Well, no. There was some concern about herpes encephalitis--

FURNESS SC: As the cause of the ALTE?

20 WITNESS CORDNER: --but that was never - as a cause of the ALTE as I understand it but that was - they tried to track that down but couldn't establish that. Then over the course of the next several months, next few months he had admissions to hospital for seizures and crises associated with--

25 FURNESS SC: Just let me stop you there and come back to the cause of the ALTE as opposed to what occurred afterwards. You said don't know. Is that effectively--

WITNESS CORDNER: Yes.

30 FURNESS SC: Thank you. You've said elsewhere in your report that the evidence that any of the children were smothered can't be excluded from thoughts of cause of death and that applies to Patrick's ALTE, I take it, too.

WITNESS CORDNER: Yes.

35 FURNESS SC: Thank you. Professor Duflo?

40 WITNESS DUFLOU: I think a brief answer is that no definitive cause for the ALTE was found. Can I just mention the difference between encephalitis and encephalopathy?

FURNESS SC: If you need to at this stage to answer my question, otherwise perhaps we can take it later when it becomes relevant, professor.

45 WITNESS DUFLOU: There may have been some confusion in terms of understanding what encephalitis meant.

FURNESS SC: So, your short answer was in relation to the cause of the ALTE?

50 WITNESS DUFLOU: No definitive cause was found.

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FURNESS SC: Then is there a long answer you want to give us at this stage, Professor Duflou?

5 WITNESS DUFLOU: Not in relation to that.

FURNESS SC: Thank you. Dr Cala?

10 WITNESS CALA: No cause was found.

FURNESS SC: Professor Hilton?

15 WITNESS HILTON: There was a very extensive autopsy done on this young lad including a comprehensive examination of his brain. There was major pathology found in his brain. I don't think any of us could exclude some major pathology be it occult as the cause of - or minor pathology for that matter.

FURNESS SC: I'm sorry, be it what?

20 WITNESS HILTON: Major or minor pathology being the cause of his first ALTE. On the other hand, his major brain pathology could have flowed on from that first ALTE. The cause of that first ALTE is - like most other ALTEs - is and remains unknown.

25 FURNESS SC: Dr Cala, at trial your evidence was that you considered there was a possibility that his ALTE was a result of him being deliberately smothered. Can you explain that for us, what's your basis for that evidence?

30 WITNESS CALA: That if he was deliberately smothered that he would have - smothering as we know occlusion or obstruction of the external airway and inability to breathe - that he may have had a respiratory and/or cardiac arrest brought on by that and that that might explain the ALTE.

35 FURNESS SC: Thank you. Can we move on now from the ALTE and as I indicated, Patrick died on 13 February 1991, some three or four months after the ALTE. The evidence as to the circumstances of his death is that he was found by Craig limp and warm on that morning. The ambulance reports him to have been normal/warm to touch when they attended at 10.10am. There was no death scene examination. The death certificate recorded his death as asphyxia due to airway obstruction for an hour and epileptic fits for four months  
40 and then there were the autopsies. Perhaps if we could have on screen tab 17.

45 The autopsy records that the time and date of death was on 13 February at 10.40 and the post mortem was at 12.30 and it was conducted by Dr Bishop and Dr Singh-Khaira. Was Dr Bishop a forensic pathologist, do you know, Dr Cala?

50 WITNESS CALA: No.

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FURNESS SC: Do you know, Professor Hilton?

WITNESS HILTON: No, he wasn't. He was a trainee - he was an advanced trainee anatomical pathologist.

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FURNESS SC: And Dr Singh-Khaira?

WITNESS HILTON: He was, as far as I know, in fact the anatomical pathologist.

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FURNESS SC: Thank you.

WITNESS CALA: Could I just interrupt?

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FURNESS SC: Yes.

WITNESS CALA: I think Professor Hilton may be referring to Dr Jan Bishop--

FURNESS SC: Right.

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WITNESS CALA: --and Dr Singh-Khaira and I agree Dr Singh-Khaira was a trainee in anatomical pathology but I think Dr Jan Bishop was either head of anatomical pathology or a senior anatomical pathologist at John Hunter at the time.

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FURNESS SC: Thank you.

WITNESS HILTON: Dr Cala is right.

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FURNESS SC: Thank you. And then you see the clinical diagnosis in the autopsy of part 1 and then the macroscopic diagnosis and then there's reference to the clinical history. Now, in terms of the autopsy having a clinical diagnosis, is that a process which occurs prior to determining a cause of death, Dr Cala?

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WITNESS CALA: To answer your question, this case was initially not referred to the coroner so this is a hospital autopsy--

FURNESS SC: Thank you.

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WITNESS CALA: --quite different from a coronial where consent from the next of kin needs to be obtained before the autopsy is done and further, a valid death certificate has to be written and presented to the pathologist doing the autopsy prior to the procedure being undertaken. So, it is standard practice for the clinical doctors, that is, the treating doctors, to offer up a one or two-line diagnosis as to what their views are with respect to the cause of death.

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FURNESS SC: So, this is the cause of death of Dr Wilkinson, who is named as the medical officer, is that right?

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WITNESS CALA: I believe so yes.

FURNESS SC: Is that how we're to read it?

5 WITNESS CALA: Yes.

FURNESS SC: And perhaps Dr Morris?

10 WITNESS CALA: Yes.

FURNESS SC: And referred by, is the GP who looked after Patrick, Dr Marley in Newcastle?

15 WITNESS CALA: Yes.

FURNESS SC: Then there's reference to the clinical history, which is largely what I indicated earlier, and then there's various investigations the first is that biochemical and cytology studies were normal and the herpes culture was negative, does that mean anything Professor Duflou?

20 WITNESS DUFLOU: It's a negative result, all or almost all lab tests have false positives, false negative results, you cannot take it in isolation, you consider it with the clinical symptoms as well, but the chances are that it was negative.

25 FURNESS SC: And the scan of the cranial - CT scan of, the cranial CT scan that's described halfway down the page says "Hypodense areas in the temporal and occipital lobe secondary to viral encephalitis?", presumably the question marks means perhaps?

30 WITNESS DUFLOU: That question mark in my view probably relates to the demyelination disorder.

FURNESS SC: So, what comes after rather than before?

35 WITNESS DUFLOU: That's how I interpreted as likely being the case.

FURNESS SC: Professor Cordner?

40 WITNESS CORDNER: Could you repeat the question please.

FURNESS SC: Well if you look at the paragraph I was referring to, is the question mark in relation to the encephalitis or what came after?

45 WITNESS CORDNER: Well I think they concluded that viral encephalitis was not a factor in the death.

FURNESS SC: If we turn over then to the macroscopic report, external appearance is of a well-nourished male infant and there were no signs of trauma and no abnormality. And over the page turning to the respiratory system, under the heading "Lungs", there's reference to both lungs being

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congested. Dr Cala does that tell us anything?

WITNESS CALA: No.

5 FURNESS SC: And then moving down to the thymus it was enlarged, does that tell us anything?

WITNESS CALA: That's essentially normal for a child of this age to have a thymus weighing 30 grams.

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FURNESS SC: And then the liver was congested?

WITNESS CALA: And non-specific.

15 FURNESS SC: And then we turn over to the investigations on post mortem tissue on the next page, down the bottom of the page and there's reference to previous ECG monitoring which showed no abnormality and arrhythmias were never quoted clinically, this was through to be very unlikely. Can you help me with that, it seems to be inconsistent to me but what do you read that to be, 20 what was thought to be very unlikely, a cardiac conduction defect, is that how one should read it?

WITNESS CALA: Yes, well I don't know about that but possibly, but arrhythmias, the final part of the first sentence, "arrhythmias", that is abnormal 25 rhythms, were never noted clinically, that is during Patrick's lifetime, so the second sentence to me indicates that the doctors, the treating doctors felt that at some abnormal cardiac rhythm disturbance or a cardiac rhythm disturbance was thought to be very unlikely.

30 FURNESS SC: Do you agree with that interpretation Professor Duflo?

WITNESS DUFLOU: I think it has to be read with what is written over the page as well, effectively as I read it, Dr Beal, a paediatric pathologist from memory, 35 was asked if the cardiac conduction system, the AV ring, should be examined, for the possibility of cardiac conduction disorders and her view was that it would be unhelpful in general in this case, that there was no direct clinical indication for it.

40 FURNESS SC: Because there was no abnormality and the ECG monitoring and the arrhythmias were not noted?

WITNESS DUFLOU: Cardiac conduction arrhythmias yes.

45 FURNESS SC: Now turning to tab 20 unless anyone wants to say anything more about that part 1 of the autopsy, did you want to say anything more Professor Cordner. No-one else. So, tab 20, now given what you said before Dr Cala about hospital and coronial autopsy, can you tell us what that document is?

50 WITNESS CALA: Well it's headed, "Hunter Area Pathology Service Division of



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Anatomical Pathology Mater MMH Autopsy Report", Mater Misericordiae Hospital Autopsy Report.

5 FURNESS SC: So, is that a different autopsy report or a different stage of the autopsy conducted in relation to the report I just showed you?

WITNESS CALA: My understanding is it's a different stage and I think possibly a later stage.

10 FURNESS SC: You see again there's a clinical diagnosis?

WITNESS CALA: Yes.

15 FURNESS SC: And that clinical diagnosis is the same as the clinical diagnosis earlier and then there's a formal diagnosis?

WITNESS CALA: Final diagnosis.

20 FURNESS SC: Final I'm sorry, final diagnosis?

WITNESS CALA: Yes.

FURNESS SC: What does that final diagnosis tell you Dr Cala?

25 WITNESS CALA: Well I'll go through both points, "Formally formed male infant of approximately eight months of age", and then I don't think any further comment needs to be provided and then the second part "Old infarcts and gliosis in the parietal occipital area (both cerebral hemispheres), which are probably secondary to the cardio respiratory", I think "arrest", so "arrest" should be following "cardio respiratory, suffered at about five months of age", so an infarct is an ischemic necrosis, in other words death of tissue caused by an interruption to the blood supply to that area of - to that tissue and gliosis refers specifically to repair tissue in the brain, you don't get gliosis in other parts of the body, only in the brain and it's in response to an injury or an infection or some prior insult to the brain.

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FURNESS SC: So, it's repair injury, it's not scar injury?

40 WITNESS CALA: Yes, gliosis is colloquially known as a brain scar. And in the parietal occipital area, so the parietal area is a lobe in the brain above the ear, so there are four lobes, frontal at the front of course, temporal above the ear and then parietal above and behind temporal going towards the back of the head and then occipital is at the back of the head.

45 FURNESS SC: That final diagnosis, how does it sit with the clinical diagnosis?

WITNESS CALA: So, the clinical diagnosis there is line 2 "Asystolic cardiac arrest at home leading to death", and then so that's the final event.

50 FURNESS SC: It doesn't tell you what caused the cardiac arrest?

5 WITNESS CALA: No that's correct, sorry I'm getting ahead of myself perhaps but the final diagnosis, ignoring line 1 which just says normally formed infant, but the second line refers to the prior, to the ALTE that occurred that resulted in infarction or death of tissue due to interruption of its blood supply with repair or gliosis in these areas of the brain and which is felt to be, so the pathologist has said in their view the infarction or infarcts multiple, infarcts and the repair that followed was secondary to a cardio-respiratory arrest at about five months of age.

10 FURNESS SC: So how does the encephalopathy fit in with all of that?

15 WITNESS CALA: Well and encephalopathy is a just a broad term, without going to the cause which says abnormality of the brain, so some abnormality of the brain occurred without them saying exactly what it was but at the end of that, as a result of that, there were intractable or untreatable seizures.

20 FURNESS SC: But it doesn't say he died from the untreatable seizures does it?

20 WITNESS CALA: No.

FURNESS SC: Does it say what he died from?

25 WITNESS CALA: No, it sets out what this child is thought to have had, the intractable seizures are frankly unarguable, there's good documentation of that, but then it says, "The underlying cause of encephalopathy or the brain abnormality not determined on investigation", however they have shown abnormalities in those parts of the brain as I've described, old infarcts and gliosis.

30 FURNESS SC: Professor Duflou did you want to say something about encephalopathy?

35 WITNESS DUFLOU: Thank you. What I wanted specifically to say is that encephalitis is a form of encephalopathy, it is one of many different cases of encephalopathy the two should not be confused, encephalitis--

40 FURNESS SC: Who are you suggesting has confused them Professor?

40 WITNESS DUFLOU: I was worried that people in the court might be confused on the basis of an understanding of the difference between encephalopathy and encephalitis.

45 FURNESS SC: So, you've seen nothing in the written material that suggests somebody significant was confused?

50 WITNESS DUFLOU: No not at all. It worries me in terms of education of the court if you like.

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FURNESS SC: You educated the court, was there more you want to say?

WITNESS DUFLOU: No, I think that is - that was my concern.

5 FURNESS SC: Professor Cordner did you want to say anything?

WITNESS CORDNER: I'm just wondering if you're aware of the cause of death as written on the death certificate.

10 FURNESS SC: Yes, I dealt with that before thank you. Turning over the page there's reference to post mortem blood cultures, do you see that at the bottom of the page and there's references to what was grown. Professor Cordner can you tell us about that?

15 WITNESS CORDNER: So, we're looking at the second page of this Hunter Area Pathology Service document at tab 20 is that right?

FURNESS SC: Yes, it should be on the screen, see it on the screen, the heading the post mortem blood cultures paragraph. So, it tells us there were  
20 various things growing from the cultures?

WITNESS CORDNER: Yes well, it is interesting that this autopsy was undertaken very soon after death and that one of the problems with post mortem--  
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FURNESS SC: Perhaps if you could talk a little closer to the microphone it would be helpful?

WITNESS CORDNER: One of the problems with post mortem microbiology is that as the post mortem period lengthens, then bacteria and other organisms from the gut start spreading around into other parts of the body through the - through veins and so to avoid that a very early post mortem is a very good thing, so it is interesting that in an autopsy started two hours after death, that there is such a rich yield of bacteria, but they do look to me like they're gut  
30 flora. But I am happy to be educated further about what other people think, they're mixed organisms and so the next sentence goes on to say they're not significant and probably reflect contamination, so maybe the pathologist thought that perhaps his sterile technique wasn't as good as it could've been and so you asked me what I thought and I'm just trying to express that.  
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FURNESS SC: So, is it your view that it would be likely that they probably reflect contamination, or you don't know from what you've read?

WITNESS CORDNER: Well, I think that's probably the explanation, yes.  
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FURNESS SC: Thank you. Professor Duflou?

WITNESS DUFLOU: Yes, it is interesting that there are multiple bacteria in the blood culture. It is a short post mortem time, time interval. I think it's fair to say that orthodoxy amongst forensic pathologists has it that that would be  
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categorised as likely contamination.

FURNESS SC: Thank you. Dr Cala?

5 WITNESS CALA: I believe it reflects contamination.

FURNESS SC: Professor Hilton?

10 WITNESS HILTON: I think all my colleagues agree that this is an area of  
considerable controversy. These are all gut bugs. The samples were obtained  
about two hours after the child was formally declared dead. That's a very short  
time interval for bugs to spread from the gut to the various sites from which  
they were recovered and, and grown. Some recent work has suggested that  
15 this is not uncommon - as uncommon as a lot of us thought. But,  
nevertheless--

FURNESS SC: Is not uncommon?

20 WITNESS HILTON: Not as - not as uncommon, the rapidity of, of, of spread, if  
you like, is not as uncommon as many of us thought. Nevertheless, to cut to  
the chase, these are, I think, incidental findings and probably do reflect  
contamination, irrespective of how it got there.

25 FURNESS SC: Thank you. Now, Professor Blackwell, who we referred to  
yesterday in terms of Caleb, has said about Patrick that - and I quote from her  
report:

30 "As the post mortem examination was carried out two hours after  
death, it is difficult to dismiss the findings as contamination, as there  
would have been little time for breakdown of mucosal barriers. If  
this were contamination from the gut, a larger variety of organisms  
would be predicted and evidence of infection prior to death was  
noted."

35 Just dealing, firstly, with "a larger variety of organisms would be predicted", is  
that right, Professor Cordner?

40 WITNESS CORDNER: So, I thought I heard you say that there was evidence  
of illness before death?

45 FURNESS SC: Well, Professor Blackwell is saying there's evidence of  
infection prior to death and what she is referring to is that, "At 11.30 the night  
before he died, Patrick was vomiting, had a fever and was sweating", and  
that's by reference to a case record by Dr Colley, attachment G.

50 WITNESS CORDNER: Yes, well, now this - my type of response to the  
situation now is, this is precisely the sort of situation that shows the value of  
having a proper case conference after sudden unexpected deaths in infants,  
so that the relevant experts can be gathered together to sort this out. Now, my  
view would be that it would be relatively unlikely, or relatively unusual to get

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5 three organisms growing from a blood culture taken to investigate, for example, a fever that you have described, which of course doesn't mean that it couldn't be one of them and others are contamination. So, look, I think it is correct to bring up the fact of the illness before death as, as altering somewhat the context within which you have to consider these blood culture results.

FURNESS SC: And how does it alter your view of the blood culture results? Your evidence was it was likely to be a contaminant.

10 WITNESS CORDNER: Well, without the benefit of getting other expert advice, my reaction is that it's likely to be contamination, but I'm - I have a low bar to getting expert advice.

15 FURNESS SC: Thank you, Professor. Professor Duflo, do you want me to read again what Professor Blackwell said?

20 WITNESS DUFLOU: No, no. No, I recall. Look, my view is that Professor Blackwell is an expert in microbiology. I - I'm an expert in autopsies. It's, I suspect, more likely than not - using again forensic pathology orthodox teaching - that this is likely contamination, but I certainly don't exclude the entirely reasonable possibility that Professor Blackwell is right in this case.

FURNESS SC: And what's she right about? She's only raising something.

25 WITNESS DUFLOU: Yeah, no, that's she's raising this as, as a possibility. I, I--

30 FURNESS SC: Well, she's not even raising it as a possibility, she's just saying "there was evidence of infection prior to death". So, she says it as a statement of fact--

WITNESS DUFLOU: Well--

35 FURNESS SC: --as I read it. Perhaps I'll read it again--

WITNESS DUFLOU: Yes.

FURNESS SC: --so everybody's clear.

40 "As the post mortem examination was carried out two hours after death, it is difficult to dismiss the findings as contamination, as there would have been little time for breakdown of mucosal barriers."

45 Now, you've all given evidence about that and you've all given evidence that it probably was contamination. Then she says, "If this were contamination from the gut, a larger variety of organisms would be predicted" - that's one point. Secondly, she says, as a matter of fact, "evidence of infection prior to death was noted. At 11.30 the night before he died, Patrick was vomiting, had a fever and was sweating", and she references Dr Colley's notes. So, she draws  
50 no conclusion from that, she merely states it as evidence available from

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Dr Colley. So, when you say you're "accepting", what is it - are you accepting the first point, that is, that you would expect a larger variety of organisms would be predicted?

5 WITNESS DUFLOU: It's my experience in autopsy cases where there is contamination, that this range of organisms - or where we believe there's contamination, that this range of organisms is not unusually reported. So, the - I, I maintain of the view that, at least from my perspective, I, I think that contamination is likely.

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FURNESS SC: So, having considered, Dr Cala, what I have read as Dr Blackwell's opinion, as well as statement of fact, does that alter your view?

WITNESS CALA: No.

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FURNESS SC: Professor Hilton?

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WITNESS HILTON: Dr Colley's clinical - I've got no reason to doubt Dr Colley's clinical observations. I agree with Dr Blackwell that this could indicate the presence of an infection in life. The range of bugs that were cultured after death may have absolutely no connection with the clinical presentation several hours before. In my opinion - and I think this is pretty well unanimous with all of us, is that the likely explanation of the presence of these three particular germs at post mortem is a contamination, irrespective of the actual mechanism by which they got there.

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It's either contamination that the, the, the collection process was dirty, that's how it - or it could be contamination because of an influx - an influx of these germs through the dead bowel, after death, into the circulation and, and, and being disseminated. Now, that might be thought to be a bit unlikely because, in anatomical terms, it's a long way for a little bug to crawl from the gut to the site of, of collection. Nevertheless, it's been recorded so often, it can't be discarded as, as, as a route of contamination. It's controversial, but that's the best - that is my best reading of, of, of--

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FURNESS SC: What's controversial?

WITNESS HILTON: Hmm?

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FURNESS SC: What's controversial?

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WITNESS HILTON: The presence and significance - the, the presence isn't controversial, the significance of free enteric germs at sites distant from the bowel at post mortem.

FURNESS SC: It's not controversial among the four of you?

WITNESS HILTON: It's not - well, we think it's all contamination.

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FURNESS SC: Yes, so--

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WITNESS HILTON: But there are other people--

FURNESS SC: --who is it controversial between?

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WITNESS HILTON: --who have got different views?

FURNESS SC: I beg your pardon?

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WITNESS HILTON: There are other people who may have different views.

FURNESS SC: Who may have or do have?

WITNESS HILTON: I think Caroline Blackwell may have, but that's--

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FURNESS SC: But she's not a forensic pathologist.

WITNESS HILTON: She's a microbiologist and, and she's a good microbiologist and she's reputable and, yep, she's honest in her opinions.

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FURNESS SC: So, the controversy is in relation to Professor Blackwell, having stipulated what she did--

WITNESS HILTON: If the--

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FURNESS SC: --and a different view than held by the four of you?

WITNESS HILTON: Well, yes. I think it's common ground that if, if she's attributing the - if she, of necessity, is attributing the clinical signs of infection the previous evening to one or more of these bugs, I would regard that with some trepidation.

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FURNESS SC: Well, I've read to you what she said, it's up on the screen. Is it? No, it's - we're talking about Patrick not Sarah, so, go up. Can we see the beginning of the second - of the earlier page, please? What she is saying is that, "As the post mortem examination was carried out two hours after death, it is difficult to dismiss the findings as contamination". You've all expressed your view as to that. And she gives a reason for why she says that, but you've expressed your views to the contrary. And then she just says there was "evidence of infection prior to death" and states what that evidence is, she doesn't draw any conclusions in relation to that at all.

35

40

WITNESS HILTON: Yeah, there's a juxtaposition.

45

FURNESS SC: I beg your pardon?

WITNESS HILTON: There's a - there is a juxtaposition in her overall opinion between these bugs and the infection.

50

FURNESS SC: So, you're inferring that she's saying - although she doesn't

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actually say it expressly - that the infection had something to do with the contaminants in the gut?

5 WITNESS HILTON: I suspect that might be in her mind.

FURNESS SC: And you don't agree with that?

10 WITNESS HILTON: I think the gut - the - I think these gut germs are contaminants and I think it would be very unsafe to - from a medical point of view, to correlate the presence of these bugs recovered at autopsy with the, the febrile episode that Dr Colley observed the previous evening. Maybe one of them. All of them, I really don't think so. Or it may be a different infective organism that was not detected.

15 FURNESS SC: Thank you. Now, can I come to each of your views about the cause of Patrick's death? Can I start with you, Professor Cordner?

20 WITNESS CORDNER: Yes, well, the, the, the cause of death as actually appears on the death certificate, which represents the final view, was--

FURNESS SC: You can have it up on the screen if you'd like, Professor? I think it's tab 16. So, the death certificate, as I indicated before, is "Asphyxia due to airway obstruction". Perhaps we can roll and - scroll up. "One hour" and "Epileptic fits, four months".

25 WITNESS CORDNER: Yes, so, what, what whoever signed this death certificate is saying is that the underlying cause of death was epileptic fits and that that mediated death through what is described as "Asphyxia due to airway obstruction". And the "Asphyxia due to airway obstruction" is an inferential statement, not based on any observation but based on an understanding of how seizures might lead to death. Okay?

30 FURNESS SC: The way one can read this certificate is, the first line is cause of death, "Asphyxia due to airway obstruction", and then, the second line is "And duration of the last illness". So, is the--

35 WITNESS CORDNER: Well, the first line is the--

40 FURNESS SC: Sorry, just let me finish, Professor. So, is it the case that the epileptic fits should be read as "Duration of the last illness or part of the cause of death"?

45 WITNESS CORDNER: The way to read it is 1(a) the cause or condition directly leading to death due to, or as a result of 1(b) epileptic fits, that's how to read that.

FURNESS SC: So, the epileptic fits caused the airway obstruction--

50 WITNESS CORDNER: That's right.



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FURNESS SC: --referred to in (a)?

5 WITNESS CORDNER: Yes. That is how that is constructed on the actual form of the death certificate that you fill in as the doctor from the Registrar of Births, Deaths and Marriages.

FURNESS SC: Does that mean there's no reference to a duration of the last illness then?

10 WITNESS CORDNER: Well, there's four months in relation to epileptic fits.

FURNESS SC: Right, so that's a reference to duration of the last illness as well as a cause of death?

15 WITNESS CORDNER: Well, I don't think - no, I think it is a reference to how long has the condition which was the underlying condition causing death been present.

20 FURNESS SC: Do you agree with that as a cause of death?

WITNESS CORDNER: Well, in my report I've got a different recitation of what I thought had been in the material somewhere and I can't quite find it right now but I doubt that I made this up.

25 FURNESS SC: Where are you referring to in your report?

WITNESS CORDNER: Page 14.

30 FURNESS SC: Page 14. Perhaps we can have that on the screen. Perhaps to be of some assistance, I think earlier in your report you indicated that your summaries were taken from Professor Berry's report?

WITNESS CORDNER: Yes, yes. Yes.

35 FURNESS SC: So, we can assume then that it's taken from Professor Berry's report?

40 WITNESS CORDNER: Well, I'm not sure whether I did get that from Professor Berry. I think I said at the beginning that it was largely based on Professor Berry.

FURNESS SC: So, tell me what you're referring to and we can check whether Professor Berry is the source.

45 WITNESS CORDNER: Well, 1(a) and (b) are the same but there is a 1(c) encephalopathic disorder. In other words, the epileptic fits are due to or a consequence of encephalopathic disorder.

50 FURNESS SC: That isn't what the death certificate says.

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WITNESS CORDNER: That isn't what the death certificate says. It's left out the 1(c), so--

5 FURNESS SC: Well, it's either left out or it wasn't there.

WITNESS CORDNER: I'm sorry?

FURNESS SC: It's either left out or it wasn't there in the first place.

10 WITNESS CORDNER: Well, yes, I suppose so. So, the epileptic fits just sits there on the death certificate without any attempt to define why there were epileptic fits and so the encephalopathic disorder, as has been already discussed, is the underlying cause of the epileptic fits.

15 FURNESS SC: That's your view?

20 WITNESS CORDNER: Although it doesn't take you much further, that is my view and the epileptic fits could have led to death by some form of - well, it's thought that there are two possible ways and there are probably more but the two main ways in which seizures can result in death are (1) that there is prolonged obstruction to or absence of breathing associated directly with the seizure.

25 FURNESS SC: So, the seizure obstructs the airway in some way?

WITNESS CORDNER: Yes, and/or there is a centrally mediated through the brain interference with the neurological pathways for breathing; or (2) that there are arrhythmias or disturbances to the rhythm of the heart directly associated with the seizures.

30 FURNESS SC: There's no evidence of arrhythmias with Patrick, is there?

WITNESS CORDNER: No, I'm talking about how epileptic seizures, generally speaking, cause death.

35 FURNESS SC: I understand that and I'm applying it to Patrick. Is there any evidence of arrhythmias?

40 WITNESS CORDNER: Well, there's no evidence of - there's no evidence of anything directly leading to his death.

FURNESS SC: So, any of those three matters you referred to don't apply to Patrick. Is that right?

45 WITNESS CORDNER: No, that's not right.

FURNESS SC: Perhaps you can explain it for me.

50 WITNESS CORDNER: Well, I'm trying to. Your original beginning of this conversation was to explain the terminology as used on the death certificate.

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5 Your indication to me was to try and explain it or my view about it. So I'm trying to explain that the doctor felt that the underlying cause of death was epileptic fits and then I've tried to explain how it is generally thought epileptic seizures or fits result in death and that's what I believe the doctor has tried to do in 1(a) referring to asphyxia due to airways obstruction which - well, we've had the discussion about asphyxia so I wouldn't have used that word. I would have used the terminology of something like "consequences of epileptic seizures secondary to encephalopathic disorder" and left it at that.

10 FURNESS SC: So, is your view consistent with what you've written?

15 WITNESS CORDNER: Well, I think I rather thought that the underlying cause of death, the epileptic fits due to encephalopathic disorder was a reasonable summary, explanation for provision of the cause of death in this case.

FURNESS SC: And the underlying cause of the encephalopathic disorder has not been determined?

20 WITNESS CORDNER: That's right.

25 FURNESS SC: By you adopting this cause of death, I understand what you're saying about the use of the word asphyxia is that Patrick died from an obstruction to his airways which may have been caused by or due to epileptic fits which were themselves a result of some encephalopathic disorder and it's not known what was the cause of that disorder. Is that an explanation?

30 WITNESS CORDNER: Yes. Just to be - perhaps just to be too particular, there's no way that the doctor can say airways obstruction so it could be any mechanism by which epileptic fits cause death and that includes arrhythmias to the heart. It includes centrally mediated stopping of breathing. It includes airways obstruction.

35 FURNESS SC: Just let me stop you there. I understood your evidence to be that you accepted that this was the cause of death. Is that right?

WITNESS CORDNER: Yes.

40 FURNESS SC: What I was putting to you was that your view was (a), (b) and (c) as you set out here notwithstanding it's set out as though it was the death certificate cause of death, we know that's not true, but that's your view of Patrick's death - not the doctor's, that's your view.

45 WITNESS CORDNER: No. The view that's on the screen there is what I thought was the doctor's view.

FURNESS SC: So, what's your view?

50 WITNESS CORDNER: My view is that the cause of death is the consequences of epileptic seizures due to encephalopathic disorder.

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FURNESS SC: And the underlying cause of that has not been determined on investigation?

5 WITNESS CORDNER: No, that is correct but I do want to make it very clear that the death is very understandable in the circumstances of a baby having severe epileptic seizures.

10 FURNESS SC: You've said elsewhere in your report you can't exclude smothering in relation to any of the Folbigg children and that applies to Patrick's death?

15 WITNESS CORDNER: Yes, you've said can't exclude smothering in any of the Folbigg children but there are good grounds for thinking that in at least one of them there is no smothering. There are very good grounds for thinking that Laura was not smothered and there are good grounds in this case, there is no real need to go searching for another cause. In the circumstances of a child having intractable seizures, death from that is well recognised and something that we see not infrequently.

20 JUDICIAL OFFICER: Professor, could you define for me encephalopathic disorder?

25 WITNESS CORDNER: Well, encephalopathic disorder as Dr Cala was describing is a general term that simply means there is something wrong in the brain.

JUDICIAL OFFICER: Thank you.

30 FURNESS SC: Professor Duflou, what is your opinion as to the cause of Patrick's death?

35 WITNESS DUFLOU: In my report, and as I believe today, my opinion is that the cause of death can be described as the consequences of hypoxic ischaemic encephalopathy brought on by an acute life-threatening event or an ALTE of unascertained cause.

FURNESS SC: That's not dissimilar to 1(c) that's on the screen.

40 WITNESS DUFLOU: Yes. It isn't dissimilar at all. I suppose what I leave out of this is epilepsy in that it's possible that the final event may have been epilepsy causing death again through multiple means as mentioned by Professor Cordner but I think I can't tell that for sure.

45 FURNESS SC: Did you take into account in coming to that view the death of Caleb?

WITNESS DUFLOU: Yes.

50 FURNESS SC: And how did you factor in the death of Caleb in coming to your view?

5 WITNESS DUFLOU: Well, my view was the appearance of Caleb's death was that of a SIDS-type death while this is not a sudden death. It's arguably a not unexpected death but a death with some significant pre-existing pathology. The nature of the pathology is unclear. Well, the nature of the pathology is clear; the cause of that pathology is unclear.

10 FURNESS SC: Does that mean you effectively dismissed Caleb's death because it was sufficiently distinguishable?

WITNESS DUFLOU: Well, I don't dismiss the death.

FURNESS SC: In terms of coming to a view as to Patrick's death.

15 WITNESS DUFLOU: I think looking at Caleb's death that can be explained readily and I think that Patrick's death can be readily explained.

20 FURNESS SC: So, the weight or the way in which you took into account Caleb's death given, as you've said, it was of a different variety, was what?

WITNESS DUFLOU: Well, Caleb's death had typical features of a SIDS-type death.

25 FURNESS SC: I understand it was different for those reasons. Given that it was different and given that you've given evidence you took it into account, how did you take it into account given your view that it's different?

WITNESS DUFLOU: I considered it.

30 FURNESS SC: Did you put it to one side?

35 WITNESS DUFLOU: No. I considered it in the first place then considered this death as well. Did I totally remove it? No. Did I include it as in some way the two must be related? No, I didn't do that either.

FURNESS SC: What do you consider Patrick's death to have been in isolation, that is, looking at Patrick's death only?

40 WITNESS DUFLOU: I think that's still the cause of death as I've written.

FURNESS SC: Dr Cala?

WITNESS CALA: You're asking me about Patrick's cause of death?

45 FURNESS SC: Cause of death, I am.

50 WITNESS CALA: I'd say undetermined. I simply don't know. I accept the pathology that was found but I don't know and I'm not convinced about the final acute, the immediate cause of his death. I don't know. I'd like to leave it open. I say that looking at his death and the medical history that's known and the

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immediate circumstances and also knowing that there was a previous death of Caleb for which, as you know, I would also say the cause of death is undetermined so I would prefer to keep it open and just say, undetermined or unascertained, they mean the same thing.

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FURNESS SC: When you say you accept the pathology, is that the fact that Patrick had seizures?

WITNESS CALA: Yes, and that he's got the gliosis and infarcts as fact.

10

FURNESS SC: Thank you. Professor Hilton?

WITNESS HILTON: Yes. I think this little lad died or the indications are that this little lad died as part of an epileptic-type illness. The pathology shown at autopsy in his brain explains why he was brain damaged and why he was quite likely to be having epileptiform fits during his life. This in turn may have been at least initiated by his ALTE, whatever an ALTE is and whatever may have caused that ALTE, so there's a logical but not necessarily correct, progression from ALTE to epilepsy to death and epilepsy is a well-known - whatever epilepsy, whatever form that epilepsy takes, is a well-known cause of death. And in fact, there is an acronymous term been adopted for it, sudden death in epilepsy.

15

20

FURNESS SC: When a person or child, baby, dies of epilepsy, would you expect there to be some signs in the mouth or around the mouth as to something that may have blocked the airway, tongue or some biting or something indicating that a seizure had preceded the death?

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WITNESS HILTON: Not necessarily something that would be observable at autopsy.

30

FURNESS SC: But such signs can be--

WITNESS HILTON: Can, sure.

35

FURNESS SC: --seen. And are you able to say whether they're often seen?

WITNESS HILTON: No.

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FURNESS SC: Often not seen?

WITNESS HILTON: No.

FURNESS SC: They just are sometimes seen and sometimes not?

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WITNESS HILTON: Yep and this is in the clinical management of epilepsy as well. These are seen in the clinical management of epilepsy too, biting the tongue is the most commonly accepted observation although I don't know how common even that is.

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FURNESS SC: Dr Cala do you have anything to add to whether or not one would expect signs if an epileptic seizure preceded Patrick's death?

5 WITNESS CALA: I don't think I would expect signs and I agree that tongue biting may have occurred, so not so much in a child with absent teeth but in an adult, you may see teeth marks on the tip of the tongue and the sides where the molars and the incisors have come down and bitten the tongue. That is not always seen at all, but if it was seen at autopsy that's an inference that possibly a seizure has occurred just prior to death, the other thing is passing urine but that's quite non-specific, a lot of people pass urine around the time of their death, so in a child though there's often no sign and I agree there's no sign of airway obstruction.

15 FURNESS SC: You I think have said in your report to the Inquiry, that you were concerned that Patrick was smothered, were there any signs that you had seen from your review of the materials that are the same as smothering?

WITNESS CALA: No, I haven't seen anything specific for smothering.

20 FURNESS SC: Does that affect your view that your concern it might be smothering?

25 WITNESS CALA: It doesn't affect my concern, it is a concern. I can't take it any more than that.

FURNESS SC: Now Dr Duflou, you also formed a view about Patrick's time of death and if we can perhaps have your report on screen and I think it's at page - it's down the bottom of page 30?

30 WITNESS DUFLOU: Yes, it's the last paragraph on page 30.

FURNESS SC: You start by saying time of death is not able to be determined from the information provided?

35 WITNESS DUFLOU: Yes.

FURNESS SC: You didn't stop there?

40 WITNESS DUFLOU: No.

FURNESS SC: But, given the only physical description provided was that the body was warm to touch, it is entirely possible for Patrick to have died at any time from when Craig went to work to when the ambulance officers arrived, with the later time being more likely than an earlier time?

45 WITNESS DUFLOU: Yes.

50 FURNESS SC: When you say the only physical description provided was that the body was warm to touch, one would not expect any other physical description about temperature, leaving aside whether the child was limp, would

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one, what other physical description would you be looking for, for time of death other than again limpness?

5 WITNESS DUFLOU: Not at all uncommonly you would get information from an ambulance report, of the presence or absence of post mortem lividity, presence or absence of rigor mortis, both of those are commonly mentioned in my experience in ambulance reports, but their absence of mention is not an indication necessarily that they weren't present.

10 FURNESS SC: So the evidence is that Craig found him limp and warm, limp suggests that Craig found him sooner rather than later after he died, isn't that the case. You haven't mentioned it--

15 WITNESS DUFLOU: I suggest he died closer to the time the body was found, rather than further away.

FURNESS SC: Well you say that it is entirely possible for Patrick to have died at any time from when Craig went to work?

20 WITNESS DUFLOU: Correct yes.

FURNESS SC: When did Craig go to work?

25 WITNESS DUFLOU: I have here that and I refer to paragraph 15 of my report.

FURNESS SC: Paragraph 15?

WITNESS DUFLOU: 15.

30 FURNESS SC: What page is that on?

35 WITNESS DUFLOU: On page 7. So I don't have a specific time, but I think if it can be accepted that that was the last verified confirmed occasion when Patrick was last seen alive, I don't know what time that is, I haven't been able to determine that time with any - at all.

FURNESS SC: Don't you need to know that time to make the observation or give the opinion that you've given?

40 WITNESS DUFLOU: I think entirely reasonably, Patrick could've been dead for, to speak a number, let's say three hours, that wouldn't surprise me, he could've been dead for five minutes, that wouldn't surprise me either, but in general the fact that he's warm suggests more likely that I'd push it closer to around the time that Mrs Folbigg expressed her concerns, rather than some  
45 considerable time previously.

FURNESS SC: However your reference to Craig having gone to work is not one that should - we should be giving any credence to given that you can't tell us when that was, do you accept that?  
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WITNESS DUFLOU: I don't know what time that is, I suspect that time is known but I don't know it.

5 FURNESS SC: I understand you don't know it but the fact that you've given it as one end of the possibility, that is at any time from when Craig went to work and when the ambulance officers arrived, without knowing that first time, it renders it somewhat meaningless?

10 WITNESS DUFLOU: I accept that and I suppose what I have done is I've made an assumption of a normal start of day time of work. Is that valid, maybe not, but as I've said, I'm sure the time is known.

15 FURNESS SC: But the question is, whether it was known to you, because you wrote the report Professor, do you understand?

WITNESS DUFLOU: That's why I said I don't know it and that's why I start that paragraph on page 30 "Time of death is not able to be determined from the information provided", that's how I start that paragraph.

20 FURNESS SC: Should we put a full stop after that?

WITNESS DUFLOU: It certainly can't be determined with any degree of certainty.

25 FURNESS SC: Unless anyone wants to say anything more about Patrick's death. Anyone to my left?

WITNESS CORDNER: I would have a comment.

30 FURNESS SC: Certainly Professor Cordner?

35 WITNESS CORDNER: I'd just like to go back to Professor Pollanen's categorisation of different levels of evidence for establishing causes of death in different sort of contexts, which is page 4 of his report. Just to point out that this cause of death, I believe the death in this case fits squarely in category 3, which is what he thought too, so that is potentially fatal chronic pathological findings, the findings in the brain that imply the cause of death, as from epileptic seizures which we know he suffered from, based on correlation with the history and there's nothing to suggest that epilepsy wasn't the cause of death so it seems a reasonable conclusion to fit into his category 3.

40 FURNESS SC: Can I turn now to Sarah. Sarah was born on 14 October 1992 and died on 30 August 1993, aged 10 months and 16 days. And as with her siblings, she was full-term, she was not underweight, her mother did not smoke and she was found on her back with her face covered in her own bed, however she slept in a cot in her parents' room, unlike the other children, which evidence was given on Monday, is a protective factor. Again there were no signs of neglect and the family was not socioeconomically disadvantaged. Her mother was 25 and she was vaccinated and used a dummy, again the extent to which is not perfectly clear.

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5 When she was born she went home with an apnoea alarm and slept with an  
apnoea blanket, even though the use ceased before her death. And as with  
Patrick, Dr Cooper performed a sleep study on Sarah when she was three  
weeks old which showed a small handful of apnoeas which were normal for  
infants that age, he couldn't tell if they were central or obstructive but in her  
age they were likely to be central. It goes along with a normal study for a child  
of that age he said. Then his conclusion was that the sleep study ultimately  
conducted was normal for her age. She also had a metabolic screen and there  
10 was no need to follow that up.

15 Dr Marley, her GP, as well as Patrick's, saw her five times for routine reasons,  
such as vaccinations and a viral infection of mild severity. And he said that  
she appeared to be a normal health infant.

If we can get up tab 32 which is the report of the death to the coroner.

So this clearly was Dr Cala, ultimately a coronial autopsy?

20 WITNESS CALA: Yes.

FURNESS SC: If we can just scroll down, we have her last seen alive at 12 to  
12.30am on Monday 30 August, and reported to the police at 2.45am. And  
then if we can scroll up further there's reference to having been treated by  
25 Dr Marley with a prescription of Flopen prescribed on 18 August and that she  
had a flu or cold type virus, and other than that the child was eating normally,  
all foods similar to parents and last ate about 5.30pm and was then put to  
sleep in a bed in her parents' room. So that can be taken down. And then the  
ambulance reports in relation to Sarah were inconsistent in that there was both  
30 cold and warm indicated at various stages. So perhaps we could then have  
the autopsy report, which is tab 34. I take it no-one has anything more to add  
to that general description of before her death? No? Professor Cordner?

35 WITNESS CORDNER: Sorry?

FURNESS SC: Do you have anything to add to what I've said about the  
circumstances prior to Sarah's death?

40 WITNESS CORDNER: No.

FURNESS SC: So, Professor Hilton, I think you're the appropriate person to  
ask this. You conducted the autopsy and, at the time you conducted it, what  
was your position at the Institute?

45 WITNESS HILTON: I was the director.

FURNESS SC: You were the director?

50 WITNESS HILTON: Yeah.

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FURNESS SC: Thank you. Now, you conducted it at 8 in the morning on 31 August, so that's the morning of her death. If we can just keep scrolling down and turn to "External examination"? Now, you note that rigor mortis was "generalised".

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WITNESS HILTON: Yeah.

FURNESS SC: Does that tell us anything?

10

WITNESS HILTON: Beg your pardon?

FURNESS SC: Does that tell us anything, that rigor mortis was generalised--

WITNESS HILTON: No.

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FURNESS SC: --at that - in the morning?

WITNESS HILTON: No.

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FURNESS SC: It doesn't help you with time of death?

WITNESS HILTON: It doesn't help.

FURNESS SC: No?

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WITNESS HILTON: No, it doesn't help.

FURNESS SC: Now, there was a 1.5 centimetre scratch on her right upper arm?

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WITNESS HILTON: Yes.

FURNESS SC: Did that tell you anything?

35

WITNESS HILTON: That some possibly sharp object, which could have ranged from a finger nail up to anything you like, had been drawn across that part of her arm at some time in the recent past.

FURNESS SC: So, nothing significant as to cause of death?

40

WITNESS HILTON: No. I mean, it's significant because it's there, therefore it warrants mentioning, but it's got nothing to do with the cause of death.

FURNESS SC: And then there was "minor abrading and drying of the lips".

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WITNESS HILTON: Yeah, that's post mortem, that effect.

FURNESS SC: Then, if we can turn over the page, there were "two tiny punctate abrasions present, one immediately below the lip--

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WITNESS HILTON: Yeah.

FURNESS SC: --lower lip on the left-side and the other slightly to the left side of the midline of the chin". What does "punctate" mean?

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WITNESS HILTON: Pinpoint.

FURNESS SC: Pinpoint?

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WITNESS HILTON: Pinpoint.

FURNESS SC: Thank you. Now, you didn't take a photograph of those abrasions?

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WITNESS HILTON: I, I didn't - I certainly did not take any photographs of this child.

FURNESS SC: Can you now, based on recollection, tell us what they looked like, or not?

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WITNESS HILTON: What they?

FURNESS SC: Looked like, or not?

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WITNESS HILTON: The two - the two--

FURNESS SC: Yes?

30

WITNESS HILTON: Yeah, well--

FURNESS SC: It's some time ago.

WITNESS HILTON: --there were tiny, tiny pinpoint, just defects in the outer skin.

35

FURNESS SC: Defects in?

WITNESS HILTON: The outer skin.

40

FURNESS SC: What did you think of them at the time?

WITNESS HILTON: What's the?

45

FURNESS SC: What did you think about them at the time?

WITNESS HILTON: Well, we pinpoint - marks such as this are not entirely uncommon in kids, point one. Point two, there'd been fairly vigorous attempts at resuscitation on, on this child, both domestically and professionally, which had failed. Vigorous resuscitation not infrequently leaves, if you like, witnessed marks such as dry - well, that's more at post mortem, but abrading

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5 of the skin of the lips, sometimes internal damage, sometimes external damage. So, the child had been - setting aside previous - this may just have happened, the child's been resuscitated and it's been transported, and any of these factors have to be considered in considering the aetiology of these small and relatively insignificant features.

FURNESS SC: When you say she had been "vigorously resuscitated"--

10 WITNESS HILTON: Yeah.

FURNESS SC: --what does "vigorously resuscitated" mean?

15 WITNESS HILTON: Well, mouth-to-mouth breathing type exercise and chest compression.

FURNESS SC: That's "vigorous"?

WITNESS HILTON: I beg your pardon?

20 FURNESS SC: That's "vigorous", your definition?

25 WITNESS HILTON: Yeah. Well, if it's not vigorous it doesn't work. Yeah, it's got to be vigorous, there's got to be a, a sufficient force applied to compress the chest wall so it squeezes the heart between the breastbone and the - and the spine. Now, in a child, this is much easier than it would be, say, in, in an elderly person such as me.

30 FURNESS SC: So, it's not the compressions to the heart that would have caused those marks, is it?

WITNESS HILTON: No, I don't think so.

FURNESS SC: It's what you described as the "mouth-to-mouth--

35 WITNESS HILTON: Yes.

FURNESS SC: --resuscitation"?

40 WITNESS HILTON: Yes. Yes.

FURNESS SC: Is that with the use of some form of mask or just literally mouth-to-mouth?

45 WITNESS HILTON: I think the, the ambos used a, a device called the Guedel's airway, which is a little curved tube, if you like, with a, a lip and you pop it into the mouth and the lips - the, the, the lip on the tube - I don't want to confuse people, the lip on the tube compresses as applied fairly firmly at the lip on the person. The curved part of the tube goes over the top of the tongue, keeps the tongue forward and, hopefully, directs air - oxygen, down to the  
50 larynx, through into the trachea - through into the bronchi, into the lungs.

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FURNESS SC: And is that what you believe may have caused those abrasions?

5 WITNESS HILTON: That's something that's got to be considered and it's something that's commonly seen in the lips of the person who has been so treated.

10 FURNESS SC: So, you commonly see abrasions like this on children?

WITNESS HILTON: Yes.

15 FURNESS SC: And, in your view, if there's been a Guedel airway used, that's been the cause of it. Is that right?

WITNESS HILTON: Well, it's a - it's an eminently credible cause.

20 FURNESS SC: Can I just stay with the abrasions for the moment? Dr Cala, you obviously weren't present at this autopsy, were you?

WITNESS CALA: No, no.

25 FURNESS SC: And the information you have is the information from the autopsy report?

WITNESS CALA: Yes.

30 FURNESS SC: You've not had access to any other material other than the autopsy report?

FURNESS SC: That's correct.

35 FURNESS SC: What opinions do you form from the sentence that's in that report?

WITNESS CALA: Up the top, that there were two tiny punctate abrasions?

FURNESS SC: Mm.

40 WITNESS CALA: I don't know what the cause of them is. I accept what Professor Hilton said about resuscitation causing injuries around children's mouths and on the face. I do accept that. I have to say, I've done many autopsies on children and not many of them have had abrasions to their lips. They, they have - after death there is some drying of the lips, undoubtedly, but  
45 abrasions are, in, in my experience, unusual, but it's also fair to say that they may be caused by resuscitation attempts. Any, any manipulation around an adult or a child's nose and mouth, such as what happens when resuscitation is attempted with the insertion of tubes, can cause injuries. So, I think we - all pathologists accept that there is a vast array of possible injuries that can be  
50 caused by CPR to that region of the face.

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FURNESS SC: Professor Duflou?

5 WITNESS DUFLOU: I'd agree with that. I'd also like to add that, of course, as a ten-month old baby, there's entirely the possibility of the - of the baby in some way using fingernails and similar to cause injury to any part of the body. And I, I, I think it's fair to say that such injuries are not at all uncommon in both living and deceased babies.

10 FURNESS SC: Thank you. Professor Cordner, do you have anything to add?

WITNESS CORDNER: No, as Dr Cala said, it, it can be a vast array of injuries resulting from mouth-to-mouth and cardiopulmonary resuscitation.

15 FURNESS SC: Coming back to the autopsy, if we move down to the thoracic cavity, we have both lungs showing "focal areas of collapse per geographic pattern"?

20 WITNESS HILTON: Yes.

FURNESS SC: What does that mean?

25 WITNESS HILTON: Well, we've discussed collapse and what it means, I think, before, but I'll, I'll briefly - the lungs don't collapse like a burst balloon. But what can happen and does happen is that little areas, little groups of air cells, can partially close down for a variety of reasons and if these occur, the lung - you've got lung - you've got lobes in the lung, you've got little lobules, you go down to - segments and then you go down to lobules. So, you've got a - the potential for a geographic pattern to appear at various points in the lung of this  
30 - resulting from this, this collapse concept. Commonly seen at an autopsy, irrespective of cause.

FURNESS SC: Sorry, with your hand, I'm having trouble--

35 WITNESS HILTON: Sorry.

FURNESS SC: --thank you - hearing.

40 WITNESS HILTON: It's commonly seen at autopsy, irrespective of cause of, of death. It's not a specific indication of anything.

FURNESS SC: Thank you. Now, there was an "occasional petechial haemorrhage" present?

45 WITNESS HILTON: Yeah, there's a typo there too, "There was a very "occasional petechial" - delete "mesentery", that should not be there.

FURNESS SC: What shouldn't be there?

50 WITNESS HILTON: "Mesentery", M-E-S-E-N-T-R-E-Y (as said), that's a typo

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that's escaped my eye until this moment.

FURNESS SC: That's back - further up, the fourth item under the - just under the "both lungs". Do you see that?

5

WITNESS HILTON: "Occasional petechial haemorrhage present", yes.

FURNESS SC: So, that--

10

WITNESS HILTON: Again, this is part and parcel of the second reference to petechiae. There were petechiae present on the surface of the lung. There were petechiae present on the surface of the heart. There were petechiae present on the surface and in the substance of the thymus gland. There were no petechiae - and this is a very important point, there were no petechiae observed in the neck, the cheeks, the eyes, inside - or inside the eyes. The petechiae were confirmed to the contents of the chest cavity.

15

FURNESS SC: Now, that's a matter that was referred to in the SIDS definition that I took you to yesterday?

20

WITNESS HILTON: Yeah.

FURNESS SC: That, those type of haemorrhages, located where you have located them, is not diagnostic of SIDS but it supports it?

25

WITNESS HILTON: The presence of petechiae confined to the chest cavity is certainly supportive of the diagnosis of SIDS. If I - If I had seen them outside the chest cavity, I begin to have--

30

FURNESS SC: That's the problem?

WITNESS HILTON: --concern that the diagnosis is not SIDS. Although, people have challenged that as well.

35

FURNESS SC: Yes, thank you. Now, then moving down, there was the usual "cribriform multifocal propatencies(?)". What are they?

40

WITNESS HILTON: Right. The heart of the young child, as it is in adult, is divided up into two upper chambers, two lower chambers. The wall, if you like, between the two lower chambers in the adult is usually pretty solid, you cannot pass probes through it. The wall dividing the two lower chambers of the heart of the infant, you - one can frequently pass probes through it. You can't see these little passageways with the naked eye, but if you take a probe, very gently, making sure you're not creating the passage, you can demonstrate passages, multiple passages, through this - through this wall. What's the significance of them? They're an anatomical feature that are - they're, as far I know, no-one has ever linked them to any clinical disorder of the heart, heart rhythm or heart function.

45

50

FURNESS SC: Just turning over to the next page, under "The abdominal



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cavity", you say that "The stomach contained a moderate quantity of curdled milk"?

WITNESS HILTON: Yes.

5

FURNESS SC: "? egg white", what did that tell you?

WITNESS HILTON: Well, I looked at - what does it tell me?

10

FURNESS SC: Yes?

WITNESS HILTON: Yeah, that sometime prior to the child's death it had consumed milk and possibly egg, and that's all it tells me.

15

FURNESS SC: It doesn't help you with when the child might have consumed it?

WITNESS HILTON: No, except that it was obviously alive when it consumed it.

20

FURNESS SC: Thank you. Now, turning over to the next page, you've got the pathology summary?

WITNESS HILTON: Yeah.

25

FURNESS SC: And I think we've discussed one, two and three. Now, four, you've got "Congested ?".

WITNESS HILTON: Yeah.

30

FURNESS SC: Can you describe to us what you saw?

WITNESS HILTON: Yeah. If you stand in front of a mirror, open your mouth wide enough, look at the back of your throat, you'll see a little thing hanging down, and that's the - from the palate, and that's the uvula. You can't see it, but further down you've got the larynx and guarding the opening of the larynx you've got a cartilaginous structure called the epiglottis. Now, in the adult, the uvula and the epiglottis are widely separated, anatomically. The respiratory - that part of the respiratory tract of an infant is much more crowded. The spaces between these various structures are much, much less.

40

In Sarah's case, the, the uvula looked a bit congested. More importantly, when I saw it at autopsy and this was after the neck organs had been removed from the overall body, the uvula overlapped the epiglottis and at the time and still to this moment in time, I cannot be certain that this was not a post-mortem artefact that had happened because of the removal of the structures from the body. However, there is an alternative that this was real. I had never seen this - I had never seen this before. I had never seen this described in the literature before. So I was - I was - certainly at the time of the trial I was not prepared to add any greater significance to it than that which I've just described to you.

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5 However, in a last-minute trawl of the literature I discovered a paper which describes more or less exactly the same thing by someone else. All right, this is my vast series of one case, someone else's vast series of one case. What significance does it add to it? Well, it's mildly supportive that this may not have been a post-mortem artefact. It may have been real.

10 The other significance of this is there is a description somewhere of Sarah just before she died, the night before she died or something like that, of snoring. It is possible - and I put it no more than that - it is possible that the snoring was because this uvula was bouncing off the epiglottis or bouncing off the larynx in the region of the same epiglottis.

15 FURNESS SC: You describe it as haemorrhagic. Are we to take from that that there was any bleeding or reddening of the uvula?

WITNESS HILTON: It looked red and bleeding. On a microscope there wasn't so much evidence of bleeding. There was a minor - there was some physical evidence of inflammation on the pharyngeal aspect of the uvula.

20 FURNESS SC: By inflammation it was slightly reddened?

WITNESS HILTON: Yes, red, well, redness is a sign of inflammation, yes.

25 FURNESS SC: Yes. I'm asking you what you actually saw and then thought of as inflammation. Was it reddened?

WITNESS HILTON: There was redness looking at it macroscopically. Microscopically, there was evidence of inflammation--

30 FURNESS SC: Thank you.

WITNESS HILTON: --cellular - cellular evidence of inflammation.

35 FURNESS SC: Dr Cala, do you have any opinion to give on the significance of the description that Professor Hilton has given of the uvula in relation to cause of death?

40 WITNESS CALA: I don't think it has got any bearing on the cause of death. I agree with Professor Hilton that it might represent an artefact. He has described that. I agree with that. There's no photographs of it so I can't actually look at the uvula myself but I can imagine in a small child with tonsils enlarged at the back of the throat and a narrow airway, that the uvula might be displaced or be a little bit elongated and from time to time touch the back of the tongue, maybe the epiglottis and become inflamed just because of local  
45 trauma to that but I honestly can't take it any further than that and I certainly wouldn't say that that in my opinion had anything to do with this child's death.

FURNESS SC: You said that the tonsils were enlarged.

50 WITNESS CALA: No. I said - I think I said if they were enlarged.

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FURNESS SC: If.

5 WITNESS CALA: It's usual in a child of this age to have tonsillar enlargement at the back of the throat. The tonsils are just two little areas of lymph nodes which vary in size from usually about 1 centimetre in diameter each to even double that and they can in a small mouth and a small airway with a long uvula be some sort of physical impairment to breathing on occasions.

10 FURNESS SC: Thank you. Your Honour, I notice the time.

JUDICIAL OFFICER: Yes. We'll adjourn for 20 minutes.

SHORT ADJOURNMENT

15 JUDICIAL OFFICER: Yes, Ms Furness?

20 FURNESS SC: Thank you, your Honour. Professor Duflou - Dr Cala, have you finished your answer in relation to the uvula?

WITNESS CALA: Yes.

25 FURNESS SC: Thank you. Professor Duflou, what's your view as to the significance of what Professor Hilton has described in his autopsy report as to the "congested" uvula?

WITNESS DUFLOU: I don't know.

30 FURNESS SC: Is that the extent of your answer?

WITNESS DUFLOU: It could be an incidental finding. It could be a cause of upper airway obstruction, but I think it is so rarely described and - that I can't really get a feel for its significance.

35 FURNESS SC: Professor Cordner?

40 WITNESS CORDNER: Look, it's a very interesting observation. It's interesting to hear Professor Hilton talk about it in relation to the snoring and that sort of feels like it could have some cogency, I suppose. I think - and I wonder whether Professor Hilton really thinks this - that this is an interesting finding that perhaps, like some other findings that we might talk about shortly, puts Sarah into a slightly more risky category of infant, a bit more - how much more, who knows - a bit more vulnerable to SIDS.

45 FURNESS SC: What other factors are you referring to?

WITNESS CORDNER: The other ones?

50 FURNESS SC: Yes?

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5 WITNESS CORDNER: All the histology factors. What we've talked about before, some small signs of infection around some small airways, some very small signs of possible inflammation in the lymph nodes draining the lungs, so - some small signs of inflammation in the salivary glands, interesting changes in the muscle fibres of the diaphragm. So, even collectively, they don't sort of add to anything close to what I would regard as a cause of death. But it sort of shows that, at some sort of level, there is abnormality.

10 FURNESS SC: Well, we know she had a cold.

WITNESS CORDNER: Mm.

FURNESS SC: Wouldn't all of that be accounted for by having a cold?

15 WITNESS CORDNER: Yes, and it may be that a cold makes you more vulnerable to SIDS as - you know, as we've already discussed, it is thought to be, by some at least, part of the backdrop to sudden infant death syndrome.

20 FURNESS SC: I took you yesterday to your report where you said that the presence of an inflammation, like a cold, was now a less consistent finding than it had been before in relation to SIDS?

25 WITNESS CORDNER: Well, I'm reporting what the literature says. I'm just - and I also said that, in my mind, it's still part of the story of SIDS, is that a number of infants have a preceding mild viral-like illness and, and whether that renders a child - the infant somewhat more vulnerable to whatever has led to the SIDS in a particular case is, of course, the unanswerable question.

30 FURNESS SC: Because it's certainly not the case that she died of the cold or the virus, is it?

WITNESS CORDNER: No, and, and you need to be just a little bit careful about saying, "You know, you couldn't possibly die of a cold". I mean - so--

35 FURNESS SC: Well, I didn't say that. I said, you're not saying that she died of the cold or virus?

40 WITNESS CORDNER: No, I'm not saying that. I'm not saying that. But I don't think one should sort of say that this is of no significance. You know, you wouldn't - you shouldn't say, "Oh, it's just a cold and therefore could not possibly have any significance". That is not the case. It is the case that it is reasonable, and many people think that something like a cold introduces a vulnerability of that child to whatever the SIDS is.

45 FURNESS SC: A vulnerability to a cause of death we can't explain, is that right?

WITNESS CORDNER: Yes.

50 FURNESS SC: She's had no chronic illness in respect of respiratory in her

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short life, had she?

WITNESS CORDNER: No.

5 FURNESS SC: Is there anything more you wanted to say?

WITNESS CORDNER: No, just to hope you're all right.

10 JUDICIAL OFFICER: Perhaps she's trying to - you might worry her about the significance--

WITNESS CORDNER: Sorry?

15 JUDICIAL OFFICER: You might be worrying her about the significance of a cold.

FURNESS SC: I'm past the SIDS age. Thank you, your Honour, for your concern.

20 WITNESS CORDNER: Well, just keep her away from me, if that's the case.

FURNESS SC: Is there anything you wanted to say about cause of death in relation to Sarah?

25 WITNESS CORDNER: Well, no. No, because her cause of death has been given as SIDS and it seems reasonable to me.

FURNESS SC: Well, I don't think I've asked you, Professor Duflo, as to cause of death?

30 WITNESS DUFLOU: My view is that it, it is best described as a SIDS category 2.

FURNESS SC: And why is it a category 2?

35 WITNESS DUFLOU: Category 2, on the basis of age, so that's greater than nine months. There is an autopsy abnormality described of the upper airway, the significance of which is uncertain, and that there has been death of siblings while in custody of the same caregiver.

40 FURNESS SC: And how does that factor in?

WITNESS DUFLOU: It's a definitional requirement.

45 FURNESS SC: I understand that. The definitional requirement is the fact of the death. What I'm asking you is how that contributed to your thinking about cause of death?

50 WITNESS DUFLOU: I, I, I think a central difficulty that I have is, do you consider these deaths each separately or together in combination? And I think

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both areas are issues - have issues to worry about. Certainly, in the past they would be considered together, but I think there's been a move towards considering these cases separately.

5 FURNESS SC: If you considered Sarah in isolation, would she be still classified by you as a SIDS 2?

WITNESS DUFLOU: Yes.

10 FURNESS SC: And if you--

WITNESS DUFLOU: And, and that is on the basis of age and uvula.

15 FURNESS SC: Would you consider her a SIDS 2 death taking into account now Patrick and Caleb?

WITNESS DUFLOU: Yes, I would, because it fulfils the criteria.

20 FURNESS SC: It fulfils the criteria, but that's a different question as to how you weight it. And it's not a tick a box thing, is it, to determine the cause of death, it's more complex than that?

25 WITNESS DUFLOU: Well, it's certainly more complex than that. In this case, looking at the infant, there is nothing going against a diagnosis of SIDS on the basis of autopsy. There's nothing going against SIDS on the basis of the circumstances surrounding the death as provided. And, in a situation like that, I, I think it's entirely fair to give that as the cause of death.

30 FURNESS SC: But two of her siblings have died?

WITNESS DUFLOU: I accept that.

FURNESS SC: How do you take that into account?

35 WITNESS DUFLOU: You take it into account by including it in the - in the cause of death statement, effectively.

40 FURNESS SC: I understand that as a matter of fact you write down that they - two other children have died in the family--

WITNESS DUFLOU: Mm-hmm.

45 FURNESS SC: --but that doesn't answer my question, is, how you consider it as an intellectual exercise, how this affects what you're doing in relation to cause of death?

50 WITNESS DUFLOU: Look, there's no doubt I would worry about it. I would hope there is a detailed investigation associated with the autopsy. I would hope that I have done--

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FURNESS SC: You mean Sarah's autopsy?

5 WITNESS DUFLOU: Yes, with Sarah's autopsy, and that might extend backwards into a review of the other cases as well. If I was only aware of the - of Sarah at this stage and I had not been aware of the other two, I would certainly go back to those other two as well and have a look at what was found, what was not found.

10 FURNESS SC: Would you take into account, in your review of the previous cases, Sarah's death?

WITNESS DUFLOU: I'm sorry, I missed that last word?

15 FURNESS SC: Would you take into account, in your review of the previous cases, Sarah's death?

WITNESS DUFLOU: Well, yes, you would. Because I, I wouldn't be reviewing the cases unless Sarah had died, would I?

20 FURNESS SC: Well, the question is whether you review the completeness of the autopsy and the like, and the cause of death in relation to each as an element of the whole, that is, whether each was done properly? That's one part of the review. The second part of the review is whether you would look through a different lens in respect of each of those because of Sarah's death, as a separate exercise?

25

WITNESS DUFLOU: I - I'd certainly look at them with heightened concern, but I would not look at them with attempting, for example, to show that this is a homicide.

30

FURNESS SC: What would be your concern that had been "heightened" by the other deaths?

35 WITNESS DUFLOU: I would be concerned, is there a possibility of there being external agency in causing the death? And smothering would be an option that I would have to consider.

40 FURNESS SC: And you couldn't exclude smothering in relation to any of the three deaths, could you?

WITNESS DUFLOU: I couldn't exclude it, but I can't include it either. There's no evidence for it.

45 FURNESS SC: You wouldn't necessarily expect it either, would you?

WITNESS DUFLOU: It becomes a matter of, as there are more, I'd think you have greater likelihood.

50 FURNESS SC: Of what?

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WITNESS DUFLOU: Of there being signs of smothering.

FURNESS SC: Why is that?

5 WITNESS DUFLOU: Because signs of smothering are not - I, I think as shown by the work of Professor Corder - that uncommon in babies. And, if that's the case, you'd certainly worry about it. You'd expect over - you know, let's say there were 20 cases of smothering--

10 FURNESS SC: No, let's just stick with the three we've got, Professor.

WITNESS DUFLOU: Okay.

15 FURNESS SC: Why would you expect - if each of the children were smothered, why would you expect the second to have more signs than the first and then the third to have more signs than the second would present?

WITNESS DUFLOU: No, that's not what I said.

20 FURNESS SC: Would you expect that?

WITNESS DUFLOU: I said, there is, in every case, a possibility of signs of smothering. So, to have none in all three cases, you - you've certainly got to wonder if - why this isn't the case.

25 FURNESS SC: Well, you indicated earlier that you would expect it'd be more likely in the later deaths that there would be smothering?

30 WITNESS DUFLOU: No. No, no, no. I, I, I think you've--

FURNESS SC: So, if you said that, you didn't mean to say it?

35 WITNESS DUFLOU: Yeah, I might have explained it incorrectly. What I'm saying is, the more cases there are, the more likelihood of one or more of those cases showing signs of smothering. Now--

FURNESS SC: Why?

40 WITNESS DUFLOU: Because, when a person is smothered there's a possibility of signs of smothering, in any case. So, in three cases there would be the possibility of signs of smothering in three cases. So, you - if you like, you treble the likelihood.

45 FURNESS SC: You weren't interested in statistics before, I think, Professor. I suggest you think about whether you want to engage in a statistical analysis of this, but it's your evidence.

50 WITNESS DUFLOU: That's, that's not a statistical analysis, I believe. In each case you have, let's say - let, let - let's use a - as a number--



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FURNESS SC: Three. Use three as a number.

5 WITNESS DUFLOU: Okay. Yeah, well, three cases. Now, let's say in each case there was a one in two chance of there be - of there being signs of smothering.

FURNESS SC: And where do you get the one in two?

10 WITNESS DUFLOU: I'm saying, let's say.

FURNESS SC: No, no, no, I'm not interested in "let's say", Professor. If you're wanting to give evidence about this, you need to indicate the basis upon which you're saying there is a one in two chance of there being signs of smothering.

15 WITNESS DUFLOU: I think Professor Cordner's examination showed 40%, did it not? I--

20 FURNESS SC: You'd have to refer me to his report, if that's the source of it. Unless Professor Cordner can help us with the page of his report? Would you like to proceed while that's happening, or would you like to wait until it's found?

WITNESS DUFLOU: I'll wait.

25 FURNESS SC: Can you help us with where it is in Professor Cordner's report?

WITNESS DUFLOU: No.

30 FURNESS SC: Do you have a copy of it in front of you?

WITNESS DUFLOU: I do.

WITNESS CORDNER: Page 52 has some of that material.

35 FURNESS SC: Thank you.

WITNESS DUFLOU: Thank you.

40 FURNESS SC: Where is it that you were referring to the 40% or one in two?

WITNESS CORDNER: Are you asking me?

FURNESS SC: No, I'm asking Professor Duflou.

45 WITNESS DUFLOU: I'd like to emphasise, number 1, that I do not state that in Professor Cordner's report there is 50%. I said, say 50% for the purposes of this calculation. Nevertheless--

50 FURNESS SC: I thought you said there was 40%.

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WITNESS DUFLOU: --Professor Cordner does indicate that six or 55% of cases had general and/or specific signs of smothering so I would argue that 50% is a fair approximation.

5 FURNESS SC: So you're referring to the searches that have been undertaken since 2000, 19 years ago. Is that the data you're referring to?

WITNESS DUFLOU: I am.

10 FURNESS SC: And so you're saying that this supports - you'll have to just tell me again what that was, professor - this supports what?

15 WITNESS DUFLOU: Well, what I'm saying is, I was trying to use or to show why the more cases there are, the greater the likelihood of seeing an injury. In 50% of cases, can we accept 50% because my maths will probably fall apart unless I use 50%.

FURNESS SC: It's your evidence, professor.

20 WITNESS DUFLOU: Thank you. In the first case there is a one in two chance of there being signs of smothering. In the second case there is a one in two chance of there being signs of smothering. So we now we have one in two and one in two. In the third case there was a one in two chance of there being signs of smothering. That is now in three cases there is a one in two chance in each. I think that would indicate that there is as the number of cases increases, the chances of findings signs of smothering or any other condition increases overall. It doesn't increase per case; it increases in the overall.

25 FURNESS SC: So your evidence is in relation to the three cases so far - we'll leave Laura to one side for the moment - that the fact that there was no evidence of smothering in Patrick and then in Sarah means that it's less likely they were smothered. Is that your proposition because you would have expected more likelihood of signs in Sarah than Patrick? Is that your evidence?

30 WITNESS DUFLOU: I don't know if you can argue the reverse. What I'm saying is that there were no signs of smothering in any of the three. What we know from that work conducted by Professor Cordner is you see it in about half the cases.

35 FURNESS SC: Just to be clear, professor, your evidence is that the fact that there were no signs of smothering in Patrick and the fact that there were no signs of smothering in Sarah, means it's more likely rather than less likely that they were smothered because of your expectation based on your one in two. Is that right?

40 WITNESS DUFLOU: I'm sorry, I don't follow that reasoning. Could you do it again?

45 FURNESS SC: Your evidence is that because of your statistical analysis of

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one in two times three, it's more likely that there would be signs of smothering in the latter two children and therefore do you conclude that the absence of those signs makes it less likely that each of them was smothered?

5 WITNESS DUFLOU: No. I did not say that to the first part of that proposition. What I have said is in each child there are no signs of smothering. If it is accepted that signs of smothering are seen in about half of the children who are smothered in any size population, then the larger the population the greater the likelihood there will be of picking up any smothering in any of those cases.  
10

FURNESS SC: So your evidence is not related to three cases within the one family, it's more broadly based. Is that right?

15 WITNESS DUFLOU: Effectively, yes.

FURNESS SC: Dr Cala, have you got anything to say about your opinion as to whether or not there is evidence of Sarah being smothered?

20 WITNESS CALA: There isn't absolute proof of smothering. I've mentioned some--

FURNESS SC: Sorry, there is or--

25 WITNESS CALA: No, there is not--

FURNESS SC: There isn't, thank you.

30 WITNESS CALA: --absolute proof.

FURNESS SC: Thank you. Is that all you want to say?

35 WITNESS CALA: I just wanted to add that there are, however, some marks about the lower lip and the chin. I'm not certain of the cause of those. I don't want to elevate it and say they indicate smothering because I don't believe they do. They can be explained in a number of ways but any marks around a child's mouth and face generally - a deceased child - are of concern and raise the question of how did those marks come about and I think both Professors Duflou and Hilton have talked about innocuous injuries and CPR and I accept all that.  
40

FURNESS SC: But do you share the view that in relation to the second and third child it would be more likely to expect signs of smothering if they indeed were smothered, do you accept that?

45 WITNESS CALA: No, I don't and I don't follow that reasoning.

FURNESS SC: Can I come to the findings on the histology or the microbiology. You referred to them earlier, Professor Cordner. I just need to have them on the screen. Do you know where they would be found?  
50



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2 September. I would think that collected on 2 September is quite unlikely but possibly Professor Hilton can inform us. Receipt of the specimens only on 2 September would suggest that there has been a prolonged interval between taking of the samples and the specimens arriving in the laboratory for further processing which is not ideal.

FURNESS SC: What effect does that have?

WITNESS DUFLOU: The major effect is that you can have contamination and overgrowth of organisms.

FURNESS SC: So that supports your view that they were contaminants. Is that right?

WITNESS DUFLOU: It certainly raises that as a greater possibility, yes.

FURNESS SC: Can I come to Dr Blackwell's report or Professor Blackwell's report for a moment. Dr Cala, you'll be aware of this from having read her report. She particularly refers to you and this is her first report and I'm on page 2. I just want to give you an opportunity to respond to this. In paragraph 9 she refers to various mediators used in research and that the tests were important in assessing if a child had an inappropriate or overwhelming inflammatory response and then, "Two reasons for not including these tests are additional costs and the role of infection in inflammatory response is not widely held to be important." Then she attaches a letter which is attachment C. If we could have attachment C to her report up. You've seen this before, Dr Cala. It has been brought to your attention?

WITNESS CALA: Yes.

FURNESS SC: This is a letter from the solicitor for the Director of Public Prosecutions to Legal Aid during the course of preparation for the trial. This is in relation to Sarah. The third paragraph is that you advise that the theory associating the IL10 gene with SIDS is nothing more than a theory and it's not accepted in the forensic community. Perhaps you might just read that for me, Dr Cala.

WITNESS CALA: Out loud?

FURNESS SC: Yes.

WITNESS CALA:

"Dr Cala advised us today that the theory associating the IL10 gene with SIDS is nothing more than a theory. It is in no way accepted by the forensic community or other people generating the medical literature around the world. He does not give the theory any credence. It is just a theory at this stage."

FURNESS SC: And then the next paragraph?

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WITNESS CALA:

5 "Dr Cala stated that anyone can go fishing for a gene and suggest a genetic link with SIDS. The issue is whether or not the theory is accepted by the wider medical community. Dr Drucker is a microbiological researcher. This theory has not been accepted by the forensic or SIDS people at all. Dr Cala regards it as inherently dangerous when a researcher refers to a gene in this situation as a so-called cot death gene. He regards a theory which associates the IL10 gene as a vague theory by microbiologists. At this stage it is no more than junk science."

15 FURNESS SC: Is that the view that you stated around about that time?

20 WITNESS CALA: I didn't agree that the IL10 gene would be considered or accepted as a SIDS gene. I didn't say and I don't believe I said that it was junk science but I said words to the effect that we have to be careful in all aspects of medical research and medical investigation to make sure that what is permitted as valid conclusions from research is done in a proper way under proper conditions and is valid rather than accepting a theory because it might sound plausible but in fact with retesting and attempts at revalidation simply isn't done. So I wasn't suggesting that Dr Drucker and anybody else attached to this was junk science but I was flagging caution in interpreting this in relation to SIDS deaths.

25 FURNESS SC: Now, in 2019, do you have a view different from the view that you'd expressed in 2003?

30 WITNESS CALA: No.

FURNESS SC: Unless anyone has anything more to say about Sarah - yes Professor Cordner?

35 WITNESS CORDNER: I'm looking at chapter 25 of Byard's huge tome and natural diseases causing sudden death in infancy and early childhood.

FURNESS SC: I think you have our copy?

40 WITNESS CORDNER: You can have your copy.

FURNESS SC: Sorry what page?

45 WITNESS CORDNER: Page 548. And I just would like to read and this is a chapter by two doctors, one with a MD from Great Ormond Street, which is the UK's premier paediatric hospital and this is in a section listed respiratory tract infections and in particular lower respiratory tract infections.

50 FURNESS SC: Is this acquired respiratory conditions or the--

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WITNESS CORDNER: In the last paragraph just before respiratory papillomatosis on page 548. I'd just like to read, it's about eight lines, do you mind?

5 FURNESS SC: Certainly.

WITNESS CORDNER:

10 "Diagnosis of lower respiratory tract infection at autopsy is based primarily on identification of significant airway or air space inflammatory cell infiltration, with or without positive microbiological findings. It should be noted that there is some controversy regarding assessment of severity of such changes and their relationship to the cause of some death, with some providing lower respiratory infection as a likely cause, in all cases in which any definite evidence is present, whereas others may interpret the findings as present, but insufficient to explain the death. At present, until further gold standard tests are available for evaluating mechanisms of death, definitive determination of clinical significance remains impossible."

I'd just like to say that in this particular case, the lung cultures do show Streptococcus pneumoniae and says copious or some word that describes a large growth, that is a pathogen and as was explained yesterday, we pathologists like to see the actual inflammatory signs in the lung indicating infection and the effect of the work of people like Professor Blackwell is searching for these other tests that might indicate significance of positive culture results like this one where there is minor or no actual evidence of infection that we can see down a microscope, so I do think it's a little bit sort of - a little bit not right to dismiss completely that the possible significance of the culture results in this case, the very minor mild signs of infection, plus an opinion that says they are significant, I think you've just got to keep open the possibility that there is something there, I personally am not dismissing that.

35 FURNESS SC: Are you suggesting that some of your colleagues are dismissing it?

WITNESS CORDNER: Well when I heard junk science, I thought that that included this sort of thing.

40 FURNESS SC: That was more about the gene IL10 as I understood it?

WITNESS CORDNER: Okay well if that's the case--

45 FURNESS SC: That was mainly a reference to Dr Cala?

WITNESS CORDNER: Well you know, I heard the reference to junk science and if it's about the genes then we can have another discussion about that, I just wanted to make sure that it was clear that the sort of things that Professor Blackwell is talking about isn't in the zone of junk science. So I just make sure

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there's no confusion about that.

5 FURNESS SC: Professor Hilton just going back to this paragraph which is on screen, you did not make as I understand it, a diagnosis of LRTI at autopsy, did you?

10 WITNESS HILTON: Not in these terms, I think there were from memory small areas of inflammatory infiltrate in the lungs, would I classify that as a lower respiratory tract infection.

FURNESS SC: You didn't on the occasion?

15 WITNESS HILTON: It probably is, taken back to its basic, would I think it's of clinical significance, well it's there so it's yeah it's probably - but I don't think this kid had a coughing horrible lower respiratory cold, it may have had the makings of, Sarah might have, but at the time of her death she had some signs of, minor signs of respiratory tract infection in the lung, now these would not occur, these signs would not occur as a post mortem artefact because it's a cellular, infiltrate cellular exudate, that ain't going to happen post mortem to  
20 any extent. Basing it then on the presence of post mortem cultures I think would be a leap of faith which I would not be prepared to take.

25 FURNESS SC: Dr Cala was there anything you wanted to say in response to Professor Cordner's comment?

WITNESS CALA: No.

30 FURNESS SC: Leaving Sarah now, can we turn to Laura. Laura was born on 7 August 1997 and died on 1 March 1999, she was 18 months and 22 days. And like her siblings she was full-term, not underweight, her mother did not smoke, she was 30 years of age and Laura was found on her back with her face uncovered in her own bed. There were no signs of neglect and the family was not socioeconomically disadvantaged. Her father smoked outside. She  
35 was vaccinated and used a dummy, again query how often, and she was breastfed for two weeks. 12 days after Laura was born she underwent full biochemical, blood and metabolic investigations which were normal, according to the person who conducted them, a sleep study showed mild central apnoea and no obstructive apnoea, which improved on subsequent studies and Dr Seton, who undertook them said in a statement that she was totally normal  
40 by February 1998.

45 Laura was monitored by a Corometric home cardiorespiratory monitoring device which was designed to record and download breathing and heart information during her sleep, she was monitored for about 12 months without complication according to the doctor and the doctor also said the monitoring showed no serious breathing problems or heart rate problems, the only problem being that Laura was not monitored during all her sleeps. Dr Seton in his statement noted that when he saw Mr and Mrs Folbigg on 30 April 1998 it  
50 became clear that the monitor was becoming tedious relating to the number of false alarms, technical difficulty and the like and taking a very precautionary



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approach in an apparently healthy baby. It then appears the monitor was used less after the first six months.

5 Dr Paul Innis was Laura's treating GP and over the six months he saw her she was a normal healthy child with no chronic illness. Dr Cash was a visiting medical officer at Singleton Hospital. He examined her several times with a history of a slight upper respiratory infection over several days and a croupy cough and that was in June 1998. He found no signs of distress or respiratory difficulties.

10 If we can have up tab 46 which is the report of a death to the coroner. And while that's coming up, does any person wish to say anything more, leaving aside the cold she had 24 hours before she died, which I'm coming to, about Laura prior to her death? No.

15 So this is the report of the death to the coroner. If we can just scroll down, there was on this occasion, a death scene investigation checklist that was conducted and completed, if you can just scroll down further for me to the end of it. There's reference on what is page 133 at the bottom, in the third  
20 paragraph to on 1 March the child having woken suffering from flu or cold symptoms which had plagued her for the previous seven days and it was noted that she'd been given Demazin on 27 February for those symptoms. The mother stated that the child was in a bad mood, although not seriously ill.

25 Having completed that, can we then come to the ambulance reports which is tab 51, the officers who attended at 12.14pm described her as warm to touch and the report records her skin temperature as normal. By contrast Ms Folbigg had said that Laura was cool, although not cold when she found her.

30 Turning to the autopsy at tab 47, Dr Cala you completed the autopsy?

WITNESS CALA: Yes.

35 FURNESS SC: Professor Hilton you were present for some or all of it?

WITNESS HILTON: I have no exact personal memory of this but I would accept that I was there and I was there a substantial amount of the time.

40 FURNESS SC: Substantial?

WITNESS HILTON: Substantial.

45 FURNESS SC: So this is the interim report and Dr Cala you've given the direct cause as undetermined, now it's a very brief interim report, what was the purpose of it?

50 WITNESS CALA: That goes to the coroner's office and basically allows the body to be released or if it's kept on hold, informs the coroner that the body is being kept on hold for possible re-examination or further testing or whatever.

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FURNESS SC: If we can scroll up, you've ticked that significant injuries were not present?

WITNESS CALA: Yes.

5

FURNESS SC: Then if we can go to tab 54 which is the final autopsy report. Now, scrolling down this document, you might take us through it Dr Cala, as to what's the significant aspects of it, beginning with the time of autopsy being 9pm?

10

WITNESS CALA: Yes.

FURNESS SC: And then after that?

15

WITNESS CALA: It's not mentioned who else was present, but there was a crime scene officer from police, Clint Nichol and as Professor Hilton has said, he was also present, my recollection is as he said, for most of the autopsy, if not all.

20

FURNESS SC: Would you like a hard copy?

WITNESS CALA: No I'm fine.

FURNESS SC: Keep going, page 2?

25

WITNESS CALA: So as you can see up the top is my opinion as to the time and date of death, I've said sometime between approximately 11am and 12.45pm on 1 March 1999 at Singleton Hospital which is when life was pronounced extinct and I've said cause of death undetermined.

30

FURNESS SC: Which was consistent with what you'd said earlier?

WITNESS CALA: Yes.

35

FURNESS SC: Then you give a report summary and opinion.

WITNESS CALA: Yes.

40

FURNESS SC: In relation to Caleb, Patrick and Sarah, am I correct in saying there's nothing there that we haven't already heard about--

WITNESS CALA: That's right

45

FURNESS SC: --over the course of the last two days? Then you turn to Laura.

WITNESS CALA: Yes.

50

FURNESS SC: At the end of that paragraph beginning with "Laura" you say, "The father of all the children has allegedly been diagnosed with obstructive

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sleep apnoea.” What was the source of that? We need to follow 168, be it the paragraph beginning, “The fourth child”.

5 WITNESS CALA: My memory is that this was information from medical records from Westmead Children’s Hospital.

FURNESS SC: Why did you use the word “allegedly”?

10 WITNESS CALA: I, I don’t know that it was absolutely proven, that I remember that there were notations that said, “Craig was a snorer” or words to that effect, so it was suspicious for obstructive sleep apnoea, but I don’t know that he ever had formal testing for it in the way of a sleep study to properly diagnose it.

15 FURNESS SC: Effectively, you were referring to him snoring?

WITNESS CALA: Yes.

20 FURNESS SC: Over the page to 169 you describe the post-mortem examination.

WITNESS CALA: Yes.

25 FURNESS SC: Do you say that there were no significant injuries externally apart from minor bruises to the lower limbs?

WITNESS CALA: Yes.

FURNESS SC: Did you attach any significance to that?

30 WITNESS CALA: No.

FURNESS SC: You then say there were no injuries to the face or in the oral cavity?

35 WITNESS CALA: Yes.

FURNESS SC: Then you refer to there being no petechial haemorrhages on the face or on the eyelids?

40 WITNESS CALA: Yes.

FURNESS SC: Of significance was that you--

45 WITNESS CALA: I think we’ve discussed the presence of petechial haemorrhages on the face of being of concern but not of being diagnostic, so I, I had to note that there were, in fact, no petechial haemorrhages.

FURNESS SC: You re-examined the area the next day?

50 WITNESS CALA: Yes.

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FURNESS SC: Is that usual?

WITNESS CALA: Is it usual?

5

FURNESS SC: Yes.

WITNESS CALA: No.

10 FURNESS SC: Why did you do it?

WITNESS CALA: Because I was quite concerned about this child's death. As you can tell I had, even at the interim level following the autopsy, I had no clear cut cause of death and I wanted to be thorough and detailed and re-examine the child.

15

FURNESS SC: Because you obviously knew about the three other children?

WITNESS CALA: Yes, I was told that immediately. I was informed of - that Laura's body was coming to, to Glebe for an autopsy.

20

FURNESS SC: You were told before you saw Laura; is that what you're saying?

25 WITNESS CALA: Yes, I was told that.

FURNESS SC: You refer to internally there were no significant abnormalities apart from - I'm losing my voice, I'm going to have to ask you to read that out, doctor. Apart from.

30

WITNESS CALA: Internally there were no - pardon me - there were no significant abnormalities apart from focally haemorrhagic and collapsed lungs.

FURNESS SC: That is--

35

WITNESS CALA: It's a non - non-specific finding. We've been through that in other cases.

FURNESS SC: The next paragraph.

40

WITNESS CALA: Yes. "Histological examination of tissues showed an inflammatory infiltrate in the heart consistent with myocarditis of probable viral origin. This accords with the history of a cold/flu-like illness for several days prior to the death of the child. There are a variety of causes for myocarditis including some viruses, bacteria, fungi, some immune-related disorders, some drugs and several other causative agents."

45

FURNESS SC: We'll come back to the myocarditis. You noted in the toxicology examination that the Demazin which Laura had taken was not present--

50

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WITNESS CALA: Yes.

FURNESS SC: --therefore, she hadn't had it for 24 hours?

5

WITNESS CALA: That - yes.

FURNESS SC: Leaving aside for the moment your commentary at the bottom of that page and coming to the autopsy findings themselves, if we can, that's on page 171, if you can perhaps draw to our attention any matters of relevance to you that we have not covered from the earlier comments. It seems to me that there's nothing--

10

WITNESS CALA: I would agree with that.

15

FURNESS SC: --on 171.

WITNESS CALA: Yes.

FURNESS SC: 172 there's evidence of bruises. You didn't attribute any significance to those?

20

WITNESS CALA: That's correct.

FURNESS SC: Then on 173 is there anything there that we haven't already discussed that you consider relevant?

25

WITNESS CALA: No.

FURNESS SC: No?

30

WITNESS CALA: No.

FURNESS SC: Then moving over to 174, which I think is in the same category, and then to 175, there's nothing before then you wanted to raise?

35

WITNESS CALA: No.

FURNESS SC: Then on 175 you referred to having formed a facial dissection; is that usual?

40

WITNESS CALA: No.

FURNESS SC: Why did you do that?

45

WITNESS CALA: I wanted to specifically look at any possible injuries to the child's face and particularly around the mouth and that's not easily done by just lifting the lips up or down. Pathologists perform this, I wouldn't say routinely, but on certain occasions where it's important to look for the possibility of injuries that might have some forensic significance.

50

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FURNESS SC: What did you find?

WITNESS CALA: I didn't find any.

5

FURNESS SC: What conclusions did you draw from that finding?

WITNESS CALA: I didn't draw any conclusions.

10

FURNESS SC: Coming to the microscopic examination of tissues, which is further down that page, you describe the heart. Might I ask you to read that first sentence?

15

WITNESS CALA: "Within the myocardium", which is the heart, "is a moderately dense infiltrate of lymphocytes which have aggregated in certain areas particularly subendocardially and along the superficial surface of the myocardium, although further sections show large aggregates" sorry, "show large aggregates in the central area of the left ventricle."

20

FURNESS SC: Are the next two sentences relevant for the appearance of what you saw?

WITNESS CALA: Yes.

25

FURNESS SC: Read those then.

WITNESS CALA: "In these areas there are large clusters of lymphocytes surrounding degenerate myocytes. Myocytolysis is present. No viral inclusions are seen."

30

FURNESS SC: And the appearances are?

WITNESS CALA: "And then the appearances are of myocarditis which is probably viral in origin - in the aetiology, or origin.

35

FURNESS SC: This is on microscopic examination?

WITNESS CALA: Yes.

40

FURNESS SC: You looked at the heart with your eyes, did you see anything?

WITNESS CALA: No.

45

FURNESS SC: Is this the first time you recorded in writing what it was that you saw microscopically in relation to Laura's heart?

WITNESS CALA: Yes.

50

FURNESS SC: You recorded it fairly close in time to having performed the microscopic examination?

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WITNESS CALA: Yes.

5 FURNESS SC: Turning over the page there's reference to widespread haemorrhage in the lungs.

WITNESS CALA: Yes.

10 FURNESS SC: Is that of significance?

WITNESS CALA: No. Pardon me, I'm losing my voice as well. No.

15 FURNESS SC: They were the autopsy documents. There are no additional documents, are there?

WITNESS CALA: That's the - that, that is the report, yeah.

20 FURNESS SC: On more than one occasion you have had the opportunity or burden of describing what you saw microscopically in relation to the heart.

WITNESS CALA: Yes.

FURNESS SC: That's right?

25 WITNESS CALA: Yes.

30 FURNESS SC: I'll just take you to some of those and you can tell his Honour your current views. In a number of pieces of correspondence, you describe what you had seen and perhaps if we can come to tab 61. This is a letter you wrote to Detective Ryan who was involved in the investigation and you were asked a number of questions, and if we can just scroll up somehow. The answer to the first question is whether or not you performed staining for haemosiderin laden macrophages and you did, I take it?

35 WITNESS CALA: Yes.

FURNESS SC: That was a negative result?

40 WITNESS CALA: Yes.

FURNESS SC: I think we heard yesterday that there was certainly some viewed, particularly by Professor Berry, that the presence of that may give some indication as to potential smothering?

45 WITNESS CALA: Yes.

FURNESS SC: You didn't find it?

50 WITNESS CALA: No, I didn't.

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FURNESS SC: Continue going up, scrolling up. On page 211 under question 5 you were asked questions in relation to your finding that it was an incidental finding; do you see that?

5 WITNESS CALA: Yes.

FURNESS SC: Then you describe the inflammatory infiltrate as "light in amount and patchy in distribution".

10 WITNESS CALA: Yes.

FURNESS SC: Is that consistent with what you had said in the autopsy?

15 WITNESS CALA: No, I've described it as moderate, up to moderate, but I accept that there is a difference, I've said "light and patchy up to". In my report though I've said "moderate". So there appears to be a discrepancy. So what I, what I say is that in areas of examination of the heart, in particular, the left ventricle, the inflammatory infiltrate was light and patchy, in other words, it was small in amount, a small number of lymphocytes aggregated around the  
20 cardiac cells, but it was accentuated in areas, as I've described, in, in portions in the middle of the left ventricle to put it up to moderate - to put it up maximally to moderate intensity.

25 So if I could just say that pathologists often describe things, for example, the amount of infection or tumours as being mild, moderate, severe in amount or intensity, so in this setting I'm describing a mild form of inflammation where I've described "light and patchy" in amount and patchy in distribution, but, but in areas there was a worsening of that inflammation to a moderate level of inflammation.

30 FURNESS SC: So--

WITNESS CALA: So at best it was moderate in intensity.

35 FURNESS SC: At best. By best do you mean--

WITNESS CALA: At its most severe.

40 FURNESS SC: These two statements sit together, do they, as opposed to inconsistently because you're referring to different places? Is that how I understand your evidence?

45 WITNESS CALA: Yes, and also can I say this letter was written two years after the, the final report and I don't recall that I went back to the autopsy report to exactly see what my terminology was, but I've - I accept that I've referred to this as being light in amount and patchy in distribution and overall that was - that remains my view but there were areas that were - where the inflammation was more severe.

50 FURNESS SC: As you say, this was written two years afterwards and the



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autopsy report was written more or less contemporaneously--

WITNESS CALA: Yes.

5 FURNESS SC: --having viewed the slides?

WITNESS CALA: Yes.

10 FURNESS SC: I take it, therefore, that the most likely case that your view is better expressed in the autopsy report than in this letter?

WITNESS CALA: I, I would say so, yes.

15 FURNESS SC: Is that a convenient time?

JUDICIAL OFFICER: Yes. We'll adjourn until 2 o'clock.

LUNCHEON ADJOURNMENT

20 JUDICIAL OFFICER: Yes, Ms Furness.

FURNESS SC: Thank you, your Honour. Dr Cala, I was taking you through tab 61 which was your letter dated 19 June 2001. If we can have that back up on the screen. I asked you questions about your reference to light in amount and patchy in distribution which we dealt with and then if we can continue on in that paragraph which is on the second page you refer to your opinion and perhaps can I ask you to read from "My opinion" onwards in that second paragraph.

30 WITNESS CALA:

35 "My opinion that the inflammatory infiltrate in the heart represents an incidental finding is not based on the family history but rather, after consideration of the history provided of Laura's very sudden and most unexpected death, the post-mortem findings of Laura, and the histological assessment of the heart together with my own knowledge and experience of the condition of myocarditis."

40 FURNESS SC: So it was suggested to you, was it, that you may have taken the family history into account in determining whether there was myocarditis or whether it was an incidental finding?

45 WITNESS CALA: My understanding was whether there was myocarditis present based on the family history to which I'd answer no, the myocarditis was a standalone diagnosis that I could clearly make microscopically so not - completely ignoring in fact the other three deaths.

50 FURNESS SC: All right. You then in the next paragraph say that in other cases you've seen where death has been due to myocarditis the inflammatory infiltrate has been much heavier in number and more diffuse in distribution. Is

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that by comparison to your reference to light in amount and patchy in distribution above?

WITNESS CALA: Yes. Yes.

5

FURNESS SC: Is that the same in relation to your finding in the autopsy that it was moderate in density?

WITNESS CALA: Yes.

10

FURNESS SC: It applies the same?

WITNESS CALA: Yes.

15

FURNESS SC: Because, as you indicated earlier, moderate does have a different interpretation from light and patchy and you agreed that moderate was the more likely proper understanding you had on the autopsy. So can you just turn your mind to it being moderate in density and what you said in that paragraph I've just read and tell me whether that paragraph applies to moderate as well as to light in amount and patchy in distribution.

20

WITNESS CALA: I'll read it out:

25

"In other cases I have seen where the death of the child or adult has been due to myocarditis, inflammatory infiltrate has been much heavier in number and more diffuse in distribution throughout the heart although the amount of inflammation is variable from case to case."

30

FURNESS SC: So that applies to your autopsy finding of moderate?

WITNESS CALA: Yes. Yes.

35

FURNESS SC: Thank you. Towards the end of the page you say if you'd examined Laura's body in isolation you might give the cause of death as myocarditis.

WITNESS CALA: Yes.

40

FURNESS SC: Why might you do that?

45

WITNESS CALA: Because I'd be cautious about giving an unequivocal cause of death based purely on a pathological finding and I know that myocarditis is a potentially serious condition but I would be cautious about looking at a slide or slides and without knowing anything else about the case saying that was unequivocally the cause of death. I would exercise caution in that case.

50

FURNESS SC: And then you indicate over the page you cannot ignore any known relevant family history of severe illnesses or premature deaths and then you go on to say: "This is not to say, however, that such information in any

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way need bias or prejudice my opinion." Why are you referring to bias or prejudice in that context?

5 WITNESS CALA: I wanted to point out that even though I knew of the previous deaths I wanted to make the point that I looked at this case and these were my views that I expressed, that I wasn't biased to express any particular view or prejudiced in any way. It was a finding that I determined myself just by looking at the material provided.

10 FURNESS SC: We know the SIDS various definitions require you to look at whether there are other sibling deaths, so why would the question of bias or prejudice arise in any case, Dr Cala?

15 WITNESS CALA: I think I formed that sentence to try and paint the picture that I was looking at Laura objectively but also looking at - knowing the other three but also looking at the other three objectively without any person influencing me or - or giving me selective material that might in some way appear to bias or prejudice me.

20 FURNESS SC: Why would you look at it anything other than objectively, Dr Cala?

WITNESS CALA: I wouldn't. I would look at everything objectively.

25 FURNESS SC: So did somebody suggest something to you in order for you to go down this bias or prejudice path?

WITNESS CALA: I don't recall that anybody did.

30 FURNESS SC: Did you have any connection other than in your role of pathologist with this family at all?

WITNESS CALA: No. None whatsoever.

35 FURNESS SC: So you were doing your normal job?

WITNESS CALA: Yes.

40 FURNESS SC: There were four children, you took into account the four children?

WITNESS CALA: Yes.

45 FURNESS SC: Thank you. Further down you were asked, if so, what are the possible causes of death and you say, "Non-accidental asphyxia in the form of deliberate smothering must be considered as a possible cause of death." Was there any evidence of deliberate smothering on autopsy?

50 WITNESS CALA: No.

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FURNESS SC: Then what is the basis for your view that that must be considered a possible cause of death?

5 WITNESS CALA: Given that there had been four deaths that I certainly knew about, I was not convinced - I'll start again. I was not satisfied by any of the diagnoses that I saw in relation to the first three children and I wasn't satisfied myself that myocarditis purely - that it was the diagnosis to reach satisfactorily to explain Laura's death. So although I've said that smothering can leave no trace and that's a possibility, I thought that in view of the fact that there are four  
10 deceased children all of whom have died suddenly and somewhat unexpectedly, this, that is, non-accidental asphyxia in the form of deliberate smothering, I raised it as a possibility to explain Laura's death and possibly the deaths of the other three children.

15 FURNESS SC: Can I take you to tab 58 if we can have that on the screen. This is a letter that you wrote to Detective Ryan in June 1999.

WITNESS CALA: Yes.

20 FURNESS SC: If we can go to the second page, the third paragraph, just read out that first sentence for me if you would.

25 WITNESS CALA: "This fourth child did not die of SIDS as she was too old for this diagnosis and had an intercurrent illness which might have explained her death."

FURNESS SC: What's the intercurrent illness?

30 WITNESS CALA: The cold and flu-like illness with the myocarditis being present.

FURNESS SC: So the intercurrent illness is the flu or cold as the viral background to the myocarditis. Is that right?

35 WITNESS CALA: Yes. Yes.

FURNESS SC: And it was the myocarditis which might have explained her death?

40 WITNESS CALA: Yes.

45 FURNESS SC: Thank you. Can I come to tab 56. This is a statement you made to the police about Laura. It follows your examination of a video in March 2003 and it was a video of Laura playing around in a backyard swimming pool and the video was dated 28 February--

WITNESS CALA: Yes.

50 FURNESS SC: --which is - is it the day before Laura's death on 1 March?

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WITNESS CALA: Yes.

5 FURNESS SC: You indicate your observation and opinion of Laura as seen on the video in paragraph 3. Can you read that out for me - paragraph 3 on the second page?

WITNESS CALA:

10 "Laura Folbigg appeared to be in good health and was well nourished. Her general development appeared normal for a child of her age. She responded appropriately when called and exhibited no evidence of a cough, shortness of breath, wheeze or other form of obvious ailment or physical impairment."

15 FURNESS SC: And then at paragraph 7 you say that "That she appeared in such good health less than 24 hours prior to her death." Can you read out the rest of that sentence for me?

WITNESS CALA:

20 "That Laura Folbigg appeared in such good health less than 24 hours prior to her death makes me believe more firmly that the myocarditis which was found at autopsy played no role whatsoever in her death and was an incidental finding."

25 FURNESS SC: You had described myocarditis before as it might have been the cause of death.

WITNESS CALA: Yes.

30 FURNESS SC: Here you say "played no role whatsoever" which is more emphatic. What was it that caused you to be more emphatic in your view?

35 WITNESS CALA: I found the video to be important. As depicted, it showed a child who appeared to be in very good health but who, 24 hours or less than 24 hours later, was deceased. She exhibited no outward sign of symptoms as I've said in that and so I was of the view then based on the video that it made it even less likely for me to be of the view that she's died of myocarditis.

40 FURNESS SC: Do you understand that people including children can die of myocarditis without showing any symptoms beforehand?

WITNESS CALA: A small number can, yes.

45 FURNESS SC: Why couldn't she be part of that small number?

WITNESS CALA: She could. She could be part of that small number.

50 FURNESS SC: It's a very emphatic description, Dr Cala, "played no role whatsoever."

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WITNESS CALA: Yes. I accept that.

FURNESS SC: And that's still the view you hold today?

5

WITNESS CALA: No, I temper that. I would say when I've said "played no role whatsoever" that categorically excludes it as being a cause of death and I think that's - I think that's incorrect.

10 FURNESS SC: So what would you say today?

15 WITNESS CALA: I'd say I cannot positively exclude myocarditis as being the cause of death. I did say that at trial and although I believe it's - in my view she did not die of myocarditis I do not believe I could categorically exclude it as being the cause of death.

FURNESS SC: You consider it to be an incidental finding.

20 WITNESS CALA: That's my view.

FURNESS SC: Thank you. At trial as you say, you didn't exclude the possibility but you said that you did not believe it to be a reasonable possibility. Is that still the position you hold?

25 WITNESS CALA: It is.

FURNESS SC: You described it as quite patchy and rather mild, the amount of infiltration, and that it was not particularly heavy. Is that to your mind consistent with what you've said at the autopsy?

30

WITNESS CALA: Those are not the exact words used, when I said not particularly heavy, that's - it's not saying it's moderately heavy, it's different terminology I accept that.

35 FURNESS SC: It's more than just terminology isn't it, I mean to say something is quite patchy and rather mild, differs from saying it's moderate?

WITNESS CALA: Yes I agree.

40 FURNESS SC: And your view now is that what you said in the autopsy is the best evidence as to what your opinion was close to the time of the autopsy?

WITNESS CALA: Yes.

45 FURNESS SC: Is that right?

WITNESS CALA: Yes.

50 FURNESS SC: Can I come back to all of you in relation to Laura, I think it's correct to say that each of you is of the view that Laura had myocarditis when

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she died, that's right Professor Cordner?

WITNESS CORDNER: Yes.

5 FURNESS SC: Professor Hilton?

WITNESS HILTON: Yes.

10 FURNESS SC: And Professor Duflou?

WITNESS DUFLOU: Yes.

15 FURNESS SC: And I think you all accept that there may or may not be observable symptoms of myocarditis in a child, before she dies. Is that right Professor Hilton?

WITNESS HILTON: Yes.

20 WITNESS DUFLOU: Absolutely the case.

FURNESS SC: Professor Cordner?

WITNESS CORDNER: Yes it's unexceptional.

25 FURNESS SC: Unexceptional--

30 WITNESS CORDNER: Unexceptional for a child to die suddenly and unexpectedly from myocarditis with no preceding indicators or indications or symptoms, as I understand it Laura did have a bit of a sniffly viral sort of cold, but not that anybody thought was of any significance, so you can have that as either a preceding symptom or actually that it was completely and totally sudden and unexpected.

35 FURNESS SC: And each of you agree that myocarditis obviously can cause death, there's no doubt about that is there?

WITNESS CALA: Yes.

40 WITNESS DUFLOU: Yes.

WITNESS HILTON: Yes.

45 WITNESS CORDNER: It's an unexceptional well recognised cause of sudden expected death.

FURNESS SC: You say it's unexceptional Professor Cordner, do you accept that it's rare?

50 WITNESS CORDNER: I don't think it's rare, I think it's uncommon and just because we've mentioned it a couple of times now, it's in category 2 of

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Pollanen's sort of categorisation of the sort of evidence strength for a cause of death.

5 FURNESS SC: So you say it's not rare but it's uncommon, is that right?

WITNESS CORDNER: I think yeah, I mean there's a long list of conditions that can cause sudden and unexpected death.

10 FURNESS SC: But we're talking about myocarditis?

WITNESS CORDNER: Yes.

FURNESS SC: Professor Duflou?

15 WITNESS DUFLOU: Look in my view it's one of the more common causes of sudden cardiac death in young people, in the study that we did some years back it was the third leading cardiac cause of sudden cardiac - of sudden natural death in Australians aged five to 35. Now I accept Laura is not in that age group but it certainly is not uncommon cause, after saying that, death due to myocarditis is uncommon, but it's certainly seen and I think it's certainly something that your average forensic pathologist will see multiple times over their--

25 FURNESS SC: You accept uncommon as Professor Cordner proffered?

WITNESS DUFLOU: Yes.

FURNESS SC: Professor Hilton?

30 WITNESS HILTON: Yeah in the overall picture myocarditis is perhaps an uncommon cause of death, however there's another side to that coin, are people with myocarditis subject to sudden unexpected death and the answer to that is yes.

35 FURNESS SC: Professor Byard did a study that he referred to in the evidence he gave and which identified a small percentage of children who had died suddenly and unexpectedly from myocarditis, now I take it from what you've certainly said in the past about Professor Byard and his evidence to that effect, you'd accept that Professor Cordner?

40 WITNESS CORDNER: Well can you tell me what he said.

45 FURNESS SC: That's what he said, he referred to studies which identified a small percentage of children who had died suddenly and unexpectedly from myocarditis?

WITNESS CORDNER: Yes I mean we can easily get you the numbers if you--

50 FURNESS SC: Do you take exception to what I said to you from Professor Byard?



WITNESS CORDNER: No I don't, no.

5 FURNESS SC: Does anyone else take exception to that. Then can I come to what each of you has ultimately said as to the cause of death, now Professor Corder if we can start with you, perhaps if we can have Professor Corder's report on screen, at page 80. It's the second last paragraph. And Professor you there say that you believe the middle of the road conclusion in relation to her death considered alone, most forensic pathologists would be comfortable ascribing the death in similar circumstances to Laura's being due to myocarditis, and that's your view?

10 WITNESS CORDER: Yes.

15 FURNESS SC: You state in your report, and that's still your view?

WITNESS CORDER: That's still my view.

20 FURNESS SC: Then you say it would've been acceptable and you would support a pathologist who gave the cause of death as undetermined and in the comments section fully canvass the possibilities. In saying that, you ultimately agree with Dr Cala's determination as to cause of death but you may well have said something different in the comments section?

25 WITNESS CORDER: Well partly, I partly agree with that I suppose, I disagree with Dr Cala's basis reasons for thinking that death is not due to myocarditis, I mean he has a number of - certainly gave a number of reasons at the trial that he believed indicated that meant the death was not due to myocarditis and I don't think there are any reasons to suppose that the death is 30 not due to myocarditis, but ultimately as long as it's explicit, if somebody said undetermined and then was explicit about why they had come to that view, then at least we can have a discussion about those explicit reasons.

35 FURNESS SC: And you say in this paragraph that you'd support effectively Dr Cala who gave the cause of death as undetermined, and fully canvass the possibilities but because it was the fourth death in the particular family, there could be other factors including but not limited to, homicide?

40 WITNESS CORDER: So that means, including natural causes but including homicide at work, yes.

FURNESS SC: So by the time of the fourth death that would be something that would be in your mind?

45 WITNESS CORDER: Yes.

FURNESS SC: Professor Duflo, you I think effectively agreed with Professor Corder that you would be of the view that it wouldn't be unreasonable to call Laura's death as undetermined?

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WITNESS DUFLOU: It would not be unreasonable but at the same time I would be more than happy to give it as myocarditis yes.

5 FURNESS SC: I think your report said that you believed that myocarditis can be incidental but you also took into account that three siblings had died?

WITNESS DUFLOU: Yes.

10 FURNESS SC: How did you take into account the death of the three siblings?

WITNESS DUFLOU: Well it's certainly in the background of any thinking that you have to do about this case, they appear to have died of unrelated causes and people certainly can die from a variety of conditions in the same family. I think as with Professor Cordner, is it possible that there was involvement by a person causing death, I can't exclude that.

15 FURNESS SC: So Professor Cordner has said that because of the fourth death there could be other factors including but not limited to, homicide, you'd accept that?

20 WITNESS DUFLOU: I'd accept that.

FURNESS SC: Professor Hilton, the view you have expressed to the Inquiry in your report is that she died with and highly probably because of florid myocarditis?

25

WITNESS HILTON: Yes.

FURNESS SC: Having listened to the others and having in your report that you're in substantial agreement with Professor Cordner?

30

WITNESS HILTON: Yes.

FURNESS SC: Is this an area where you are not in complete agreement with Professor Cordner?

35

WITNESS HILTON: I don't know, I don't know that I am in complete agreement with Professor Cordner, I mean I've got my own view and I've expressed it there I think very conservatively that in my opinion Laura might have died with or because of myocarditis.

40

FURNESS SC: Might have?

WITNESS HILTON: Might have died.

45

FURNESS SC: Is that your view?

WITNESS HILTON: Yeah that's my view, she may well have died of myocarditis. I tend to feel that myocarditis over any other objective feature in Laura's death.

50

5 FURNESS SC: In your report to the Inquiry and we can put it up on the screen if you like, you say died with and highly probably because of and I think your evidence in the trial was a little different from that, in that in your evidence in the trial was that it was the only pathological lesion that was present that could account for her death, however you didn't form the view with the same certainty that you have in the report to the Inquiry, has your mind changed?

10 WITNESS HILTON: It's certainly true that was the only pathological lesion that was there, was observable, observed or presented.

FURNESS SC: So your view at the trial was myocarditis could possibly have led to her death?

15 WITNESS HILTON: Yes.

FURNESS SC: Which is of a different characterisation of what I've indicated you said to the Inquiry, what's your present opinion?

20 WITNESS HILTON: I think it depends on the strength you put on the words "could have", of course--

25 FURNESS SC: Well it could've been highly probably did, there's some distance between the two?

30 WITNESS HILTON: And I would agree with what you've just said, highly probably did, could have highly probably did, I would favour, there is no evidence of - there is no physical evidence, no pathological evidence of any other cause of death, dead she certainly is, myocarditis she certainly has, can myocarditis kill, yes it can, may it well have killed her, is it the favoured diagnosis in this particular case, yes it is, my favoured diagnosis in this particular--

35 FURNESS SC: Favoured, is that the word you use?

WITNESS HILTON: Favoured yes.

40 FURNESS SC: Taking into account as each of the other forensic pathologists has, the fact that this was the fourth death, would that lead you to agree that it would not be unreasonable for a finding of undetermined to be made?

45 WITNESS HILTON: I personally wouldn't have put it as undetermined but I can follow Dr Cala's reasoning and this is almost a tautology, I don't think his reasoning is unreasonable.

FURNESS SC: You don't think it's unreasonable--

WITNESS HILTON: But I don't agree with it.

50 FURNESS SC: So you don't think it's unreasonable for a forensic pathologist

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to have come to a view in the case of Laura, that the cause of death was undetermined?

5 WITNESS HILTON: I would not have, but I don't think it's an entirely unreasoned conclusion from what Dr Cala has told us here today and in his writings.

10 FURNESS SC: Can I come back to you Professor Cordner, and I think it's your report that's up on the screen. Can we have page 77 on the screen. Now you attest to a different view from Dr Cala at the time, you believed that myocarditis was at least moderate in degree and you've heard what Dr Cala said today about that and then in terms of testing--

15 WITNESS CORDNER: I think I say at least moderate in degree.

20 FURNESS SC: You do and you say that in circumstances where colleagues were not aware of my involvement in this case, I circulated the following email to my ten consultant forensic pathology colleagues at the Victorian Institute of Forensic Medicine, together with a number of five photomicrographs which are attached as an appendix, then you set out what you said to each of those colleagues.

25 Now, you've provided us with a letter, which I haven't tendered but I will now, in response to questions from the Inquiry to clarify various what was considered to be inconsistencies and confusion in the original material that you provided. And that's a letter dated 8 March, it's on the screen.

30 EXHIBIT #R LETTER FROM PROFESSOR CORDNER DATED 8 MARCH TENDERED, ADMITTED WITHOUT OBJECTION

35 Now, as I said, the letter of the 22nd was to try and understand some of the matters that were set out in the various statements of those - at least some of those people who you'd provided the slides to. And, I mean, in short, some referred to there being 13 slides, some referred to there being 15 slides. And there were 15 numbered slides, but numbers were missing so there was in fact 13. That's the case, Professor?

40 WITNESS CORDNER: Okay, I think that's a little bit dismissive of--

FURNESS SC: I meant to be descriptive, not dismissive, Professor.

WITNESS CORDNER: Okay, okay.

45 FURNESS SC: Was it descriptive of what happened?

50 WITNESS CORDNER: Maybe I'm just a bit paranoid, but - so, the - it was meant to be as simple as possible survey with not huge impact intended, but to get a - some sort of response from forensic pathology colleagues, without alerting them to the fact that it was this case that that material came from. Because, at the time, I was interested to see what people thought as an

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isolated, sort of, case.

5 FURNESS SC: Now I think you referred in your report to them being "consultant forensic pathology colleagues", but I think we know from your letter which has just been tendered that a few of them were trainee pathologists. Is that right?

10 WITNESS CORDNER: Yes, but they're not included in the replies in my report.

FURNESS SC: So, of the replies that you've given us, none of them were trainees?

15 WITNESS CORDNER: That's right.

FURNESS SC: And the consultants who you said before, were they engaged by or literally consultants with the Institute?

20 WITNESS CORDNER: All forensic pathology employees of the Victorian Institute of Forensic Medicine.

FURNESS SC: And you were the director?

25 WITNESS CORDNER: No.

FURNESS SC: Not at that time?

WITNESS CORDNER: No, not at the time, no.

30 FURNESS SC: What were you doing at that time?

WITNESS CORDNER: Doing - was doing what I'm doing now.

35 FURNESS SC: Which is what?

WITNESS CORDNER: Which is, Professor of Forensic Pathology at Monash University and Head of International Programs at the Victorian Institute of Forensic Medicine.

40 FURNESS SC: So, you weren't working at the Victorian Institute at the time you asked these people?

WITNESS CORDNER: Yes, I was.

45 FURNESS SC: In what capacity?

WITNESS CORDNER: In the capacity that I have just indicated.

50 FURNESS SC: I'm sorry, you're going to have help me there.

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WITNESS CORDNER: Okay, Professor of Forensic Pathology at Monash University and Head of International Programs at the Victorian Institute of Forensic Medicine.

5 FURNESS SC: Were any of these consultants effectively reporting to you?

WITNESS CORDNER: I'm sorry?

10 FURNESS SC: Were any of these consultants effectively reporting to you?  
WITNESS CORDNER: Definitely not.

FURNESS SC: No? You had a flat line between each of you, did you?

15 WITNESS CORDNER: They want as little to do with me as possible.

FURNESS SC: Which is quite a different point to my question?

20 WITNESS CORDNER: So they had no direct line to me at all.

FURNESS SC: Thank you. Now, you sent them I think what were called "micrographs", but there was various terminology used and you apologise, in paragraph 8, for the terminology being confusing and for the various languages. Is it the case that what you saw when you were forming the opinion you expressed in your report was slides?

25 WITNESS CORDNER: Yes.

30 FURNESS SC: And I think there were about seven of them, that's right?  
WITNESS CORDNER: Yes.

FURNESS SC: And there were about seven slides, Dr Cala, is that right, of the various pieces of the heart?

35 WITNESS CALA: Possibly eight, from memory.

FURNESS SC: Right. And, Professor Duflou, did you see slides?

40 WITNESS DUFLOU: I've seen the slides. I have no recollection how many there were.

FURNESS SC: Professor Hilton, did you see slides?

45 WITNESS HILTON: I haven't seen slides in recent times, but I saw slides originally.

50 FURNESS SC: Right. And what is the difference between micrographs or the other terminology used to describe the same thing, "photomicrographs from slides"?

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5 WITNESS CORDNER: Well, "slides" clearly can be misconstrued, so that "slides" are the word used for the microscope slides of which you've just been talking about, seven or eight of them. "Slides", unfortunately in my loose terminology, also mean photographs. So, I used that word when circulating the photomicrographs, I labelled them "slides".

FURNESS SC: But were they actually slides or photographs of something?

10 WITNESS CORDNER: Well, they were photographs, microphotographs.

FURNESS SC: Of slides?

15 WITNESS CORDNER: Photographs of the histology, which comes from microscope slides.

FURNESS SC: Thank you. Now, I think both you, Dr Cala and Professor Duflou, have said something in your statements about the representative nature of microphotographs--

20 WITNESS CALA: Yes.

FURNESS SC: --compared with the slides that each of you looked at. What's your view of that, Dr Cala?

25 WITNESS CALA: That if you look at the glass slides taken, or made, from tissue sampled at autopsy, each of those slides - seven or eight, or even more, I don't remember - so, on a slide you have a piece of heart tissue that's been stained in the laboratory and enables a pathologist to look at it microscopically. So, that's the standard glass histological slide that we all receive and look at. What Professor Cordner showed, I - on my understanding, to the group, was digital images made from those glass slides but of selected areas from the, the heart of Laura Folbigg. So--

30  
35 FURNESS SC: Just let me stop you there. Is that what you showed them, Professor? Did you listen to what--

WITNESS CORDNER: I'm hearing.

40 FURNESS SC: Yes, but I'm asking you whether what Dr Cala said is right, as to what you showed them?

WITNESS CORDNER: Well, you - you've got to select areas, yes, so they're selected areas, yes.

45 FURNESS SC: Go on, Dr Cala.

WITNESS CALA: So, there is a, a focus, if you like, on what Professor Cordner showed the group as opposed to showing them the full picture of all of the slides taken from the autopsy, cut and then stained.

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FURNESS SC: So, what's wrong with that?

5 WITNESS CALA: Well, he's, he's showing them a selective amount of tissue, which represents perhaps the worst areas of myocarditis as opposed to showing them the whole of the slides that were taken and - from the autopsy.

FURNESS SC: Professor Duflou?

10 WITNESS DUFLOU: Yes, look, I'll agree with that. In general, when you photograph a microscope slide you can have the approach of taking a representative photograph or photographs which illustrate an abnormality. This, I think, to a large extent - all the photographs here illustrate the abnormality and there may very well be areas which may appear normal.  
15 That's not to say that there isn't myocarditis and that there isn't significant myocarditis here, but it's not necessarily representative. It - of, of course, in the end, it depends on Professor Cordner's approach to this, how - on what basis he took the various photographs.

20 FURNESS SC: Were they representative, Professor Cordner?

25 WITNESS CORDNER: Look, I think there is, for example, at least one of them which is low power, so it is a broader view of a larger area. Most of them, I accept, are higher power to demonstrate the myocarditis. So, I'm not quite sure what the point of this discussion is.

30 FURNESS SC: Well, your colleagues are telling the Inquiry that what they think you did was provide not the slides but photographs of them, which in and of itself changed the nature of it, and then what you provided wasn't representative?

WITNESS CORDNER: And representative of?

35 FURNESS SC: What was on the slides.

WITNESS CORDNER: Well, I'm not quite sure about that because, as I say in my report, I don't rely on the pathologist's response as saying anything about the degree of myocarditis.

40 FURNESS SC: Then why did you put it in your report, Professor, if you didn't rely on it?

WITNESS CORDNER: I did put it in my report.

45 FURNESS SC: Why did you put it in your report if you weren't relying on it?

WITNESS CORDNER: Well, I'm relying on it for something else?

50 FURNESS SC: What are you relying on it for?



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WITNESS CORDNER: Thank you. I'm relying on it for that at least a number of pathologists, five of them, were happy to, in the circumstances provided, regard myocarditis of the kind they saw as a cause of death.

5 FURNESS SC: Wasn't that your - supporting your position?

WITNESS CORDNER: Hmm?

10 FURNESS SC: Isn't that supporting your position, Professor?

15 WITNESS CORDNER: Well, I'm, I'm not calling on it as support of anything, I'm just presenting it there as an observation relevant at the time. There was in the air the thought, "Is there myocarditis? What does it mean? Could this child have died of myocarditis?" and at the time there was one person saying one thing and one person saying another. And so, it was to broaden the base from which a discussion was happening.

20 FURNESS SC: Although, you were broadening the base by providing these people with something quite different from those who had otherwise expressed an opinion based on the slides?

25 WITNESS CORDNER: Well, I don't think. It was open to any of them to say, "Well, you haven't shown me all the slides". I couldn't show them the slides because they're labelled with the name. It was open to the pathologist to say, you know, "I don't - I can't assess from this - from these materials what conclusions to make". It was open to them to say those things.

30 FURNESS SC: Yes. It was also available to them to read your email, which I think you've set out - perhaps if we could have page 77 of your report? Now, you set out what you told the forensic pathologist - if you just scroll down a little bit - and you describe her age, that she'd had a runny nose for a couple of days, playing normally and then, the pathologist gave the cause of death as "Unascertained" and you said, "Apart from myocarditis" - which the pathologist reported as being present - "the autopsy was negative". And then you indicated to them that you would be "happy with myocarditis as the cause of death". So, you told them what you thought and then you said, "What do you think?", having told them what you think?

40 WITNESS CORDNER: Yeah.

FURNESS SC: And then you provided them with no other information.

WITNESS CORDNER: That's right.

45 FURNESS SC: They didn't have the autopsy?

WITNESS CORDNER: No.

50 FURNESS SC: They didn't have the history of Laura prior to the previous days?

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WITNESS CORDNER: And what does that tell you?

FURNESS SC: Why didn't you give them that material?

5

WITNESS CORDNER: Well, it, it tells me that, that pathologists were happy to come to the conclusion of myocarditis without that information and any of them could have said, "I haven't got enough information", and they didn't. And, so, that goes to the discussion about the criteria that Dr Cala uses to say that the myocarditis in this case is incidental as opposed to causative, and so - and I didn't want to, to not say what I think. It just, sort of, raises the temperature of the exercise. I just wanted it to be as mundane as possible. And, as I say, following it, I'm pretty, I think, low key about the contribution that this makes.

10

FURNESS SC: You yourself were content with a finding of "Undetermined", based on there being the fourth child to die in the family, weren't you?

15

WITNESS CORDNER: Well, "content", I think I said I would "accept" or "defend" a pathologist who did say that. But then--

20

FURNESS SC: Why didn't you tell these people that that was your view as well?

WITNESS CORDNER: I deliberately was leaving out that this was this case. I was deliberately trying to get a response from the pathologist on the basis that this was a single case.

25

FURNESS SC: Which it wasn't.

WITNESS CORDNER: No, it wasn't, of course, but if there's any inference in there of misleading I think that is not fair.

30

FURNESS SC: Can I suggest to you, Professor Cordner, that the Inquiry should have no regard to the views of your consultants as set out in your report given the circumstances as we have discussed around those views being obtained?

35

WITNESS CORDNER: No, I don't agree with that but I don't rely on this as high science. It is perhaps even a relatively informal contribution from colleagues presented as an ordinary case in trying to strip away all of the drama associated with the case to see what colleagues would say.

40

FURNESS SC: By drama you mean the previous death of three children?

WITNESS CORDNER: We would have to do - I would have had to do something different for that.

45

FURNESS SC: Why did you do it at all?

WITNESS CORDNER: Well, I've told you before, I mentioned before that at

50

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5 the time I wrote this report in 2015 the understanding that myocarditis was as it is I believe a significant part of the discussion of this case, there wasn't the understanding that it was clear that Laura had a very serious condition which could account for her death. It seemed somehow to have disappeared slightly from view.

FURNESS SC: Then you accept that those comments can't be used to support your view?

10 WITNESS CORDNER: I didn't accept that.

FURNESS SC: Well, you did in your report. Do you want me to take you to where you said in your report that you accepted that their comments can't be used to support your view?

15 WITNESS CORDNER: No, that can't be used to support my view about the severity of the myocarditis, that's what I said.

20 FURNESS SC: I think it's further down that page. We'll just see what you said, professor, if we keep going down to the next page. I think it's in brackets in the first paragraph:

25 "The comments cannot be used to support my view that the myocarditis is more than patchy and mild as obviously the pathologist only saw what I sent them and did not view the entirety of the seven slides."

So what do you rely upon it for?

30 WITNESS CORDNER: Well, I'm sorry, did you say that I had been misleading before?

FURNESS SC: No. I'm asking you, you're saying it can't be used to support that view, so what view is it supporting?

35 WITNESS CORDNER: You misquoted or misunderstood what I'd written here.

FURNESS SC: It's there.

40 WITNESS CORDNER: The tenor of the replies goes to the point that a number of pathologists, about five of the ten, in the circumstances as described which did not include the fact of the three previous infant deaths in the same family, the myocarditis was regarded as sufficient to be a reasonable cause of death. That's as far as it goes.

45 FURNESS SC: I understand that. I'm just trying to understand what it is that the comments can be used to support given what you said.

50 WITNESS CORDNER: Well, I've just mentioned that, just mentioned. It goes to the following point, that for a number of pathologists in the circumstances as

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described which did not include the fact of three previous infant deaths in the same family, the myocarditis was regarded as sufficient to be a reasonable cause of death.

5 FURNESS SC: Thank you, professor. You've referred before to Professor Pollanen's report.

WITNESS CORDNER: Yes.

10 FURNESS SC: I think you've indicated the circumstances in which it was obtained as well. Can we have that on the screen? At page 3 do you see there's the heading, Dr Cala Is Not An Outlier? Professor Pollanen says: "The reader of the report may get the impression that Dr Cala was an outlier in his professional view." The professor states he was not. "The report," that's  
15 your report:

"does not discuss that forensic pathologists in the late 20th century were embedded in a professional culture that permitted us to make  
20 conclusions about homicidal asphyxia in cases such as the Folbigg cases. Specifically, when Dr Cala's opinion is compared to that of American forensic pathologists, some would have concurred with his view and there are still echoes of this approach even today."

Do you accept that?

25

WITNESS CORDNER: Can you read the next paragraph too?

FURNESS SC: Over the next page? There's a separate heading, paragraph 2.

30

WITNESS CORDNER: Okay, okay. Yes, I do.

FURNESS SC: Thank you. Finally, if I can turn to the microbiology in respect of Laura and the reports are at tabs 47A to B, if we can have them on the  
35 screen. I think all of you have probably seen these. Is there only one page? There's four. There you go, there's two at once. Professor Duflo, have you finished having a look at them?

WITNESS DUFLOU: Yes, I've got them here.

40

FURNESS SC: What is your view as to what they represented?

WITNESS DUFLOU: I think as in the other cases where microbiology has been performed, that the orthodox view would be that this is likely  
45 contamination in the main.

FURNESS SC: Thank you. Dr Cala, are you still looking at them?

WITNESS CALA: No, it's fine.

50

LTS:DAT

FURNESS SC: What's your view?

WITNESS CALA: I agree with Professor Duflou.

5 FURNESS SC: Professor Hilton?

WITNESS HILTON: Well, Professor Benn has expressed an opinion in part as profuse post-mortem contaminants.

10 FURNESS SC: I'm sorry, I'm having trouble hearing you, Professor Hilton.

WITNESS HILTON: Sorry. Professor Benn, who is probably the author of this report, says under Miscellaneous that the tissue biopsy culture, source lung, "profuse post-mortem contaminants." I think that's in agreement with the  
15 opinions expressed by all of us in regard to post-mortem microbiology in general.

FURNESS SC: Thank you. Professor Cordner?

20 WITNESS CORDNER: I've got no comment. I mean, it's interesting, of minor interest, Dr Cala didn't see any abnormality to the heart so he didn't send any heart for microbiology but that's just an observation because he regarded the heart as looking normal at the autopsy so that's fine.

25 FURNESS SC: But under the heading Miscellaneous, the coliforms, moderate coliforms and the profuse--

WITNESS CORDNER: Yes, I've got nothing more to add to what has already  
30 been said.

FURNESS SC: Thank you. Your Honour, that's all the questions I have in relation to the four children.

JUDICIAL OFFICER: There's just one matter arising, I think, Ms Furness.  
35 Perhaps, Professor Cordner, in your report at page 79 you referred to a paper by Webber and others. In that paper they describe the death of infants under the age of two from myocarditis as a rare event. Do you recall the paper?

WITNESS CORDNER: I can't recall it in particular but I can access it.

40 JUDICIAL OFFICER: Do we have the--

FURNESS SC: We do.

45 JUDICIAL OFFICER: --have the paper here?

FURNESS SC: We do have it here. We probably have it in electronic form.

JUDICIAL OFFICER: We won't hold up proceedings at this stage but I'd be  
50 grateful if you would have a look at it.

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WITNESS CORDNER: It might take me a couple of days to get it, your Honour.

5 FURNESS SC: Your Honour, we have it on the screen.

JUDICIAL OFFICER: We can give it to you faster than that.

FURNESS SC: Can we put it up on the large screen?

10

JUDICIAL OFFICER: No. I think perhaps on the first page of the report there's a sort of summary of the findings.

WITNESS CORDNER: The first page?

15

JUDICIAL OFFICER: I think it's the first page - not of your report but you refer to it at page 79 of your report, but I'm saying that I think on the first page of the article that you've referred to, the Webber article, and the survey that they did which I think you've described as 1,516 paediatric autopsies over ten years and they looked at 28 cases of myocarditis deaths, one of them was 16 years of age. Have we got the article there yet?

20

FURNESS SC: Yes, it's about to come up.

25

WITNESS CORDNER: You just need to be a little careful about making a conclusion about the incidence from that. It would depend upon the population from which those autopsies were derived so that would be the thing to find out.

30

JUDICIAL OFFICER: I'm just referring to the conclusion that they came to about the rarity of myocarditis deaths whether from a prior illness or symptoms or symptomless--

WITNESS CORDNER: Thank you.

35

JUDICIAL OFFICER: --and the conclusion that that's a rare event. Is it up somewhere?

FURNESS SC: It will be, your Honour.

40

JUDICIAL OFFICER: Okay.

FURNESS SC: Perhaps just while it's coming up, your Honour, with your leave I will sit down--

45

JUDICIAL OFFICER: Certainly, yes.

FURNESS SC: --and resume the remainder of my questioning of the forensic pathologists after my friends have finished their examination.

50

JUDICIAL OFFICER: Yes, certainly.

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FURNESS SC: And of course, they will have the opportunity if anything arises.

JUDICIAL OFFICER: Yes, certainly.

5

FURNESS SC: Thank you, your Honour. Is it coming up? Perhaps we will make a copy available overnight to Professor Cordner and it can be dealt with tomorrow.

10 JUDICIAL OFFICER: Yes, that will be the best way to do it. I think you need to read the article.

WITNESS CORDNER: I'm sorry, I should be able to produce it but I can't.

15 JUDICIAL OFFICER: No, no, no. You referred to it so that's how we came to read it. Yes, in terms of the next examination, Mr Morris, is that you?

MORRIS SC: It depends on your Honour's convenience. I'm happy to go now or--

20

JUDICIAL OFFICER: Yes. Wait till I just see - Ms Richardson, would you prefer to wait till after Mr Morris?

25 RICHARDSON SC: I have some questions but I don't have a preference. I had understood Mr Morris wanted to go last but it's a matter for your Honour.

JUDICIAL OFFICER: Mr Fraser?

FRASER: No questions, your Honour, to assist.

30

JUDICIAL OFFICER: Ms Mathur?

MATHUR: My questions may be dependent on what Ms Richardson's questions are. Save for that I'm happy for Mr Morris to go first. I anticipate he might cover many of the areas.

35

JUDICIAL OFFICER: All right, thank you. Mr Morris, it's for you.

MORRIS SC: Thank you, your Honour. Gentlemen, there was some discussion yesterday in the morning about the difficulty in estimating a time of death from body temperature and so forth and people's perceptions of it. As I understand the position, different people can have different perceptions of body temperature when they touch the skin. Is that correct?

40

45 WITNESS HILTON: Yes.

WITNESS CALA: Yes.

WITNESS DUFLOU: Yes.

50

LTS:DAT

MORRIS SC: Professor Cordner?

WITNESS CORDNER: Yes.

5 MORRIS SC: And would it also depend on whether the core of the body was touched as opposed to the extremity?

WITNESS HILTON: The core of the body would never be touched.

10 MORRIS SC: I'm sorry, if an ambulance officer for instance--

WITNESS HILTON: Oh right no, they're not going to be touching the core of the body, they're going to be touching the exterior of the body.

15 MORRIS SC: Sorry, what I'm talking about is, is there a difference between, is there a potential difference between touching a limb and touching the abdomen?

WITNESS HILTON: Yes.

20

WITNESS CALA: Yes.

WITNESS HILTON: Potentially yes.

25 WITNESS CORDNER: Well it would depend on whether the trunk is clothed and the limbs unclothed so I mean that might tend to keep the trunk warmer and the limbs getting cold but just as a general observation if I may, I think it's very tempting to try and ascribe lots of significance to findings of dubious value in the first place and so I think we've had quite a bit of discussion about  
30 findings of a number of different kids which really are very marginal in mainstream forensic pathology practice.

MORRIS SC: Are there any studies which have been performed about the rate at which a body loses its temperature, I might refer Professor Hilton to you  
35 first?

WITNESS HILTON: Yes there's been multiple studies over many years, estimating a time of death is the holy grail if you like of forensic pathology, many people with much greater minds than mine, have applied themselves to  
40 this over many years, there's a commonly published nomogram which superficially looks very, very attractive but pretends to give a better estimate than most of the other calculations if you like, but even that's, if you look really carefully, fairly flawed, the answer I think is that arriving at the time of death from the measurement of core temperature of the body is fraught with difficulty  
45 and even to the extent of what's meant by the core temperature of the body.

Now the usual, most usual, most common avenue of instigation is the rectal temperature, using a rectal thermometer, some unpublished work I've done myself shows that there's very often a difference of up to two centigrade  
50 degrees between the core temperature that was taken by that route compared



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with the core temperature taken by an incision in the skin and a thermometer inserted into the liver, so in short body temperature is not an entirely reliable indicator of time since death.

5 MORRIS SC: Is what you're saying that the cooling of a body is dependent on a whole host of different factors?

WITNESS HILTON: Yes, in passing over this nomogram I tried to make allowance for some of these.

10

MORRIS SC: Does anybody else in the room have anything to add to this discussion?

WITNESS CALA: No.

15

JUDICIAL OFFICER: Could I ask a question and that is, does it make any difference if you're talking about an adult or an infant?

20

WITNESS HILTON: It is said that infant bodies tend to cool more rapidly than adult bodies, I don't know that there are any decent scientific evidence to support that belief.

JUDICIAL OFFICER: Dr Cala?

25

WITNESS CALA: I'd agree with that.

WITNESS DUFLOU: I'd agree with that as well your Honour, almost all the research that's been done on body cooling has been done on adults, there's been very little work on small infants.

30

JUDICIAL OFFICER: Professor Cordner?

35

WITNESS CORDNER: Yes I'd be - I certainly have never given evidence in a case drawing on something about temperature of the body to make conclusions about the time of death.

JUDICIAL OFFICER: Does that mean that you don't know, I think Professor Hilton you said that there's a view around that bodies of infants cool faster?

40

WITNESS HILTON: Yeah I think that's based on the various ratios of the child's volume, the child's skin area, but to reiterate to my knowledge there's never been any decent scientific studies to tell one or the other.

JUDICIAL OFFICER: Any experience Dr Cala?

45

WITNESS CALA: No.

JUDICIAL OFFICER: Dr Duflou?

50

WITNESS DUFLOU: No.

5 MORRIS SC: Professor Cordner in giving your evidence this morning, you made reference to the importance of a multi-disciplinary case conference, is that something that takes place in Victoria, or what's the genesis of this multi-disciplinary case conference?

10 WITNESS CORDNER: If it does take place it doesn't involve us, so I'm not aware that it does take place, it maybe takes place within the Department of Health in a slightly more immunised, circumscribed place with documents but without direct involvement of some of the people involved, so I'm afraid I can't give you a direct answer about that in relation to Victoria, but it's clear from the literature that this has been a significant part of the post death infrastructure for infants and even young children, in the United Kingdom and clearly I mean that's where the literature that we've discussed in this case so far about the recurrence of SIDS in later families and the relative risk of natural death and unnatural death has come from, and it's a result of the large scale availability of post deaths reviews involving a range of experts.

20 MORRIS SC: Just in relation to the range of experts, I'm just interested in the limits perhaps of forensic - the forensic pathology opinion and the extent to which a forensic pathologist may conclude his or her work, provide an opinion on autopsy and so forth and then what role is there for the forensic pathologist to make recommendation for review by other specialists or other areas of specialty and when you talk about the comments section in an autopsy report these days, is that something now that is forming part of forensic pathology practice or is that sort of thing left to other people to decide?

30 WITNESS CORDNER: I think there's different practice in different States, so some States do have more expansive comment sections than others, so that's the answer to that question, I think a related question I think is, how does a pathologist deal with suspicion, with concern and at what point does that get committed to writing and at what point does that constitute evidence and if that is to happen then how is that substantiated.

35 MORRIS SC: In order to allay suspicion and I take it from that answer that you gave that we're talking about perhaps undesirable human intervention in relation to the death, suspicious circumstances, what steps, if any, does the forensic pathologist take to try to trigger investigations by other specialists?

40 WITNESS CORDNER: Well that is really, there would either be institutional mechanisms for that or it would be left to the individual pathologist, but of course in a case like this there'd be more than one who would know that it was going on, so there'd be multiple minds brought to how to deal with concerns and suspicions I suppose.

45 MORRIS SC: Would anybody else wish to comment upon this general topic, perhaps Professor Duflo?

50 WITNESS DUFLOU: I think if I can go back a number of questions, which related to multi-disciplinary institutional reviews, at the time that

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5 Professor Hilton started in New South Wales as director I can say that he instituted a programme of regular review of our infant deaths, but I suppose one of the limitations of that was effectively it involved forensic pathologists, it was not multi-disciplinary but it was multi-person. The Child Death Review Team in New South Wales is multi-disciplinary but in my view it has a couple of limitations, the first one is for example, it consists of paediatricians, some police members, some members of the bench, it includes a forensic pathologist, at least a number of years back, but it wouldn't include microbiologists or neurologists as an example, so that's problem number 1.

10 And problem number 2 is that their deliberations are confidential and it's certainly a complaint by a number of forensic pathologists that I'm aware of where they would like to in fact get feedback in relation to cases and instead all they find out is that in the annual review document, it becomes a matter of trying to guess if it's one of your cases or not. So there are such facilities in place but they certainly have some major deficiencies.

MORRIS SC: Professor Hilton?

20 WITNESS HILTON: Yeah I mean Professor Duflou has given a good account of it, within the Institute itself, there was a fairly, at least I hope there was a fairly collegiate sort of approach to things, and there was a daily case conference for instance, but there was also a meeting of minds with varying frequencies according to different cases. I might say not always an agreement of minds but a meeting of minds.

25 Outside the Institute there was a Cot Death Review Committee which in actual fact was chaired by the State Coroner, but included forensic pathologists from Westmead, from Glebe, from Newcastle, yeah Tim Lyons came down, I've got a record of Tim Lyons coming down, there was social workers, there were grief counsellors, we had a team of grief counsellors that used to talk to relatives of deceased persons that came to their attention, ambulance officers, I can't think of anyone else, paediatricians, clinical paediatricians, so that was - but this was more concerned with if you like, the domestic arrangements for examining suddenly dead babies and how to get them to us in good time and what sort of investigation should be done by which particular individuals.

30 And then there's the Child Death Review Team, now I was - we used to get the Child Death Review Team up and running and it was modelled, should have been modelled on the committees of confidential inquiry into maternal deaths, anaesthetic deaths and surgical deaths, all of which I had at one time or another been a member. These committees act under terms of strict confidentiality, the idea being that anyone can come forward and give an opinion on a relevant aspect of any given death. It publishes an annual - each of these committees publish an annual report and the cases are anonymised. They may quote individual cases, but they are anonymised. The individual pathologist would not normally have access to any individual case that this committee has, has examined.

40 JUDICIAL OFFICER: Have you heard the answer to your question, Mr Morris?

LTS:DAT

MORRIS SC: Yes, your Honour.

JUDICIAL OFFICER: Thank you.

5

WITNESS HILTON: All right, I'll be quiet.

MORRIS SC: I guess the issue - apart from that system of case review, am I  
to assume that the purpose of the forensic pathologist's report is to try to  
identify any, either macroscopically or microscopically, microbiologically, et  
cetera, any disease process that might explain - account for the death?

10

WITNESS HILTON: Yeah.

15

WITNESS CALA: Yes.

WITNESS DUFLOU: Yes, largely.

20

MORRIS SC: The question I've got is the issue of whether one approaches a  
problem, that is, cause of death, through the prism of one's own speciality and  
the extent to which other specialists in other fields may be able to contribute to  
an understanding of disease process or other condition which may have given  
rise to the death. Now, that's - sorry, Professor--

25

WITNESS HILTON: No, it's all right. I'm sorry, I did not mean to interrupt.

30

MORRIS SC: Now, it seems from the autopsy reports that we have in this  
case, relating to these four children, that none of them have suggested any  
further inquiry from any other specialist that may be informative as to what the  
cause of death is?

35

WITNESS HILTON: No, that's, that's a misapprehension. The - a  
neuropathologist would almost certainly - certainly in our institution - be  
involved in the case - this - the case diagnosis. Microbiologists obviously  
were, because we've seen their reports. Virologists obviously were, because  
we've seen their reports. There are other, other - we didn't, in my time, do  
anything that - or anything very much in the way of genetics, but I understand  
that developed later on, so you got the benefit of geneticists giving their view.  
And, I suppose, it boils down to, it was up - it was the forensic pathologist's  
privilege that he could - he or she could consult with any other expert that he  
felt - he or she felt appropriate.

40

45

MORRIS SC: So, for instance, specifically in relation to about 2003,  
Professor Hilton, at one point you were seeking the assistance of a gentleman  
by the name of Drucker?

WITNESS HILTON: Yeah. Yeah--

50

MORRIS SC: Could you just tell us about that?

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WITNESS HILTON: Yeah. Well, point one, I think by the time that occurred I was no longer involved in the day-to-day activities of the, of the Institute. Drucker, Drucker was a microbiologist working in - yeah, I think he's retired - he was a microbiologist working in Manchester. Somehow or other, I found out that Dr Drucker was working on genetics and genetics of, of sudden infant death syndrome. So, it was decided by the defence counsel of this - yeah, the defence counsel and their instructing solicitor, my having brought this to their attention, to consult with Dr Drucker as regards, I think it was, Laura. And, as far as I know, this was done, but I'm not entirely sure what the outcome was. But, in any event, it was decided overall that - not to present Drucker's evidence and not - certainly not to call Drucker because he was there, and we were here.

MORRIS SC: Quite how far that went as at the time of trial, you're uncertain whether a report was prepared or not?

WITNESS HILTON: Well, as to my knowledge, Dr Drucker wasn't, wasn't called.

MORRIS SC: But you're not aware whether he prepared a report or not?

WITNESS HILTON: I've seen some writings from Drucker along this - I don't know that it was in the form of a formal report. I know he was suggesting some further testing, then it was decided that this was - that this further testing wasn't really feasible in this instance.

MORRIS SC: But what you--

WITNESS HILTON: But can I just say that this was the - almost the, the, the genesis of the modern era of the examination of the more esoteric parts of - aspects of SIDS, like genetics and, and what have you.

MORRIS SC: In fact, this was really the start of the opportunity to obtain genetic testing on post mortem tissue or close to the start?

WITNESS HILTON: In this - in this context, yes.

MORRIS SC: And there's been a significant change since those days to days now, is that correct?

WITNESS HILTON: Well, there's been an expansion.

MORRIS SC: Do you agree, Dr Cala?

WITNESS CALA: Yes.

WITNESS DUFLOU: Yes, absolutely.

MORRIS SC: And that provides a great deal of opportunity, can I suggest, for further investigations of post mortem tissue?

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WITNESS HILTON: Yes.

WITNESS CALA: Yes.

5

WITNESS DUFLOU: Yes.

WITNESS CORDNER: Yes.

10 MORRIS SC: And as I understand it from - it's expanded the opportunity for other specialities to become involved if there is - genetic markers are identified, or genetic anomalies, is that correct?

WITNESS CALA: Yes.

15

WITNESS HILTON: Yes.

20 WITNESS DUFLOU: I, I think it's more than that. There's certainly some recommendations that, in any case of sudden infant death syndrome, that there be cardiologist review of the family irrespective of any cardiac genetic outcome.

MORRIS SC: Is that as a standard procedure?

25 WITNESS DUFLOU: It's, it's - in some parts of the world, yes. I'm not certain if that's the case in New South Wales at this stage.

MORRIS SC: Does anybody have any experience in other States about this, the introduction of this sort of inquiry these days?

30

WITNESS CORDNER: Genetic testing?

MORRIS SC: Yes, and cardiac assessment?

35 WITNESS CORDNER: Well, yes, they overlap, and I suppose at a - the fullest possible involvement of that would - you know, would require cardiac and genetic testing of the family in order to focus on the infant. But what tends to happen is it's the other way around, that the death of the infant - the infant's genetic material may be subject to a battery of genetic tests to see whether any of the known genetic markers are there for arrhythmic inherited diseases. So, that's what we do at the Victorian Institute of Forensic Medicine.

40

MORRIS SC: Dr Cala, in South Australia?

45 WITNESS CALA: I'm in New South Wales.

MORRIS SC: Sorry, you're in New South Wales, yes. You were in South Australia.

50 WITNESS CALA: In, in Newcastle. But our facility is connected to John

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5 Hunter Hospital and there's the Hunter Genetics Laboratory nearby, and if it's  
thought that further testing re genetics is warranted then I have personal  
contact, from time to time, with geneticists in the laboratory and there's a open  
discussion, there's regular meetings between members of our department and  
their department and cardiologists, to discuss problem cases. So, yes, to  
answer an earlier question of yours, the, the landscape has changed greatly  
over the last about 15, 20 years in relation to this area.

10 MORRIS SC: And putting aside cardiology, what about - and we know that in  
these cases the metabolic disorders were assessed--

WITNESS CALA: Yes.

15 MORRIS SC: --and the most common metabolic disorders had been at least  
addressed and came back with negative results?

WITNESS CALA: Yes.

20 MORRIS SC: But putting aside the metabolic disorders and putting aside the  
cardiac disorders, what opportunities were there in 2003, Dr Cala, to assess  
any other potential congenital abnormality that may give rise to a sudden infant  
death?

25 WITNESS CALA: I'm not aware of back in 2003 what we were specifically  
doing, other than what's already been generally mentioned. And, of course,  
you'd be aware, it wasn't that we were doing something different in 2002 and  
then in 2003 on January 1 it all changed. It was an, an evolution and a very  
slow evolution and it was piecemeal, so some states were doing it at a -  
possibly a more rapid level than other states and so on. But, it - so, so it was  
30 a, a slow transition process to where we are at today.

MORRIS SC: Professor Hilton, anything to add?

35 WITNESS HILTON: Not within these particular confines. I mean, in an ideal  
world, every baby that dies suddenly and unexpectedly would be subjected to  
a whole battery of genetic, metabolic tests. Unfortunately, we live in the real  
world. This is (a) very time-consuming, (b) extremely costly, and I'm afraid it  
boils down to who is going to pay, so there's got to be some selection  
somewhere along the line and a lot of the work is done because - from  
40 people's own scientific curiosity and they'll absorb the costs into their overall  
budget.

MORRIS SC: Anything else to add on that question?

45 WITNESS CORDNER: Just to - I hope this is relevant to the question but, you  
can go so far trying to exclude all the conditions. But even when you do, if you  
look at the lists, for example, of what causes acute life-threatening events, at  
the bottom you see "25 to 50% idiopathic". So, in other words, you do  
everything you can think of and you won't find the answer in cases where  
50 there's been a definite acute life-threatening event. So, there is still a lot that is

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not known and that is the enigma of infant deaths that permeate this whole field that we've spent the last two days talking about.

5 MORRIS SC: And in that regard, I think, Professor Duflou - and picking up on your comment, Professor Cordner - just to illustrate that, if we go to exhibit L, your Honour, at page 31 of Professor Duflou's report - I don't know whether - has that come up on the screens, gentlemen?

10 WITNESS CORDNER: No.

WITNESS DUFLOU: No.

15 MORRIS SC: It's exhibit L? Yes, if we go to page 31 of that document, please? I don't know whether you can read that writing, this table. Now, Professor Cordner, this is the potential range of medical conditions that could give rise to what they call--

WITNESS CORDNER: I had my own list in, in my report.

20 MORRIS SC: I'm sorry to--

WITNESS CORDNER: That's--

25 MORRIS SC: I don't suggest that Professor Duflou's--

WITNESS CORDNER: Yeah, no, that's--

30 MORRIS SC: --has improved on yours, but it's just the one that I happened to choose.

WITNESS CORDNER: Yes.

35 MORRIS SC: With respect to the investigations here, I don't know how many potential options there are but there's obviously a very wide range of matters that might suggest an ALTE. Is that correct?

WITNESS CALA: Yes.

40 WITNESS HILTON: Yes.

MORRIS SC: They can essentially present in a very similar way to the symptoms that Patrick experienced in October 90, in October 1990, 18th I think. Correct?

45 WITNESS CALA: Yes.

MORRIS SC: In this case of course, back in 1990 there were limited opportunities to genetically assess cardiac function I take it?

50 WITNESS CALA: Yes.



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WITNESS DUFLOU: True, yes.

5 MORRIS SC: The metabolic disorders - and I take it, Professor Duflou, that there's a list which is a current list rather than what was known in 1990?

WITNESS DUFLOU: Well, that's a list from 2007.

10 MORRIS SC: Right.

WITNESS DUFLOU: It's an illustrative list. I'm certainly not putting it forward as the best list.

15 MORRIS SC: No, no.

WITNESS DUFLOU: Yes. It's to me a not unreasonable list even today.

20 MORRIS SC: But we know that a number of the metabolic disorders have been excluded in Patrick at least after his ALTE.

WITNESS DUFLOU: Yes.

25 WITNESS HILTON: On the tests available at the time and the knowledge available at the time, yes.

MORRIS SC: Yes. Anything to add, Professor Cordner?

WITNESS CORDNER: What's the question?

30 MORRIS SC: Well, the metabolic disorders based on the knowledge they had at the time, 1990, and the testing that was available, they excluded the metabolic disorders at that time?

35 WITNESS CORDNER: Well, I think it would have been slightly less available, advanced, compared to 2003, yes.

40 MORRIS SC: But you'd agree with me that certainly as at 1990 the clinicians couldn't deal with an in-depth assessment of all these potential conditions, do you agree?

WITNESS HILTON: In any given baby?

MORRIS SC: Sorry, no, in Patrick.

45 WITNESS HILTON: In Patrick: I think they did the best they could in the time that they were living and the state of knowledge under which they were practising.

50 MORRIS SC: Dr Cala?

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5 WITNESS CALA: I was a trainee in 1990 and I don't want to present an image that in 1990 it was Stone Age medicine. It was actually very different from today because technologies have obviously improved but as far as what was testable re metabolic abnormalities there was a vast number of disorders that even then were able to be tested for including, I dare say, all of those ones on your list.

10 MORRIS SC: Your Honour, what I might do given the time is I might depart from this topic and come back to it tomorrow but I'm just letting the experts know that I will be returning to the ALTE type aspect tomorrow. I'll deal with some shorter points in the time I've got. We had a discussion about the froth and blood in the mouth and this is in the mouth of Caleb or around the mouth of Caleb. Is it fair to say that the consensus is that that froth and blood is non-specific as to identifying the cause of death?

15 WITNESS DUFLOU: That's my view, yes.

WITNESS HILTON: Yes.

20 WITNESS CORDNER: Absolutely non-specific, yes.

MORRIS SC: Thank you. In relation to haemosiderin in the lungs it's fair to say that that too is non-specific in distinguishing between an infective cause and a physical constraint upon a person's capacity to breathe. It's a non-specific finding. Is that right, Professor Cordner?

25 WITNESS CORDNER: It started out people thought it might be a marker of imposed upper airways obstruction but as the research unfolded it was found to be present in cases of undoubted natural causes in SIDS and so I think the view is today that it is not a positive indicator of superimposed upper airway obstruction.

MORRIS SC: Does everybody agree on that?

35 WITNESS HILTON: Yes, it's a non-specific finding.

MORRIS SC: I'm sorry, both of you agree?

40 WITNESS CALA: Yes.

MORRIS SC: Is haemosiderin something that can be caused by infection, do we know?

45 WITNESS HILTON: Haemosiderin is caused by the breakdown of red blood cells and the residuum of the components of the haemoglobin within the red blood cells. It's iron. That's the common reason it's found under these circumstances. Do you see it at other times in other conditions? Yes, you can. I don't want to go on telling very interesting, totally irrelevant clinical stories but I spent 20 years in Western Australia. The West Australian health people were absolutely terrified there was going to be a rerun of the asbestos disaster but

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5 not asbestos with iron ore mining and a directive went out that every lung section going through the Department of Health's laboratories where I worked at the time was to be stained for iron. Yes, we stained for iron. Did we find it? We sure did. We found it in a broad range of lungs from a broad range of people from a broad range of geographic areas. What does it mean? It doesn't mean very much at all in isolation.

10 WITNESS CALA: It's old bleeding. It's a response to blood, as Professor Hilton has indicated, and it's a response by living tissue to the breakdown of haemoglobin which is in red blood cells and so the cause for that bleeding is unknown. All you have at the end of the day is a cell with brown iron granules in it but you're unable to say where that blood came from but it has ended up in the lung as a haemosiderin granule.

15 WITNESS DUFLOU: I think one other - and I agree with both my colleagues - but one other aspect that is important is that it takes a number of days probably for haemosiderin to be produced after the blood is deposited so if there's an event which causes bleeding into the lung tissue you will not concurrently see haemosiderin as a result of that event. It will take days  
20 before it becomes apparent.

MORRIS SC: Dr Cala, you're nodding your head.

25 WITNESS CALA: That's right. That's right.

MORRIS SC: Professor Cordner, you agree?

WITNESS CORDNER: Yes, I do.

30 WITNESS DUFLOU: Yes.

MORRIS SC: Are we talking two to three days from the - do we know?

35 WITNESS CALA: Probably as a minimum but those cells, the haemosiderin-laden macrophages may stay there for weeks, months.

WITNESS HILTON: Or years.

40 WITNESS CALA: So you don't know when the acute bleed was. All you've got is the evidence for that by looking down the microscope at the haemosiderin macrophage.

45 MORRIS SC: Thank you. Professor Hilton, you were talking about the uvula in Sarah--

WITNESS HILTON: Yes.

50 MORRIS SC: --and the potential impact of the uvula striking or coming into contact with the epiglottis.

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WITNESS HILTON: Or getting stuck behind it, yes.

MORRIS SC: Or getting stuck behind.

5 WITNESS HILTON: Yes.

MORRIS SC: If the uvula was to get stuck behind the epiglottis what would be the effect?

10 WITNESS HILTON: It would cause a serious obstruction to the respiration.

MORRIS SC: Is that something that could trigger an unexpected death?

15 WITNESS HILTON: Yes.

MORRIS SC: You indicated that the uvula demonstrated - you described the uvula as having a reddened appearance?

20 WITNESS HILTON: Yes.

MORRIS SC: Is that consistent with an inflammatory response from infection?

25 WITNESS HILTON: Yes.

MORRIS SC: Is it also possibly explicable by the uvula actually coming into contact with the epiglottis?

30 WITNESS HILTON: Yes. Yes.

MORRIS SC: Or in fact getting stuck behind the epiglottis on a prior occasion?

35 WITNESS HILTON: I hadn't thought about that but I suppose so.

MORRIS SC: You've told the Inquiry that when you performed the autopsy and gave your evidence at trial that you thought that the position of the uvula on autopsy was most likely artefact from the forensic process?

40 WITNESS HILTON: I regarded that as a very real possibility. I had never heard of it being described before so this is my vast series of one case. In fact it has troubled me ever since I did that autopsy and it was only in the last few days that I found another case recorded somewhere else in the literature.

MORRIS SC: Why did it trouble you, Professor?

45 WITNESS HILTON: Well, because it was there and did it contribute to the death, did it not, was it an incidental finding, did I in actual fact create it? I don't know. I don't know an answer and I still don't know the answer to any of these questions.

50 MORRIS SC: Except to say that there's another recorded--

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WITNESS HILTON: There's one more recorded case as far as I can find.

5 MORRIS SC: And that's a case note, is it, or is it a--

WITNESS HILTON: It's part of a published paper.

10 MORRIS SC: Is the published paper this one? I think it may have been circulated, your Honour. Somehow I received a copy of it, your Honour. I can clarify it overnight. Is it this - could I hand it to you?

15 WITNESS HILTON: Yes, that would be great because I came in here with three copies this morning and they have all disappeared from my - yes, Otolaryngological Aspects of Sudden Infant Death Syndrome and it's by Marom, Cinamon, Castellanos, and Marta Cohen. I don't know the first three authors. I certainly know of Marta Cohen who has published in the International Journal of Paediatric Otorhinolaryngology in 2012.

20 MORRIS SC: Your Honour, rather than taking the witnesses to it perhaps what we might do is get a copy of it and we can circulate it to the other experts because I'll have questions of them.

FURNESS SC: Screen.

25 MORRIS SC: You've got it on the screen?

FURNESS SC: We have.

30 MORRIS SC: Could we have it up on the screen, please, your Honour? Excuse me a moment, your Honour. Have all the experts received a copy of this paper?

WITNESS CALA: I have it.

35 MORRIS SC: Okay. Your Honour, we'll make those arrangements overnight and we'll take it from there. Professor Dufrou, just in relation to the timing of the feed of Caleb and the information which learned Counsel Assisting provided to you that Caleb was fed about 1 o'clock, I want you to assume that he was found roughly at about 2.55. Working on the basis that the around 1  
40 o'clock may have a degree of flexibility, but the 2.55 is more or less fixed, does that necessarily change your opinion with respect to the finding of a large quantity of curdled milk in his stomach on autopsy?

45 WITNESS DUFLOU: No it does not. If you look at it, on the face of it, accepting that there isn't a measurement, a large quantity to me means you know, a fairly full stomach, and in a situation like that, it would likely be the case and I emphasise the word likely, that death occurred closer to the time of the feed being taken, rather than some hours later.

50 MORRIS SC: Right. Now the other thing is, the discussion this afternoon

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5 about the IL10 gene and so forth and Dr Cala you were specifically taken to that with respect to a letter from the Department of the Director of Public Prosecutions to Legal Aid, it's fair to say though is it not that microbiology and issues of immunology have become an increasingly important aspect of, certainly in the clinical sense, with respect to the understanding of SIDS is that correct?

10 WITNESS CALA: When you say in the clinical sense, do you mean with live patient examination.

MORRIS SC: Okay. Certainly in the research area?

WITNESS CALA: Yes I'd agree with that.

15 MORRIS SC: Have you got any knowledge of whether it's become important in the clinical sense?

20 WITNESS CALA: Look I'm not an expert on paediatric genetics or microbiology but in the passage of time since 2003, I'm sure our - when I say our, I mean the medical fraternity in general and scientific fraternity, our level of understanding of immunology, immunological processes and disease relating to immunology has as you'd expect, expanded hugely, but the difficulty is translating that research and also clinical practice in live children, to be specific about this, to use that body of knowledge in relation to the investigation of sudden unexpected deaths in infancy, is somewhat of a disconnect, we're not able to test for specific levels of immunoglobulins or other immunological agents at autopsy, we can do special stains looking for certain immunological markers in all organs of the body, that's been - we've been capable of doing that now for decades but how that translates then into giving us a better understanding of how these children died, is still open to debate.

30 MORRIS SC: So those limited tests that you're talking about really represent the limits of the capacity of the forensic pathologist to identify the link between a potential immunological or infective process and whether it had any contribution to a sudden and unexpected death, is that correct?

35 WITNESS CALA: Yes, the autopsy is somewhat of a blunt tool, there are many things that we can do, more than what we used to be able to do but there are still limits on what we can do, we can send tissue off for culture, we can do swabs and send it off for viral testing in a way that has completely revolutionised the way we used to do things, for example we used to culture pieces of lung for virus detection, that's no longer done and a specialised technique called PCR is done, which gives you a battery of tests against many more viruses in the lung, but in other tissues as well and very rapidly, the viral culturing took many days, this can be on overnight test.

40 WITNESS HILTON: I meant there's been a suspicion that there's immunological-type problems associated with SIDS for decades and way back in the 1980s the team of which I was a member at the time did publish about allergies and hypersensitivity to three common allergens, in SIDS, we

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5 published and it happened someone else replicated our work and didn't find  
the same results however they didn't quite use the same technique either, so  
there is an introduction of an idea and it may be followed through for years and  
years or it may not, it may get lost, the other thing is that every year almost  
10 there are new techniques being introduced, some of them are applicable at  
least in theory to SIDS some probably aren't, now I think what you may in part  
be alluding to is Robert Clancy's work on immune bodies and whatnot in lung  
executions, the exudates, and I think Caroline Blackwell talks about that as  
well and that is an interesting research technique which may or may not have  
technical application.

MORRIS SC: Anybody wish to add to that?

15 WITNESS CORDNER: Only that more and more of the enigma will be  
unravelling, the more research there is, particularly research that is done in  
association with the places where the autopsies are undertaken.

20 MORRIS SC: Just your Honour if we might bring up exhibit D, which is the text  
book by Byard, one of the issues - is one of the issues gentlemen that not only  
is the autopsy a blunt tool to use your word Dr Cala but the risk of there are  
inherent problems with microbiological testing of samples at autopsy?

WITNESS CALA: Yes.

25 WITNESS DUFLOU: Yes.

30 MORRIS SC: We talk about contamination, is his Honour to form the view that  
because there is contamination with one, two, three or four different bacteria  
identified on microbiological assay that somewhere on that body is the relevant  
bacterium that's been identified?

WITNESS HILTON: Well the bacteria described as being there because they  
were there. But they're not there in everybody.

35 MORRIS SC: I may not have been clear, if it's a contaminant is it likely to be a  
contaminant from the body of the deceased?

WITNESS CALA: I say yes.

40 WITNESS HILTON: Yes.

WITNESS CORDNER: Yes.

45 MORRIS SC: So although there's a contaminant, let's say streptococcus  
found in the lung, during the autopsy process - let's take staphylococcus,  
assume there's staphylococcus found in the lung, is it to be understood that  
that staphylococcus has found its way into the lung from some other organ  
within the body?

50 WITNESS CALA: It's possible.

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WITNESS HILTON: There's a strong possibility yeah.

5 WITNESS DUFLOU: If it's a contaminant yes, if it's not a contaminant then it can be assumed the organism was present in the lung, staphylococcus should not be normally present within lung tissue, in other words it's there for a pathological reason.

10 MORRIS SC: So if it's there and it's not a contaminant it's a pathological--

WITNESS DUFLOU: Yes.

WITNESS CALA: It may be, it may be.

15 MORRIS SC: And to determine whether it's pathological or not, is it legitimate at all to look at the clinical history of the deceased?

WITNESS CALA: Yes.

20 MORRIS SC: And Dr Cala what would you be looking for?

25 WITNESS CALA: With reference to staphylococcus in the lung. As Professor Duflou has said it's a pathogen, in other words it's an organism capable of causing disease, shouldn't be there in the first place, I would expect that child, if it's a child, to have symptoms of a lower respiratory tract infection if it's way down in the periphery of the lung, with fever, cough, might even, if it's developed pneumonia, cough up a bit of blood, look unwell to an observer and then if testing is done, chest X-ray, like a full blood count, may show evidence of an infection.

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MORRIS SC: But of course, when you're in the autopsy situation, those tests - some of those tests aren't available?

35 WITNESS CALA: They're not available, some of them are not available, certainly the culturing of the tissue is available.

MORRIS SC: Would we also be looking for signs of inflammation in any of the organs?

40 WITNESS CALA: Well in the lung yes, so you would, if you expected staph pneumonia in the right lower lobe for example, I would take multiple sections through that right lower lobe to prove or exclude my suspicions that it was pneumonia and I might take three or four depending on my level of suspicion.

45 MORRIS SC: Why would you take three or four?

50 WITNESS CALA: Because if you only took one it can be missed, so I would take multiple sections to improve the yield if you like and that's what pathologists often do is form a suspicion or a view that's preliminary and confirm that by further testing of tissue by taking multiple samples of an organ



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and then have that tissue processed and made into slides.

MORRIS SC: To try and minimise the risk of a false negative, is that really what we're saying?

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WITNESS CALA: To confirm your autopsy findings, you need to do that, it's not just a naked eye science, if you're saying somebody has died of pneumonia, particularly if you want to name it staphylococcal pneumonia, you should prove that staphylococcus is in the lungs and then also prove that that person has pneumonia and it's of a degree or severity that would be capable of causing death.

10

WITNESS HILTON: I'm not disagreeing with anything my colleague said but I would point out that it's more likely that streptococcus is a genuine villain rather than staph, as far as finding bugs in lungs were concerned.

15

WITNESS DUFLOU: If I may just add, part of the problem with getting a positive microbiology result is that you get that a number of days after the post mortem, by then the chances are there's no real opportunity to go back to the body to get more lung tissue, and especially in babies it's certainly my experience that the naked eye diagnosis of pneumonia is very unreliable, so simply knowing where to sample becomes very difficult, so you may entirely miss it.

20

MORRIS SC: And we're talking about sampling for the purpose of microscopic examination?

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WITNESS DUFLOU: Yes correct.

MORRIS SC: Now with respect to infection, sorry I don't mean to neglect you Professor Cordner, do you agree with that?

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WITNESS CORDNER: Yes, I just make one comment which is that in the well-established pneumonia there's no issue, in the disease as described by Dr Cala in its full manifestation with fever and cough and coughing up puss and blood and obvious pneumonia under the microscope then the cause of death is going to be pneumonia. The issue comes up in these cases in relation to SIDS as we've mentioned a couple of times, is when the histological appearances are minor or minimal, you've got the positive culture, is it contaminant, is it real and then are there - so not pneumonia, not obvious pneumonia, some pathologists say the minor infection is the cause of death, these days most probably don't.

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And this is the space where some researchers are trying to find out whether the organisms have other ways of causing serious illness such as by producing toxins that might be absorbed by the baby rapidly and cause serious illness and death, you know, in the space of a couple of hours. So that's where the issue is in my understanding of at least part of the research effort in respiratory tract infections.

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MORRIS SC: And adding to your list of integers, clinical history of being unwell over - moderately unwell over previous days?

5 WITNESS CORDNER: Well yes so, the question that comes, did the baby die with the signs of the mild respiratory illness or is there some explanation we can't see or recognise that actually means the child died of it.

10 MORRIS SC: This has evoked research interest because a history of prior infective - mild infective illness has been identified in about half of SIDS cases, is that your understanding?

15 WITNESS CORDNER: Well as I mentioned there, I think there's a range of views about that but it's in my understanding that mild viral type illness is regarded as part of the prelude to SIDS.

JUDICIAL OFFICER: Is that a convenient time?

MORRIS SC: Yes, your Honour, thank you.

20 JUDICIAL: We'll adjourn until tomorrow.

<THE WITNESSES WITHDREW

ADJOURNED PART HEARD TO THURSDAY 21 MARCH 2019