Inquiry into hyponatraemia-related deaths

Submissions on behalf of Dr David Webb on the case of Claire Roberts

Preliminary general submissions

The effect of the passage of time on the quality of the evidence

1. Claire Roberts was treated in October 1996. The Inquiry finished hearing evidence about her case well over 16 years later. The passage of such a significant period of time is likely to have a considerable effect upon the reliability of witnesses' recollection[1].

2. Witnesses may assert, and may give the impression whilst giving their evidence, that they recall events clearly, despite the passage of a significant period of time. Many of the witnesses who gave evidence to the Inquiry have done their honest best to reconstruct events using the clinical notes to assist them and may have built up a picture in their own mind about what happened. The evidence is likely to be not only (or even not mainly) a recollection of events, but also speculation and *ex post facto* reconstruction. Witnesses may have no clear idea of which parts of their evidence is recollection and what is reconstruction. The Inquiry should bear in mind the direction frequently given in criminal cases that "a witness who is convinced in his own mind may as a result be a convincing witness, but may nevertheless be mistaken."

[1] In 1996, the Prime Minister of the UK was Mr John Major. Microsoft had recently published a revolutionary new operating system called Windows 95 which permitted more than one program to run on a computer at once but the most popular word-processing program of the time was called WordPerfect. An IRA ceasefire came to an end with the bombing of Canary Wharf and later in the year, Manchester City Centre was bombed. You could still buy and use francs, Deutschmarks, lire and drachmae. If you were rich enough to own a mobile phone, it was probably the size of a house brick.

3. Owing to the lapse of a very substantial period of time since the events in issue, documents are particularly important in this Inquiry. However, additional difficulty has arisen because:

3.1. The contemporaneous documents are deficient in that

3.1.1. (As several witnesses acknowledged[2]) the clinical notes are less complete than they ought to be.

3.1.2. The clinical notes are on occasion clearly inaccurate[3]. Other observations are subject to inter-observer unreliability[4]

3.2. Witnesses have been invited to make witness statement and to give evidence before important documents have been disclosed to them that would give them a fair opportunity of preparing to give evidence in oral and/or written form. A striking example of this injustice is the disclosure at the start of the hearing of the clinical notes of other patients. This had a significant impact, particularly upon the evidence of Dr Steen, who had made at least 3 witness statements before these important documents were disclosed and upon the evidence of Dr Webb, to whom questions were put in a highly critical tone after he had given oral evidence about the documents disclosed in October 2012.

We are not clear what steps were taken to obtain these documents earlier. Irrespective of where the blame for late disclosure lies, the fact is that the witnesses whose evidence has been subject to criticism when subsequently disclosed documents appear to contradict their evidence have been deprived of the chance to see all the material before giving evidence, and to that extent, may have a sense that they have not been fairly treated.

4. The Inquiry should bear in mind that if recollections of matters directly in issue may have dimmed, at least such recollections are assisted by documentation. Witnesses

[2] See paragraph 20
[3] For example, Dr Stevenson's prescription for the stat dose of 120 mg Midazolam at 090-026-075 and/or his clinical note that 12mg should be administered at 090-022-055. They cannot both be right.
[4] Notably the Glasgow Coma scores, as to which see paragraph 121.

have almost no assistance from documents in relation to other more peripheral matters. For example, the amount of time available to Dr Webb to deal with Claire's case is likely to have been limited by a heavy load of other cases, but he has almost no documents to support his recollection about what is likely to have been one busy day amongst many busy days over the past 16 years.

5. We acknowledge the force of the submission that Mr and Mrs Roberts, who suffered the loss of their daughter, have the most reason to recall the events of October 1996. However, we make the point that they did not make any contemporaneous note of the events that occurred in 1996. They have, quite understandably, pondered and discussed those events between themselves and have tried to re-construct what happened (often, regrettably, in the face of mis-information). We submit that, in assessing the Robertses' evidence, the Inquiry should bear in mind the natural tendency of us all to fill in gaps in our memory to fit the picture we hold in our mind.

6. Experience shows that it is particularly difficult to obtain reliable expert evidence about the standard of professional care that prevailed many years ago. An extremely important part of modern medical practice is keeping up to date with developments in one's field; the practitioner's attention is therefore focussed on the present and on future changes, and not upon the practice that prevailed in the past. We submit, therefore, that it is therefore very important for experts expressing opinions about the state of medical knowledge and practice in 1996 to support their views by reference to contemporaneous documents, where possible. We commend to the Inquiry the approach to fluid management taken by Professor Young in his second witness statement[5].

Comment on the role of professional people

7. We anticipate that the Inquiry will make findings as to what happened and how Claire's death might have been avoided and will make recommendations for future conduct. It is likely that the Inquiry will identify what could have been done differently. We submit that the Inquiry should not express *criticism* of any practitioner unless the standard of his or her performance fell below that of a reasonably

[5] WS 178/2 and the papers appended to it.

competent member of his or her profession, in the context of the period concerned; if a practitioner practised in a manner that was consistent with a reputable body of professional opinion at the time, it is submitted that criticism is inappropriate.

8. We commend to the Inquiry the following passage from the judgment of Bingham LJ in *Eckersley v. Binnie* [1988] 18 Con. L.R. 1 at p 79:

> "From these general statements it follows that a professional man should command the corpus of knowledge which forms part of the professional equipment of the ordinary member of his profession. He should not lag behind other ordinary assiduous and intelligent members of his profession in knowledge of new advances, discoveries and developments in his field. He should have such an awareness as an ordinarily competent practitioner would have of the deficiencies in his knowledge and the limitations on his skill. He should be alert to the hazards and risks in any professional task he undertakes to the extent that other ordinarily competent members of the profession would be alert. He must bring to any professional task he undertakes no less expertise, skill and care than other ordinary competent members of his profession would bring, but need bring no more. The standard is that of the reasonable average. The law does not require of a professional man that he be a paragon combining the qualities of polymath and prophet. In deciding whether a professional man has fallen short of the standards observed by ordinarily skilled and competent members of his profession, it is the standards prevailing at the time of his acts or omissions which provide the relevant yardstick. He is not, as the judge in this case correctly observed, to be judged by the wisdom of hindsight. This of course means that knowledge of an event which happened later should not be applied when judging acts and omissions which took place before that event".

9. We submit that it is crucially important, before expressing criticism of practitioners, to exclude benefit of hindsight. It now seems obvious that Claire died because she had developed cerebral oedema consequent upon hyponatraemia, but this was plainly not obvious to the practitioners at the time. We submit that much of the expert evidence heard by the Inquiry is highly coloured by the fact that the experts now know the cause of Claire's death. In their criticisms of the practitioners, the experts run the risk of giving insufficient weight to (a) the relative rarity of hyponatraemia and (b) the then-current state of knowledge about hyponatraemia. We submit that the Inquiry should be alive to this risk and should guard against it.

10. We remind the Inquiry of the role of the expert in civil litigation. The *locus classicus* for the obligations of an expert appears in the judgment of Creswell J in *National Justice*

Cia Naviera SA v Prudential Assurance Co Ltd (The Ikarian Reefer) [1993] 2 Lloyd's Rep 68, 80-82 cited with approval by CA in *Stanton v Callaghan* [2000] QB 75 and *Meadow v GMC* [2006] EWCA Civ §21; UKSC in *Jones v Kaney* [2011] UKSC 13 [2011] 2 A.C. 398 :

> "The duties and responsibilities of expert witnesses in civil cases include the following: (1) Expert evidence presented to the court should be, and should be seen to be, the independent product of the expert uninfluenced as to form or content by the exigencies of litigation (*Whitehouse v Jordan [1981] 1 WLR 246* , 256, per Lord Wilberforce). (2) An expert witness should provide independent assistance to the court by way of objective unbiased opinion in relation to matters within his expertise (see *Polivitte Ltd v Commercial Union Assurance Co plc [1987] 1 Lloyd's Rep 379* , 386, per Garland J and *In re J (Child Abuse: Expert Evidence) [1991] FCR 193* , per Cazalet J). An expert witness in the High Court should never assume the role of an advocate. (3) An expert witness should state the facts or assumption upon which his opinion is based. He should not omit to consider material facts which could detract from his concluded opinion (*In re J*). (4) An expert witness should make it clear when a particular question or issue falls outside his expertise. (5) If an expert's opinion is not properly researched because he considers that insufficient data is available, then this must be stated with an indication that the opinion is no more than a provisional one (*In re J*). In cases where an expert witness who has prepared a report could not assert that the report contained the truth, the whole truth and nothing but the truth without some qualification, that qualification should be stated in the report (*Derby & Co Ltd v Weldon* The Times, 9 November 1990, per Staughton LJ). (6) If, after exchange of reports, an expert witness changes his view on a material matter having read the other side's expert's report or for any other reason, such change of view should be communicated (through legal representatives) to the other side without delay and when appropriate to the court…"

11. We appreciate that the Inquiry's approach will be different from adversarial litigation. Nevertheless, we submit that experts are required to demonstrate similarly high standards of transparency and candour.

The witnesses

Dr MacFaul

12. We have general criticisms about the evidence given by Dr MacFaul, as follows:

13. Dr MacFaul volunteered evidence on issues upon which his opinion was not sought.

13.1. The Inquiry invited Dr MacFaul to report upon "governance issues." His terms of reference carefully define "governance" and "clinical governance"[6]. He was

[6] 238-001-025 §101 – §104

invited to provide "a detailed analysis and overview of the clinical governance issues arising from Claire's case, with particular regard to issues at a clinical level." [7] Dr MacFaul was specifically directed as follows: "Should your interpretation of the term 'clinical governance' and your view of its scope differ significantly from that of the Inquiry, as set out above, then please advise the Inquiry as to the basis upon which you consider the material might be more appropriately considered." [8] He was permitted to identify and pursue any additional issues that arise from the papers which were not raised by the Brief but "only after approval by the Chairman". So far as Dr Webb and his advisers are aware, no such approval was sought or granted.

13.2. Despite the Inquiry Team's instructions, Dr MacFaul's reports address many issues of clinical practice rather than clinical governance, for example:

- He purports to describe the standard management [9] and investigations[10] for encephalopathy.
- He expresses an opinion on the unlikelihood that Claire suffered from non-convulsive *status epilepticus*[11] and asserts that the clinical arguments for such a diagnosis were weak[12].
- He criticises Claire's clinical management[13].
- He makes direct criticism of Dr Webb's management of Claire[14] and assertions about what Dr Webb ought to have known[15].

13.3. It is plain that the Inquiry team believed that Dr MacFaul's report addressed clinical, rather than governance or clinical governance, issues because (a) Dr MacFaul's report was served in a substantially redacted form (and subsequently

[7] 238-001-027 §105(a)
[8] 238-001-027 §105(e)
[9] 238-002-008 §4
[10] 238-002-008 §7
[11] 238-002-008 §7
[12] 238-002-025 §119
[13] 238-002-010 §11
[14] 238-002-012 §124
[15] 238-002-012 §121

in full) during the course of the evidence relating to the clinical aspects of Claire's case (b) Dr MacFaul was called to give evidence during the clinical part of Claire's case[16].

14. Dr MacFaul trespassed outside the limits of his expertise, but at no stage did he make clear in his reports or explain to the Inquiry that he was doing so.

14.1. Dr MacFaul was a general paediatrician at Pinderfields Hospital from about 1978 – 2006. Dr MacFaul had an interest in neurology, but the fact is that he chose not to pursue a career in paediatric neurology and consequently did not undertake the regular practice in the field that would qualify him to speak as an expert in the field.

14.2. That Dr MacFaul was not thoroughly familiar with the field of paediatric neurological practice is demonstrated by the fact that he supported his opinions on clinical matters by referring to an out-of-date textbook (as to which submissions appear below). An expert paediatric neurologist is unlikely to have made such an error.

14.3. Dr MacFaul nevertheless purported to give expert opinion in relation to paediatric neurology in his report and in the course of his oral evidence[17].

15. Doubtless unintentionally, Dr MacFaul misled the Inquiry about the material available in the contemporaneous edition of *Textbook of Paediatrics* by Forfar & Arneil.

15.1. Dr MacFaul purported to support his expert opinion about the state of knowledge in the profession relating to the administration of intravenous fluids in 1996 by reference to Forfar & Arneil Third edition 1984 which he claimed was

[16] See Ms Anyadike-Danes's explanation: Transcript 13.11.12 at p 48 line 10ff

[17] For example, in relation to the knowledge that paediatric neurologists would have had about fluid administration Transcript 13.11.12 p. 67 lines 18-24; about what training a paediatric neurologist would have had Transcript 13.11.12 p. 69 lines 13-15; in relation to how a paediatric neurologist should interpret a serum sodium reading of 132 and what tests he should perform: Transcript 13.11.12 p. 76

"similar in later editions"[18]. He cites the passages on which he relies repeatedly.[19]

15.2. Dr MacFaul failed to draw the Inquiry's attention to the Fourth Edition 1992 which was in fact current at the relevant time. Extremely significant amendments had been made to the relevant text[20]. Given that the issue of knowledge about the administration of fluids is central to the Inquiry[21], Dr MacFaul's failure to identify the current guidance is inexplicable, save on the basis that he did not exercise the care appropriate to an expert witness giving evidence on a critical issue to a public inquiry.

15.3. When he was asked to deal with this point in evidence, Dr MacFaul said that that he should have made "greater reference to the fourth edition"[22]. This was itself misleading, in that it suggests that he made some reference to the fourth edition when in fact he made no reference at all to it in his initial report. Dr MacFaul sought to suggest that the main principles of management described in the 3rd and 4th editions) had not changed in essence[23]; this is palpably false, and it reflects badly on Dr MacFaul that he refuses to recognise this fact.

15.4. Once his error had been pointed out to him, Dr MacFaul ought to have acknowledged his mistake and sought to set out the true position. It is disappointing, to say the least, that the papers demonstrating the development of understanding about hypotonic fluids were not produced by Dr MacFaul but by Professor Young.

16. When making criticisms of people involved in this case, Dr MacFaul was less careful with the facts than he ought to have been. For example:

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[18] 238-002-161.
[19] 238-002-010 §11, 238-002-024 §112, 238-002-026 §120, 238-002-044 §206, 238-002-045 §212,
[20] The Inquiry is invited to compare and contrast the relevant passages in the Third Edition (cited by Dr MacFaul at 238-002-161) and the Fourth Edition at 311-019-007. Professor Young provides a helpful summary of the important differences at WS 178/2 p. 3. Dr MacFaul acknowledged that the changes were "striking": Transcript 13.11.12 p 61 line 25.
[21] It is specifically referred to in the List of issues, §2.5.
[22] Transcript 13.11.12 p54 line 3
[23] Transcript 13.11.2012 p 54 line 23ff

16.1. In addressing Dr Webb's case about the timing of Claire's first blood test, he asserts that Dr Webb "thought the test had been done *just before* he saw Claire"[24] [our emphasis]. Dr MacFaul's purpose in suggesting "just before" appears to have been to add weight to his argument that Dr Webb's explanation is incredible. However, Dr Webb's case has always been that he thought that the test had been done that morning[25] as Dr MacFaul must have known, provided that he had read the documents supplied to him.

16.2. Dr MacFaul suggested that Dr Webb attended at PICU at "4 AM 23rd October together with Dr Steen"[26]. Though nothing turns on this point, Dr Webb attended at 04:40, some time after Dr Steen's arrival.

16.3. Dr MacFaul made a comment critical of the "review of the broader aspects" under taken by Professor Young whom he described as an "adult physician"[27]. The sting of the criticism appears to have been that Professor Young may have missed important issues because he was not properly qualified. In fact, Professor Young's report was concerned solely with the question of hyponatraemia. Professor Young is a consultant in clinical biochemistry.

17. These features go the heart of Dr MacFaul's credibility as an expert witness: He has officiously provided opinions that were not sought of him; he has provided opinions about matters upon which he is not expert and he has misled the Inquiry and has failed to draw to the Inquiry's attention important relevant evidence that he could have been expected to identify. We submit that the Inquiry should treat his evidence with great circumspection.

Professor Neville

18. Professor Neville is an extremely eminent expert. He developed the paediatric neurology department at Great Ormond Street Hospital. The Inquiry should bear in mind that as the professor of paediatric neurology at a world-renowned tertiary referral centre, Professor Neville is likely to have had access to resources to which the

[24] 236-002-026 §121.
[25] Statement to coroner 090-053-174; WS 138/1 p 22
[26] 238-002-027 §124.
[27] Transcript 14.11.2012 page 43 line 19ff.

staff at RBHSC did not. His report does not even recognise that there might be any difficulty about arranging a CT scan and EEG studies "at the latest by the morning of 22nd October 1996"[28]. We suggest that his experience may have led him to propose a standard of care that amounts to a counsel of perfection.

Dr Webb

19. We submit that Dr Webb was patently honest in his evidence. He was prepared to make proper concessions, including important acknowledgements that he had made mistakes, for example, in misunderstanding the time at which the first blood test had been taken and in not referring Claire to PICU in the afternoon of Tuesday 22 October 1996.

20. In the course of the oral hearing and afterwards, attacks were made upon Dr Webb's integrity:

    20.1. Dr Webb's case is that he mistakenly believed that the blood test that resulted in a serum sodium reading of 132mmol/L had been undertaken on the morning of Tuesday 22 October 1996. It was suggested that Dr Webb must have known that the reading had not been done earlier that morning, and that by necessary inference his evidence to the Inquiry was dishonest. We urge the Inquiry to reject this proposition for the reasons given in paragraph 45 below.

    20.2. Dr Webb's case is that he called Dr Stevenson and informed him that the appropriate stat dose of midazolam was 0.15mg/kg. It was put to Dr Webb that he was seeking to distance himself from the fact that the stat dose Dr Stevenson recorded in the notes was 0.5mg/kg. We urge the Inquiry to reject this proposition for the reasons given in paragraph 58 below.

    20.3. Dr Webb gave evidence that he rarely had responsibility for fluid management. It seems to be suggested that this answer was a lie or was at least inaccurate. We urge the Inquiry to reject this proposition for the reasons given in paragraph 165 below

[28] 232-002-007

20.4. Dr Webb gave oral evidence that he had not used midazolam in the Children's Hospital since his return from Canada. It seems to be suggested that this answer was a lie or was at least inaccurate. We urge the Inquiry to reject this proposition for the reasons given in paragraph 142 below.

We urge the Inquiry to accept that Dr Webb looked after Claire diligently; he acknowledges that he made some errors, about which he has been frank. We invite the Inquiry to reject the slurs cast upon his integrity.

The state of knowledge about intravenous fluid management in 1996

21. Fluid management was scarcely addressed in medical school and paediatric fluid management still less[29]. Post graduate training frequently depended upon the advice given by experienced nurses on the ward[30]. Paediatricians would have to learn about paediatric fluid management "on the job".

22. Until 2007, most medical textbooks recommended using hypotonic solutions for intravenous fluid maintenance[31] though from 2003 onwards progressively clearer guidelines were given as to the monitoring of serum electrolytes[32].

23. As to the concentration of the intravenous fluids: In 1996, it was common practice – at the very least, the practice of a substantial body of competent practitioners – to administer hypotonic saline in cases where an encephalopathy was diagnosed or suspected[33]. Dr Scott-Jupp believes that "most practitioners" would have continued with 0.18% saline when the sodium reading of 132 was noted[34] and Professor Neville

[29] Dr Michael Ledwith, *A Review of the Teaching of Fluid Balance and Sodium Management in Northern Ireland and the Republic of Ireland 1975 to 2009*. p 8; Professor Sir Alan Craft *A commentary on Dr Michael Ledwith's Report* p 4

[30] Ledwith. p 14; Craft p. 4

[31] Ledwith. p 15

[32] Ledwith. p 15

[33] Thus Dr Scott-Jupp: Commencement of intravenous fluids using 0.18% saline was "absolutely the standard IV fluid given to most children" 232-002-002. "As late as 2003 standard paediatric textbooks and pocket handbooks in both the UK and the US were still recommending hypotonic saline (0.18% or 0.25%) as a possible choice of standard IV fluid management." 234-002-012;
Professor Young WS 178/2 page 4;
Concession by Professor Neville Transcript 04.12.2012 page 5 line 11.
Dr Bingham 091-006-026 "used in maintenance therapy for children for 50 years"

[34] 234-002-002f.

concedes that some practitioners would not have altered the concentration after receipt of the sodium result[35].

24. Dr MacFaul asserts that "standard management for the time included prevention of hyponatraemia and/or therapy for it using intravenous normal saline or no less than 0.45% saline with careful blood test monitoring of the blood sodium and reduction of IV fluid volume."[36] He is simply incorrect: we refer to the comments made in paragraph 15 above. To be fair to Dr MacFaul, he made clear in evidence that he did not criticise the initial decision to administer one fifth normal saline (although that treatment was not ideal); that criticism only arose when it ought to have become apparent that Claire's condition had not improved, a blood test had been undertaken on Tuesday morning and it had been appreciated from the blood test that he serum sodium had fallen[37]. However, he accepted that the proposition that Claire's serum sodium would have fallen was "conjecture"[38]

25. Dr MacFaul suggested that the passage in Nelson's *Pediatrics* at §56.6[39] supported his view that Claire ought to have been treated with hypertonic saline[40]. We respectfully suggest that this is a misreading of the text, and the Chairman was right to point out that it was first necessary to make a diagnosis of acute symptomatic hyponatraemia. Dr MacFaul's response that such treatment depended upon a diagnosis of an acute neurological problem[41] is not supported by the text or by any other evidence given to the Inquiry and should be rejected.

26. As to fluid restriction: Claire had been vomiting and if she was developing a gastroenteritic illness she may also have potentially developed diarrhoea and therefore been at risk of dehydration. Severe fluid restriction at that stage could

[35] 232-002-004.
[36] 238-002-008. He makes further criticism directed specifically at Dr Webb to the same effect at 238-002-024 §112.
[37] Transcript 13.11.2012 p 65 – 67.
[38] Transcript 13.11.2012 p 67 line 4.
[39] 311-018-007
[40] Transcript 14.11.2012 p 13 line 14 – p 14 line 10.
[41] Transcript 14.11.2012 p 15 lines 3-5

potentially have been harmful. She was clearly not able to drink. It was not appropriate to consider fluid restriction.[42]

27. As to frequency of testing: Standard practice in 1996 was to check serum electrolytes only every 24 hours[43]. The consensus was that Claire's electrolytes ought to have been checked more frequently because her serum sodium was low on admission and/or because she was not improving. This issue is addressed at paragraphs 101 and following.

28. The propositions set out above are supported by the evidence of the clinicians who treated Claire. Dr O'Hare said that 0.18% Normal Saline which was standard IV fluids in use in paediatrics in 1996[44] and that it would not have been usual to restrict fluids in a child who was vomiting unless the electrolytes indicated that they were significantly hyponatraemic[45]. Dr Sands said that Claire had standard fluid therapy[46]; the fluid regime was probably discussed in the ward round and the decision was taken to continue it, though no note was made[47]. Dr Steen said the N/5 saline was recommended in the text books 5 years later[48] Dr Webb said that he was not aware there was a problem with low-solute fluids except in context of SIADH[49].

29. The Inquiry will doubtless consider the extent to which the general state of knowledge in the medical professions ought to have been modified in the light of the experience of the Royal Belfast Hospital for Sick Children in the case of Adam Strain. Plainly, the lessons to be learned from Adam's case were not effectively communicated to the teams caring for Claire[50]. We submit that these practitioners should not be criticised

[42] Dr Scott-Jupp 234-002-003. Professor Young said that there was no general or widespread understanding that there was a routine need to restrict fluids WS 178/2 p 4 and Dr MacFaul said that it would not have been standard practice at the time to restrict fluids at this stage: Transcript 12.11.2012 p 65 lines 8-10.
[43] Dr Scott-Jupp 234-002-003
[44] WS 135/1 p 4
[45] WS 135/1 p 12
[46] 090-051-157, WS 137/1 p 7 (5)(b); WS 137/2 p 9
[47] WS 137/1 p 7 (5)(a); Transcript 19.10.2012 p 101 lines 1-3, 15-17. Dr Stevenson agrees: WS 139/1 p 9 (18)(a).
[48] WS 143/1 p 57 (o)
[49] Transcript 03.12.2012 p 74 lines 3-25. We suggest that there is a transcription error on line 21. The passage should read, "It wouldn't have been a concern for me in somebody who **didn't** have SIADH…"
[50] The following were unaware of the Adam Strain case at the material time: Dr Sands Transcript 19.10.2012 p 8 line 25, Dr Stevenson Transcript 15.10.2012 p 103 line 21, Dr O' Hare Transcript 18.10.2012 p 115 line 15, Geraldine McRandall Transcript 29.10.2012 p 2 line 14, Sarah Jordan Transcript 29.10.2012 p 54 line 19, Karen Boyd Transcript 29.10.2012 p 117 line 3, Kate Linksey Transcript 30.10.2012 p 2 line 22, Lorraine McCann

for taking no account of the experience of Adam's case, about which they knew nothing.

30. Although the Inquiry will investigate the development after October 1996 of intravenous fluid management, we can make no submissions as to such development that will assist the Inquiry in relation to Dr Webb's involvement in Claire's case.

Transcript 30.10.2012 p 21 line 2, Barbara Maxwell Transcript 30.10.2012 p 119 line 13, Dr Hughes Transcript 05.11.2012 p 108 line 2, Dr Stewart Transcript 06.11.2012 p 6 line 10 and Dr Webb WS 138/1 p 93; Transcript 30.11.2012 p 163 line 10 03.12.2012 p 258 line 13. Dr Steen said she was aware of the case but thought it was a case involving a rare high-output renal complication: Transcript 15.10.2012 p 17 lines 2 -14. Dr Bartholeme said she was aware of the case: Transcript 18.10.2012 p 4 line 8ff.

The facts

31. In this section, we identify important facts and make submissions about disputed facts that are relevant to Dr Webb's involvement.

Before Claire's admission

32. Claire Roberts suffered from epilepsy in her infancy. A useful summary of her early history appears at 090-015-026/027. She had learning difficulties for which she was referred to Dr Gaston[51].

33. Mrs Roberts said that Claire had had "smelly poos" on the Friday (i.e. 18th October 1996)[52]. On Saturday (19th October 1996) Claire was saw her cousin who had suffered a tummy upset in the previous week[53]. When she came home from school on Monday 21st her homework diary described her as pale and lethargic. Claire vomited from 4pm on Monday at hourly intervals[54] - some 3 or 4 times before she went to hospital[55].

34. Claire's speech was slurred[56], something that had never previously occurred[57]. Dr Savage thought Claire was photophobic, she had increased tone and up-going right plantar reflexes[58].

35. Dr Savage must have been told something that made her suspect that Claire had suffered a fit: see her referral letter[59]. When Dr Webb took a history from Claire's grandmother at about 14:00 on 22 October 1996, he was left with the impression that there had been an event which might have been epileptic[60]. He explained that he was looking for subtle signs rather than obvious convulsive activity[61]; he would often demonstrate what he meant[62]. Dr Webb asked Mrs Roberts about the potential seizure when he saw her at around 17:00 on 22 October 1996. He records his

[51] Dr Gaston's letters to the GP, Dr McMillin, appear at 090-013-018 and 090-013-018.
[52] Mrs Roberts WS 257/1 p 5 (c)(iv). Note Mrs Roberts's use of the plural.
[53] Mr Roberts WS 253/1 p 2
[54] Mrs Roberts WS 257/1 p 4 (3)(b)
[55] Mrs Roberts Transcript 31.10.2012 p 12 line 6
[56] See GP referral 090-011-013; Mrs Roberts Transcript 31.10.2012 p 14 lines 12 - 16
[57] Mrs Roberts Transcript 31.10.2012 p 14 line 18
[58] 090-011-013
[59] 090-011-013
[60] Transcript 30.11.2012 p 216 line 23 – p 217 line 3
[61] Transcript 30.11.2012 p 218 lines 6-13
[62] Transcript 30.11.2012 p 219 lines 3-5

impression in the notes: "Background from mum … she had some focal signs on Monday with right-sided stiffening"[63]. Mrs Roberts denies this[64]. On this issue:

35.1. Dr Webb made a contemporaneous note of his discussions with Mrs Roberts. We invite the Inquiry to conclude that there was no reason why Dr Webb should have invented the account he recorded.

35.2. Dr Webb was seeking evidence of much more subtle appearances than a frank convulsion. It is probable that Mrs Roberts provided evidence of a subtle seizure. No doubt she is quite correct that she did not describe a frank tonic-clonic seizure.

35.3. The examination by Dr Savage provides some supporting evidence for a right-sided neurological episode.

35.4. It may be of significance that the notes record Claire as having suffered seizures at 17:15 and 21:00 on Tuesday 22 October 1996[65]. It is clear that Mrs Roberts did not recognise them as seizures[66]. It may be that Mrs Roberts simply did not recognise the signs Dr Webb elicited as being relevant at all.

36. The Chairman suggested to Mrs Roberts that Dr Webb might have mistaken her description of the seizure Claire suffered at 15:10/15:25 on Tuesday 22 October 1996 as referring to events on Monday 21 October[67]. We respectfully suggest that Dr Webb would not have described what happened on Tuesday as "focal signs with right-sided stiffening" – it had the appearances of a full blown tonic-clonic seizure[68].

37. We invite the Inquiry to find that (a) Claire had suffered focal signs with right-sided stiffening on Monday (b) alternatively, that Dr Webb believed, upon reasonable grounds, that Claire had suffered focal signs with right-sided stiffening on Monday.

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[63] 090-022-055
[64] Transcript 31.10.2012 p 100 line 25 – p 101 line 16.
[65] 090-042-144
[66] See Transcript 31.10.2012 p 132 lines 7-23. Neither did Mr Roberts: Transcript 31.10.2012 p 116 lines 10-15.
[67] Transcript 31.10.2012 p 104
[68] Professor Neville described the seizure as a "proper seizure": [68] Transcript 05.11.2012 p 60 lines 15-16, p 61 lines 22-23

On admission

38. Around the time at which Claire's first blood test was undertaken at 20:00 on Monday 21 October 1996, she was neurologically unwell. In the Accident & Emergency department Dr Puthucheary recorded "Speech very slurred; hardly speaking… tone↑" and he noted brisk left sided reflexes[69] . By 20:00, she was not responding to parents' voice; intermittently to deep pain[70]. She was in worse shape than when she came home from school[71].

Tuesday morning

39. The results from the blood tests taken at about 20:00 on Monday evening were reported to the ward at about midnight[72]. Dr Volprecht did not record the time at which she entered the results in the notes.

40. Claire's condition fluctuated between admission and Tuesday lunchtime. At midnight, Dr O'Hare thought she was slightly more responsive[73]. Nurse McRandall thought Claire was brighter on Tuesday morning than she had been on admission[74] and Sarah Jordan (Nurse Field) said that when she took over, Claire appeared bright and quite alert[75]. She recorded that in the late morning, Claire became lethargic and vacant[76]. By the time Mr and Mrs Roberts attended, Mr Roberts thought that her condition had not improved from the previous evening[77] Claire was "not her wee self" she still "couldn't be bothered"[78].

41. Claire's condition at the time of the ward round led by Dr Sands is recorded in the notes[79].

[69] 090-012-014
[70] 090-022-051
[71] Mrs Roberts, Transcript 31.10.2012 p 24 lines 14-23
[72] 090-022-052; WS 136/1 p 6. Although Dr Volprecht did not record the U&E results in the notes, they must have been added to the notes after Dr O'Hare reviewed Claire at midnight.
[73] 090-022-052
[74] 090-040-140; Transcript : 29.10.2012 p 37 lines 12-15
[75] Transcript 29.10.2012 p 7 lines 19-20.
[76] 090-040-140.
[77] WS 253/1 p 6; Transcript 31.10.2012 p 36 lines 5-7.
[78] Mrs Roberts Transcript 31.10.2012 p 35 line 23.
[79] 090-022-052/53

Discussion between Dr Sands and Dr Webb

42. Dr Sands and Dr Webb agree that they discussed aspects of Claire's case, including the following:

42.1. Dr Sands believed that Claire might have non-convulsive *status epilepticus*[80].

42.2. The history, examination and findings. Dr Sands says that he briefly described Claire's findings[81], her background history, clinical history and physical findings[82]. Dr Webb says that Dr Sands described her history of seizures in infancy and learning disability[83]; her presenting problem of vomiting[84]; her white blood cell count, her glucose and the serum sodium reading[85]. Dr Webb said that he advised Dr Sands that her serum sodium reading could not account for her neurological presentation[86]

42.3. Dr Sands said that Claire had a fluctuating level of consciousness[87].

42.4. They discussed the differential diagnosis[88]. Having spoken to Dr Webb, Dr Sands added the words "Encephalopathy/encephalitis" to the note of the ward round[89].

42.5. Dr Webb approved Dr Sands's proposal to administer rectal diazepam[90].

42.6. Whether a CT scan should be undertaken[91].

42.7. Dr Webb recommended regular neurological observations[92].

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[80] Dr Webb Transcript 30-11-172 lines 14-16; Dr Sands Transcript 19.10.2012 p 165 lines 9-10
[81] Transcript 19.10.2012 p 33 line 1
[82] Transcript 19.10.2012 p 161 lines 2-8
[83] Transcript 30.11.2012 p 172 lines 24-25
[84] Transcript 30.11.2012 p 174 lines 5-11
[85] Transcript 30.11.2012 p 175 lines 4-13
[86] Transcript 30.11.2012 p 175 lines 12-13
[87] Dr Webb Transcript 30.11.2012 p 172 lines 21-22; Dr Sands 19.10.2012 p 162 lines 12-21 – rejecting the suggestion made by Ms Danes that Claire's condition had deteriorated.
[88] Dr Webb Transcript 30.11.2012 p173 lines 9-13; Sands 19.10.2012 p 163 lines 11-12; Dr Sands said that "encephalopathy" was Dr Webb's word 19.10.2012 p 167 lines 15-23
[89] WS 137/1 p 10 (c) Transcript 19.10.2012 p 170 lines 17-19.
[90] Dr Webb Transcript 30.11. 2012 p173 line 7; Dr Sands WS 137/1 p 11 (i); Transcript 19.10.2012 p 32 line 25 – p 33 line 3
[91] Dr Webb WS 138/1 p 5 (2)(a); Dr Sands WS 137/1 p 11 (i); Transcript 19.10.2012 p 114 line 22 – p 115 line 8; 19.10.2012 p 160 lines 15-19

43. They disagree about when the meeting took place. Dr Sands believes that he spoke to Dr Webb before diazepam was administered to Claire at 12:15[93]; Dr Webb believes that he spoke to Dr Sands after he had presented a talk at the Tuesday Grand Round which took place between 12:45 and 13:30[94]. They both concede that there may have been two discussions[95]. The Inquiry may feel that the precise time of the discussion or discussions between Dr Webb and Dr Sands will never be known and may not be particularly material; what is important is that Dr Sands in effect made a full presentation of Claire's case such that Dr Webb believed he had a full picture. He felt confident that he had a good history from Dr Sands such that he would not spend a long time looking at the notes[96].

44. Dr Webb believed that the blood tests mentioned by Dr Sands had been done that day because his questions related to her presentation that day[97]. Dr Webb's reading of the notes was that the bloods had been done that morning[98]. As he understood it, the sodium level that morning was not something he should be concerned about[99]. He thought that a repeat sodium test would be undertaken during Tuesday afternoon[100].

45. It appears to be suggested that Dr Webb's evidence on this issue was dishonest or incredible. We submit that this suggestion should be rejected because:

    45.1. The note containing the blood results on 090-022-052 was clearly made on Tuesday morning (as the Chairman pointed out[101]). The fact that the note was not timed or dated takes matters no further, especially given the poor note-keeping practice prevalent at the time. Dr MacFaul expresses incredulity that Dr Webb's thought the test had been done just before he saw Claire on the basis

[92] Dr Webb WS 138/1 p 6 (c)) Dr Sands ("perhaps") WS 137/1 p 8 (c), ("may be") p 18 (9)(a); Transcript 19.10.2012 p 166 lines 1-7
[93] Transcript 19.10.2012 p 32 line 18 – p 33 line 7
[94] 30.11.2012 p 169 lines 18-19 He said that he spoke with Dr Sands in corridor afterwards; they stepped into a room to discuss WS 138/2 p3; 30.11.2012 p 169 lines 19-22; 30.11.2012 p 174 line 24.
[95] Dr Sands Transcript 19.10.2012 p 34 lines 18-25; Dr Webb Transcript 30.11.2012 p 172 line 7
[96] Transcript 30.11.2012 p 191 lines 17-21.
[97] Transcript 30.11.2012 p 175 lines 18-20.
[98] Transcript 30.11.2012 p 198 line 22
[99] WS 138/1 p 70; Transcript 30.11.2012 p 233 line 1f. There is substantial evidence to support the proposition that a serum sodium of 132 mmol/l was unlikely, of itself, to explain Claire's presentation, discussed elsewhere in these submissions.
[100] Transcript 03.12.2012 p 70 lines 16-21. This was based on his own practice: Ibid. p 72 lines 4-8
[101] Transcript 30.11.2012 p 199 line 6.

that the result was timed[102]. Dr MacFaul is factually in error (Dr Webb has not said that he thought that the test had *just* been done; the note is not timed). The incredulity he urges on the Inquiry about Dr Webb's account is ill-founded and unfair.

45.2. Dr Webb explained the basis for his belief, namely that such was the practice in his previous posts and at the Royal[103].

45.3. Dr Webb acknowledged that he should have found out from Dr Sands when the blood sample was taken[104]. He said in terms, "I am not blaming Dr Sands"[105]. He conceded that he had made a mistake[106]. It would be most unusual for a liar to acknowledge responsibility in this fashion and it is hard to think why Dr Webb would lie if he accepted responsibility immediately thereafter.

45.4. The evidence about when bloods were normally taken was unclear. Dr Steen said at lunchtime or after the neurology department had consulted with the patient[107]. Several witnesses said that bloods were taken after the ward round[108]. Dr Hughes thought that U&Es would be taken "in the morning"[109]. Dr Volprecht clearly contemplated taking the U&Es herself before going off duty at 09:00[110]. There was certainly no evidence that Dr Webb knew or must have known that blood tests were not taken in the mornings.

45.5. Dr Scott-Jupp pointed out that the serum sodium level was probably a fairly minor part of the picture for Dr Webb, not prompting further inquiry of the SHO[111].

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[102] 238-002-026 §121
[103] Transcript 30.11.2012 p 176 line 1; 30.11.2012 p 199 lines 19-25; so also his statement to the Coroner 090-053-174
[104] Transcript 30.11.2012 p 176 line 16
[105] Transcript 30.11.2012 p 176 line 25
[106] Transcript 30.11.2012 p 177 line 2
[107] Transcript 15.10.2012 p 60 line 10ff
[108] Dr Stevenson Transcript 15.10.2012 p 162 line 21ff; Dr Bartholeme Transcript 18.10.2012 p 157 line 10; Dr Sands Transcript 19.10.2012 p 99 line 19.
[109] Transcript 05.11.2012 p 122 line 8.
[110] WS 136/1 p 16f.
[111] Transcript 12.11.2012 p 128 line 24 – p 129 line 21.

46. Although Dr Webb acknowledges that he made a mistake about the timing of the blood tests, we submit that it was an understandable mistake because:

46.1. Dr Sands had given Dr Webb a full presentation of Claire's case: see paragraph 42 above.

46.2. Dr Sands had told Dr Webb about the blood result, and Dr Webb made the assumption that the bloods were taken in the morning, which was his experience.

46.3. Dr Webb did not spend a lot of time looking at the notes because he had a good history from Dr Sands[112]. He is unlikely to have undertaken an analysis of the timing of a blood result which Dr Scott-Jupp describes as a minor part of the picture.

46.4. Had Dr Webb studied the notes with care, he would not have been able to discern when the bloods were taken, because the results are not timed.

The significance of the timing of the blood sample is very clear with the benefit of hindsight; at the time, it may have seemed a small detail in a large and complex picture.

47. There is some suggestion that Dr Webb delayed in seeing Claire after speaking to Dr Sands: Professor Neville persisted in suggesting that Dr Webb was "perhaps a bit slow"[113]. We submit that this criticism is harsh and unfair:

47.1. The evidence about when Dr Sands asked Dr Webb to see Claire is unclear.

47.2. The Inquiry has heard no evidence about what other demands were made on Dr Webb's time, and it is unlikely that reliable evidence on this issue would now be available.

[112] Transcript 30.11.2012 p 197 lines 17-21
[113] Transcript 01.11.2012 p 145 line 24.

47.3. Dr Webb's evidence is that he wanted to see her within the hour[114]. He did not think he was later than expected[115] He thought he went to see her very quickly[116].

Dr Webb's first examination of Claire

48. Dr Webb saw Claire between about 13:35 and 14:00. The following evidence supports this submission:

48.1. Mr and Mrs Roberts went into Belfast for lunch at 12:45 – 1300[117]. They came back at 14:05 or 14:10[118]. The doctor came while they were away. The consultation must have been over by the time Mr and Mrs Roberts returned.

48.2. Dr Webb's note is timed at 4pm[119]. He explains that he entered this in error for 14:00[120]. This timing is consistent with other timings in the notes. Dr Webb explained that the time he records is the time at which he makes his note at the end of the consultation[121].

48.3. Dr Webb said that he got to the ward at about 13:35[122]. He said that the consultation lasted 20-25 minutes[123]

48.4. Sarah Jordan (Nurse Fields) records in the nursing note "2pm seen by Dr Webb… parents not in attendance"[124]. She had gone down to Claire's cubicle at the end of her shift at 13:45 and Dr Webb was already there[125]

49. Dr Webb found out from the nursing staff that Claire's condition had improved following diazepam[126]. The following features provide support for the proposition that Claire's condition had improved:

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[114] Transcript 30.11.2012 p 180 lines 18-19
[115] Transcript 30.11.2012 p 203 line 23
[116] Transcript 30.11.2012 p 180 line 7
[117] Mrs Roberts, Transcript 31.10.2012 p 59 line 1
[118] Mrs Roberts, Transcript 31.10.2012 p 61 line 10
[119] 090-022-053
[120] WS 138/4 p 2
[121] Transcript 30.11.2012 p 196 lines 10-12
[122] Transcript 30.11.2012 p 188 line 2
[123] Transcript 30.11.202 p 197 line 1
[124] 090-040-141
[125] Transcript 29.10.2012 p 98 lines 7-17

49.1. Claire was smiling at her grandparents and pulling herself up in bed[127]. Claire reacted to Dr Webb showing her a piece of paper and took it away from him[128].

49.2. Dr Webb's assessment of Claire's condition appears in his note at 090-022-053.

49.3. This evidence suggests that Claire was certainly better than at 20:00 the night before[129] and probably the ward round.

49.4. According to the GCS results, Claire's condition then deteriorated during the afternoon (we discuss this below): the GCS observations are conveniently summarised on the timeline at 310-016-001.

At any event, we submit that Dr Webb believed, on reasonable grounds, that condition had improved following the administration of diazepam

50. Dr Webb obtained a history from Claire's maternal grandmother, Mrs Margaret Magill[130].

51. Dr Webb considered various differential diagnoses:

51.1. He considered encephalitis before he had seen Claire but when he had seen her and seen that she was afebrile, it was not high on his differential diagnosis[131].

51.2. He considered meningo-encephalitis[132]. He records in the clinical note that there was no meningism[133].

51.3. He considered raised intra-cranial pressure unlikely[134], since (a) Claire had presented with a neurological problem that could not be explained by her serum

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[126] 090-052-053; WS 138/1 p 77 (58)(b); Transcript 30.11.2012 p 214 line 4. Sarah Jordan (Nurse Fields) did not think that she had told Dr Webb this, but she has no recollection of whether Claire had in fact improved: Transcript 29.10.2012 p 100 lines 11-22
[127] WS 258/1 p 6
[128] WS 259/1 p 5
[129] See 090-022-051
[130] WS 258/1 p 5 (7)(b).
[131] Transcript 30.11.2012 p 206 lines 1-8; 03.12.2012 p 79 lines 6-9, 23.
[132] WS 138/1 p 20 (e)(iii)
[133] 090-022-053
[134] WS 183/1 p 21 (f)

sodium reading (b) she was not worse first thing in the morning[135]. There was no hypertension, bradycardia or papilloedema[136]

51.4. There was no evidence that Claire had sustained liver damage and there was no reason to think that she had ingested toxins[137]

51.5. He considered it extremely unlikely that Claire had suffered a sub-arachnoid haemorrhage, hydrocephalus or a neurosurgical presentation[138]. He dismisses the possible conditions identified by Dr MacFaul[139]

51.6. Dr Webb did not think SIADH likely at this stage because Claire's serum sodium stood at 132[140]. He did not think SIADH was a likely consequence of any of the differential diagnoses[141].

52. At 14:00 Dr Webb considered that non-convulsive *status epilepticus* was the most likely explanation[142]. In support of this view, he cites the following features:

52.1. The fact that non-convulsive *status epilepticus* is most common in children with known epilepsy and learning disability[143]; the risk of developing seizures following infantile epilepsy is 60-70%[144].

52.2. There was a history of possible convulsive activity the previous day[145]

52.3. Claire had a fluctuating course[146].

52.4. She had responded to diazepam[147].

[135] Transcript 03.12.2012 p 39 lines 7-16
[136] Transcript 03.12.2012 p 41 lines 4-6
[137] Transcript 03.12.2012 p 57 line 12 – p 59 line 1
[138] Transcript 30.11.2012 p 225 line 18 – p 226 line 3
[139] Transcript 03.12.2012 p 109 line 18 – p 110 line 10. There is, we suggest, a mis-transcription on p 109: Dr Webb *dismissed* the other diagnoses; he did not "just miss" them.
[140] WS 138/1 p 21 (j)
[141] Transcript 03.12.2012 p 81 lines 19-25.
[142] Transcript 30.11.2012 p 207 line 20; WS 138/1 p 20 (e)
[143] WS 138/1 p 20 (e)(i)
[144] Transcript 30.11.2012 p 183 lines 11-16
[145] Transcript 30.11.2012 p 218 lines 4-6
[146] Transcript 03.12.2012 p38 lines 19-20
[147] Transcript 03.12.2012 p38 lines 22-23

He concluded that Claire had come off anti-epileptic drugs; she had developed a viral illness that had triggered further sub-clinical seizures[148]

53. Dr Webb did not think that Claire was systemically unwell[149]. He felt that Claire could be managed on the ward with the treatment he was suggesting[150] . He did not expect that Claire would deteriorate quickly[151]. He thought that it was a situation Claire could come out of[152]. He thought the risk was low[153].

54. Dr Webb considered obtaining an EEG but he was conscious that it was going to be very difficult because the EEG service was extremely stretched[154]. His clinical judgment was that he should treat the condition and look for a response[155]. He rejected obtaining a CT scan because he did not think that it would help him[156].

55. Dr Webb's plan[157] was to treat Claire's non-convulsive *status epilepticus* by administering phenytoin[158]. If she improved, his diagnosis was confirmed[159]. If there were no improvement[160], he intended to advise a lumbar puncture and CT scan[161].

Tuesday afternoon

56. Dr Stevenson miscalculated the loading dose of phenytoin administered to Claire as 18 mg/kg x 24kg = 632 mg[162]. The dose was administered at 14:45[163]. It is uncertain whether the dose was administered whilst Claire was monitored by ECG.

57. Dr Webb did not see Claire between 1400 and 1700. The features supporting this submission are as follows:

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[148] Transcript 03.12.2012 p 62 lines 18-21; p 67 lines 12-14.
[149] Transcript 30.11.2012 p 211 lines 22-23
[150] Transcript 30.11.2012 p 213 lines 13-16
[151] Transcript 30.11.2012 p 225 line 12
[152] Transcript 30.11.2012 p 226 lines 10-11
[153] Transcript 03.12.2012 p 107 line 8
[154] WS 138/1 p 23; Transcript 30.11.2012 p 208 lines 1-3
[155] Transcript 30.11.2012 p 210 lines 4-5
[156] WS 138/1 p 26 (d); Transcript 30.11.2012 p 223 line 25 – p 224 line 15
[157] The plan recorded in the notes is at 090-022-054
[158] Which he expected to be administered stat (i.e. immediately) and then after 6h: Transcript 30.11.2012 p 202 lines 2-16.
[159] Transcript 30.11.2012 p 226 lines 19-21
[160] This is what Dr Webb meant by "if she doesn't wake up": Transcript 03.12.2012 p 113 lines 7-11.
[161] WS 138/1 p 84 (e) – p 85; Transcript 03.12.2012 p 107 lines 18-21
[162] 090-022-054.
[163] 090-026-075.

57.1. Mrs Roberts was present on the ward from 14:10 until she went for a tea break at 16:15[164]. If Dr Webb (or any other doctor) had attended at any time between 14:00 and 16:15, one would have expected evidence from Mrs Roberts that she had seen the doctor. On the contrary, her evidence was that the only time she spoke to Dr Webb was at 17:00[165]; she said that when she came back from her tea break at 16:30, the parent of another child in the room mentioned that she had missed the doctor[166]. Mrs Roberts said in terms that no doctor came to see Claire between her seizure at 15:25 and when Dr Webb came at 17:00.

57.2. In his statement to the Coroner[167] Dr Webb says that he reviewed Claire during the afternoon because of concerns about on-going seizure activity. It is clear from that statement that he is drawing an inference from the notes, rather than genuine recollection. The same point applies to his witness statement[168]. The note from which he draws the inference was Dr Stevenson's note at 090-022-055 "S/b Dr Webb…" which is not timed and as to which Dr Stevenson says "I wasn't actually with him at the time"[169]. If the note records a visit by Dr Webb, it presumably occurred before the time at which midazolam was administered, because the (mis) calculation of the dose appears in the note after the words "S/b Dr Webb…".Thus, any visit by Dr Webb is likely to have been before 15:25, when Mrs Roberts would surely have seen him.

57.3. Dr Webb gave evidence that he was increasingly uncertain that he saw Claire at this time[170]. He said that it was unlikely that he attended[171].

58. It is clear that there was a mis-communication about the loading dose of Midazolam in the telephone conversation between Dr Webb and Dr Stevenson: Dr Webb accepted

[164] WS 257/2 p 3; Transcript 31.10.2012 p 88 lines 8-14
[165] WS 257/2 p 4
[166] Transcript 31.10.2012 p 88 lines 20-22.
[167] 090-053-165
[168] WS 138/1 p 31 (21)
[169] Transcript 16.10.2012 p 128 lines 5-8.
[170] Transcript 30.11.2012 p 235 lines 13-16
[171] Transcript 03.12.2012 p 84 line 23

responsibility for this[172]. We submit that Dr Webb has never sought to conceal his part in the administration of Midazolam: he was entirely frank to the Inquiry in accepting responsibility for the mis-communication. The suggestion that Dr Webb has somehow sought to distance himself from this error ought to be rejected.

59. Claire suffered a prolonged seizure some time after 15:00. Mrs Roberts witnessed the seizure: she said that Claire's body went rigid; it was very strong and lasted a long time[173]. The nursing note records the seizure at 15:10[174] but Mrs Roberts wrote the note and timed it at 15:25[175].

60. Dr Webb advised that Claire should be prescribed midazolam. He believes he spoke by telephone to a doctor who must have been Dr Stevenson and advised a loading dose of 0.15mg/kg[176]. Dr Stevenson calculated the loading dose as 0.5mg x 24kg = 12mg[177], though he noted in the prescription sheet that 120mg were administered at 15:25[178]. Dr Webb accepted that he was responsible if Dr Stevenson misconstrued his advice[179]

61. The Inquiry can rule out the possibility that Claire was given 120mg midazolam[180]:

    61.1. Such a dose would have had an immediate effect requiring at least admission to PICU[181];

    61.2. The number of vials required to administer such a dose is infeasibly large[182] ;

    61.3. The Trust did not keep such a quantity of midazolam on the wards[183].

[172] Transcript 30.11.2012 page 251. On 03.12.2012 the Chairman put directly to Dr Webb that he was seeking to distance himself from the Midazolam miscalculation; Dr Webb said he accepted responsibility for the miscommunication: p 89 lines 12-24.
[173] Mrs Roberts Transcript 30.10.2012 p 77 lines 16-23
[174] 090-042-144
[175] Mrs Roberts Transcript 30.10.2012 p 79 line 25 – page 80 line 3
[176] WS 138/3 p 2, Transcript 30.11.2012 p 250 line 12.
[177] 090-022-055
[178] 090-026-075
[179] Transcript 30.11.2012 p 251 lines 6-7.
[180] Dr Aronson Transcript 08.11.2012 p 289 line 19ff
[181] Professor Neville [232-002-017]; Dr Aronson [237-002-014]
[182] Professor Neville [232-002-017]
[183] [302-085-001]

62. It is possible that no loading dose of Midazolam was administered at all, since the column headed "given by" in the drug chart is blank in the case of this particular drug[184].

63. The seizure observed by Mrs Roberts shortly after 15:00 occurred before Midazolam was administered. The Inquiry should draw this conclusion for the following reasons:

63.1. On paper, the seizure preceded the administration of midazolam in that the note of Claire's seizure is timed at 15:10 and Dr Stevenson timed the administration of midazolam at 15:25. (Mrs Roberts thought the seizure occurred at 15:25: see paragraph 59 above. Mrs Roberts and Dr Stevenson cannot both be correct.)

63.2. At the time of the seizure, Mrs Roberts was not aware that Claire had had any medication[185]. A doctor would have had to administer the midazolam, and Mrs Roberts did not see any doctor: see the submission at paragraph 57.1 above.

63.3. Dr Webb believes that he suggested the administration of Midazolam in response to a report that Claire had suffered a seizure[186].

63.4. As the Chairman pointed out, phenytoin was administered at 14:45[187]. It is unlikely that Dr Webb would have advised the administration of Midazolam 30-40 minutes later (and before the phenytoin may have taken effect[188]) unless some significant episode had occurred that prompted Dr Webb to advise midazolam.

17:00 examination

64. Dr Webb re-examined Claire at about 17:00. Dr Stevenson and Dr Sands were present[189]. Dr Webb undertook a diagnostic re-assessment[190] in which

[184] 090-026-075.
[185] Transcript 31.10.2012 p 80 lines 4-7.
[186] Transcript 30.11.2012 p 238 lines 7-8; 30.11.2012 p 245 lines 8-9; 03.12.2012 p 19 lines 2-4; 03.12.2012 p 138 lines 10-11
[187] 090-026-075
[188] Dr Aronson says that phenytoin has effect 30-60 minutes after administration: 237-002-009
[189] WS139/1 p22; Dr Webb believes that he had a discussion with Dr Sands at this consultation: Transcript 03.12.2012 p 129 line 13; p 135 lines 8-10; p 137 lines 10-11 and 22-23.

64.1. He checked to see that Claire had no evidence of raised intra-cranial pressure[191].

64.2. He considered meningo-encephalitis and encephalomyelitis[192]. He thought that the possibility of infection needed to be considered[193] - it now seemed more probable than previously, though he still thought a recurrence of underlying epilepsy was more probable[194]. He recorded in the notes that he did not think meningo-encephalitis was very likely[195]

65. He took a further history from Mrs Roberts: see the submissions at paragraph 35 above.

66. He advised the prescription of cefotaxine and acyclovir against the possibility that Claire had developed a bacterial or herpetic infection. He also advised intravenous sodium valproate in an attempt to control Claire's persisting seizures. He also asked for viral cultures to be taken. He did not suggest doing other blood tests because he expected that they would be done in any event[196] by the paediatric team[197].

67. At 17:00, Dr Webb was concerned about Claire, but expected her to improve or at least remain stable[198]. He thought that there had been no significant change in terms of her vital signs and observations, but her responsiveness had changed, perhaps because of her medication[199]. He expected to be called if Claire got worse[200]. If he thought she was going to deteriorate after 1700 he would have referred Claire to PICU[201].

68. Dr Webb told Mrs Roberts that he understood that Claire had a viral infection, that this had triggered non-convulsive *status epilepticus* for which she was receiving

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[190] WS 138/1 35 (ix); Transcript 03.12.2012 p 172 lines 14-18.
[191] WS 138/1 p 35 (vi)
[192] WS 138/1 p 17 (d)
[193] Transcript 03.12.2012 p 174 lines 2-4.
[194] Transcript 03.12.2012 p 178 lines 2-16.
[195] 090-022-055
[196] Transcript 03.12.2012 p 194 lines 6-7
[197] Transcript 03.12.2012 p 195 line 6; p 196 lines 13-14
[198] Transcript 03.12.2012 p 155 lines 14-17; p 156 lines 8-11.
[199] Transcript 03.12.2012 p 114, lines 20-24; p. 165 lines 2-6
[200] Transcript 03.12.2012 p. 200 lines 4-7; p. 201 lines 11-14. He was the on-call neurological consultant: 091-008-037; WS 138/1 p 71(k), p 87(n); Dr Steen Transcript 16.10.2012 p 25 lines 19-21;
[201] Transcript 03.12.2012 p. 205 lines 19-22.

medication; He told her that Claire might have a viral infection for which she was also being treated[202]. It is unlikely that he told Mrs Roberts that he thought Claire was seriously ill[203].

Tuesday evening

69. Claire's neurological condition improved after Dr Webb's visit: see the Glasgow Coma Score chart at 310-011-001. The improvement is vividly described by Mr Roberts:

> "I recall at least around that time, if I'm back shortly before 6.30, certainly around 7, 8 o'clock, I do recall Claire opening her eyes and looking at us and us reassuring her and talking to her and explaining that the doctor had seen her, she had had a seizure and a doctor's given her medication, and encourage her, if you like, to rest and sleep… I recall Claire being wakeful"[204]

70. Dr Hughes checked Claire's phenytoin levels at about 21:30[205].

71. When Claire's blood results were reported to the ward at 23:00, the serum sodium stood at 121 mmol/L and the serum phenytoin stood at 23.4mg/L[206]. Dr Webb was not consulted at any time between 17:00 on Tuesday and 04:00 on Wednesday[207]

PICU

72. Claire was Cheyne-Stoking and later stopped breathing at about 02:30 on Wednesday 23 October 1996. Dr Bartholeme was called. She tried to pass an endotracheal tube, but did not succeed. An ET tube was passed by Dr Clarke, the anaesthetic registrar. Claire was transferred to the paediatric intensive care unit[208].

73. Dr Steen attended PICU before Dr Webb arrived[209]. Dr Webb performed his own examination and reached conclusions about the cause of Claire's condition[210]. A CT scan was undertaken: the report is at 090-033-114.

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[202] Transcript 03.12.2012 p 189 lines 3- 12.
[203] Transcript 03.12.2012 p 191 lines 2-3
[204] Transcript 31.10.2012 p 115 lines 3-9
[205] Transcript 05.11.2012 p 155 line 21
[206] 090-022-056
[207] WS 138/1 p 62 (ii)
[208] Nursing note 090-040-138, 139; Dr Bartholeme's note 090-022-056, and see WS 142/1 p 17-19; WS 142/2 p 3
[209] Transcript 03.12.2012 p 206 lines 17-19.
[210] 090-022-057

74. Dr Steen and Dr Webb discussed Claire's condition with Mr and Mrs Roberts before and after she had a CT scan. This was the first time that the Robertses had met Dr Steen[211]. Dr Steen took the lead[212]. Dr Webb acknowledges that he does not have a clear recollection of these discussions, but he believes that

74.1. The explanation given to Claire's parents would have been along the lines set out in his clinical note at 090-022-057[213]

74.2. The discussion included an explanation that brain swelling was caused by low sodium[214]

74.3. The nursing note does not accurately record the conversation[215] - Dr Webb is referring to the Relative Counselling Record 090-028-088 the entries in which are not signed and which is incorrectly dated.

75. Dr Steen and Dr Webb completed a form for diagnosis of brain death at 06:00 and at 18:25[216]. His view was that the medications Claire had received could not account for her brain herniation, which was not a reversible condition[217].

76. Dr Steen discussed with Mr and Mrs Roberts whether a partial post mortem examination should be undertaken. The Inquiry is invited to find that Dr Webb took no part in this conversation for the following reasons:

76.1. Dr Webb was not aware that there was only a partial post mortem examination[218].

76.2. Dr Webb said that he took no part in the discussion[219]. He says he did not discuss the issue with Dr Steen[220].

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[211] Transcript 31.10.2012 p 144 line 19
[212] Dr Webb Transcript 03.12.2012 p 210 lines 3-4; Mr and Mrs Roberts 31.10.2012 p 145 lines 15-17; p 151 lines 16-19
[213] WS 138/1 p 50 (e) and (f)
[214] Transcript 03.12.2012 p 211 lines 8-11
[215] WS 138/1 p 50 (f)
[216] 090-045-148
[217] Transcript 03.12.2012 p 275 lines 9-14
[218] WS 138/1 p 52 (a) and (b)
[219] WS 138/1 p 52 (e); p 91

76.3. Dr Webb's view was that there was no indication to limit the examination to the brain; a full post mortem might have been useful, given the suspicion that gastro-intestinal infection was suspected[221].

76.4. Mr Roberts described the discussion with Dr Steen[222]. Mr McCrea intervened to notify the Inquiry that his instructions were that Dr Webb played no part in the discussion[223].

Dr Webb did not complete the autopsy request form[224].

77. A limited post mortem examination pre-supposes that the case will not be referred to the coroner. Dr Webb was not involved in the decision not to refer the case to the coroner[225] though he did not feel it necessary to refer Claire's case to coroner because he believed that this was a natural death triggered by viral infection; if he had felt it necessary to refer the case to the coroner, he would have said so[226].

78. Dr Webb was not consulted about Claire's death certificate[227].

Aftermath

79. Dr Webb took part in no grand round concerning Claire's death[228]. He played no part in the meeting between Dr Sands and Mr and Mrs Roberts on 11 November 1996[229]. There was a meeting on 3 March 1997 between Dr Sands and Mr and Mrs Roberts, but Dr Webb did not take part in it[230]. By the time of the meeting on 7 December 2004, Dr Webb had left the RBHSC and he took no part in it[231].

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[220] Transcript 03.12.2012 p 226 lines 1-4; 14-16
[221] Transcript 03.12.2012 p 227 lines 2-5
[222] Transcript 13.12.2012 p 94 lines 7-17
[223] Transcript 03.12.2012 p 236 line 25 – p 237 line 4.
[224] WS 138/2/ p 19 (30).
[225] WS 138/1 p 53 (l); Transcript 03.12.2012 p 233 line 23
[226] Transcript 03.12.2012 p 232 lines 10-20
[227] WS 138/1 p 54(d)
[228] Transcript 03.12.2012 p 291 lines 12-16
[229] 090-022-061; WS 138/1 p 92(a) and (b)
[230] WS 253/1 p 17; WS 257/2 p 5
[231] WS 138/1 p 93 (82)

Analysis: general submissions

80. In this section, we make general submissions about the causes of Claire's illness and their consequences.

Enterovirus

81. It is likely that Claire had contracted a viral infection which caused her to present with serious neurological symptoms. This submission is supported by the following:

81.1. Professor Neville thought that intercurrent viral infection was the most likely primary diagnosis[232] . In evidence, he said "I think it's most likely that she had an intercurrent viral infection and that she therefore became at risk of developing hyponatraemia. So I think it's likely that she had two things, not just one."[233]

81.2. Dr Scott-Jupp thought that a viral infection – probably of the bowel – affected her brain and commenced the sequence that led to her death[234].

81.3. When Claire presented at RBHSC she was already quite ill and presented with significant neurological symptoms: see paragraph 38 above. It is unlikely that her neurological presentation was caused by hyponatraemia: see the submissions at paragraph 82 below.

81.4. Claire had been exposed to another child with gastro-intestinal symptoms; she developed vomiting. Such symptoms suggest infection by enterovirus which could account for her neurological symptoms on admission[235]

81.5. Claire's white blood cell count was elevated, suggesting infection[236].

Hyponatraemia

82. Claire's serum sodium at 20:00 on Monday 21 October 1996 was 132mmol/L. As to this:

[232] 232-002-002
[233] Transcript 04.12.2012 p 37 lines 19-22
[234] Transcript 04.12.2012 p 132 lines 7-20
[235] See Professor Cartwirght's evidence: Transcript 07.11.2012 p 51 lines 19-24.
[236] Professor Cartwright Transcript 07.11.2012 p 18 line 18 – p 19 line 16.

82.1. The dictionary definition of hyponatraemia is "a lower than normal concentration of sodium in the blood."[237] The OED provides the following quotation to support its definition: "Hyponatremia may be defined somewhat arbitrarily as a plasma sodium concentration less than 130 mM/L in man."[238] Nelson's *Textbook of Pediatrics* defines hyponatraemia as "Serum sodium < 130 mEq/l"[239] In evidence, many witnesses took the lower limit of normal to be 135 mmol/l.[240] Perhaps the most helpful comments came from Dr Scott-Jupp who made the points that (a) the normal range is defined by the laboratory and is based on statistical analysis (b) a proportion of perfectly healthy people may fall outside the normal range.[241] Thus, Dr Scott-Jupp was being accurate, not evasive, when he responded to the question "… but does 132 still get described as 'normal'?" with these words: "I think that depends on what you mean by 'normal'."[242] We submit that it could not be said with certainty or accuracy that Claire was hyponatraemic at this time.

82.2. It is not unusual or remarkable for a child with a history of vomiting to be admitted to hospital with a serum sodium reading of 132. Such a child might be described as having a "marginally low" serum sodium reading[243].

82.3. It is unlikely that a serum sodium reading of 132 would, of itself, account for any significant neurological symptoms.[244]

83. Claire's condition on admission on Monday evening could not have been caused by the administration of excessive intravenous fluid, because at that stage, she had not had any intravenous fluids.

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[237] OED Online (Oxford English Dictionary).
[238] 1969 L. G. Wesson Physiol. Human Kidney xxvii. 554/1
[239] 311-018-005.
[240] Thus Dr Sands Transcript 19.10.12 p. 104; Professor Neville Transcript 01.11.12 p. 95 line 13.
[241] Transcript 12.11.12 p 130. Logically, Dr Scott-Jupp's point is unassailable, for if the normal range is said to be 135-145 with a confidence interval of 95%, it follows that 5% of the population will fall outside that range.
[242] Transcript 12.11.12. p 131 line 3.
[243] See the nursing staff Geraldine McRandall Transcript 29.10.12 p 31 line 7; Nurse Rooney WS 177/1 p 39 2(a); Medical staff Dr O'Hare Transcript 18.10.12 p. 154; WS 135/1 p 14 (18)(c); Dr Sands Transcript 19.10.12 p 104 line 16ff; WS 137/1 p. 42 (23)(b); Dr Volprecht Transcript 01.11.12 p 18 line 7ff.
[244] See Dr Steen Transcript 17.10.12 p 109 line 21; Dr O Hare Transcript 18.10.12 p. 181 line 13; Professor Cartwright Transcript 07.11.12 p. 81 line 2ff; Dr Webb *passim* but especially Inquest statement 090-053-174, witness statement WS138/1 pp. 21, 22, 64, 70; Transcript 30.11.12 p 175; Dr Scott-Jupp Transcript 12.11.12 p 49 line 14ff; Dr Bingham Inquest deposition 091-006-026; Professor Young 091-010-064

84. Claire undoubtedly became more hyponatraemic between Monday evening and Tuesday night.[245] Although it is tempting to assume that Claire's serum sodium fell in a uniform manner during her stay on Allen ward, this assumption cannot be made without considering these features:

84.1. There is no direct evidence of how her serum sodium level fluctuated between these two readings because no other serum sodium tests were undertaken.

84.2. Claire's condition fluctuated substantially during her admission, in particular (a) between Monday evening and Tuesday morning: see paragraph 40 above; (b) after the administration of diazepam on 12:15 (c) during Tuesday afternoon (when the deterioration could be explained by the administration of anticonvulsant drugs) (d) her condition appears to have improved after about 18:30 – see paragraph 69 above. This feature does not appear to be consistent with a uniform fall in serum sodium.

85. The relevant potential causes of hyponatraemia in Claire's case were:

85.1. The syndrome of inappropriate anti-diuretic hormone ("SIADH"). One cause of SIADH is diseases of the central nervous system.

85.2. Fluid overload.[246]

We submit that it is misleading to propose a strict dichotomy between SIADH and fluid overload; if a patient develops SIADH, it will probably be appropriate to reduce their fluid intake[247]; it follows that a "normal" patient may well be able to tolerate a higher fluid load than a patient with SIADH[248] and a patient with SIADH will be more prone to fluid overload.

[245] A blood sample taken shortly after 20:00 on Monday 21 October (Dr O Hare WS 135/2 p. 3) produced the reading of 132 mmol/L; the reading taken at 21:30 on Tuesday 22 October (see 090-040-138) was 121 mmol/L: see Dr Stewart's note at 090-022-056.
[246] Described in Nelson *Textbook of Pediatrics 15th ed* as "the addition of excess water from an exogenous source" 310-018-005.
[247] See, for example, Nelson *Pediatrics* 15th ed (1996) paragraph 56.6 311-018-007.
[248] Thus Dr Webb Transcript 30.11.2012 p 162 lines 4-8.

86. The preponderance of the expert evidence favours the view that Claire developed the SIADH:

86.1. Professor Neville's report is predicated upon the assumption that Claire developed SIADH: see for example at 232-002-015, "The cause of Claire's SIADH is not known"

86.2. Dr Aronson said that the tests show that this hyponatraemia was probably caused by SIADH rather than fluid overload[249]. He said that the tests suggest this very strongly[250].

86.3. Dr Webb's view was that Claire had developed SIADH[251]. His view was endorsed by Professor Young[252] and HM Coroner[253].

86.4. Professor Young explained his view that "fluid overload" was associated with hypervolaemia and SIADH was associated with euvolaemia. He thought that there was no possibility that Claire would have developed hyponatraemia without SIADH[254].

87. Claire's development of this condition in this manner was unusual:

87.1. Dr Webb suggests that hyponatraemia is itself rare: he had only seen 15 cases in 10 years[255].

87.2. The way in which Claire's hyponatraemia developed was alarmingly rapid and most children, even presenting in very similar situations, having received exactly the same treatment, would not have deteriorated so rapidly.[256]

87.3. Dr Bingham thought that the intravenous fluid volume recorded in the charts could not account for her very low serum sodium level.[257] Dr Webb also

[249] 08.11.2012 p 255 line 6ff
[250] 08.11.2012 p 257 line 3. He explained which tests he relied on at p 258. But then he said that if there was no test for urine osmolality he was not so sure: p 260 line 10
[251] See his clinical note 090-022-057.
[252] 091-010-066;
[253] 091-002-002
[254] Transcript 10.12.2012 p 165 line 13 – p 166 line 20.
[255] WS 138/1 p 95
[256] Dr Scott-Jupp: Transcript 04.12.2012 p 146

explained that the fluids administered to Claire would not normally have caused problems[258].

88. The principal importance of hyponatraemia in Claire's case is that, if untreated, it can cause cerebral oedema.

Cerebral oedema

89. Cerebral oedema is a rare condition.[259]

90. Cerebral oedema may cause raised intra-cranial pressure. The consequences of untreated raised intra-cranial pressure are set out in Forfar & Arneil[260]. The signs of raised intra-cranial pressure are papillodema and bradycardia[261] though it can be difficult to detect raised intra-cranial pressure clinically[262]. There is an issue, discussed at paragraph 118 below, whether CT scanning would have revealed cerebral oedema.

91. Dr Webb gave (unchallenged) evidence that the fact that Claire was better at 07:00 on Tuesday morning was strongly against a diagnosis of raised intra-cranial pressure at that stage[263]. He found no signs of raised intra-cranial pressure at 17:00 on Tuesday[264]. If Claire was developing cerebral oedema at this stage, her condition when she saw her parents later on that evening belied her condition: see paragraph 69 above.

92. There is no doubt that Claire developed raised intra-cranial pressure that eventually caused coning – see:

92.1. Dr Webb's conclusion recorded in the medical notes[265]

92.2. The CT Scan[266]

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[257] 091-006-026
[258] 03.12.2012 p 213 line 25 – p 214 line 8.
[259] Dr Scott-Jupp Transcript 12.11.12 p. 44 line 24, p. 45 line 2ff.
[260] 311-019-012
[261] Dr O Hare WS 135/1 p. 7
[262] Transcript 03.12.2012 p 83lines 16-17.
[263] Transcript 03.12.2012 p 38 lines 20-22.
[264] WS 138/1 p 35 (vi).
[265] 090-022-057.
[266] 090-033-114.

92.3. Dr Squier's pathology report[267]

This was responsible for her respiratory arrest at 02:30 on Wednesday morning.

Non-convulsive *status epilepticus*

93. We invite the inquiry to conclude Claire presented with non-convulsive *status epilepticus* (or at least to decide that it cannot be concluded she did not present with non-convulsive *status epilepticus*) for the following reasons:

93.1. Claire had epileptic seizures in infancy. She had learning disability. She was at high risk of developing further epileptic seizures[268]. Dr Webb disagreed with Professor Neville that Claire had merely suffered infantile spasms[269] (which according to Professor Neville meant that her epilepsy would go away or persist almost continuously[270]). Dr Hicks described Claire's seizures as "Salaam" seizures.[271]

93.2. Contraction of an enterovirus triggering a recurrence of seizures is a plausible explanation[272]

93.3. Claire presented with a history of recent focal seizure: see the submissions at paragraph 35 above.

93.4. Claire's condition was reported as having improved after diazepam. Dr Webb relies upon this feature[273]. Dr Scott-Jupp though that this feature was "almost diagnostic"[274].

93.5. On various occasions on Tuesday, Claire suffered seizures. Her seizures were, or were at least consistent with, breakthrough seizures: see below, "Seizures".

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[267] 236-003-004 (14)
[268] Dr Webb: WS 138/1 p 14(b); Transcript 30.11.2012 p 183 lines 11-15. Professor Neville 232-002-001; Transcript 04.12.2012 p 41 lines 2-4.
[269] Transcript 03.12.2012 p 43 lines 4-10; Dr Neville agreed with this(Transcript 01.11.2012 p 112 line 23-24) but see next note.
[270] Transcript 01.11.2012 p 112 line 23 – p 113 line 7.
[271] 090-015-028
[272] Dr Scott-Jupp 234-002-004; Dr Webb WS 138/1 p 11 (h); Transcript 30.11.2012 p 174 lines 5-11; Professor Neville Transcript 04.12.2012 p 47 lines 6-14.
[273] 096-010-069; WS 138/1 p 18(g); p 78(g)
[274] 234-002-004.

93.6. There is no EEG that demonstrates that Claire was not suffering from non-convulsive epilepsy. (This is the corollary of the criticism that because he had not organised an EEG, Dr Webb could not be sure that she was.)

93.7. Claire's condition fluctuated[275].

93.8. Professor Neville thought that non-convulsive *status epilepticus* ought to have been considered in the differential diagnosis[276], presumably because it was a serious possibility.

93.9. The evidence to support other diagnoses is exiguous.

Seizures

94. Claire suffered several seizures during her admission to hospital[277]. As to these:

94.1. The evidence of Professor Neville on this issue requires careful analysis. The reasoning in his report is opaque: He says,

> "It is more likely that hyponatraemia and brain oedema caused the seizures on 22nd October from 15.10 / 15.25 onwards and the reduced conscious level because non-convulsive epilepsy causes reduced and often fluctuating conscious levels"[278]

Professor Neville does not explain than what hyponatraemia was more likely (presumably more likely than epilepsy?). But Claire did have reduced and fluctuating conscious levels. The logic of this sentence is not understood.

In his evidence, Professor Neville appears to distinguish between the seizure at 15:10/15:25, which he describes as "a proper seizure"[279] and other seizures. It is far from clear what distinction he was drawing and to what (if anything) he attributed the difference between the "proper" seizure and the others.

[275] Dr Webb Transcript 03.12.2012 p 38 line 20. Professor Neville appears to accept that fluctuations in Claire's presentation might indicate this diagnosis, but the fluctuations would have to be between "close to normal and then severely going off again" 04.12.2012 p 24. What account had Professor Neville taken of Claire's improvement at about 18:30 on Tuesday?
[276] 232-002-003.
[277] See the record of seizures at 090-042-144
[278] 232-002-001
[279] Transcript 05.11.2012 p 60 lines 15-16, p 61 lines 22-23

Professor Neville makes the point that hyponatraemia can itself cause seizures. However, we submit that his views are expressed tentatively in that he conceded (a) "it is possible that the child had continuous seizures as well. We just don't know" [280] (b) the seizure at 15:10/15:25 might have been a breakthrough attack[281].

94.2. We suggest that the Inquiry should conclude that some or all of her seizures were epileptic seizures ("breakthrough seizures") consequent on her non-convulsive *status epilepticus*. Dr Webb considered that the seizures were epileptic seizures[282]. Dr MacFaul agreed that the seizures could have been epileptic[283]. The corollary of this submission is that the Inquiry should reject the suggestion that all of these seizures were caused by hyponatraemia.

94.3. The Inquiry should reject the suggestion that her seizures were caused by her anti-epileptic medication. Although there was evidence that some of the medication prescribed for Claire might cause paradoxical seizures:

- There is insufficient evidence to justify the conclusion that phenytoin caused such a seizure[284]
- Midazolam could not have caused or contributed to the seizure at 15:10/15:25 because the Midazolam was administered after the seizure took place: see the submissions at paragraph 63 above. See also the submissions at 140 below.

Other possible diagnoses

95. Claire's presentation is unlikely to have been caused by ingestion of toxins[285] because:

95.1. There is no evidence that she had ingested any toxins[286];

[280] Transcript 05.11.2012 p 61 lines 2-3
[281] Transcript 05.11.2012 p 63 lines 2-5.
[282] WS 138/1 p 10(g); p 20; 32(b); 89 (68) Transcript 30.11.2012 p 238 lines 17-21
[283] Transcript 14.11.2012 p 62 line 5
[284] Professor Neville thought it "rather unlikely" Transcript 05.11.2012 p 26 lines 21-22. Professor Aronson said that it was "impossible to say" 237-002-011. Such drugs give rise to paradoxical seizures "occasionally – and it isn't common" Transcript 08.11.2012 p 188 line 19. It was not probable: p 189 lines 5-6.
[285] Thus Dr Webb Transcript 03.12.2012 p 58 line 25 – p 59 line 1; Professor Neville Transcript 04.12.2012 p 23 lines 16-20

95.2. Her condition fluctuated; she was not going into more severe coma[287].

96. There was no evidence that Claire had impaired liver function[288]. She had no hepatomegaly[289], none of the stigmata of liver disease or any signs of Reye's syndrome[290]. It was very unlikely that Claire had a hepatic encephalopathy[291]. We can infer that Dr Scott-Jupp believed that impaired liver function was not causative of Claire's condition[292].

97. Claire did not present with overwhelming infection. Her pulse rate was normal, her blood pressure was normal and she did not have a fever[293]. Professor Neville did not think that Claire was in this state[294].

98. The Inquiry can eliminate a sub-arachnoid haemorrhage, hydrocephalus or a neurosurgical presentation, since the CT scan undertaken on 23 October 1996 gives no evidence of such[295]. It was said that a CT scan ought to have been undertaken in order to discover whether these conditions existed[296].

99. Encephalitis remains a possibility. However, Claire was afebrile, and several practitioners gave evidence that this feature made encephalitis unlikely[297]. The preponderance of pathological evidence suggests that there was no encephalitic infection[298].

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[286] Dr Webb Transcript 03.12.2012 p 57 line 12 – p 59 line 1
[287] Professor Neville 04.12.2012 p 21 lines 11-13
[288] Dr Scott-Jupp Transcript 12.11.2012 p 29 lines 18-20; Dr Webb Transcript 03.12.2012 p 57 lines 12-13
[289] Dr O' Hare Transcript 18.10.2012 p 118 lines 4-5.
[290] Dr O Hare Transcript 18.10.2012 p 136 line 11 – p. 137 line 14
[291] Dr O Hare Transcript 18.10.2012 p 143 lines 5-7.
[292] Transcript 12.11.2012 p 30 lines 22-23.
[293] Dr O Hare Transcript 18.10.2012 p 146 lines 2-4.
[294] Transcript 01.11.2012 p 47 lines 18-19.
[295] 090-033-114.
[296] Professor Neville 232-002-006;
[297] Dr Webb Transcript 03.11.2012 p 206 lines 1-2; Dr O' Hare WS 135/1 p 6 (d); Transcript 18.10.2012 p 130 lines 19-23
[298] Professor Harding 235-002-001; Dr Squire 236-003-004 (13), 005 (18), 007, 236-004-002. Dr Cartwright believes that Claire's presentation is consistent with acute fulminant encephalitis 233-002-006.

The consequences of Dr Webb's mistake about the timing of the blood test

100. Dr Webb genuinely but mistakenly believed that the serum sodium result came from a blood test that had been performed earlier that morning: see our submissions at paragraphs 44 and 45 above. In consequence:

100.1. He discounted the possibility that Claire might have developed the SIADH[299]. (Had he known when the test was taken he would have considered cerebral oedema earlier and would have directed fresh blood tests[300]. This may have revealed that Claire's serum sodium had decreased – though it may not: see paragraph 84 above).

100.2. He did not seek to restrict Claire's fluids. (Dr Webb knew of the link between low-solute intravenous fluids and SIADH[301] and he was clear that if he had diagnosed SIADH, he would have restricted Claire's fluids[302].)

100.3. He was even less likely to seek a CT scan than he might otherwise have been. (If he suspected possible cerebral oedema as a consequence of a low serum sodium reading obtained following a repeat blood test, he might have considered a CT scan, though his view is that a CT scan would not necessarily have shown cerebral oedema[303].)

Investigations

101. In this section of the submissions, we address the investigations that it is alleged ought to have been undertaken.

Blood tests

102. The material blood tests were as follows:

[299] WS 138/1 p 31; transcript 30.11.2012 p 226 lines 5-6; 03.12.2012 p 50 line 22 – p 51 line 3; p 52 lines 15 – 20; p 81 lines 19-23
[300] Transcript 03.12.2012 p 54 lines 18-24
[301] Transcript 03.12.2012 p 74 lines 16-17
[302] Transcript 03.12.2012 p 221 lines 21-22
[303] Transcript 03.12.2012 p 84 lines 4-11

102.1. Dr O'Hare ordered U&Es for Claire and blood was taken shortly after 20:00 on Monday 21.10.96[304] and the results were recorded in the notes at around midnight[305].

102.2. Bloods were taken again at about 21:30 on Tuesday night (probably to check the concentration of Phenytoin)[306] and the results were recorded at 23:30[307].

103. It was routine at the time to check serum electrolytes of a child on intravenous fluid every 24 hours; even today a child with serum sodium of 132mmol/l would not have warranted a repeat test within 6 hours[308]. Professor Neville and Dr Scott-Jupp nevertheless believe that Claire's serum sodium ought to have been tested on the morning of Tuesday 22.10.96[309].

104. Dr Webb mistakenly believed that the serum sodium reading had been taken that morning. We refer to the submissions at paragraph 45 above.

105. Had Dr Webb not mistakenly believed that the serum sodium reading had been taken that morning, he would have obtained an urgent repeat sample[310]. Had he known, he would have considered the possibility of cerebral oedema earlier or at least ordered fresh blood tests[311]. It is possible that he might have ordered a CT scan.

106. If Dr Webb had ordered urgent repeat blood tests, the outcome may have been very different (*sed quaere*, since it cannot be assumed that Claire's serum sodium fell at a uniform rate: see paragraph 84 above).

107. Dr MacFaul expressed the opinion that more extensive blood testing ought to have been undertaken by Dr Webb[312]. Dr Webb disagreed; the textbooks suggested tests that might be helpful, but there was no reason to suppose that Claire had liver

[304] 090-022-052; WS 135/2 p 3
[305] 090-022-052; WS 136/1 p 6. Although Dr Volprecht did not record the U&E results in the notes, they must have been added to the notes after Dr O'Hare reviewed Claire at midnight.
[306] Thus Dr Bartholeme Transcript 18.10.12 p 65
[307] 090-022-056
[308] Dr Scott-Jupp 234-002-003
[309] Dr Scott-Jupp 12.11.2012 p 55 line 21.Professor Neville Transcript 01.12.2012 p 136 line 7.
[310] See Dr Webb's statement to the Coroner 090-053-174; WS 138/1 p 70 (g)
[311] Transcript 03.12.2012 p 54 lines 16-24.
[312] Transcript 13.11.2012 p 77 line 1ff

damage; she had normal glucose and there was no evidence that she had ingested toxins[313]. Other apparently competent practitioners followed the practice of ordering tests only if they were likely to yield results: see for example Dr O' Hare[314]. We submit that there is inadequate evidence to support the criticism of Dr Webb on the grounds that he should have instituted these additional tests. Such additional tests would not have been positive and would not have shed light on Claire's condition.

EEG

108. An EEG study was the only investigation that would have confirmed the presumptive diagnosis of non-convulsive *status epilepticus*[315]. Dr Scott-Jupp thought that if there were no EEG available, it would have been acceptable to treat on basis of a presumptive diagnosis[316] but Professor Neville believes that without undertaking such an investigation, Dr Webb was not justified in treating the presumptive diagnosis[317]. Dr Webb accepted that in an ideal world, he would have wanted to undertake an EEG[318].

109. Dr Webb points out that there was no 24 hour EEG service in Northern Ireland – and there still is not. This brings into question whether there is consensus whether an EEG is an indispensable investigation, if only available in office hours. If he had been dealing with Claire at 2am, he would not have the option of obtaining an EEG and would have to proceed on clinical grounds[319]. Professor Neville was not asked to state whether he still believed that Dr Webb was not justified in treating the condition if he had reached a diagnosis of non-convulsive *status epilepticus* after the EEG technician had gone home for the day. It is hard to avoid the conclusion that Professor Neville's stringent view is coloured by having had the luxury of working in an extremely well-resourced centre where an EEG would have been available at any time.

[313] Transcript 03.12.2012 p 57 lines 7-17. He elaborated at p 58 lines 20-25
[314] Transcript 18.10.2012 p 135 lines 13-15.
[315] Dr Scott-Jupp 234-002-004. Professor Neville 232-002-002; Transcript 01.11.2012 p 121 – 122.
[316] 234-002-004
[317] Transcript 01.11.2012 p 129 line 25
[318] Transcript 03.12.2012 p 94 line 14
[319] Dr Webb Transcript 30.11.2012 p 209 line 16; 03.12.12 p 91 lines 16-23.

110. The EEG resource at RBHSC was limited. It was the only service in the province[320]. There were 1½ EEG technicians – the part-timer in fact was on maternity leave[321]. They worked from 9 – 5[322]. They were very overworked[323]. Dr Scott-Jupp had similar difficulties in access to EEG in 1996: there were no technicians to run an emergency service, and within working hours, it would be necessary to "bump" a patient off a list to get another one seen to urgently, which was "quite a rare event"[324]. Dr Scott-Jupp explained what would have needed to be done:

> "The practicalities are that the EEG technicians would have had to finish the recording they were doing at that time, they would have had to contact or somehow communicate with the unfortunate person who was being displaced. They then would then have had to transport their equipment down to the ward -- I have no idea how far it is, but it would have taken time. And then setting it -- this is not a quick investigation. It would have taken them quite some considerable time to set it up. There's a lot of technical stuff to be done. So it could have taken them, I don't know, 15 minutes, half an hour to set up, and then maybe another 15 minutes, half an hour to do the reading, so it's not a quick test.[325]

111. For Dr Webb, there was no EEG available without "bumping" somebody off the list[326]. As the afternoon wore on he had less scope for ordering an EEG because it almost inevitably would mean that it would take place after 5pm[327]. He believed that he had sufficient information to treat Claire for non-convulsive *status epilepticus*[328]. His clinical judgment at the time was that he could treat the presumed epilepsy and look for a response[329]. If there had been no improvement in her awareness, he would have arranged one the following morning[330]. As the Chairman observed to Dr Webb, it was a question of priorities, and Dr Webb's judgment was that, given that he was confident about his diagnosis, the turmoil that a decision to "bump" a patient (or two)

[320] Dr Webb Transcript 30.11.2012 p 208 line 16
[321] WS 138/2 p 8
[322] 302-005-001. If there was an *ad hoc* arrangement for undertaking EEG examinations out of hours as the DLS allege, it is clear that nobody troubled to tell Dr Webb about it.
[323] Transcript 30.11.2012 p 208 lines 1-3; 03.12.2012 p 97 line 6ff.
[324] Transcript 12.11.2012 p 9 line 25 – p 10 line 10.
[325] Transcript 12.11.2012 p 147 line 18ff.
[326] Dr Webb WS 138/3 p3; Dr Steen Transcript 15.10.2012 p 19 line 1ff. We presume that the Inquiry's attempts to obtain the list of EEG examinations for the afternoon of 22.10.96 have not been successful.
[327] Transcript 03.12.2012 p 90 line 19ff
[328] Transcript 03.12.2012 p 195 16f.
[329] Transcript 30.11.2012 p. 210 line 4f.
[330] Dr Webb Transcript 30.11.2012 p 210 line 11; WS 138/1 p 71

off the list was not justified. At the time, Dr Webb was sanguine about Claire's condition[331].

112. We submit that there are two important issues for the Inquiry to address:

112.1. Was Dr Webb's clinical judgment to continue treating Claire without undertaking an EEG study on Tuesday afternoon a judgment that no reasonably competent paediatric neurologist could have taken in the circumstances? We submit that the answer to this question is "no" and that accordingly no criticism should be made of Dr Webb.

112.2. If Claire had undergone an EEG study, would that have made any difference to her subsequent management? We address at paragraph 93 above the submission that Claire was indeed suffering from non-convulsive *status epilepticus*. If Claire was suffering from non-convulsive *status epilepticus*, then undertaking an EEG would have made no difference to her management: the study would merely have confirmed what Dr Webb already thought. If the study had eliminated non-convulsive *status epilepticus* as a diagnosis, then the search would have been on for other potential causes of Claire's presentation. Dr Webb had already embarked upon such a search after his consultation at 17:00. The issue then becomes whether removing non-convulsive *status epilepticus* as a differential diagnosis would have concentrated minds more on the possibility of hyponatraemia and cerebral oedema.

113. It is for Inquiry to decide whether comment should be made about the provision of EEG in Northern Ireland in the light of the recommendations of the British Paediatric Society in 1989[332].

CT Scan

114. Professor Neville criticised Dr Webb because he had not arranged a CT scan on Tuesday morning[333]. Dr MacFaul agreed there should have been a scan and defers to

[331] See paragraph 52.
[332] 314-015-003
[333] Report 232-002-007. He criticises Dr Webb directly at Transcript 01.11.2012 p 93 lines 11-12.

Professor Neville as to when[334]. These criticisms are unfair, given that Dr Webb probably did not know of Claire's existence on Tuesday morning. We address this criticism on the footing that the allegation is that Dr Webb ought to have arranged a CT scan shortly after he saw Claire at 14:00 on Tuesday afternoon.

115. Dr Scott-Jupp was less enthusiastic about the CT scan and gave 3 reasons why a CT scan might not have been required in 1996:

> Firstly, scanners then were less widely available and in this case it appears it would have involved an ambulance transfer from the RBHSC to the neighbouring Royal Victoria Hospital where the nearest scanner was. This in itself presents a risk and is potentially hazardous. Secondly, in those days it took much longer to produce a scan and because of the need for the child to lie still during a procedure it often required either sedation or a general anaesthetic. This in itself added to the risk and difficulty of getting a scan. Thirdly, the scan quality images were not as good then as they are now and important features could be missed. Even now, in early cerebral oedema, the CT scan can appear normal. A decision to request a CT scan was a difficult one for the staff involved.[335]

116. Dr Webb thought that the yield from a CT scan would have been very low[336]. He was clearly influenced by the circumstance that Claire would have had to be moved by ambulance to the Royal Victoria Hospital[337].

117. The Inquiry should consider what Dr Webb might have thought a CT scan would show. It is common ground that a CT scan might show haemorrhage, hydrocephalus, cerebral oedema, but not subtle conditions[338] But Professor Neville conceded that hydrocephalus was probably not very likely because Claire had previously had a scan which is likely to have shown any hydrocephalus[339] and he agreed that an intracranial haemorrhage was unlikely[340].

[334] Transcript 14.11.2012 p 65 line 21ff.
[335] 234-002-009.
[336] Transcript 30.11.2012 p 223 line 25f.
[337] As appears from his witness statement WS 138/3 p 2f.
[338] Professor Neville 232-002-002; Dr Scott Jupp 234-002-009
[339] Transcript 01.11.2012 p 47 lines 23-24.
[340] Transcript 01.11.2012 p 60 lines 18-21

118. The significant question for the Inquiry is whether a CT scan would have revealed the presence of incipient cerebral oedema. On this issue the Inquiry should bear in mind the following:

118.1. Since Dr Webb mistakenly believed that Claire's serum sodium had been taken that morning and was around 132mmol/L, he would not have been expecting that a CT scan might reveal signs of cerebral oedema.

118.2. Dr Scott-Jupp said that it was by no means certain that a CT scan would have showed the cerebral oedema that caused Claire's later collapse[341]. He said that the early stages of cerebral oedema were difficult or impossible to detect at the time[342].

118.3. Dr Neville says that a CT scan might have revealed an area which looked suspicious of being inflammatory and it could have revealed early cerebral oedema[343]. Although he conceded that a CT scan could appear normal in the early stages of hyponatraemia he thought "unlikely in the course of what you are now seeing from the evolution of this condition"[344]

118.4. We urge the Inquiry to give careful thought to whether Professor Neville is applying the benefit of hindsight to the question whether a CT scan ought to have been obtained.

119. We invite the Inquiry to find that, given Dr Webb's mistaken belief about when Claire's U&E tests had been undertaken and given the availability and likely yield of a CT scan in 1996, Dr Webb's decision not to undertake a CT scan was understandable.

120. We invite the Inquiry to conclude that whether Claire's cerebral oedema would have shown on a CT scan in 1996 would have depended upon:

120.1. The time at which the scan was taken: the later the scan, the more likely it would have shown signs of cerebral oedema.

[341] 234-002-009.
[342] Transcript 12.11.2012 p 48 lines 4-13.
[343] Transcript 01.11.2012 p 86 lines 3-6
[344] Transcript 01.112012 p 118 lines 9-11.

120.2. The quality of the CT scan. In 1996, the quality would have been poorer than it would be now.

120.3. The progress of Claire's cerebral oedema.

Glasgow Coma Scale

121. Reference is made to the Glasgow Coma Scale scores recorded in the notes[345]. The Inquiry should use these scores with care because:

121.1. Professor Young drew the Inquiry's attention to the problem of inter-observer reliability[346].

121.2. A different scale is appropriate for children.

121.3. The timing of the GCS scores may not be accurate[347].

Diagnosis

122. We submit that Dr Webb was right to diagnose non convulsive *status epilepticus* (see paragraph 93 above); alternatively, the diagnosis was a reasonable one for him to make given Claire's presentation and history.

123. As to differential diagnoses:

123.1. Dr Webb considered encephalitis before he had seen Claire but when he had seen her and seen that she was afebrile, it was not high on his differential diagnosis[348].

123.2. Dr Webb considered meningo-encephalitis[349]. He records in the clinical note that there was no meningism[350].

123.3. Dr Webb considered raised intra-cranial pressure unlikely[351], since (a) Claire had presented with a neurological problem that could not be explained by her serum

[345] 090-039-137.
[346] WS 178/3.
[347] Transcript 30.11.2012 p 191 lines 7-8.
[348] Transcript 30.11.2012 p 206 lines 1-8; 03.12.2012 p 79 lines 6-9, 23.
[349] WS 138/1 p 20 (e)(iii)
[350] 090-022-053

sodium reading (b) she was not worse first thing in the morning[352]. He specifically tested for raised intra-cranial pressure[353].

123.4. There was no evidence that Claire had sustained liver damage and there was no reason to think that she had ingested toxins[354].

123.5. Dr Webb considered it extremely unlikely that Claire had suffered a sub-arachnoid haemorrhage, hydrocephalus or a neurosurgical presentation[355]. He dismisses the possible conditions identified by Dr MacFaul[356]

123.6. Dr Webb did not think SIADH likely at this stage because Claire's serum sodium stood at 132[357]. He did not think SIADH was a likely consequence of any of the differential diagnoses[358].

We submit that Dr Webb's diagnostic reasoning should not be faulted.

Treatment

Drugs generally

124. What was the effect upon Claire's hyponatraemia of the intravenous drugs administered to her? None of the drugs administered would have contributed to the risk of hyponatraemia[359]. Dr Aronson would have expected intravenous drugs to be given in 0.9% (i.e. isotonic) saline.[360] Thus, the intravenous drugs administered would have a positive or at worst neutral effect upon fluid-overload hyponatraemia.

Diazepam

125. Claire received 5mg diazepam at 12:15 on Tuesday 22.10.2012[361].

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[351] WS 183/1 p 21 (f)
[352] Transcript 03.12.2012 p 39 lines 7-16
[353] 090-053-173
[354] Transcript 03.12.2012 p 57 line 12 – p 59 line 1
[355] Transcript 30.11.2012 p 225 line 18 – p 226 line 3
[356] Transcript 03.12.2012 p 109 line 18 – p 110 line 10. There is, we suggest, a mis-transcription on p 109: Dr Webb *dismissed* the other diagnoses; he did not "just miss" them.
[357] WS 138/1 p 21 (j)
[358] Transcript 03.12.2012 p 81 lines 19-25.
[359] Dr Aronson Transcript 08.11.2012 p 256 line 11f
[360] Transcript 08.11.2012 p 233 line 4; 08.11.2012 p 234 line 8
[361] 090-026-075

126. No criticism is made of the prescription of this dose[362].

127. Dr Webb relied upon the improvement in Claire's condition after administration of diazepam as supporting the diagnosis of non-convulsive *status epilepticus*[363]. Dr Scott Jupp advises that improvement after diazepam is almost diagnostic of non-convulsive *status epilepticus*[364]. Professor Neville did not appear to disagree with this proposition: his concern was that the improvement seen in Claire after diazepam had been administered was insufficiently marked to justify the conclusion[365].

Phenytoin

128. Dr Webb advised that Claire should have phenytoin "18 mg/kg stat followed by 2.5mg/kg 12 hourly and will need level check 6 hrs after loading dose"[366]. Dr Stevenson mis-calculated the loading dose as 632mg instead of 432mg. The loading dose was administered at 14:45[367]. A level check was to be undertaken at 21:00[368]; it must have been done at about this time, because the result was reported at 23:30[369]. The maintenance dose was set up before the level check returned a result[370].

129. Dr Webb disagrees with the experts who assert that he ought to have undertaken EEG studies before recommending phenytoin: see the discussion of this issue at paragraph 108 and following.

130. The important issue of EEG studies aside, we submit that there is no issue about the prescription of phenytoin. It is recommended as a second-line drug in Forfar & Arneil[371] and Nelson[372].

131. The loading dose ought to have been given under ECG observation because phenytoin can affect the electrical action in heart and can cause arrhythmia[373]. Dr Stevenson

[362] Professor Neville [232-002-006]. Dr Aronson defers to paediatric neurological opinion [237-002-008].
[363] WS 138/1 p 18, p 78; Inquest deposition 096-010-069; Transcript 03.12.2012 p 38 lines 9 – 14.
[364] 234-002-004.
[365] Transcript 01.11.2012 p 124 lines 7-10; p 169 line 23 – p 170 line 3
[366] 090-022-055.
[367] 090-026-075
[368] 090-022-055; 090-040-141
[369] 090-022-056
[370] It is not clear when this was done. The prescription charts suggest that phenytoin was administered at 21:30 090-026-073 but the nursing notes record the drip being set up at 23:00: 090-040-138.
[371] 311-019-001
[372] 311-018-017

could not recall whether Claire was subjected to ECG[374], though he was aware that a monitor ought to have been used[375]. We submit that Dr Webb was entitled to expect that Claire would be monitored[376]. The evidence whether Claire was monitored is unclear; the Inquiry may feel that this is a relatively minor issue, since even if the loading dose of phenytoin was not monitored, it appears that she was not harmed as a result[377].

132. The loading dose constituted an overdose. The consensus is that the overdose had no significant causative effect [378] though phenytoin may have reduced the GCS temporarily[379]. Professor Neville thought that the overdose is unlikely to have caused paradoxical seizures[380] and Dr Aronson agreed[381].

133. Dr Webb is criticised for failing to check Dr Stevenson's arithmetic. We refer to the submissions we make about Dr Stevenson's calculation of the dose of midazolam at paragraph 139 below. We repeat those submissions *mutatis mutandis*.

Midazolam

134. From Dr Webb's perspective, he had reached a primary diagnosis of non-convulsive *status epilepticus*, for which Claire had been treated with rectal Diazepam at 12:15 and intravenous phenytoin at 14:45[382]. Dr Stevenson contacted him by phone shortly after Claire had suffered a seizure at around 15:25 and Dr Webb gave him advice by phone (see submissions about the sequence of events at paragraph 56 above). He advised midazolam as a third-line drug to treat Claire's *status epilepticus* on the basis of (a) the literature[383] (b) his experience of using Midazolam in Vancouver.[384]

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[373] Dr Aronson Transcript 18.11.2012 p 182 line 6.
[374] Transcript 16.10.2012 p 114 line 14.
[375] Transcript 16.10.2012 p 116 lines 1-2.
[376] See his reasoning Transcript 03.12.2012 p 145-6.
[377] Thus Professor Neville Transcript 01.11.2012 p 176 line 10-13.
[378] Dr Scott-Jupp 234-002-006; Professor Neville 232-002-009; Transcript 01.11.2012 p 175 lines 11-16.
[379] Dr Aronson 237-002-010
[380] Transcript 05.11.2012 p 26 lines 21-22, p 34 lines 2-3.
[381] Transcript 18.11.2012 p 188 line 19
[382] 090-026-075
[383] At the time, a small study written up in Rivera R et al (Crit Care Med 1993;21(7)991-994.
[384] Dr Webb's recollection appears in WS 138/3.

135. Dr Webb had to check his notes to recall what dose to administer[385]. Dr Webb's evidence was consistent that he advised that the dose should be 0.15mg/kg[386]. Dr Stevenson calculated the loading dose of Midazolam as 12 mg on the basis that Claire required 0.5mg/kg[387], so that Claire received an excessive loading dose of midazolam. Dr Stevenson wrote up the prescription for the loading dose of Midazolam as 120mg[388].

136. The maintenance dose of midazolam appears to have been increased at 21:00[389]. It is wholly unclear whether it is said that Dr Webb had any part in this increase.

137. Dr Webb disagrees with the experts who assert that he ought to have undertaken EEG studies before recommending Midazolam: see the discussion of this issue at paragraph 108 and following: Dr Webb's judgment was that it was unnecessary to expend the precious EEG resource available to him to undertake the investigation suggested.

138. The significant issue of EEG studies aside, we submit that there should be no criticism of the use of midazolam in principle:

138.1. According to Dr Aronson, the BNF now recommends the use of midazolam as a treatment for *status epilepticus*[390]. Dr Webb explained that the drug is now commonly given to stop seizures in children[391].

138.2. Dr Aronson regards the use of midazolam at the time as "quite an experimental treatment"[392], but he made clear that he did not criticise its use for that reason. Dr Aronson said that if the parents were available some explanation of what was

[385] Transcript 30.11.2012 p 250 line 18; Ibid. p 254 lines 11-15
[386] WS138/1 p 32; Transcript 30.11.2012 p 250 line 12.
[387] 090-022-055
[388] 090-026-075
[389] Contrast the prescription sheet at 090-026-075 written up by Dr Stevenson, presumably at about 15:30 and the re-written prescription sheet at 090-026-072 written up by Dr Hughes.

[390] Dr Aronson: transcript 08.11.2012 p 178 line 5ff. Dr Aronson explained that it was recommended even though it is not licensed for use in children.
[391] Transcript 30.11.2012 p 247 lines 15-18.
[392] Transcript 08.11.2012 p 211 line 16ff

being done and why ought to have been offered[393] - unfortunately, it was Dr Webb that was not available: his advice was given over the telephone. Dr MacFaul would not have criticised its use if Dr Webb had excluded other potential explanations of Claire's illness[394]. No expert criticised the use of midazolam *per se.*

139. Dr Webb did not notice that Dr Stevenson had miscalculated the dose of Midazolam[395]. He did not check Dr Stevenson's calculations: he thought that Dr Stevenson would check the prescription with another doctor or nurse[396]; Sister Pollock confirmed that intravenous drugs ought to have been checked in this way[397]. Dr Webb thought it was a counsel of perfection to expect him to check Dr Stevenson's calculations[398]. He would not normally have gone back through the notes to check that a prescription he had suggested had been correctly written up[399]; there was little expectation that people would get it wrong and time may not have been available[400]. The Chairman asked Dr Scott-Jupp about the midazolam calculation and Dr Scott-Jupp said that a consultant could not check every calculation; one had to have confidence that the junior staff would do it correctly[401].

140. We submit that the Inquiry cannot conclude that the administration of Midazolam caused the seizure Claire suffered at 15:10/15:25 because

140.1. The midazolam was administered after and in response to the seizure: see our submissions on the sequence of events at paragraph 63 above.

[393] Transcript 08.11.2012 p 283 lines 6-16
[394] Transcript 14.11.2012 p 37 line 2ff
[395] Transcript 03.12.2012 p 180 lines 4-8
[396] Transcript 30.11.2012 p 251 line 15-19; WS 138/3 p 2
[397] Transcript 30.10.2012 p 167 lines 9-18.
[398] Transcript 30.11.2012 p 252 line 6-8.
[399] Transcript 30.11.2012 p 252 line 24; 03.12.2012 p 180 line 22 – p 181 line 1.
[400] Transcript 03.12.2012 p 181 lines 10-13.
[401] Transcript 12.11.2012 p 180 lines 13-19.

140.2. Although Professor Neville said that he could not exclude the possibility that midazolam caused the seizure, his comment was in the context that we will never know[402].

141. Likewise, Professor Neville could not exclude the possibility that Midazolam might have contributed to Claire's respiratory arrest at 02:30, but "in the sense that we'll never know"[403]. Dr Aronson thought that the dose of intravenous midazolam, particularly in combination with sodium valproate, may have been responsible for Claire's respiratory arrest[404]. We submit that by far the most likely explanation for Claire's respiratory arrest was cerebral oedema leading to coning.

142. Dr Webb gave oral evidence that he had not used midazolam at RBHSC since leaving Canada[405]. After oral evidence had been heard, the Inquiry put questions to Dr Webb about patient W2 apparently as demonstrating that Dr Webb's evidence was untruthful or inaccurate. The Inquiry is invited to reject the suggestion that Dr Webb's evidence was dishonest or unreliable for the following reasons:

142.1. As Dr Webb explains, his oral evidence was directed to the use of midazolam to treat epilepsy[406].

142.2. In the case of patient W2, it is likely that midazolam was used to sedate the patient for needle aspiration of a lymph node, and not for the treatment of epilepsy[407].

142.3. Dr Webb did not prescribe midazolam[408]. He suggested to the anaesthetist that midazolam might be an appropriate sedative. It was not Dr Webb who prescribed the midazolam[409]; presumably it was the anaesthetist who did so.

[402] See the evidence and discussion in Transcript 05.11.2012 p 47 line 22 – p 49 line 16.
[403] Transcript 05.11. 2012 49 line 18 - p 50 line 4
[404] Transcript 08.11.2012 p 263 line 4.
[405] Transcript 30.11.2012 245 line 20
[406] WS 138-5 p 6 5(a)(iii)
[407] WS 138-5 p 6 5(a)(i)
[408] WS 138-5 p 5 4(b)
[409] WS 138-5 p 6 5(a)(ii)

Sodium Valproate

143. Dr Webb advised the use of intravenous sodium valproate when he saw Claire at 17:00 on Tuesday 22.10.96[410]. He explained why he advised the drug[411].

144. Dr Webb disagrees with the experts who assert that he ought to have undertaken EEG studies before recommending sodium valproate: see the discussion of this issue at paragraph 108 and following.

145. The important issue of EEG studies aside, we submit that there is no issue about the prescription of sodium valproate. It is recommended as a second-line drug in Forfar & Arneil[412] and Nelson[413]. Dr Scott-Jupp believes Sodium Valproate was an appropriate intervention[414].

Acyclovir and antibiotic cover

146. Dr Webb recommended the administration of acyclovir and cefotaxime cover at 17:00 on Tuesday 22.10.96[415]. It seems that Dr Stevenson made the decision to start acyclovir only at 21:30, on the basis that medication should be spread out over the 24h period[416].

147. Acyclovir is an antiviral that is effective against herpes and varicella zoster[417]. Professor Cartwright makes the point that Claire's infection was probably an enterovirus, which would not be sensitive to acyclovir[418]. Viral screens for herpes were negative[419]. We submit that there is no evidence that Claire's outcome would have been any different had acyclovir been prescribed and administered earlier than it was.

148. Cefotaxime is a broad-spectrum antibiotic. It is unlikely that Claire's condition was caused by a bacterial infection[420]. We submit that there is no evidence that Claire's

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[410] 090-026-055
[411] Transcript 03.12.2012 p 182 line 19 – p 183 line 11.
[412] 311-019-003
[413] 311-018-017
[414] 234-002-006
[415] 090-022-055
[416] Transcript 16.10.2012 p 161 lines 10-14
[417] Dr Webb WS 138/1 p41; BNF [311-028-017];
[418] Transcript 07.11.2012 p 51 lines 14-24
[419] 090-030-096
[420] Professor Neville Transcript 01.11.2012 p 91 lines 8-13. Professor Cartwright Transcript 07.11.2012 p 24 line 6-20; p 59 lines 1-3. Dr Herron Transcript 29.11.2012 p 157 line 12

outcome would have been any different had cefotaxime been prescribed and administered earlier than it was.

Responsibility

Consultant responsibility/taking over care

149. There has been extensive investigation of who was responsible for Claire's clinical care. This may have been prompted by Dr Steen's evidence to the coroner in which she asserted that she had been told that Dr Webb had taken over her management[421], something she no longer recalls[422].

150. We submit that the position is as follows:

150.1. The named consultant held primary responsibility for Claire's care. It ought to have been very obvious to all concerned that the named consultant was at all times Dr Steen. There is no evidence that responsibility for Claire's care was transferred from Dr Steen to anybody else.

150.2. Dr Sands properly asked Dr Webb for his opinion about Claire, and Dr Webb gave advice about managing the neurological aspects of her care. Dr Webb assumed the responsibility of a consultant paediatric neurologist giving advice to the paediatric team about the management of a difficult case; he did not assume, and had not the resources to assume, general responsibility for Claire's care.

150.3. If other practitioners thought that Dr Webb was assuming a more general responsibility, they were mistaken; such a mistake may have arisen from a failure in the system of clinical governance adequately to identify who was responsible for the patient.

We develop these submissions as follows:

[421] 091-011-067
[422] WS-143/1 p 46, q 29

151. Dr Steen was the named consultant[423]. She accepted that she remained the named consultant for Claire unless there was discussion and a formal transfer[424]. This is consistent with evidence given by other witnesses[425]. Moreover, several doctors gave evidence that Dr Steen retained responsibility for Claire, despite Dr Webb's intervention, including Dr Stevenson[426], Dr Sands[427] and Dr Webb[428].

152. It is difficult to see from the hospital documents how there could be any room for doubt about who was the named consultant: Dr Steen's name appears conspicuously throughout[429]. Any transfer of care from Dr Steen to Dr Webb ought to have been recorded[430]. There is no such record. The nursing staff would have been informed that a transfer had taken place[431]. There is no evidence that they were so informed. If a child were transferred to the care of the neurology consultant, she would normally be moved to neurology ward[432]. Claire was not moved in this way – Dr Webb says because he received no request to take over her care[433]. Professor Neville's reading of the notes was that final responsibility remained with the paediatrician[434]

153. As the Chairman observed [435] "If Claire's care is going to be taken over, it has to be, effectively, with the agreement of Dr Steen, doesn't it, because she is the named consultant?" There is no evidence that Dr Steen reached any such agreement. Dr Sands recalls no discussion about transfer of care to paediatric neurology team[436].

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[423] WS 143/1 p 3.
[424] Transcript 15.10.2012 p 94 lines 2-19; 17.10.2012 p 56 lines 10-23. See also WS 143/1 p 52 q 32(d)(ii)
[425] Nurse McCann Transcript 30.10.2012 p 81 lines 19-22
[426] WS 139/1 p 28 q 40
[427] Transcript 19.10.2012 p 182 line 11-15. In his witness statement, Dr Sands said that he did not remember Dr Webb "formally taking over Claire's management" WS 137/1 p 17 (d); WS 137/2 p 4 (d)
[428] Transcript 03.12.2012 p 116 line 22-23
[429] : See Admission sheet 090-014-020;prescription sheets 090-026-074 and 076; nursing admission sheet 090-041-4; observations chart 090-044-147; discharge form 090-007-009.
[430] Dr Steen Transcript 15.10.2012 p 94 lines 2-19 Dr Webb WS 138/1 p 8 (q) Dr Stevenson WS 139/2 p 13 q 26(c); Barbara Maxwell 30.12.2012 p 131 lines 8-9.
[431] Angela Pollock WS 225/1 p 12 (30)
[432] Dr Webb WS 138/1 p 9 (t); Barbara Maxwell 30.10.2012 p 130 line 25 – p 131 line 3
[433] WS 138/2 p 4 (2)(c)(ii)
[434] 232-002-010/011
[435] See Transcript 12.11.2012 p 90
[436] WS 137/1 p 18. This is consistent with Dr Webb's evidence that he had no such discussion: WS 138/1 p 8 (q)

154. Dr Webb would not have undertaken responsibility for Claire as named consultant. He believes that his Registrar was absent on 22 October 1996[437]. It would have been foolish for him to take over Claire's care if his registrar were absent[438].

155. It follows that Dr Steen's evidence to the coroner must have been mistaken. It was an answer to a question asked in cross-examination and the answer may not have been given the thought and deliberation it might have been.

156. Dr Webb's position has always been that Dr Steen remained named consultant; he was asked for advice on the neurological aspects of Claire's management[439]. This is consistent with the evidence of most other practitioners[440]. Dr Webb does not shy away from his responsibility for the paediatric neurology advice that he gave. The use of the verb "suggest" in the note made at 14:00[441] is much more consistent with Dr Webb's account than with the proposition that he had assumed responsibility for Claire's care.

157. Dr Sands believed that responsibility for Claire's care gradually transferred over to Dr Webb. We submit that:

157.1. It is understandable that Dr Sands believed that Dr Webb was assuming responsibility for Claire's care generally. The consultant general paediatrician who was named consultant was not present in the hospital, leaving Dr Sands, who was then relatively junior[442] in charge of a challenging patient. Dr Webb provided the only consultant care for Claire whilst Dr Sands was on duty.[443]

[437] Transcript 30.11.2012 p 170 line 15. Counsel for the Inquiry said that she would check whether Dr Webb was correct about this: Transcript 03.12.2012 p 121 line 22. We assume that the check was made and Dr Webb's recollection is accurate.
[438] Dr Webb Transcript 03.12.2012 p 121 lines 3-4; Dr Scott-Jupp had said in his report that Dr Webb should have made it clear if his team was taking over Claire's care [234-002-007]. In evidence he said that he would delete that part of his opinion because "That was just Dr Webb, so there wasn't any other team" Transcript 12.11.2012 p 161 lines 10-20.
[439] WS 138/1 p 7-9,
[440] See the references in the document prepared by the Inquiry at 310-005-001. See also Angela Pollock Transcript 30.10.2012 p 198 lines 3-10;
[441] 090-022-054
[442] He had started his first substantive post as a paediatric registrar on 7 August 1996: 090-051-157.
[443] Whilst it is understandable that Dr Sands held these views when he was a very junior registrar, possibly out of his depth, it is of concern that he apparently still believes that consultant responsibility can pass from one consultant to another merely by the second consultant becoming involved in a patient's care.

157.2. There is no other evidence to support the proposition that any patient was subject to the shared responsibility of two consultants.

157.3. The basis for Dr Sands's opinion cannot be clear recollection of the part Dr Webb played in Claire's care: Dr Sands was absent from Allen Ward on Tuesday afternoon[444] and so took no part in the events of the afternoon; though he was present when Dr Webb saw Claire at around 17:00 on Tuesday, Dr Sands does not recall it[445].

157.4. There is an obvious objection in principle to the concept of shared care, namely that the medical team, the nursing team and the patient and her family do not know who is in charge. We submit that even in 1996, clear lines of responsibility were required.

157.5. There were insuperable practical difficulties in the way of shared care. Dr Webb had not the support of junior colleagues. Dr Webb and his team could not have provided care to Claire after 17:00 because Dr Webb went home at about that time; there is no evidence that anybody else from his team was available.

157.6. Towards the end of his oral evidence, Dr Sands appeared to modify his evidence: He said that Dr Webb was the consultant who was primarily guiding treatment, and arguably *de facto* was the consultant who was leading Claire's care[446] (These remarks are incontrovertible, since no other consultant was involved in Claire's care at this stage). But he would not have said that Dr Webb had taken over Claire's care unless he had been told that[447].

158. Even if the paediatric neurology team had taken over Claire's care partly or wholly, there is evidence that the general paediatric team would have retained responsibility for "routine issues - blood investigations, fluid prescription, review of observations, writing of prescriptions…"[448]

[444] Dr Sands Transcript 19.10.2012 p 25 lines 23-25; p 27 lines 2-4
[445] Transcript 19.10.2012 p 192 lines 11-23.
[446] Transcript 19.10.2012 p 249 line 25 – p 250 line 4.
[447] Transcript 19.10.2012 p 250 lines 4 - 5
[448] Dr Steen WS 143/1 p 86 (i)(ii); WS 143/2 p 3; WS 143/2 9 (g)

159. We respectfully submit that if the Inquiry concludes that there was any substantial doubt about consultant responsibility:

159.1. The existence of such doubt amounted to a failure of clinical governance. There should have been – and should be – clear rules to define who bears ultimate responsibility for a patient.

159.2. Identifying who bears ultimate responsibility may be particularly important where patients with complex needs are managed by more than one team, in order to ensure that a patient's care needs do not fall "between two stools".

159.3. The Inquiry may wish to consider recommending the establishment of clear guidelines for identifying consultant responsibility.

Responsibility for fluid management

160. The prescriptions for Claire's intravenous fluids were written by Dr Volprecht[449] and Dr Stevenson[450] and they were administered by the nursing staff on Allen ward[451]. The decision to continue with the current fluid management was most likely part of the ward round discussion[452]. Accordingly, as a matter of fact, responsibility for fluid management prior to Claire's admission to PICU was assumed by the general paediatric team.

161. This was appropriate; primary responsibility for doing the tests and altering treatment on the basis of the test results lay with the general paediatric team[453]: it was not for a paediatric neurologist to take the lead in IV fluid management[454]. Dr Steen believed that even if Dr Webb had taken over Claire's care, her team would have managed fluids etc.: see paragraph 158 above.

[449] 090-038-134
[450] 090-038-136
[451] See fluid balance chart 090-038-135.
[452] Dr Sands WS 137/1 p 7 (5)(a)
[453] Dr Scott Jupp Transcript 12.11.2012 p 131 lines 18-22
[454] Thus Dr Scott-Jupp 234-002-006

162. Dr Webb believed that the general paediatric team was dealing with fluid management[455] and it was reasonable for him to do so[456].

163. Dr Scott Jupp believes that Dr Webb might have advised the general paediatric team to repeat the U&Es, but his misunderstanding about the time at which the blood was taken reduces his responsibility[457] and it was not necessarily a criticism if he did not[458].

164. When considering whether Dr Webb ought to have given advice, and if so what, the Inquiry will bear in mind that:

164.1. Dr Webb mistakenly thought that the serum sodium of 132 was the result of a test undertaken that morning. He believed that further tests would be undertaken before 17:00 that afternoon[459].

164.2. Dr Webb discounted the possibility of the SIADH: see paragraph 100.1 above. Had he been aware of the risk of SIADH, he would doubtless have given advice about fluid restriction: see paragraph 100.2 above.

164.3. Dr Webb understood Claire's condition was not purely neurological. She had presented with vomiting and she required fluids because she was not drinking or eating[460].

164.4. The general paediatric team should have been able to manage the fluids without getting advice from a paediatric neurologist[461]

165. Dr Webb stated that he provided input into fluid management only in exceptional circumstances[462]. He stated in oral evidence that because it would be very unusual for a consultant coming in to consult like this to manage the fluids[463]. After oral evidence

[455] Transcript 30.11.2012 p 231 lines 17-18; 03.12.2012 p 8 lines 2-3
[456] Transcript 03.12.2012 p 9 lines 23-25
[457] Transcript 12.11.2012 p 131 line 23 – p 132 line 21
[458] Transcript 12.11.2012 p 134 line 10,
[459] Transcript 03.12.2012 p 70 line 16 p 71 line 6.
[460] Transcript 03.12.2012 p 133 lines 11-16
[461] Dr Scott-Jupp Transcript 12.11.2012 p 129 lines 19-22.
[462] WS-138-1 p 68
[463] Transcript 30.11.2012 p 231 lines 6-11.

had been heard, the Inquiry put questions to Dr Webb about patient W2 apparently as demonstrating that Dr Webb's evidence was untruthful or inaccurate. The Inquiry is invited to reject the suggestion that Dr Webb's evidence was dishonest or unreliable for the following reasons:

165.1. Both the statement and the oral evidence were given in the context of a child admitted under a general paediatrician and not in the context of a patient admitted under the care of the paediatric neurology team[464].

165.2. Patient W2 was admitted under the care of the paediatric neurology team and not the general neurology team. In such circumstances the general paediatric team would not have responsibility for fluid management[465].

165.3. Dr Webb was dealing with a patient for whom his team had responsibility when his junior doctors were not available because it was a Sunday[466].

165.4. The reference to "exceptional circumstances" in the question 2(c) put to Dr Webb is therefore unfair and tendentious.

Other criticisms

Communication

166. When Dr Webb saw Claire at 14:00 on Tuesday, he made a detailed note of his attendance. It transpires that neither Dr Steen nor Dr Sands was available to talk to. It is by no means clear that it was known on the ward where either was.

[464] The questions answered by Dr Webb in the statement are prefaced by this quotation from the statement he made to the coroner:

> "The prescribing of fluids for children admitted acutely to hospital under a General Paediatrician is dealt with by the Paediatric Medical Team on call and is supervised by the Paediatric Medical Registrar on that team. Since being appointed as a Consultant Paediatric Neurologist 10 years ago I cannot recall writing a prescription for intravenous fluids and during this period have never written a fluid prescription for another Consultant's patient"

The point Dr Webb was making in oral evidence was that he understood that Claire's fluid management was being undertaken by the general paediatric team, and as a consultant giving advice (rather than taking over management of a patient), he would not expect to manage fluids.

[465] As Dr Steen acknowledged that it would have had: see paragraph 159.

[466] WS-138-5 p 3 2(a)(iii).

167. When Dr Webb saw Claire at 17:00, both Dr Sands and Dr Stevenson were present: see paragraph 64 above.

168. Dr Webb did not know where Dr Steen was[467]. It did not occur to him to contact Dr Steen[468]. Dr Webb believed that communication between the neurology team and the general paediatric team was through registrars[469]. He was entitled to assume that Dr Sands would convey to Dr Steen what he had done.

169. Dr Scott-Jupp was critical of Dr Webb's communication with the general paediatric team at page 234-002-007 of his report. He modified his view in evidence[470]. Given that Dr Sands was present at Dr Webb's examination of Claire at 17:00 and given Dr Webb's continuing involvement as on-call paediatric neurologist, we submit that Dr Webb should not be criticised about his communication with the general paediatric team.

170. Dr Webb saw Mrs Roberts at about 17:00 on Tuesday 22 October 1996. We make submissions at paragraph 68 above about what he told her. We submit that his communication with Mrs Roberts was appropriate, given what Dr Webb believed, namely that Claire was ill, but was expected to improve.

171. Dr Webb was present when Dr Steen and he met Mr and Mrs Roberts on Wednesday 23 October 1996 before and after Claire's CT scan. We make submissions at paragraph 74 above about what was said. We submit that Dr Webb's communication with Mr and Mrs Roberts on that occasion was appropriate in the context.

172. Dr Webb regrets that he did not speak to the paediatric intensive care unit on Tuesday afternoon, and he recognises that this was an error. In his draft statement to the Coroner[471] Dr Webb accepted that he had made a mistake not contacting PICU. He repeated this in his witness statement [472] and in evidence[473].

[467] Transcript 03.12.2012 p 127 lines 1-2.
[468] Transcript 03.12.2012 p 127 lines 21-23.
[469] Transcript 03.12.2012 p 128 lines 10-13.
[470] Transcript 12.11.2012 p 161 lines 12-20.
[471] 139-098-021
[472] WS 138/2 p23 (42)

Brain stem form

173. At 05:30 on 23rd October 1996, a CT scan confirmed Dr Webb's conclusion that Claire had cerebral oedema[474]. Claire's pupils were fixed and dilated after mannitol diuresis.

174. Dr Webb and Dr Steen completed a form relating to the diagnosis of brain death[475].

175. Dr Webb is criticised because he answered "No" to the following question:

> Could other drugs affecting ventilation or level of consciousness been [*sic*] responsible for the patient's condition?

The criticism appears to be that Dr Webb ought to have ensured that there was no longer any effect from the anticonvulsants that had been administered to Claire.

176. This criticism should be rejected for the following reasons:

176.1. The question posed is ungrammatical. If the question is taken to mean, "could other drugs… *have been* responsible for the patient's condition?" the question is directed to the issue whether any drugs gave rise to the patient's condition. If the answer to this question is "yes", the answer remains "yes" despite the passage of time. If, on the other hand, the question is "could other drugs… *be* responsible for the patient's condition *currently*?" the question is directed to the issue whether there is another explanation for the patient's condition than the postulated brain stem death. Dr Webb could not know what question he was answering (Dr Aronson could not[476]).

176.2. Common sense suggests that the purpose of the form is to document that practitioners have made sure that patient's moribund condition is attributable to brainstem death rather than to some other, possibly reversible, cause. Although Dr Aronson pointed out that Claire would still have had anticonvulsants in her bloodstream, common sense (and all the available evidence) suggests that it is wholly unlikely that those drugs were responsible

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[473] Transcript 03.12.2012 p 288 lines 5-6.
[474] Dr Kennedy's note is at 090-022-058. The formal report is at 090-033-114.
[475] 090-045-148
[476] Transcript 08.11.2012 p 278 line 4

for her condition rather than the cerebral oedema and coning which were all too apparent.

176.3. Professor Neville thought that insisting upon undertaking a blood test to ensure that all traces had been eliminated was a counsel of perfection[477]. Dr MacFaul, having raised this point in his report, conceded that it would not have affected the outcome of the brainstem test[478].

176.4. Dr Webb made the point in relation to Adam Strain that brain herniation is not reversible. Waiting for drugs to leave the system is not going to fix the problem[479]. You are just prolonging the agony for the family[480]. The same applies in Claire's case[481].

Partial autopsy and coroner

177. Dr Webb did not refer Claire's case to the coroner. He did not consider it necessary to do so: see paragraph 77 above.

178. Dr Webb was not consulted on whether there should be a partial autopsy. He thought that a full autopsy would have been appropriate: see paragraph 76 above.

Clinical Governance Issues

No system to deal with Dr Steen's absence

179. Dr Steen was the consultant general paediatrician on call from 0900 Monday – 0900 Tuesday[482].

180. Although there is some evidence that Dr Steen may have been present at RBHSC for a brief period on Tuesday 22 October 1996[483], it is clear that for all practical purposes,

[477] Transcript 05.11.2012 p 93 lines 18-20.
[478] Transcript 14.11.2012 p 135 lines 6-10.
[479] Transcript 03.12.2012 p 254 lines 7-14
[480] Transcript 03.12.2012 p 254 lines 1-2
[481] Transcript 03.12.2012 p 275 lines 9-14
[482] Transcript 16.10.2012 p 35 lines 22-23.
[483] The nursing note for patient S4 in bundle 150 suggests that Dr Steen saw this patient.

Dr Steen was not available on that day. Dr Steen was not infrequently absent, in that she was required to undertake clinics whilst she was on call[484].

181. Dr Steen's registrar was Dr Sands, whose experience in general paediatric work at the time was very limited[485]. Dr Sands was absent in the afternoon of Tuesday 22 October 1996. Dr Steen's SHOs were very inexperienced[486].

182. The evidence about where or how Dr Steen could be contacted is unsatisfactory. Dr Steen told the Inquiry that she had a bleeper and a mobile phone[487], but Dr Sands was not sure that consultants had such all the time[488]. Dr Stevenson would have gone through the switchboard[489] in order to contact Dr Steen. The gravity of Claire's condition appears not to have been communicated adequately to Dr Steen when she was contacted, since Dr Steen felt able to go home[490].

183. There was no system designed to ensure that the relatively inexperienced general paediatric team was adequately led during Dr Steen's absence.

184. In consequence, we submit:

184.1. The general paediatric team was not adequately supervised. Dr Stevenson's arithmetical errors were not picked up or corrected. There was no general oversight of the fluids administered to Claire.

184.2. Dr Webb was required to manage Claire's case without the support of the general paediatric consultant.

Resource issues

185. If the Inquiry is persuaded by Professor Neville's opinion that, given Claire's presentation, she ought to have been subject to EEG examination, then the Inquiry may wish to make findings about

[484] Transcript 16.10.2012 p 36 lines 15-19.
[485] Dr Sands started his first Registrar post in August 1996: WS 137/1 p 3 §2.
[486] Dr Stevenson started in August 1996, but had only been on Allen Ward for a couple of weeks: WS 139/1 p 2; Dr Stewart started in August 1996: WS 141/1 p 2.
[487] Transcript 15.10.2012 p 10 lines 20-24.
[488] Transcript 19.10.2012 p 24 lines 17-21.
[489] Transcript 15.10.2012 p 129 lines 6-17.
[490] Transcript 15.10.2012 p 93 lines 5-8.

185.1. The availability of EEG equipment and staff for emergency use during working hours at RBHSC.

185.2. The availability of EEG equipment and staff for emergency use outside working hours.

186. It is a feature of Claire's case that

186.1. During working hours, the general paediatric team was represented by Dr Sands (in the morning, but apparently not in the afternoon) and Dr Stevenson. Dr Steen was not present. Dr Webb was probably working without his registrar[491]. The consultants believed that communication between teams took place between registrars[492]; it is likely that the absence of registrars did not contribute to good communication.

186.2. The medical practitioners on duty at night were under immense pressure. It is unnecessary to make detailed submissions on Dr Webb's behalf about this issue, but we feel justified in making the submissions that if more medical practitioners had been on duty at night (a) Claire's blood tests might well have been repeated in the night or early morning of 21/22 October (b) Claire's blood tests might well have been repeated, and acted on more urgently on the evening of 22 October.

Lessons of Adam Strain case not promulgated

187. It is inappropriate for Dr Webb to make submissions about what lessons ought to have been drawn from Adam Strain's case or whether such lessons, if properly taught, would have prevented Claire's tragic case. It is plain that the lessons of Adam's case were not imparted to the staff on duty at RBHSC[493].

[491] Transcript 30.11.2012 p 170 line 15. Counsel for the Inquiry said that she would check whether Dr Webb was correct about this: Transcript 03.12.2012 p 121 line 22. We assume that the check was made and Dr Webb's recollection is accurate.
[492] Thus Dr Webb, Transcript 03.12.2012 p 128 lines 10-13.
[493] The following were unaware of the Adam Strain case at the material time: Dr Sands Transcript 19.10.2012 p 8 line 25, Dr Stevenson Transcript 15.10.2012 p 103 line 21, Dr O' Hare Transcript 18.10.2012 p 115 line 15, Geraldine McRandall Transcript 29.10.2012 p 2 line 14, Sarah Jordan Transcript 29.10.2012 p 54 line 19, Karen Boyd Transcript 29.10.2012 p 117 line 3, Kate Linksey Transcript 30.10.2012 p 2 line 22, Lorraine McCann Transcript 30.10.2012 p 21 line 2, Barbara Maxwell Transcript 30.10.2012 p 119 line 13, Dr Hughes Transcript 05.11.2012 p 108 line 2, Dr Stewart Transcript 06.11.2012 p 6 line 10 and Dr Webb WS 138/1 p 93; Transcript

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30.11.2012 p 163 line 10 03.12.2012 p 258 line 13. Dr Steen said she was aware of the case but thought it was a case involving a rare high-output renal complication: Transcript 15.10.2012 p 17 lines 2 -14. Dr Bartholeme said she was aware of the case: Transcript 18.10.2012 p 4 line 8ff.