BRIEF FOR CONSULTANT HISTPOPATHOLOGIST

LUCY CRAWFORD

Introduction

1. Lucy Crawford was born on 5th November 1998. She died on 14th April 2000 at the Royal Belfast Hospital for Sick Children ("RBHSC"), having been transferred there after treatment in the Erne Hospital, Enniskillen.

2. At the time of Lucy's death a 'consented' post mortem was conducted, rather than a post mortem conducted under the auspices of the Coroner. A death certificate was completed which certified that Lucy had died by reason of a cerebral oedema due to or as a consequence of dehydration and gastroenteritis **[Ref: 013-008-022].**

3. However, following an Inquest conducted in 2004 by Mr. John Leckey, HM Coroner for Greater Belfast, the cause of Lucy's death was found to be: I.(a) cerebral oedema, (b) acute dilutional hyponatraemia, (c) excess dilute fluid and II. Gastroenteritis **[Ref: 013-034-130].**

4. This Inquiry will examine certain of the clinical, hospital management and Trust governance issues arising from Lucy's death. The Inquiry is particularly concerned to examine why the contribution played by hyponatraemia in causing her death was not recognised at the time and acted upon.

5. The care and treatment which Lucy Crawford received does not of itself form part of the Inquiry's work and her name is not now formally included within the Inquiry's terms of reference. However, the initial failure to recognise that hyponatraemia caused Lucy's death and to disseminate this information to the wider medical community in Northern Ireland, is viewed by the Inquiry as being of potential significance for another child who died some 14 months later. This forms the primary reason for the Inquiry's decision to examine Lucy's case.

Raychel Ferguson

6. The child who died 14 months after Lucy was Raychel Ferguson. She is one of four children who are the subject of this Inquiry which is being conducted under the chairmanship of John O'Hara QC.

7. Raychel was born on 4th February 1992. She was admitted to the Altnagelvin Area Hospital on 7th June 2001 with suspected appendicitis. An appendicectomy was performed late on 7th June 2001. She was

thought to be recovering well from this surgery, but during the 8th June 2001 she experienced severe vomiting before suffering a seizure in the early hours of the 9 June 2001. She was transferred to the Royal Belfast Hospital for Sick Children ("RBHSC") later that day where brain stem tests were shown to be negative. She was pronounced dead on 10th June 2001.

8. A post-mortem was conducted and in his autopsy report dated 11th June 2001 the neuropathologist concluded that Raychel's death was caused by a cerebral oedema secondary to hyponatraemia.

9. The Inquest into Raychel's death was opened on 5th February 2003 by Mr. Leckey (Coroner). He engaged Dr. Edward Sumner as an expert. At that time Dr. Sumner was a Consultant Paediatric Anaesthetist at Great Ormond Street Hospital for Sick Children.

10. The Coroner accepted the findings of the post-mortem. He found that the hyponatraemia was caused by a combination of inadequate electrolyte replacement following severe post-operative vomiting and water retention resulting from the secretion of anti-diuretic hormone (ADH).

11. The other 3 children who are the subject of this Inquiry are:-

(1) Adam Strain

Adam was born on 4th August 1991. He died on 28th November 1995 in the RBHSC following kidney transplant surgery. The Inquest into his death was conducted on 18th and 21st June 1996 by Mr. Leckey (Coroner), who engaged as experts: (i) Dr. Edward Sumner; (ii) Dr. John Alexander, Consultant Anaesthetist at Belfast City Hospital; and (iii) Professor Peter Berry of the Department of Paediatric Pathology in St. Michael's Hospital, Bristol. The Inquest Verdict identified cerebral oedema as the cause of his death with dilutional hyponatraemia as a contributory factor.

(2) Claire Roberts

Claire Roberts was born on 10th January 1987. She was admitted to the RBHSC on 21st October 1996 with a history of malaise, vomiting and drowsiness and she died on 23rd October 1996. Her death certificate recorded the cause of her death as cerebral oedema and status epilepticus. That certification was subsequently challenged after the UTV television documentary referred to below.

The Inquest into Claire's death was carried out nearly 10 years after her death by Mr. Leckey (Coroner) on 4th May 2006. He engaged Dr. Robert Bingham (Consultant Paediatric Anaesthetist at Great

Ormond Street) and Dr. Ian Maconochie (Consultant in Paediatric A&E Medicine at St Mary's, London) as experts. The Inquest Verdict found the cause of Claire's death to be cerebral oedema with hyponatraemia as a contributory factor.

(3) Conor Mitchell

Conor Mitchell was born on 12th October 1987 with cerebral palsy. His mother brought him to the Accident and Emergency Department of Craigavon Hospital on 8th May 2003 with signs of dehydration and for observation. He was admitted to the medical ward of that hospital where he suffered a seizure later that day. He was transferred to the RBHSC on 9th May 2003 where brain stem tests were shown to be negative and he was pronounced dead on 12th May 2003.

The Inquest into Conor's death was conducted on 9th June 2004 by Mr. Leckey (Coroner) who again engaged Dr. Edward Sumner as an expert. Despite the Inquest, the precise cause of Conor's death remains unclear.

The clinical diagnosis of Dr. Janice Bothwell (Paediatric Consultant) at the RBHSC was brainstem dysfunction with Cerebral Oedema related to viral illness, over-rehydration/inappropriate fluid management and status epilepticus causing hypoxia. Dr. Brian Herron from the Department of Neuropathy, Institute of Pathology, Belfast performed the autopsy. He was unsure what 'sparked off' the seizure activity and the extent to which it contributed to the swelling of Conor's brain but he considered that there was evidence of major hypernatraemia and that this occurred after brainstem death and therefore probably played no part in the cause of the brain swelling. He concluded that the ultimate cause of death was Cerebral Oedema. Dr. Edward Sumner commented in his report of November 2003 that Conor died of the acute effects of cerebral swelling which caused coning and brainstem death but he remained uncertain why. He noted that the volume of intravenous fluids was not excessive and the type appropriate but queried the initial rate of administration. That query was raised in his correspondence shortly after the Inquest Verdict. In that correspondence, Dr. Sumner described the fluid management regime for Conor as 'sub-optimal'.

The Inquest Verdict stated the cause of death to be brainstem failure with cerebral oedema, hypoxia, ischemia, seizures and infarction and cerebral palsy as contributing factors.

12. The impetus for this Inquiry was a UTV Live 'Insight' documentary 'When Hospitals Kill' which was shown on 21st October 2004. The documentary primarily focused on the death of Lucy Crawford.

13. The programme makers identified what they considered to have been significant shortcomings of personnel at the Erne Hospital. In effect, the programme alleged a 'cover-up' and it criticised the hospital, the Trust and the Chief Medical Officer. The programme also referred to the deaths of Adam and Raychel in which hyponatraemia had similarly played a part. At that time, no connection had been made with the deaths of Claire and Conor.

The Revised Terms of Reference

14. The revised terms of reference require particular consideration in the case of Lucy, since it was following representations made by her parents that a decision was made that an investigation would not be carried out into the care and treatment she received.

15. On 30th May 2008, the Chairman of the Inquiry made a public announcement that the circumstances around the death of Lucy Crawford would no longer be considered by the Inquiry. The Minister of Health thereafter issued Revised Terms of Reference in November 2008, which whilst removing Lucy's name left open the possibility that the aftermath of her death might still be investigated in relation to its implications for the investigation into Raychel's case.

16. On 10th June 2009, the Chairman issued a paper to the interested parties which contained the following:

> *"7. While the original terms of reference in 2004 permitted the Chairman to extend the work to include additional deaths and issues, they had to be amended by the Minister if Lucy's death was excluded. The amended terms of reference were issued by the Minister in November 2008. The extent of the amendment was to remove any reference to Lucy but otherwise to leave the terms unaltered. This leaves the amended terms open to two possible and quite different interpretations:*
>
> *(a) By deleting any reference to Lucy the Inquiry is to proceed on the basis that Lucy's death and its surrounding circumstances and aftermath are not to be enquired into in any way. This would mean, for example and in particular, that the initial failure to identify the correct cause of death and the alleged cover-up on the internal review by Sperrin Lakeland Trust would be excluded because to investigate them would be to continue to look at Lucy's death.*

(b) Alternatively, the terms still permit and indeed require an investigation into the events which followed Lucy's death such as the failure to identify the correct cause of death and the alleged Sperrin Lakeland cover-up because they contributed, arguably to the death of Raychel in Altnagelvin. This reflects the contention that had the circumstances of Lucy's death been identified correctly and had lessons been learned from the way in which fluids were administered to her, defective fluid management would not have occurred so soon afterwards (only 14 months later) in Altnagelvin, a hospital within the same Western Health and Social Services Board area."

17. After hearing from the parties the Chairman made a ruling regarding the approach that would be taken by the Inquiry concerning the death of Lucy:

"My decision is that I shall take the option set out at paragraph 7(b) of the June 2009 paper. This means that there will be an investigation into the events which followed the death of Lucy Crawford such as the failure to identify the correct cause of death and the alleged Sperrin Lakeland cover-up because they contributed, arguably, to the death of Raychel Ferguson in Altnagelvin."

18. That ruling followed a public announcement on 30th May 2008 that the Inquiry would investigate the case of Claire Roberts, who had died at the RBHSC on 23rd October 1996, to the same extent as the cases of Adam Strain and Raychel Ferguson.

19. Accordingly, the relevant portion of the Revised Terms of Reference may now be said to be construed as requiring:

"an Inquiry into the events surrounding and following the deaths of Adam Strain, Claire Roberts and Raychel Ferguson, with particular reference to:

...

2. The actions of the statutory authorities, other organisations and responsible individuals concerned in the procedures, investigations and events which followed the deaths of Adam Strain, Claire Roberts and Raychel Ferguson [including an investigation into the events which followed Lucy's death such as the failure to identify the correct cause of death and the alleged Sperrin Lakeland cover up]

20. The reference in the Revised Terms of Reference to investigating the *"procedures, investigations and events which followed [Lucy's] death,"* therefore raises important management and governance issues, and poses significant questions about the ability of the relevant bodies to learn lessons and to act upon them.

21. Given the volume of documentation that is available for consideration this briefing paper will now seek to summarise for you the clinical background to Lucy's case and the steps which were taken by the various actors after Lucy's death with a view to establishing its cause. The paper then concludes by identifying some of the specific matters which require investigation.

Clinical Background

22. On 12th April 2000 at 7.30pm, Lucy was admitted to the Erne Hospital with a history of drowsiness and vomiting.

23. The Erne Hospital is located in Enniskillen (population 11,500), some 80 miles from Belfast, and serves a largely rural population. It is part of the Sperrin Lakeland Trust ("the Trust") and it is within the Western Health and Social Services Board area.

24. Similarly, the Altnagelvin Health and Social Services Trust (and therefore the Altnagelvin Hospital), where Raychel was treated just over a year later, is located within the Western Board area.

25. Lucy's GP had queried whether she had a urinary tract infection and whether she required administration of fluids. Her clinical records associated with the period when she was treated in the Erne Hospital can be found in **File 27.**

26. Lucy was cared for by Dr. Amerullih Malik (SHO in Paediatrics) and Dr. Jarlath O'Donohoe (Consultant Paediatrician), whilst she was a patient of the Erne Hospital.

27. It is understood that following admission Lucy was given a 100ml bolus of fluids and some juice and that she was started on IV fluids at approximately 10.30pm-11.00pm. The IV fluid was solution 18 and it appears to be accepted by clinicians and nursing staff that this was given at a rate of 100ml/hr for some 4 hours.

28. At approximately 2.55am on 13th April 2000, Lucy was found to be suffering what was recognised as a seizure. Her mother was present at that time. Her fluids were changed from solution 18 to normal saline which was allowed to run freely **[Ref: 027-017-057].**

29. Lucy was intubated and ventilated by Dr. Thomas Auterson (Anaesthetist) who noted that her pupils were fixed and dilated: **[Ref: 027-010-024] & [Ref: 013-007-020].**

30. Lucy was transferred to the intensive care unit at the Erne Hospital at 4.00am where steps were taken to stabilise her for transfer to the RBHSC. Bloods had been taken by Dr. O'Donohoe for repeat urea and electrolyte measurement some time after her seizure had commenced. It is understood that electrolytes were measured after she had been started on normal saline, although the precise timings are unclear. The results showed that her serum sodium had fallen from 137mmol/L on admission **[Ref: 027-012-031],** to 127mmol/L after her seizure **[Ref: 027-012-032]**.

31. Lucy was transferred from the Erne Hospital by ambulance on 13th April 2000 at 6.30am and arrived at the RBHSC shortly after 8.00am. She was bagged by hand throughout the journey.

32. Whilst a patient of the RBHSC, Lucy was under the care of Dr. Peter Crean (Consultant in Paediatric Anaesthesia and Intensive Care), who arranged for her to be seen by Dr. Donncha Hanrahan (Consultant Paediatric Neurologist). She was also seen by a Specialist Registrar in Paediatric Neurology, Dr. Caroline Stewart, and by Dr. Anthony Chisakuta, a Consultant in Paediatric Anaesthesia and Intensive Care.

33. The clinical records associated with the period when Lucy was treated in the RBHSC can be found in **File 61.**

34. Lucy was brought to the RBHSC without the clinical records relating to her management in the Erne Hospital. Upon arrival a brief transfer letter was handed over by Dr. O'Donohoe as well as transfer observations: **[061-014-038 & 39, 061-015-040, 061-016-041].** Lucy's electrolyte results were telephoned into the RBHSC at 9.00am **[061-018-060]**, and her Erne clinical records were forwarded to the RBHSC by fax at 9.51am **[Ref: 061-017-042].**

35. It would appear that Lucy's fluid regime during the period of her treatment in the Erne Hospital was the subject of interest at the RBHSC. Dr. O'Donohoe recorded a retrospective note on the 14 April 2000, indicating that Dr. Crean had contacted him to inquire about the fluid regime that Lucy had been on: **[027-010-024].** Dr. O'Donohoe's note recorded that it was his recollection that he had prescribed a bolus followed by 30ml/hr. However, it is clear that was not in fact what Lucy received. This is addressed in further detail below.

36. Clinicians at the RBHSC quickly recognised that Lucy's prospects were hopeless. Following two sets of brain stem tests **[Ref: 061-019-070]** ventilatory support was removed and Lucy was declared dead at 1.15pm on 14 April 2000 **[Ref: 061-018-068].**

The Response to Lucy's Death by the RBHSC

37. Lucy's death was reported to the Coroner's office by Dr. Hanrahan on 14th April 2000 as he was required to do pursuant to section 7 of the Coroner's Act (Northern Ireland) 1959 **[Ref: 061-018-067].**

38. The clinical history which is recorded in the file note made by the Coroner's Office, following Dr. Hanrahan's report, stated gastroenteritis, dehydration and brain swelling **[Ref: 013-053a-290].** The person who made that file note was Mrs. Dennison, who has given an account of her role to the police in a statement dated 7th December 2004: **[Ref: 115-033-001]**

39. Lucy's death was the subject of a discussion between Dr. Hanrahan and the Assistant State Pathologist (Dr. Michael Curtis). According to the Coroner, Dr. Curtis spoke to Dr. Hanrahan on behalf of the Coroner's Office, and reached the view that a post mortem examination was unnecessary: **[Ref: 013-058-342].** In a statement which he provided for the purposes of a police investigation, Dr. Hanrahan has indicated that he cannot recall this discussion **[Ref: 115-050-004].** He told the police that a post mortem was desirable because he was unsure as to the cause of death, but he explained that his "uncertainty did not extend to believing that the patient had died an unnatural death." He cannot remember whether he discussed hyponatraemia with Dr. Curtis, but he has stated that he may not have done so because "it was not something to the forefront of my mind at this time."

40. In an earlier statement which Dr. Hanrahan signed on the 17 June 2003 in anticipation of an Inquest, he wrote:

    "The Coroner's office advised us that a Coroner's post mortem was not required but that a hospital post-mortem would be useful to establish the cause of death and rule out other diagnoses. Her parents subsequently consented to post-mortem." **[Ref: 062-034-072]**

41. In a covering letter to this statement Dr. Hanrahan expressed his surprise that the "Coroner's Office did not feel that their involvement was necessary." **[Ref: 062-034-70]**

42. In a note recorded by Dr. Caroline Stewart it states that,

    "a hospital PM would be useful to establish cause of death + rule out other Δ. Parents consent for PM" **[Ref: 061-018-067].**

43. It is unclear what the parents were told about the decision not to conduct a Coroner's post mortem, or whether they were advised of the significance of this. It is not known what was said to them in order to obtain consent for a hospital post mortem.

44. An autopsy request form was sent by Dr. Caroline Stewart to Dr. M. Denis O'Hara (Consultant Paediatric Pathologist - now deceased). This may be an important document from the Inquiry's perspective because it recognises the presence of hyponatraemia. Dr. Stewart recorded the following on the request form:

> *"Dehydration and hyponatraemia Cerebral oedema → acute coning + brain stem death."* **[Ref: 061-022-073]**

45. Dr. O'Hara conducted the consent post-mortem on 14th April 2000. The compilation of Dr. O'Hara's reports **[Ref: 013-017-054]** may be a little confusing for the reader. In their entirety the reports run to a total of 12 pages. It would appear that Dr. O'Hara produced a provisional anatomical summary on 17th April 2000 **[Ref: 013-017-061],** and then a final anatomical summary was produced as part of a full report on 12th June 2000. However, two years later, on 6th November 2003, on the instruction of the Coroner, Dr. O'Hara, produced what might be regarded as a supplementary report **[Ref: 013-017-063].**

46. In his report of 12th June 2000, Dr. O'Hara observed that there were changes seen in the brain which were consistent with an acute hypoxic insult **[Ref: 013-017-055].** The report focussed on the fact that a pneumonic lesion was found within the lungs, and Dr. O'Hara concluded that this was *"important as the ultimate cause of death"*.

47. Dr. O'Hara is now deceased.

48. A death certificate was issued on the 4 May 2000 by Dr. Dara O'Donoghue (Clinical Fellow, Paediatrics, RBHSC) - not to be confused with Dr. O'Donohoe (Consultant Paediatrician, at the Erne Hospital). The death was certified as having been caused by a cerebral oedema due to or as a consequence of dehydration and gastroenteritis **[Ref: 013-008-022].** However, there were no pathological signs of gastroenteritis found at post mortem.

49. When the death certificate was signed off, the provisional anatomical summary was available, but not the final post-mortem report, which was only available on 12 June 2000. It would appear from the entry made in the notes by Dr. O'Donoghue that he completed the death certificate after considering the provisional anatomical summary and

after holding conversations with Dr. Hanrahan and Dr. Caroline Stewart **[Ref: 061-018-068].**

50. On 9th June 2000, Dr. Hanrahan met with Mr. and Mrs. Crawford **[Ref: 061-018-069].** He encouraged them to speak to Dr. O'Donohoe at the Erne Hospital, albeit that they had already had one meeting with him.

51. In his report of 12th June 2000, Dr. O'Hara did not engage with the question of whether hyponatraemia contributed to the cause of death, although the clinical diagnosis referring to hyponatraemia (contained within the autopsy request form) provided by Dr. Caroline Stewart was documented within the report **[Ref: 013-017-056]**. On 16th June 2000 Dr. O'Hara met with Lucy's parents to discuss his findings with them: **[Ref: 015-006-031].**

52. Dr. O'Hara's findings were not reported to the Coroner. Indeed the fact that a post mortem had been performed was not brought to the attention of the Coroner. A copy of the post-mortem report was sent to the Erne Hospital.

53. The significance of the reference to hyponatraemia in the document compiled by Dr. Caroline Stewart is unclear. In a statement which she provided to police, Dr. Stewart has stated that Lucy had been suffering from a range of biochemical abnormalities, and that no significance attached to her reference to the term 'hyponatraemia': **[Ref: 115-022-002]**

54. Dr. Hanrahan was questioned by police on 2nd March 2005. During his first interview, he explained to detectives that Dr. Stewart's reference to hyponatraemia in the clinical history section of the autopsy request form was not the same as implicating it in the chain of events leading to Lucy's death: **[Ref: 116-026-005]**

55. Dr. Hanrahan went on to explain at police interview that when he was treating Lucy he was aware that the measurement of her sodium in the Erne Hospital had shown a drop from 137 to 127, but that he did not regard this as marked or significant **[Ref: 116-026-005]**

56. Dr. Hanrahan explained to detectives that in a conversation with Dr. O'Donohoe which took place on 3rd December 2004 **[Ref: 116-026-006]** he became aware that after suffering her fit at or about 2.55am on 13th April, but before her electrolytes were analysed for the second time, Lucy had been given a quantity of normal saline.

57. According to what he said in this statement to police, this knowledge led him to conclude in retrospect that her sodium must have been

much lower than 127 at the point in time when she coned, and that dilutional hyponatraemia was responsible for the cerebral oedema **[Ref: 116-026-013]**

Response to Lucy's Death by the Sperrin Lakeland Trust

58. Lucy's death was notified to the Sperrin Lakeland Trust on 14th April 2000. The Trust did not report Lucy's death to the Coroner then or subsequently.

59. Senior management at the Trust are on record as having told the police that they had assumed that an inquest was inevitable and that they also assumed that the death would have been reported to the Coroner by doctors in the RBHSC.

60. However, as is clear from the foregoing, the RBHSC treated Lucy's death as one which had occurred by reason of natural causes and clinicians there were aware from the outset that there would be no Inquest for that reason.

61. Plainly, the apparent absence of communication between the two hospitals in relation to the circumstances leading to the death of Lucy and the question of the Coroner's input, are matters which are of interest to the Inquiry, and is an issue on which you are asked to comment.

62. Mr. Hugh Mills (Chief Executive of the Trust) told the police that he discovered on 12th October 2001, through the Trust's lawyers that there was not going to be an Iquest. It is unclear why the Trust made no contact with the Coroner's office or the RBHSC then or subsequently to query the absence of an Inquest.

63. It would appear that before Lucy's death had been confirmed Dr. O'Donohoe made contact with Dr. James Kelly (Medical Director of the Sperrin Lakeland Trust). Dr. Kelly provided an account of that discussion in his first interview with the PSNI on 6th April 2005: **[Ref: 116-043-002]**

> *"Dr. O'Donohoe contacted me by telephone on either Thursday 13th of April....or on the morning of the Friday 14th of April 2000. Dr. O'Donohoe explained he wanted to apprise me of the events surrounding a child who had been admitted to the Paediatric Ward of the Erne Hospital on 12th of April. Dr. O'Donohoe outlined that he was raising this under Critical Incident Reporting. Dr. O'Donohoe informed me that the child had been admitted with diarrhoea and vomiting and had subsequently suffered an*

unexplained collapse requiring resuscitation and incubation (sic)....Dr. O'Donohoe said he was not sure what happened stating there may have been a misdiagnosis, the wrong drug had been prescribed or the child had an adverse drug reaction. Dr. O'Donohoe explained that there had been some confusion over fluids...."

64. There is no indication on the documents available to the Inquiry that the matters which were causing Dr. O'Donohoe concern, and which were possibly implicated in Lucy's deterioration, were ever brought to the attention of the clinicians at the RBHSC where Lucy was being treated. It is clear that they weren't brought to the attention of the Coroner.

65. On the 14th April 2000 Dr. O'Donohoe made an entry into Lucy's clinical notes that Dr. Peter Crean of the RBHSC had contacted him to ask whether Lucy had received an infusion of solution No. 18 at the rate of 100 ml/hr. Dr. O'Donohoe recorded:

"My recollection was of having said a bolus over 1 hour and 30ml/hour as above" **[Ref: 027-010-024]**.

66. As was to become clear to the Trust when it commenced its review of Lucy's case, Dr. O'Donohoe's recollection was inconsistent with that of Nurse Swift who was to claim that she administered the fluids at 100ml/hr in accordance with Dr. O'Donohoe's instructions.

67. On 14th April 2000, Mrs. Esther Millar (Clinical Services Manager, Erne Hospital) completed a clinical incident report in respect of Lucy **[Ref: 036a-045-096]**. This recorded, inter alia, *"Concern expressed about fluids prescribed, administered..."*

68. On 14th April 2000, Dr. Kelly contacted Mr. Hugh Mills (Chief Executive of the Trust) and they agreed that a case review of the care which Lucy had received at the Erne Hospital should be taken forward and that it should be coordinated by Mr. Eugene Fee (Director of Acute Hospital Services, Erne Hospital) and Dr. William Anderson (Clinical Director of Women & Children's Services, Erne Hospital): **See [Ref: 030-007-012], [Ref: 030-010-017]** and **[Ref: 036b-058-094].**

69. The documents available to the Inquiry show that the Trust had constructed a framework for conducting case reviews: **[Ref: 036a-039-83].** It is unclear when this framework was introduced or what prompted its introduction. It is also unclear whether it was available at the time of the review in Lucy's case.

70. When interviewed by police, senior managers of the Trust explained that there was not a standard process to work to in 2000 when examining adverse incidents: see for example the answers given by Mr. Fee when interviewed by PSNI on 16th March 2005: **[Ref: 116-030-006]**

71. However, Bridget O'Rawe, the Trust's Director of Corporate Affairs, explained in a letter to Lucy's father that the case review which was carried out was "...one which has been introduced by the Sperrin Lakeland Trust in the last 2 years or so and is in the main undertaken where there has been a sudden unexpected death or where clinicians and professionals involved identified unusual complications or difficulties arising during the management of a patient's care" **[033-026-054].**

72. On 18th April 2000 the Trust was given a verbal report in relation to the post-mortem conducted by Dr. O'Hara.

73. On 18th April 2000 Mr. Fee spoke to some members of the nursing team who had been on duty when Lucy had been treated in the Erne. On 21st April 2000, he wrote to them to seek a factual account of the sequence of events: see correspondence starting at **[Ref: 033-102-297].** On 27th April 2000, he spoke to Sister Traynor and Nurse Swift **[Ref: 033-102-295]** about the care which had been provided to Lucy. Nurse Swift agreed to provide a statement. She told Mr. Fee that Dr. O'Donohoe had advised her to administer solution 18 at 100ml per hour until Lucy had produced urine.

74. The following nursing and medical staff provided statements which were considered as part of review: McNeill **[Ref: 033-102-283]**; McCaffrey **[Ref: 033-102-289];** O'Donohoe **[Ref: 033-102-293];** Malik **[Ref: 033-102-281]**; Swift **[Ref: 033-102-280]**; Jones **[Ref: 033-102-320]**; Auterson **[Ref: 033-102-316].**

75. It would appear that not all of the staff who had been on duty were asked to give information. For example, Sister Edmundson, who was the night manager on duty and who had been called to the ward when Lucy deteriorated, did not provide a statement.

76. There is no indication on the papers available to the Inquiry that the staff were formally debriefed in relation to the incidents associated with the deterioration in Lucy's condition, or that steps were taken to raise questions with them about the contents of their statements, whether to establish facts, obtain clarifications or to promote conclusions. There appears to be no follow up to the statements provided verbally or in writing by these individuals.

77. The parents of Lucy were not asked to participate in the review, notwithstanding the presence of Mrs. Crawford throughout her daughter's treatment and subsequent collapse.

78. Moreover, there is no indication of any communication between the Erne Hospital and the RBHSC for the purposes of conveying the importance of identifying what had happened to Lucy and of establishing what had caused her death. Indeed there is nothing on the papers available to the Inquiry to show that the RBHSC were advised that a review was being conducted, and nor is there any suggestion on the papers that the Erne asked for Lucy's RBHSC notes and records, or that they asked clinicians in the RBHSC to contribute to the review.

79. The Trust did have ongoing communication with the Western Health and Social Services Board in relation to Lucy's death: **[Ref: 030-010-017]** & **[Ref: 036a-046-098].** In particular Dr. William McConnell (Director of Public Health) and Mr. Martin Bradley (Director of Nursing) were advised that Lucy's death was the subject of review.

80. Following a meeting between Dr. Anderson and Mr. Fee on 19th April 2000 **[Ref: 033-102-285],** it was decided to ask Mr. Mills to arrange for an external paediatric opinion to be provided on the management of Lucy's care. Mr. Mills asked Dr. Murray Quinn, a Consultant Paediatrician at Altnagelvin Hospital to assist with the review, and on 21st April 2000 he was contacted by Mr. Fee to discuss his role **[Ref: 030-10-017].**

81. Concerns have been raised publicly in relation to whether Dr. Quinn could be regarded as having been sufficiently independent of the Trust when he agreed to assist with the review. Dr. Quinn had previously carried out some clinics within the Trust, and was then employed as a consultant in the neighbouring Altnagelvin Trust.

82. On the 21 April Dr. Quinn was provided with the clinical notes in respect of Lucy and asked to provide his opinion on three issues: the significance of the type and volume of fluid administered; the likely cause of the cerebral oedema; the likely cause of the change in the electrolyte balance ie. was it likely to be caused by the type of fluids, the volume of fluids used, the diarrhoea or other factors **[Ref: 033-102-296].**

83. Dr. Quinn had a telephone discussion with Mr. Fee on 2nd May 2000. **[Ref: 036a-053a-129].** In this conversation he appears to have given his preliminary views. We cannot obtain a full sense of the conversation from this record, but Dr. Quinn appeared to be saying that it was "difficult to get a complete picture of the child." He appears to have

indicated that the type of fluids given was appropriate, and that he would have expected Lucy to have been given the fluid at a rate of 80 ml/hr. He had calculated that she had received fluid at a rate of 80 ml/hr on the basis of the amount of fluids received "divided over the length of stay..."

84. Quite why the fluids were discussed in this way, rather than by examining the rate of administration from the point in time when IV fluids commenced, is not otherwise explained. As we shall see below, this analysis was to be repeated in Dr. Quinn's written report.

85. On the 15 May 2000, prior to the completion of the review, Dr. Kelly advised Dr. McConnell (of the Western Board) that Dr. Quinn had indicated that "the fluid regime was probably irrelevant..." [036a-046-099].

86. There appear to be a number of errors in this correspondence: firstly, the impression given in the paragraph numbered (1) at [Ref: 036a-046-098] is that Lucy was admitted with a low sodium of 127, whereas this was the measurement taken after her seizure; secondly, it is suggested that Dr. O'Donohoe had advised the family that a review would be undertaken whereas the later correspondence to the Trust from Mr. Crawford (see below) indicates that he was unaware that a review was being undertaken [Ref: 036a-046-099].

87. In a related development on 5th June 2000, Dr. M. Asghar (Staff Grade Paediatrician at the Erne Hospital) wrote to Mr. Mills in order to report his concerns about Dr. O'Donohoe's treatment of Lucy, as well as other issues: **[Ref: 032-090-175].** In his letter, he explained that *"this child may have been given excess of fluids"* and that *"all through the night fluids were running at 100 mls per hour."* Dr. Asghar was advised that Dr. Kelly had been asked to commence a review of Dr. O'Donohoe's clinical work **[Ref: 032-089-173].**

88. On 14th June 2000, Mr. Mills met with Mr. Clive Gowdy **[Ref: 030-009-016]** who at that time was the Permanent Secretary of Department of Health and Social Services and Public Safety. The Inquiry has not been provided with the agenda for that meeting. It is unclear whether the case of Lucy was discussed at their meeting. It is noted that the programme for his visit to the Sperrin Lakeland Trust is followed on Mr. Mills file of papers **(Ref: File 30)** by Mr. Mills' briefing notes relating to Lucy's treatment: **[Ref: 030-010-017, & 018, & 019].**

89. Dr. Quinn met with Dr. Kelly and Mr. Eugene Fee on 21st June 2000 **[Ref: 036a-047-101].** The notes of that meeting record that Dr. Quinn was shown Lucy's post-mortem report and commented upon it. The

notes also show that he was asked whether consideration should be given to the temporary suspension of Dr. O'Donohoe. He is recorded as stating that he saw no reason for suspension **[Ref: 036a-047-102].** Dr. Kelly met with Dr. O'Donohoe on 28th June 2000 to discuss the views that had been expressed by Dr. Quinn.

90. Subsequently, Dr. Quinn told the PSNI in a statement that he had not been given a copy of the post-mortem report. Moreover, he stated that when asked whether Dr. O'Donohoe should be suspended he said that this was not a matter for him: **[Ref: 015-041-004]**

91. At this juncture it might be noted that Dr. O'Donohoe commented on the post mortem report in a short handwritten letter to Dr. Kelly dated 26 June 2000. In this letter he appeared to express some surprise about the post-mortem findings:

"I don't quite know what to make of the bronchopneumonia and particularly the suggestion it may have been of some duration." **[Ref: 036a-051-114]**

92. Dr. Quinn went on in his police statement to say that he had advised the Trust that he was placing a number of caveats around his involvement in the review: **[Ref: 115-041-002].** He claimed that he told Mr. Mills that he was not prepared to provide a report for the complaints procedure or for medico-legal purposes. He said that he had explained to Mr. Mills that the Trust should ascertain from staff on duty the exact volumes of fluid which had been given to Lucy because he was not prepared to interview staff himself, and nor was he prepared to meet family members of Lucy. He claimed that he advised Mr. Mills that the Trust should obtain an opinion from a Consultant Paediatrician from outside of the Western Board area. Ultimately, he said he was persuaded to provide a written report when it had been his original intention to limit his involvement to a verbal commentary. He had not been told of Dr. Asghar's concerns.

93. Dr. Quinn provided a report to Mr. Fee on 22nd June 2000 **[Ref: 036a-048-103]** which was marked 'Medical Report on Lucy Crawford'. In the report, he expressed the view that he would be "*surprised*" if the volumes of fluid which Lucy had received "*could have produced gross cerebral oedema causing coning*" **[Ref: 036a-048-105].** However, this conclusion was apparently based on an analysis which spoke of the fluids being given over a 7 hour period starting at the time of Lucy's admission into hospital at 7.30pm, through to the seizure at 03.00am, rather than focussing on the fact that IV fluids commenced at or about 11.00pm and were administered at a rate of 100ml/hr.

94. Dr. Quinn did not examine other possible causes of the cerebral oedema or debate the significance or otherwise of the recognised hyponatraemia, despite acknowledging that her serum sodium results had gone from 'normal' on admission to 'low' after the seizure.

95. He expressed the view that he was unable to be certain about what happened to Lucy at 3.00am on 13th April 2000, or what was the ultimate cause of her death **[Ref: 036a-048-106].**

96. It is notable that the Coroner subsequently recommended that Dr. Quinn should review the content of the report in the light of the Inquest evidence: **[Ref: 013-041-165].**

97. A draft Review Report was circulated to Dr. Anderson on 6th July 2000 **[Ref: 036a-049-107]** which incorporated Dr. Quinn's report. Dr. Anderson gave his opinion in writing on 17th July 2000 **[Ref: 033-101-258]** and set out certain recommendations which were incorporated within the final report dated 31st July 2000 **[Ref: 033-102-262].**

98. The final Review Report found that there was a significant communications issue in that Dr. O'Donohoe and the nurses who had been on duty had different understandings of his intended prescription of fluids, there was no adequate record and that there was a need for standard protocols for treating patients in Lucy's condition and for ensuring accurate prescribing.

99. The report rehearsed Dr. Quinn's view that the total volume of fluid intake was within the accepted range **[Ref: 033-102-267]** and it was stated that,

> *"Neither the post-mortem result or the independent medical report on Lucy Crawford, provided by Dr. Quinn, can give an absolute explanation as to why Lucy's condition deteriorated rapidly, why she had an event described as a seizure at around 2.55am on 13th April 2000, or why cerebral oedema was present on examination at post-mortem"* **[Ref: 033-102-265].**

100. It is apparent that not every area of concern which had been identified within the report was covered by a recommendation. The recommendations which had been suggested by Dr. Anderson are contained within section 9 of the review report **[Ref: 033-102-269].** Consideration of the documentation generated by the police investigation (see further below) would tend to indicate that at least some of the recommendations were not implemented: a team meeting did not take place for the purposes of discussing the report/findings; a meeting did not take place with the Crawford family (although a meeting was offered).

101. The recommendation that there was a need to make improvements around the documentation for fluid prescribing and in relation to protocols was also addressed by Trust management during police interviews and by witnesses who provided statements to police. It is unclear whether any changes were forthcoming as a result of implementing the review's recommendations, or whether change flowed from the guidance which was developed by the Department of Health in the aftermath of Raychel Ferguson's death.

102. Mr. Fee told the police that he accepted that there were shortcomings in some of the *"follow through"* after the completion of the review: **[Ref: 116-032-011].** It is unclear what procedures were or ought to have been in place to ensure that all of the lessons to be derived from the review were identified, understood, disseminated and recommendations implemented.

103. On 14th September 2000, Dr. Kelly wrote to Ms. Pat Hamilton of the Royal College of Paediatrics and Child Health ("RCPCH") to seek assistance concerning professional conduct and competency issues associated with the practice of Dr. O'Donohoe **[Ref: 036a-009-016].** It would appear that this correspondence was prompted at least in part by the concerns expressed in Dr. Asghar's correspondence to Mr. Mills referred to above.

104. Dr. Moira Stewart (Consultant Paediatrican) was nominated on behalf of the RCPCH to carry out a review **[Ref: 036a-010-019].**

105. According to Mr. Mills, Dr. Kelly also reportedly contacted the GMC Helpline on an anonymous basis to seek advice regarding concerns about the practice of Dr. O'Donohoe: **[Ref: 116-051-004]**

106. In a separate development, Lucy's father wrote to the Trust on 22nd September 2000 to advise that he wished to invoke the formal complaints procedure **[Ref: 072-004-179].** In subsequent correspondence, Mr. Mills wrote to Mr. Stanley Millar (Chief Officer of the Western Health and Social Services Council) to offer a meeting so that the Trust could share the findings of the review **[Ref: 072-004-184]**.

107. Mr. Crawford wrote to express surprise that a review could have taken place without notifying the family **[Ref: 072-004-186]** and to request a copy of the review findings. It was noted above that Dr. Kelly had earlier advised Dr. McConnell of the WHSSB that the family had been told that a review was being undertaken. After further correspondence, the family was finally provided with a copy of the review report on

10th January 2001, and told that this was an 'initial step' in the formal complaints process **[Ref: 072-004-191].**

108. The Trust made further efforts to encourage the Crawford family to attend a meeting but, on 27th April 2001, solicitors acting for the family took the first step in the litigation process by sending a letter before action to the Trust **[Ref: 072-002-047].** The litigation was eventually settled.

109. It should be noted that by March 2002 the Trust was in possession of its own medico-legal report in association with this litigation. In his report dated the 7 March 2002, Dr. John Jenkins (Consultant Paediatrician) opined that evidence of changes in Lucy's serum electrolytes "do raise the question as to the fluid management in the period from insertion of the IV line at 2300 to the collapse at around 3.00am": **[Ref: 013-011-038].** He concluded by saying that "[w]hile no definite conclusions can be drawn regarding the cause of this child's deterioration and subsequent death there is certainly a suggestion that this was associated with a rapid fall in sodium associated with intravenous fluid administration and causing hyponatraemia and cerebral oedema": **[Ref: 013-011-039].** The findings of Dr. Jenkins were not shared with the Coroner at that time.

110. As part of her review Dr. Moira Stewart examined four cases in which care had been provided to patients by Dr. O'Donohoe, including the case of Lucy Crawford **[Ref: 036a-025-052].** She examined Lucy's case by reference to the clinical notes, the post-mortem report and the report provided by Dr. Murray Quinn. In particular, she examined the fluid management regime which applied during Lucy's treatment in the Erne Hospital.

111. In her report (26th April 2001), she found that the volume of fluid provided to Lucy *"does not appear to be excessive"* but she stated *"there is debate about the most appropriate fluid to use"* **[Ref: 036a-025-058].** She referred to several possible explanations for Lucy's death and indicated that Lucy suffered the seizure like episode due to an underlying biochemical abnormality **[Ref: 036a-025-56].**

112. Dr. Kelly held a follow-up meeting with Dr. Stewart on 1st June 2001 to discuss her report. The notes associated with Lucy Crawford's case contain the following entry:

> *"Overall amount of fluids once started not a major problem but rate of change of electrolytes may have been responsible for the cerebral oedema"* **[Ref: 036a-027-067].**

113. The notes from the meeting also express the view that there was *"insufficient suboptimal practice to justify referral to GMC"* **[Ref: 036a-027-068].**

114. On 21st June 2001, Dr. Kelly wrote to his colleagues at the Erne to inform them that he had been advised at a Medical Directors meeting that a child had recently died after developing severe hyponatraemia leading to seizure activity and coning **[Ref: 036a-056-141].** This was obviously the death of Raychel Ferguson. He also reported that the RBHSC had changed its guidelines and was no longer using Solution No. 18 post surgery for rehydration in paediatric medicine. He asked his colleagues to review the Erne's practice with regard to fluids.

115. Dr. Kelly did not disclose the report provided by Dr. Moira Stewart to Lucy Crawford's family or to the Coroner.

116. However, Dr. Kelly did forward the report prepared by Dr. Stewart and the notes of their meeting to Dr. William McConnell of the Western Health and Social Services Board **[Ref: 036a-028-069]** on 27th June 2001. Dr. McConnell responded on 5th July 2001 by stating that there was likely to be a need for the Trust to discuss the findings of Dr. Stewart with Dr. O'Donohoe *"to get some sense from him of what programme of corrective action he would propose to make in order to be able to respond to the deficiencies identified"* **[Ref: 036a-029-070].**

117. Dr. Kelly met with Dr. O'Donohoe on 10th September 2001 to give him Dr. Stewart's report **[Ref: 036a-121-263],** and they met again on 18th September 2001 to discuss the detail of the report **[Ref: 036a-123-265].** There is no record that the case of Lucy Crawford was specifically discussed at these meetings.

118. The RCPCH also carried out a broader professional competency review of the practice of Dr. O'Donohoe, arising out of a request made by Dr. Kelly on 7th February 2002 **[Ref: 036a-129-273]** following upon further concerns which had been raised by Dr. Asghar **[Ref: 036a-032-073].**

119. The RCPCH carried out their review in accordance with a protocol for external clinical advisory team visits **[Ref: 036a-135-281].**

120. The authors of the report, which was issued on 7th August 2002, were Dr. Moira Stewart as well as a Dr. AW Boon (Consultant Paediatrician) **[Ref: 036A-150-309].** The report revisited the case of Lucy Crawford and referred to the poor documentation in the prescription for her fluid therapy. It went on to say:

"With the benefit of hindsight there seems to be little doubt that this girl died from unrecognised hyponatraemia although at that time this was not so well recognised as at present" **[Ref: 036a-150-312].**

121. The use of the phrase "benefit of hindsight" bears some consideration. It is unclear what new information, if any, was available to Dr. Boon and Dr. Stewart which enabled them to reach this conclusion, and which was not available to others who had earlier examined this matter.

122. At the time of having received the report from Drs. Stewart and Boon, management of the Trust were aware that an Inquest had not taken place nor was one scheduled. In addition to the report from the RCPCH, the Trust had the report of Dr. Jenkins (for medico-legal purposes) and it was aware of the circumstances of Raychel's death. Nevertheless and despite the conclusion that Lucy had died from unrecognised hyponatraemia, the findings of that review were not brought to the attention of the Coroner or Lucy's family. It is unclear whether the review's findings were even shared with the Western Health and Social Services Board.

123. The review was discussed with Dr. O'Donohoe on 25th September 2002 **[Ref: 036a-155-326].** It would appear that issues relating to specific patients were addressed with Dr. O'Donohoe, although there is no indication within this record about what was said in relation to the treatment of Lucy. Nor does the record indicate whether there was any attempt to address the fact that Lucy's death was now recognised as having been caused by hyponatraemia.

124. The circumstances of Lucy's death were eventually referred to the Coroner, Mr. Leckey, by Mr. Stanley Millar in February 2003 (see below). An Inquest was held in early 2004, following which the Trust established a root cause analysis steering group to examine its handling of Lucy's case. However, on 4th November 2004, the Trust was advised by the Department of Health Social Services and Public Safety to discontinue this work following the Ministerial announcement of this Inquiry: **[Ref: 067k-044-065].**

125. The papers associated with the root cause analysis can be found within **File 18**.

The Coroner's Response to Lucy's Death

126. Mr. Leckey has let it be known publicly that his office was unaware of the fact that a hospital post-mortem had been conducted in relation to

Lucy's death **[Ref: 013-004-007]** until he received correspondence from Mr. Stanley Millar on 27th February 2003 **[Ref: 013-056-320].**

127. Mr. Millar was at that time the Chief Officer of the Western Health and Social Services Council, who had been advising Mr. Crawford in his dealings with the Trust, and who had also become aware of the circumstances of Raychel's death and the findings of her Inquest.

128. In a further comment on this issue which he provided to police in a statement, Mr. Leckey has explained how his office was originally caused to treat Lucy's death as being a natural death, and how it was only upon receipt of Mr. Millar's correspondence that he was given information which led him to consider that he should investigate whether fluid management was relevant to the cause of Lucy's death: **[Ref: 115-034-001]**

129. In his police statement, Mr. Leckey was critical of Dr. O'Hara for his failure to refer Lucy's death to him and for his failure to request that the consent post-mortem be converted into a Coroner's post-mortem. He was also critical of the Erne Hospital's failure to report the death to him.

130. It should be noted that Mr. Millar had written to the Coroner for Fermanagh, Miss Angela Colhoun, as early as the 31st July 2000, asking for a meeting so that he could advise the Crawford family regarding the Coroner's role **[Ref: 015-011-036].** Mr. Millar has said that he was told that an Inquest was unnecessary [Ref: 013-056-320]. If it was Miss Colhoun who advised him of that view, it is unclear why she did so.

131. Having received correspondence from Mr. Millar, Mr. Leckey obtained a report from Dr. Ted Sumner **[Ref: 013-036-136].** This report has been erroneously dated April 2002 on its front cover; it appears to date from 2003. Dr. Sumner concluded that excessive volumes of hypotonic fluid in the face of losses of electrolytes caused *"an acute serum sodium dilution which in turn caused acute brain swelling"* **[Ref: 013-036-141].**

132. Dr. Sumner's report was referred to Dr. O'Hara who wrote to Mr. Leckey on 23rd October 2003 **[Ref: 013-053f-296].** In that letter, Dr. O'Hara, reflecting upon Dr. Sumner's report, expressed the following view:

> "...I believe that under Dr. Sumner's rather austere assertion the death was solely the result of hyponatraemia is perhaps not the entire truth and I would feel there is reasonable evidence to infer that bronchopneumonia was probably developing at the time of the child's initial presentation to Craigavon Hospital (sic), and that the

pneumonia must be at least as important as hyponatraemia, and it is a condition demonstrable at the time of P.M. whilst hyponatraemia is not and assertions made about it are "case based" and to some extent circumstantial."

133. Dr. O'Hara acknowledged that at the time of conducting the post-mortem he was aware that there was *"a potential background of litigation."*

134. On the instruction of Mr. Leckey (as noted above), Dr. O'Hara produced a report **[Ref: 013-017-063]** which, unlike his report from June 2000, addressed the issue of hyponatraemia.

135. In this report, Dr. O'Hara explained that in this case there were two pathological processes that could have impinged upon the brain, namely, hyponatraemia and bronchopneumonia. However, he was unable to determine what proportion of the cerebral oedema could be ascribed to each of those processes **[Ref: 013-017-065].**

136. In light of the evidence that had become available, the Attorney General for Northern Ireland ordered an Inquest into the circumstances surrounding the death of Lucy **[Ref: 013-52e-286]** in response to the Coroner's view that an Inquest was now necessary **[Ref: 013-052-280].** On 17th February 2004, Mr. Leckey opened that Inquest. The depositions are contained within **File 13.**

137. At the Inquest, the Erne Hospital and RBHSC offered no evidence in opposition to Dr. Sumner's view that the cerebral oedema was due to acute dilutional hyponatraemia.

138. A range of witnesses associated with those hospitals (or instructed to provide expert opinion on their behalf in the case of Dr. Jenkins) expressed the view that Lucy's death was related to hyponatraemia: Dr. Peter Crean **[Ref: 013-021-072];** Dr. Thomas Auterson **[Ref: 013-025-094]**; Dr. Donncha Hanrahan **[Ref: 013-031-114];** and Dr. John Jenkins **[Ref: 013-033-129].** That was also the conclusion reached by Dr. Dewi Evans (Consultant Paediatrician) who had prepared a report upon the instruction of the Crawford family solicitor **[Ref: 013-024-088].**

139. The Inquest Verdict recorded the cause of Lucy's death in the following terms:

> *"I(a) cerebral oedema (b) acute dilutional hyponatraemia (c) excess dilute fluid II gastroenteritis"* **[Ref: 013-034-130].**

140. The following specific findings were recorded:

"The collapse which led to her death was a direct consequence of an inappropriate fluid replacement therapy in that the use of 0.18% saline to make up deficits from vomiting and diarrhoea was wrong, too much of it was given and there had been a failure to regulate the rate of infusion. This led to the development of dilutional hyponatraemia which in turn caused acute brain swelling and death. The errors in relation to the fluid replacement therapy were compounded by poor quality medical record keeping and confusion by the nursing staff as to the fluid regime prescribed." **[Ref: 013-034-131]**

141. The circumstances of Lucy's death were the subject of a referral from the Coroner to the General Medical Council. In a letter to the GMC **[Ref: 013-037-142]** Mr. Leckey expressed the following view:

"...I had very serious concerns about the quality of the medical care Lucy received whilst a patient in the Erne Hospital, Enniskillen and in particular, the role of two of the medical staff - Dr. Amer Ullas Malik and Dr. JM O'Donohue (sic) who is a Consultant Paediatrician."

The Response of others to Lucy's Death

General Medical Council

142. Following the referral made by Mr. Leckey, the GMC carried out an investigation into the conduct of both Dr. Malik and Dr. O'Donohoe.

143. In respect of Dr. Malik, the GMC reached the view that there was no reasonable prospect of obtaining a finding of serious professional misconduct against him and the case was closed.

144. Fitness to practise proceedings were commenced against Dr. O'Donohoe, and, following a contested hearing, the Fitness to Practise Panel found that he was guilty of serious professional misconduct. They sanctioned him by issuing a reprimand on 30th October 2009.

145. The Panel, directing it's remarks to Dr. O'Donohoe, made the following findings:

"...you attended, assessed and inserted an intravenous line into [Lucy]. In carrying out this procedure you did not calculate an acceptable plan of fluid replacement. Furthermore, you did not ensure that a record was made on that day of your assessment and diagnosis, management plan including fluid management plan, calculation of fluid replacement requirements and fluid prescription stating the identity of the fluid and the rate of infusion over time. Neither did you ensure that the nursing staff on the ward knew of an adequate fluid replacement plan or system for monitoring its progress. Further, you

did not monitor or check [Lucy] again prior to a crash call at approximately 3.00am.

"On 14 April 2000, you made a record of what your fluid management plan for [Lucy] on 12 April 2000 had been, namely, a bolus of 100mls over one hour, followed by 0.18% sodium chloride/4% dextrose at 30mls per hour. The panel found that your record was inaccurate and misleading.

"The panel has found that the fluid regime as set out in your record was not communicated properly by you to those administering the fluid, not monitored or checked by you to ensure that it was followed and, in any event, was not appropriate. That the care provided to Lucy by you was not in her best interests and fell below the standard to be expected of a reasonably competent Consultant Paediatrician.

"The panel found that your actions in relation to [Lucy] were not in her best interests and fell below the standards to be expected of a reasonably competent Consultant Paediatrician."

146. On 6th November 2004, Mr. and Mrs. Ferguson (the parents of Raychel Ferguson) made a complaint to the GMC about the following persons: Dr. Henrietta Campbell (Chief Medical Officer for Northern Ireland); Dr. Murray Quinn (Consultant Paediatrician, Altnagelvin Hospital); Dr. Donncha Hanrahan (Consultant Paediatric Neurologist, RBHSC); Dr. John Jenkins (Consultant Paediatrician, Antrim Area Hospital); Dr. Geoff Nesbitt (Altnagelvin Hospital), Dr. James Kelly (Medical Director, Erne Hospital); The College of Paediatrics and Child Health **[Ref: 068-013-022].**

147. The GMC has closed the complaints against Dr. Campbell, Dr. Nesbitt, Dr. Hanrahan and Dr. Jenkins on the grounds, inter alia, that there was no realistic prospect of establishing that their respective fitness to practise was impaired to a degree justifying action on their registration. The complaint against the Royal College could not be pursued.

148. The Inquiry has been advised by the GMC that there remain outstanding complaints against Dr. Murray Quinn and Dr. James Kelly.

149. The complaint which the GMC is considering against Dr. Quinn arises out of the role that he played in assisting the Sperrin Lakeland Trust in the conduct of its internal review. The Inquiry is advised that the GMC will allege that Dr. Quinn knew or should have known that he was not a properly independent person to become involved in writing a report

in relation to Lucy's death. The GMC will also allege that Dr. Quinn failed to properly inform himself about the circumstances of Lucy's death, that he underestimated the amount of fluid given to her, failed to recognise that the wrong type of fluid had been given and failed to identify hyponatraemia as a possible or probable cause of her death, and so failed to identify the mismanagement of Lucy's care.

150. The complaint which the GMC is considering against Dr. Kelly arises out of his role as the Medical Director of the Sperrin Lakeland Trust at the time of Lucy's treatment in the Erne Hospital. The Inquiry is advised that the GMC will examine whether Dr. Kelly ought to have advised the Coroner that Lucy had not died of natural causes, and whether he ought to have referred Dr. O'Hara's post mortem report and Dr. Stewart's report (for the Royal College of Paediatricians and Child Health) to the Coroner. The Inquiry is also advised that the GMC will consider whether Dr. Kelly knew or should have known that Dr. Quinn did not constitute an independent expert, and it will consider whether Dr. Kelly knew or should have known that Dr. Quinn's final report was flawed and not fit for purpose. The GMC will allege that Dr. Kelly failed to ensure that Lucy's death was adequately investigated, that this delayed the Inquest into her death and that this may have contributed to the deaths of other children, including Raychel Ferguson.

151. It is emphasised that the GMC proceedings against Dr. Quinn and Dr. Kelly have yet to come to hearing. It is understood that both doctors deny any wrongdoing. Plainly, no conclusions can be or should be reached with regard to the culpability of either doctor merely because the GMC have raised the above allegations.

Nursing and Midwifery Council

152. The Nursing and Midwifery Council received complaints from Mrs. Mae Crawford (Lucy's mother) in relation to the conduct of Nurses Swift, McManus, Jones and McCaffrey. On 17th January 2007, the nurses were advised that the NMC had decided that there was no case to answer.

Police Service of Northern Ireland

153. After the Inquest into the circumstances of Lucy's death, the PSNI carried out a criminal investigation. The police were particularly concerned to investigate whether there was any evidence to establish a breach of the Coroners Act, or a conspiracy to pervert the course of justice.

154. More seriously, the PSNI also examined whether there was any evidence that would support a prosecution for manslaughter or for neglect arising out of the care and treatment provided to Lucy. There have been no prosecutions for any offences arising out of the death of Lucy, however.

155. The police investigation was led by Detective Sergeant William R. Cross. In the course of his investigation, Detective Sergeant Cross carried out 'after caution' interviews with the following persons: Mr. Fee, Mr. Mills, Dr. Kelly, Dr. Anderson, Dr. Hanrahan, Dr. O'Donohoe, Nurse Swift and Nurse McManus. The records of these interviews can be found at **File 116.** All of these interviews contain information which may be considered relevant to the issues being considered by the Inquiry.

156. Detective Sergeant Cross also obtained statements from a large number of witnesses, including the Coroner, Mr. Leckey. The records of these interviews can be found in **File 114/115,** and again, may be considered relevant to the issues being considered by the Inquiry.

157. On 20th October 2006, the PPS directed that the available admissible evidence was insufficient to meet the test for prosecution in respect of any of the persons reported to it.

Requirements

158. As can be seen, the cause of Lucy's death was separately examined by both the Erne Hospital and the RBHSC.

159. At the time of Lucy's death and for some time thereafter both hospitals failed to acknowledge that hyponatraemia was relevant to the cause of death, that there had been fluid mismanagement and that this mismanagement was causative of the hyponatraemia.

160. Of course the Sperrin Lakeland Trust, having engaged with the RCPCH, was aware of the part played by hyponatraemia in causing Lucy's death by August 2002, although it appears that this fact was not publicly acknowledged.

161. Indeed even as early as June 2001, following the publication of the first report produced under the auspices of the RCPCH, the Trust was aware that the rate of change of electrolytes "may" have been causative of the cerebral oedema, an opinion which was reiterated for the Trust in the medico-legal report of Dr. Jenkins in March 2002.

162. What appears to be clear is that until the Coroner's Verdict was announced in 2004 it remained the publicly stated position that the cause of Lucy's death was as had been described in her death certificate, namely, a cerebral oedema due to or as a consequence of dehydration and gastroenteritis **[Ref: 013-008-022].**

163. Therefore, by June 2001, some 14 months after Lucy's death, when Raychel Ferguson was admitted for treatment in the Altnagelvin Hospital, there had been a failure to identify and disseminate the true cause of Lucy's death. As a consequence of this it might be contended that the medical profession and health care providers in Northern Ireland were deprived of an opportunity to extract and learn appropriate lessons from Lucy's case before Raychel died.

164. In due course, the Inquiry may wish to reach conclusions on what impact these failures may have had for the diagnosis and management of Raychel's condition in the Altnagelvin Hospital.

165. Before arriving at any such conclusions the Inquiry considers that it is necessary to examine the steps that were taken by both the Erne Hospital as well as by the RBHSC in their attempts to establish the cause of Lucy's deterioration and death, and to determine whether, given what was known to each of those organisations at that time, those steps could be considered adequate.

166. The scope of the Inquiry's investigations into matters associated with Lucy's death is necessarily a limited one as has been described above. The Inquiry has formulated a list of issues which it will address in relation to Lucy's case and these have been issued to the interested parties. Those issues are contained in the attached **Annex.**

167. Arising out of those issues it can be seen that the Inquiry is concerned to investigate the various opportunities that were available at the time of or shortly after Lucy's death which might have facilitated a proper understanding of how her death had been caused. The Inquiry is interested to assess whether those opportunities were properly used, and whether any shortcomings on the part of responsible persons or bodies led to a failure to accurately identify the cause of death.

168. The Inquiry understands that the function of a pathologist is to determine the pathology causing death by striving to address and answer the questions raised by a death. It appears to the Inquiry that if this function is performed effectively, the pathologist will have a key role to play in providing a coherent and accurate account of the cause of death.

169. In this case, as has been described above, Dr. M. Denis O'Hara (Consultant Paediatric Pathologist) was tasked with the responsibility of conducting a consented post mortem, and providing a report in respect of Lucy's death. His report did not address whether hyponatraemia was causative of the cerebral oedema and at that time he had no interaction with the Coroner's office.

170. However, in a supplementary report directed by the Coroner and provided over three years later it was acknowledged by Dr. O'Hara that hyponatraemia may have caused or contributed to the cerebral oedema.

171. Dr. O'Hara did not give evidence to the Inquest. Those clinicians who did give evidence shared the view that hyponatraemia was implicated in the cause of death and this formed the basis for the Inquest Verdict. None of the clinicians who gave evidence implicated pneumonia in the cause of death and the cause of death recorded by the Coroner has not been challenged subsequently. This Inquiry will proceed on the basis that hyponatraemia was the effective cause of the cerebral oedema in Lucy's case.

172. In the circumstances the Inquiry must examine how competently the consented post mortem was performed by Dr. O'Hara given the information which was or which should have been available to him.

173. In particular the Inquiry is anxious to understand how Dr. O'Hara could have failed to implicate hyponatraemia in the cause of death and how he could have reached the conclusion that a pneumonic lesion within the lungs was important as the ultimate cause of death.

174. In this respect the Inquiry is concerned to assess whether Dr. O'Hara's conclusions were internally consistent and supported by the clinical and laboratory information available to him.

Specific Questions

175. Having regard to the Inquiry's revised terms of reference and the list of issues set out in the Annex, the Inquiry has identified the following questions which you are asked to address:-

a. What information should have been conveyed to Lucy's parents when obtaining consent for a post mortem, and should the pathologist have played any role in this process?

b. In what circumstances would a pathologist be expected to communicate with and obtain information from the clinicians who were responsible for treating the deceased?

c. What communications and information exchange would you have expected to see taking place between the clinicians who treated Lucy and Dr. O'Hara, both before and during the post-mortem process?

d. What is the purpose and significance of information which is inserted by a clinician into the 'clinical diagnosis' section of an autopsy request form?

e. How should Dr. O'Hara have interpreted the information conveyed to him by Dr. Stewart in the 'clinical diagnosis section' of the autopsy request form?

f. Having been advised by Dr. Stewart (in the clinical diagnosis section of the autopsy request form) of the presence of hyponatraemia, should Dr. O'Hara have taken any specific steps or made any particular enquiries in order to determine whether hyponatraemia was implicated in the cause of Lucy's death?

g. If so, what steps or enquiries should he have undertaken taken and why should he have taken those steps or made those enquiries?

h. What significance, if any, should Dr. O'Hara have attached to the drop in serum sodium from 137 to 127, and the period of time during which this fall in the serum sodium took place?

i. Insofar as you can advise from the materials before you, and having regard to the clinical and laboratory information presented, please comment on whether the post mortem was performed competently by Dr. O'Hara and whether the conclusions reached by him were adequate and supported by the evidence?

j. Please provide your comments on the specific question of whether, having regard to the clinical and laboratory information which was presented, Dr. O'Hara should have implicated hyponatraemia in the cause of Lucy's death when formulating his conclusions for the purposes of his post mortem report?

k. If you have any concerns about the nature and quality of the information which was available to Dr. O'Hara at the time, please explain those concerns and identify the specific information which he should have obtained or which should have been provided to him.

l. If a pathologist is instructed to conduct a 'consented' post mortem (ie. one outside of the remit of the Coroner), in what circumstances would he be expected to report his post mortem findings to the Coroner?

m. On the basis of the clinical and laboratory information presented, should Dr. O'Hara have reported to the Coroner? Please fully explain the reasons for the answer you give.

n. On the basis of the clinical and laboratory information presented, should Dr. O'Hara have invited the Coroner to consider converting the post mortem into a Coroner's post mortem and arranging an Inquest? Please fully explain the reasons for the answer you give.

o. In a case where a post mortem has taken place, what steps should be taken and what information should be obtained by a clinician before certifying the cause of death, and should a pathologist play any role in this process?

p. In the circumstances how critical would you be, if at all, of the steps taken before the cause of death was certified by Dr. O'Donoghue on the 4 May 2000, and how critical are you, if at all, of the causes of death which he certified?

q. Are there any aspects of this case which can be used to support the making of recommendations to improve the practice of pathologists in the conduct of post mortem work?

Conclusion

176. It is of fundamental importance to the Inquiry that it receives a clear and reasoned opinion on the matters raised herein. Your report may form the basis for witness statement requests which the Inquiry will address to those who had responsibility for ascertaining the cause of Lucy's death. Moreover, you are liable to be questioned in relation to the contents of your report at the public hearings of the Inquiry.

177. If there existed any protocols, guidance, standards or practices (hereinafter 'guidance') which are relevant to the issues you have been asked to address, please identify them, cite the references for them in your report and if possible, provide copies of such documents to the Inquiry. You should refer to any available guidance in the UK generally and Northern Ireland in particular which may be germane to the issues raised and how they were applied at that time, together with an indication of how that guidance and its application have developed since then.

178. If there are any other issues which have not been raised with you but which you regard as relevant and of importance in Lucy's case in its relationship with Raychel's case, please inform the Inquiry of these issues as soon as possible to enable us to consider if they should be addressed in your report.

179. If any of the issues raised in the foregoing fall outside your area of expertise please advise the Inquiry accordingly. Equally, if you believe that any issue is better addressed by an expert in another field please inform the Inquiry of your view.

180. Your assistance in compliance with the Inquiry's requirements should be provided in the form of a fully referenced Expert's Report. Your Report, and any supplemental or addendum Reports will be made public and will be peer-reviewed in accordance with the Protocol No.4 on Experts.

181. The Inquiry has a large volume of materials available to it in relation to Lucy's case. However, we consider that not all of that material is relevant to your task. Indeed not all of the documents referenced in the passages set out above are being provided to you. Instead, we have provided you with what we believe are the most relevant materials for your purposes. These documents are described in the attached Appendix. If you believe that you require any additional class of documents the Inquiry will be happy to take steps to source that for you, where it exists.

182. Furthermore, in order to assist you in your consideration of this matter we have provided you with a clinical as well as a governance *chronology* of the main events as well as a *dramatis personae,* identifying by name and description those who participated in the events which are relevant to the Inquiry's investigations.

APPENDIX

Lucy Crawford – Key Documents

File 13: Coroner's Papers

File 15: Western Health and Social Services Council Papers

File 27: Erne Hospital Papers

File 61: [RBHSC] Contacts, Review, Enquiry Papers and Case Notes

File 62: Royal Papers Collated for the Coroner

File: PSNI investigation materials, including witness statements and interviews

LUCY CRAWFORD

DRAMATIS PERSONAE

Dr. Trevor Anderson
Role: Clinical Director, Erne Hospital
Co-ordinated the review into Lucy's care and treatment at the Erne Hospital with Mr. Eugene Fee, and having seen a draft of the review, he wrote to Mr. Fee on 17 July 2000 and suggested recommendations which were included in the final review report.

Dr. Asghar
Role: Staff Grade Paediatrician, Erne Hospital
Provided Mr. Hugh Mills with a written account on the 5 June 2000 which put forward his view that the Dr. O'Donohoe's management of Lucy's fluid regime may have accounted for her death. His expressions of concern about Dr. O'Donohoe's competence contributed to the Trust's decision to ask the Royal College of Paediatrics and Child Health to carry out two reviews.

Dr. Auterson
Role: Consultant Anaesthetist, Erne Hospital
On duty at the Erne Hospital on the 13 April 2000 when Lucy suffered her tonic fit. He incubated and ventilated her and stablised her for transfer to the RBHSC. He provided a statement to Mr. Fee for the purposes of the review and gave evidence to the Inquest.

Dr. Andrew Boon
Role: Consultant Paediatrician Royal Berkshire Hospital
With Dr. Moira Stewart, carried out an external review of Dr. Jarlath O'Donohoe on behalf of the Royal College of Paediatrics and Child Health, and co-authored a report dated 7 August 2002 in which Lucy's death was identified as being caused by hyponatraemia.

Mr. Martin Bradley
Role: Director of Nursing, Western Health and Social Services Board
Was advised of the death of Lucy and that her treatment and death were being examined by the Trust.

Dr. Anthony Chisakuta
Role: Consultant in Paediatric Anaesthesia and Intensive Care, PICU, RBHSC
With Dr. Hanrahan, he made a diagnosis of brain stem death on the 14 April 2000.

Miss Angela Colhoun
Role: HM Coroner for Fermanagh
Mr. Millar wrote to her on the 31st July 2000, asking for a meeting so that he could advise the Crawford family regarding the Coroner's role. He was advised that an Inquest was unnecessary.

Mr. and Mrs. Crawford:
Role: Parents of Lucy
Mrs. Crawford was in attendance at the Erne Hospital when Lucy was prescribed fluids, and later when she suffered her collapse. Met with Dr. Hanrahan, Dr. O'Hara and Dr. O'Donohoe. Made a complaint to the Trust about Lucy's care. Commenced legal proceedings against the Trust and settled those proceedings.

Dr. Peter Crean
Role: Consultant in Paediatric Anaesthesia and Intensive Care, RBHSC
Treated Lucy when she was transferred to the RBHSC on the 13 April 2000. Dr. O'Donohoe suggests that Dr. Crean telephoned him on the 13 April 2000 to ask what fluid regime had been prescribed for Lucy. Gave evidence to her Inquest.

Detective Sgt. William Cross
Role: PSNI Detective
Carried out criminal investigation into aspects of Lucy's care, including the alleged failures to report the death to the Coroner, and allegations of a cover-up. Conducted interviews with Dr. O'Donohoe and Nurse Swift, as well as with Mr. Mills, Mr. Fee, Dr. Kelly, Dr. Anderson, Dr. Hanrahan and Nurse McManus, and directed an investigating team to gather relevant witness statements from others.

Dr. Mike Curtis
Role: Assistant State Pathologist
Spoke to Dr. Hanrahan on the 14 April 2000. The outcome of that conversation was that there was no Coroner's post-mortem was directed.

Mrs. Dennison
Role: Administrative Staff, Coroner's Office
Received the report of Lucy's death from Dr. Hanrahan on the 14 April 2000, and made a file note.

Sister Edmundson
Role: Nursing Sister, Erne Hospital
On duty in Erne Hospital on 12 April 2000 when Lucy was admitted. Did not provide a statement for the Trust's review.

Dr. Dewi Evans
Role: Consultant Paediatrician
Gave evidence at the Inquest into the circumstances of Lucy's death. Was retained by the Crawford family solicitor to prepare a medico-legal report to assist in the litigation which had been initiated against the Trust.

Mr. Eugene Fee
Role: Director of Acute Hospital Services, Sperrin Lakeland Trust
Appointed by Mr. Mills to co-ordinate the review into Lucy's care and treatment at the Erne Hospital along with Dr. Anderson, and wrote the review report which incorporated recommendations which were proposed by Dr. Anderson.

Mr. and Mrs. Ferguson
Role: Parents of Raychel Ferguson
Raised a complaint to the GMC about a number of clinicians as well as against the Royal College of Paediatrics and Child Health in relation to the circumstances of Lucy's death.

Dr. Donncha Hanrahan
Role: Consultant Paediatric Neurologist, RBHSC
Provided treatment to Lucy when she was transferred to the RBHSC. With Dr. Chisakuta he made a diagnosis of brain stem death on the 14 April 2000. Reported the death to the Coroner's Office and spoke to Dr. Mike Curtis about the necessity for a Coroner's post mortem. Made arrangements with his Registrar, Dr. Caroline Stewart, for a consent/hospital post mortem to be conducted. Liaised with Dr. Dara O'Donoghue regarding the completion of the death certificate. Met with the parents of Lucy Crawford on 9 June 2000.

Dr. John Jenkins
Role: Consultant Paediatrician
Gave evidence at the Inquest into the circumstances of Lucy's death. Was retained by the Trust's solicitor to prepare a medico-legal report to assist in the litigation which had been initiated against the Trust.

Nurse Thecla Jones

Role: Staff Nurse, Erne Hospital
On duty in Erne Hospital on 12 April 2000 when Lucy was admitted. Provided statement for the Trust's review of Lucy's care and treatment.

Dr. James Kelly
Role: Medical Director, Erne Hospital
Received a report from Dr. O'Donohoe of the an untoward event concerning Lucy's treatment in the Erne Hospital. Reported this to Mr. Hugh Mills and made clear the need for a review. Requested the Royal College of Paediatrics and Child Health to carry out reviews in respect of the competence of Dr. O'Donohoe, and was the recipient of two reports from the Royal College, each of which considered the circumstances of Lucy's treatment in the Erne Hospital and the cause of her death.

Mr. John Leckey
Role: HM Coroner for Greater Belfast
Conducted an Inquest into the circumstances of Lucy's death, February 2004, and referred the GMC to his concerns about the treatment which had been provided to her by Dr. Malik and Dr. O'Donohoe.

Dr. Amerullih Malik
Role: Paediatric SHO, Erne Hospital
On duty in the Erne Hospital on 12 April 2000 when Lucy was admitted and was present in the treatment room when Lucy's fluids were prescribed by Dr. O'Donohoe. He attended Lucy at the time of her collapse at 2.55am on the 13 April 2000, and prescribed normal saline. Provided a statement for the Trust's review.

Nurse Teresa McCaffrey
Role: Staff Nurse, Erne Hospital
On duty in Erne Hospital on 12 April 2000 when Lucy was admitted. Provided statement for the Trust's review of Lucy's care and treatment.

Dr. William McConnell
Role: Director of Public Health, Western Health and Social Services Board
Advised by Mr. Mills of the circumstances of Lucy's death and that the Trust were examining the case. Informed by Dr. Kelly of the outcome of the review conducted on behalf of the Trust by Dr. Moira Stewart for the Royal College of Paediatrics and Child Health. Advised Dr. Kelly of the need to discuss the report with Dr. O'Donohoe, and the need for a programme of corrective action.

Nurse Sally McManus
Role: Staff Nurse, Erne Hospital
On duty in Erne Hospital on 12 April 2000 when Lucy was admitted. Wrote a letter to Mr. Fee in relation to the review. Would not provide a statement.

Nurse Siobhan McNeill
Role: Staff Nurse, Erne Hospital
On duty in Erne Hospital on 12 April 2000 when Lucy was admitted. Travelled with her by ambulance to the RBHSC. Provided statement for the Trust's review of Lucy's care and treatment.

Mrs. Esther Millar
Role: Clinical Services Manager
Signed off on the critical incident form which documented a concern about fluids management in the treatment of Lucy.

Mr. Stanley Miller
Role: Senior Officer, Western Health and Social Services Council
Represented the Crawford family in their dealings with the Trust, and arranged for the family to meet with Dr. O'Hara. Wrote to Miss Colhoun on behalf of the family, and wrote to Mr. Leckey to suggest a possible similarity between the cause of death in the case of Raychel Ferguson and the cause of death in Lucy.

Mr. Hugh Mills
Role: Chief Executive, Sperrin Lakeland Trust
Directed that a review of Lucy's care and treatment be carried out when her case was reported to him by Dr. Kelly. Appointed Mr. Fee and Dr. Anderson to co-ordinate that review. Arranged for Dr. Murray Quinn to assist the review when the need for a paediatrician was identified by Mr. Fee and Dr. Anderson. Advised the Western Health and Social Services Board of Lucy's death.

Dr. Dara O'Donoghue
Role: Paediatric Fellow, RBHSC
Following discussions with Dr. Caroline Stewart and Dr. Donncha Hanrahan, he completed and signed Lucy's death certificate on 4 May 2000.

Dr. Jarlath O'Donohoe

Role: Consultant Paediatrician, Erne Hospital
Responsible for treating Lucy at the Erne Hospital on 12 April 2000 and for prescribing the fluid regime. Accompanied Lucy when she was transferred by ambulance to the RBHSC on 13 April 2000. Reported the matter to Dr. Kelly. Provided a statement for the Trust's review.

Dr. M. Denis O'Hara - deceased
Role: Consultant Paediatric Pathologist
Conducted Lucy's consent/hospital post mortem, and provided a post mortem report on 12 June 2000. He met with Lucy's family to explain his findings on 16 June 2000. Subsequently, asked to review his findings by Mr. John Leckey (HM Coroner for Greater Belfast) and provided further report dated 6 November 2003.

Dr. Murray Quinn
Role: Consultant Paediatrician, Altnagelvin Hospital
Examined Lucy's care and treatment by reference to her clinical notes and records as part of the review process which was conducted in respect of Lucy's care and treatment. Provided a report setting out his opinion to the Trust on 22 June 2000

Dr. Caroline Stewart
Role: Specialist Registrar in Paediatric Neurology, RBHSC
Recorded notes relating to the outcome of Dr. Hanrahan's discussions with the Coroner's Office on the 14 April 2000. Completed autopsy request form on 14 April 2000 which was sent to Dr. O'Hara and made reference to hyponatraemia as being one of Lucy's clinical problems. Spoke to Dr. Dara O'Donoghue in relation to completion of the death certificate.

Dr. Moira Stewart
Role: Consultant Paediatrician
With Dr. Andrew Moon, carried out an external review of Dr. Jarlath O'Donohoe on behalf of the Royal College of Paediatrics and Child Health, and co-authored a report dated 7 August 2002 in which Lucy's death was identified as being caused by hyponatraemia. She also carried out an earlier review of cases for the Trust on behalf of the College which reported on the 26 April 2001.

CHRONOLOGY OF EVENTS: LUCY DOB 5th November 1998
CLINICAL

DATE	TIME	EVENT	COMMENT/SOURCE
12.04.2000	07.45	Lucy seemed 'reasonable'. Mrs. Crawford went to work and Mr. Crawford looked after Lucy	Ref: 012-010-026
	13.00	Mrs. Crawford returned from work and Lucy was given a small drink and a spoonful of *Calpol*	Ref: 013-022-076
	18.00	Lucy's temperature was 100°F and she was given another spoonful of *Calpol*	Ref: 013-022-076
	18.38	Out of Hours Service (West-doc) contacted	Ref: 013-020-069
	18.45	Lucy taken to Dr. Aisling Kirby of the Out of Hours Service (West-doc) who examined Lucy at about 19.00 and advised that Lucy should be admitted to hospital. Lucy was found to be drowsy and floppy on examination	Ref: 013-022-076, 013-020-069 & 070
	19.00	Stats: (i) temp. - 38°C; (ii) heart rate - 120 per min.; (iii) respiratory rate - 60 per min	Ref: 013-020-069
		Referral letter: (i) reason – pyrexia – not responding to Calpol; (ii) drowsy and lethargic, floppy, not drinking, (iii) mucosa – moist; (iv) suspected urinary tract infection	Ref: 027-004-014

	19.30	Lucy (17 months and 9.14kg) admitted to Erne Hospital, Children's Ward with a history of being off her food for 5 days, fever and vomiting for 36 hours and being drowsy for the previous 12 hours or so	Ref: 027-009-020 & 021 & 022
	19.30	• *Stats: (i) temp. 38° C; (ii) heart rate 140 per min; (iii) respiratory rate 40 per min; (iv) capillary refill greater than 2 seconds; (v) tongue moist* • *Analysis: (i) urine – ketones ++ and protein ++ [no leucocytes]; (ii) blood – Hb 12.1, white cells 15,neutrophils 13.7, platelets 397, sodium 137, potassium 4.1, CO2 16 (low), urea 9.9 (high)*	Ref: 027-010-022
	19.30	Viral illness diagnosed	Ref: 027-010-022
	19.30	Anaesthetic cream (Ametop) applied with a view to commencing IV fluids but cannulation by Dr. Amer Ullas Malik unsuccessful	Ref: 027-017-058
	20.00	Urine output recorded	Ref: 027-019-062
	21.00	50ml of juice given orally	Ref: 027-019-062
	22.00	100ml Dioralyte given orally	Ref: 027-019-062
	22.00	Paracetemol suppository 120mg given	Ref: 027-017-058
	22.30	IV fluids commenced at 100ml per hour of 4% dextrose/0.18% saline	Ref: 027-017-058. Note: there is another entry at 23.00 (Ref: 027-010-022) which suggests that that the IV line was only inserted at that time

13.04.2000	00.15	Lucy suffered a large vomit	Ref: 027-017-058 & 027-019-062
	02.30	Large pale green, runny, offensive stool passed	Ref: 027-017-058
	02.55	Nurses called by Mrs. Crawford because Lucy had become 'rigid' in her arms and Lucy's hands were clenching.	Ref: 027-017-058
	02.58	Dr. Malik was called to see Lucy	Ref: 027-010-024
		Staff Nurse Sally McManus began to administer oxygen to Lucy before Dr. Malik's arrival (5 litres/minute)	Ref: 027-017-057
	03.00	Dr. Malik arrived and advised the administration of rectal diazepam. He found a respiratory rate – 36/min; and a heart rate – 140/min and that Lucy was still twitching her hands. Diazepam 2.5mg prescribed by Dr. Malik was given rectally.	Ref: 027-010-024
	03.00	Lucy passed a large foul smelling stool within 1 minute of receiving the diazepam.	Ref: 027-017-057
	03.00	IV fluids were changed to 0.9% saline and run freely into IV line. 500 ml given over 60 minutes.	Ref: 027-017-057 Ref: 027-010-024 & 027-019-062

	03.15	Dr. O'Donohoe was called to assess Lucy and arrived at 03.20.	Ref: 027-010-024 & 027-017-057
	03.20	Lucy was noted to be making decreased respiratory effort and to have suffered respiratory arrest. Bagging done, cardiac and pulse oximeter attached.	Ref: 027-010-024
	Untimed	Repeat electrolytes were ordered, chest and abdominal x-ray ordered	Ref: 027-017-057. The note suggests that these tests were ordered at or about 03.15.
	Untimed	Stats: (i) blood pressure – 144/113; (ii) pulse rate – 160	Ref: 027-017-057. While the note containing these observations is untimed, they appear to be taken at 03.15.
	Untimed	Serum electrolytes – sodium 127 and potassium 2.5	Ref: 027-012-032
	03.40	Dr. Auterson (anaesthetist) contacted and asked to attend urgently	Ref: 013-025-091
	03.50	Dr. Auterson attended. He intubated Lucy. He noted that pupils were fixed and dilated and unresponsive to light. Flumazenil 100ug given IV. Chest x-ray and abdominal x ray were noted to be normal	Ref: 013-025-091 & 092
	Untimed	Urinary catheter inserted and a small amount of clear urine drained	Ref: 027-017-057
	Untimed	During this time: (i) Heart rate above 100; (ii) BP 90/65 on average; (iii) oxygen saturations maintained at between 85% and 100%	Ref: 027-010-024. The inference to be drawn from the note is that the period being referred to was that period between 03.00 and 04.45.

	04.40	Lucy transferred to intensive care unit of Erne Hospital. Reason for admission given as "requiring ventilation following ? resp arrest after fit."	Ref: 027-015-036
	05.00	IV Claforan 1g given. Mannitol 5g given IV over 30 minutes.	Ref: 027-010-023 & Ref: 013-025-092
	06.30	Lucy left intensive care unit at the Erne Hospital for transfer to Royal Belfast Hospital for Sick Children. Dr. O'Donohoe (providing manual ventilation with an Ambu Bag) and an ICU nurse travelled with Lucy by ambulance.	Ref: 027-015-038
	08.30	Lucy arrived at the RBHSC. A transfer letter was presented.	Ref: 061-014-038
	08.30	Upon arrival Lucy was unresponsive and her pupils were fixed and dilated	Ref: 061-018-058
	08.30	Lucy admitted by Dr. McLoughlin (PICU SHO on call), history recorded and examined	Ref: 061-018-058
	09.00	Anaesthetist in the Erne Hospital advised the RBHSC of the following repeat U&E results for Lucy: Na 127 and K 2.7. Renal function was found to be normal.	Ref: 061-018-060
	09.51	Lucy's notes faxed from the Erne to the RBHSC	Ref: 061-017-042
	10.30	Lucy examined by Dr. Donncha Hanrahan (Consultant in Paediatric Neurology at the Royal).	Ref: 061-018-060

	17.45	Lucy again examined by Dr. Hanrahan who described her prognosis as "hopeless" and stated that the "indications are that she is brain dead." Dr. Hanrahan informed Mr. and Mrs. Crawford that Brain Stem tests would be carried out on Lucy the next morning.	Ref: 061-018-065
	14.4.2000 08.50	Brainstem tests performed on Lucy were negative	Ref: 061-019-070
	10.30	Brainstem tests performed on Lucy were still negative CT scan showed complete obliteration of the basal cisterns suggesting 'coning' and the EEG (electroencephalogram) was flat.	Ref: 061-019-070
	13.00	Lucy taken off the ventilator and extubated.	Ref: 061-018-068
	13.15	No heart beat and no signs of life.	Ref: 061-018-068
	Untimed	Dr. Hanrahan (Consultant in Paediatric Neurology at the Royal Belfast Hospital for Sick Children) telephoned Coroner's Office to report Lucy's death. He spoke to Dr. Curtis. The subsequent note made by Dr. Stewart records: "Coroners PM is not required, but hospital PM would be useful to establish cause of death and rule out other Δ. Parents consent for PM./"	Ref: 061-018-067