

## LUCY CRAWFORD

### CHRONOLOGY OF EVENTS - CLINICAL D.O.B. 5<sup>th</sup> November 1998

TIME	EVENT	REFERENCE
<b>12<sup>TH</sup> APRIL 2000</b>		
07:45	Lucy seems in 'reasonable' form. Mrs. Crawford goes to work and Mr. Crawford stays home to look after Lucy, who had vomited the day before.	Ref: 013-022-076 (Deposition of Mrs. Crawford)
13:00	Mrs. Crawford returns from work and Lucy is given a small drink and a spoonful of Calpol	Ref: 013-022-076 (Deposition of Mrs. Crawford)
15:15	Lucy takes another small drink	Ref: 013-022-076 (Deposition of Mrs. Crawford)
18:00	Lucy's temperature is 100°F and she is given another spoonful of Calpol	Ref: 013-022-076 (Deposition of Mrs. Crawford)
18:38	Out of Hours Service (West-doc) contacted by Lucy's parents  Message received – Lucy is " <i>unwell all weekend - vomited yesterday and today - spiking temps – breathing quite fast – has slept all day</i> "  Lucy taken to Dr. Aisling Kirby, G.P., for examination	Ref: 013-020-069 (Deposition of Dr. Aisling Kirby)
19:25 <sup>1</sup>	Dr. Kirby examines Lucy – she is " <i>drowsy and floppy</i> ". She queries a urinary tract infection.  She advises that Lucy should be admitted to the Children's Ward at the Erne Hospital for fluids.  Stats: (i) temp. - 38°C; (ii) heart rate - 120 per min.; (iii)	Ref: 013-020-069 (Deposition of Dr. Aisling Kirby)  Ref: 027-004-014 (G.P. Referral note)

<sup>1</sup> Dr. Kirby states that this is the time on the typed record, which also showed the consultation as finished at 19:46. However, the Erne notes, and Mrs. Crawford in her deposition, state that Lucy was already admitted to the Erne Hospital by that stage.

TIME	EVENT	REFERENCE
	respiratory rate - 60 per min  Referral letter: (i) reason – pyrexia – not responding to Calpol; (ii) drowsy and lethargic, floppy, not drinking, (iii) mucosa – moist; (iv) suspected urinary tract infection. Needs fluids.	
19:20	Lucy admitted to the Erne Hospital	Ref: 013-022-076 (Deposition of Mrs. Crawford)
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  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  Viral illness diagnosed  Anaesthetic cream (Ametop) applied by Dr. Amer Ullah Malik, Paediatric SHO, with a view to commencing IV fluids but cannulation unsuccessful	Ref: 027-009-020 (Paediatric Admission form)  Ref: 027-010-022 (Clinical Notes)  Ref: 027-017-058 (Nursing Notes)  Ref: 027-023-073 (Observation Sheet)
	Mr. Crawford obtains some juice for Lucy.	Ref: 013-022-077 (Deposition of Mrs. Crawford)
20:50	Dr. Jarlath O’Donohoe, Consultant Paediatrician, arrives in the treatment room, applies more anaesthetic cream and obtains a bottle of glucose and a cup of juice.  N.B. Fluid balance chart records Lucy as receiving 50ml of Juice at 21:00 and 100ml of Dioralyte at 22:00.	Ref: 013-022-077 (Deposition of Mrs. Crawford)  Ref: 027-019-062 (Fluid Balance Chart)  Ref: 027-010-022 (Clinical Notes)
20:50	Blood results available: Hb 12.1, white cells 15, neutrophils 13.7, platelets 397, sodium 137, potassium 4.1, CO2 16 (low), urea 9.9 (high)	Ref: 027-012-031 (Blood Results)  Ref: 027-010-022 (Clinical Notes)

TIME	EVENT	REFERENCE
21:00	Urine specimen obtained. Ketones +++++, protein +++++, no leucocytes	Ref: 027-010-022 (Clinical Notes) Ref: 027-017-058 (Nursing Notes) Ref: 027-019-062 (Fluid Balance Chart)
22:00	Paracetamol suppository 120mg given	Ref: 027-018-061 (Drug Administration Record) Ref: 027-017-058 (Nursing Notes)
22:30 / 23:00	Cannulation achieved by Dr. O'Donohoe IV fluids commenced at 100ml per hour of 4% dextrose/0.18% saline	Ref: 013-022-077 (Deposition of Mrs. Crawford) Ref: 027-019-062 (Fluid Balance Chart) Ref: 027-010-022 (Clinical Notes) Ref: 027-017-058 (Nursing Notes)
23:00	Dr. Malik examines Lucy's eyes as Mrs. Crawford thinks they look "glassy" and she is unresponsive. He says that she is OK. Nappy damp	Ref: 013-022-077 (Deposition of Mrs. Crawford) Ref: 027-019-062 (Fluid Balance Chart)
23:30	Lucy is asleep	Ref: 027-023-073 (Observation Sheet) Ref: 013-022-077 (Deposition of Mrs. Crawford)

TIME	EVENT	REFERENCE
<b>13<sup>TH</sup> APRIL 2000</b>		
00:15	Lucy is a little restless and vomits a large vomit. Goes back to sleep.	Ref: 027-017-058 (Nursing Notes)  Ref: 013-022-077 (Deposition of Mrs. Crawford)
02:15 / 02:30	Large pale green, runny, offensive smelling stool passed. Moved into side ward. Faecal specimens taken for analysis. No raised temperature noted. Goes back to sleep again.	Ref: 027-017-058 (Nursing Notes)  Ref: 013-022-078 (Deposition of Mrs. Crawford)
02:55	SN McCaffrey called by Mrs. Crawford because Lucy has become rigid in her arms and Lucy's hands were clenching.	Ref: 027-017-058 (Nursing Notes)  Ref: 013-022-078 (Deposition of Mrs. Crawford)
02:58 / 03:00	SN McCaffrey calls SN McManus. Dr Malik bleeped. Oxygen administered to Lucy at 5 litres/minute  Dr. Malik arrives  Stats: (i) respiratory rate – 36/min; (ii) heart rate – 140/min  Still twitching her hands and Dr Malik directs administration of 2.5mg of Rectal Diazepam  Large watery offensive stool within a minute of giving diazepam	Ref: 027-010-024 (Clinical Notes)  Ref: 027-017-057 & 058 (Nursing Notes)  Ref: 013-022-078 (Deposition of Mrs. Crawford)  Ref: 027-018-060 (Drugs Chart – N.B. the signature of the prescriber is noted as Dr. O'Donohoe)  Ref: 027-019-062 (Fluid Balance Chart)
03:00	IV fluid changed to normal (0.9%) saline and allowed to run freely. 500ml of normal saline recorded as having been	Ref: 027-019-062 (Fluid

TIME	EVENT	REFERENCE
	administered  Up to this time, at least 400ml of Solution No.18 had already been administered. <sup>2</sup>  Diarrhoea +++ recorded.	Balance Chart)  Ref: 027-025-076 (PICU Fluid Balance Chart)  Ref: 027-017-057 (Nursing Notes)
03:15	Dr. O'Donohoe called to assess Lucy  Stats: (i) blood pressure – 144/113; (ii) pulse rate – 160  Analysis: (i) blood sugar – 13.4mmol; (ii) serum electrolytes – sodium 127 and potassium 2.5	Ref: 027-010-022 (Clinical Notes)  Ref: 027-010-024 (Clinical Notes)
03:20	Dr. O'Donohoe examines Lucy. Oral airway inserted due to Lucy's decreased respiratory effort and Dr. Malik begins to 'bag' Lucy. Cardiac and pulse oximeter attached. Blood taken for urea and electrolyte testing,	Ref: 027-010-022 (Clinical Notes)  Ref: 027-023-073 (Observation Sheet)
03:30	Pupils dilated and unresponsive. Capillary refill less than 2 seconds.  Dextrostix test for blood sugar gives reading of 12	Ref: 027-010-023 (Clinical Notes)
03:57	Blood samples received in laboratory	Ref: 115-043-001 (PSNI Witness Statement of Mr. Matthew Hackett)
04:00	Lucy passes a large foul smelling stool.  Dr. Thomas Auterson, Consultant Anaesthetist, called to put in an ET tube  Pupils fixed and not responding to light.  Urinary catheter inserted. Small amount of clear residual urine present.  N.B. During this time: (i) Heart rate above 110; (ii) BP 90/65 on average; (iii) oxygen saturations maintained at between	Ref: 027-010-024 (Clinical Notes)  Ref: 027-010-024 (Clinical Notes)  Ref: 027-017-057 (Clinical Notes)

<sup>2</sup> Although the fluid balance chart notes 500ml administration at 03:00, it is not clear whether this represents 02:00-03:00, 03:00 itself or 03:00-04:00. In addition, Dr. Malik says it was administered over one hour (Ref: 027-010-024), while SN Jones says it was administered over an hour and a half. (Ref: 027-019-062)

TIME	EVENT	REFERENCE
	85% and 100%	
04:00	250ml of normal saline recorded as infused <sup>3</sup>	Ref: 027-025-076 (PICU Fluid Balance Chart)
04:26	Blood sample result processed: Sodium 127, Potassium 2.8, Urea 4.9, Creatinine 28, Glucose 10.9	Ref: 027-010-023 (Clinical Notes) Ref: 027-012-032 (Laboratory Result) Ref: 115-043-001 (PSNI Witness Statement of Mr. Matthew Hackett)
	Dr. O'Donohoe discusses Lucy with Dr. McKaigue at RVH re: transfer to ICU Paediatrics in RBHSC	Ref: 027-010-022 (Clinical Notes) Ref: 027-010-024 (Clinical Notes)
04:45 / 05:00	Lucy moved to ICU at the Erne Administered Claforan 1gm IV stat and Mannitol 5gm over ½ an hour Chest x-ray clear. Abdominal x-ray showed Air ++, possibly in colon and small intestine.	Ref: 027-010-022 (Clinical Notes) Ref: 027-010-024 (Clinical Notes)
05:00	30ml of normal saline and 25ml of mannitol infused <sup>4</sup>	Ref: 027-025-076 (PICU Fluid Balance Chart)
	Parents and family spoken to by Drs. O'Donohoe and Auterson Mr. and Mrs. Crawford advised that Lucy had been stabilised and that she would be sent to RBHSC for a scan	Ref: 027-017-057 (Nursing Notes)
06:00	30ml of normal saline infused <sup>5</sup>	Ref: 027-025-076 (PICU

<sup>3</sup> SN MacNeill says that this 250ml had been infused by the time that Lucy arrived at ICU – the administration may therefore have happened at sometime between 04:00 and 04:45

<sup>4</sup> SN MacNeill says this was administered between 04:50 and 05:50 – Ref: 115-016-002

<sup>5</sup> SN MacNeill says this was administered during Lucy's transfer to Belfast – Ref: 115-016-002

TIME	EVENT	REFERENCE
		Fluid Balance Chart)
	Dr. O'Donohoe (providing manual ventilation with an Ambu Bag) and an ICU nurse accompany Lucy in an ambulance transferring her to the RBHSC	
08:00	<p>Lucy arrives at PICU in RBHSC without any of her Erne Hospital medical notes, laboratory test results or x-rays but with:</p> <ol style="list-style-type: none"> <li>1. Dr. O'Donohoe's transfer letter</li> <li>2. WH&amp;SSB Patient Transfer Form</li> </ol>	<p>Ref: 061-018-064 (Clinical Notes)</p> <p>Ref: 061-025-087 (PICU Admission Chart)Ref: 061-014-038 (transfer letter)</p> <p>Ref: 061-015-040 (transfer form)</p>
	Nursing report by SN MacNeill (from the Erne Hospital) to SN Murphy who had accompanied Lucy in the ambulance	<p>Ref: 033-102-283 (statement of SN MacNeill) &amp; Ref: 013-030-110 (deposition of SN MacNeill)</p>
	Lucy received by Dr. Seamus McKaigue, Consultant Paediatric Anaesthetist. Noted pupils fixed and dilated, HR fell from 110/min to 70/min quickly, still being handbagged and hyperventilated – no improvement in heart rate.	<p>Ref: 061-018-064 (Clinical Notes)</p> <p>Ref: 061-025-087 (PICU Admission Chart)</p>
08:15/ 08:30	Dr. McKaigue responds to an emergency and hands over to Dr. Chisakuta	<p>Ref: 115-027-001 (PSNI Statement of Dr. McKaigue)</p> <p>Ref: 115-028-001 (PSNI Statement of Dr. Chisakuta)</p>
08:30	<p>Lucy seen by Dr. Louise McLaughlin, PICU SHO. She is very floppy, unresponsive to pain with fixed dilated pupils. She is also hypothermic.</p> <p>Dr. Caroline Stewart, Neurology Registrar, sees Lucy – notes no papilloedema</p>	<p>Ref: 061-018-058 (Clinical Notes)</p> <p>Ref: 061-025-081 (PICU Admission Chart)</p>

TIME	EVENT	REFERENCE
	Blood tests requested  Erne Hospital notes requested for further information  Lucy weighed – 9.8 kg	
Approx 08:30	Dr. Crean takes over Consultant responsibility in PICU	Ref: 115-092-002 (Crean PSNI statement)
09:00	Dr. McLoughlin records that an anaesthetist at the Erne Hospital contacting to provide the repeat U&E results of Na 127 and K 2.7 and confirming normal renal function.	Ref: 061-018-060 (Clinical Notes)
	Ward round by Dr. Peter Crean, Consultant Paediatric Anaesthetist. Unresponsive to painful stimuli. Sodium now noted at 140. Dr. Crean requests fax of her notes from the Erne Hospital and a review by a Paediatric Neurologist.	Ref: 061-018-065 (Clinical Notes)
09:51	Notes faxed by Erne Hospital to RBHSC	Ref: 061-017-042 (Fax Cover Sheet)
10:00	Dr Crean speaks to Lucy's parents in the presence of SN Murphy. He explains that he is unsure as to what had happened to her, but something had happened in her brain.	Ref: 061-031-096 (Relative Counselling Record)
10:30	Dr. O'Donohoe arrives back at the Erne	Ref: 047-015-085 (N/ Admin- diary)
10:30	Lucy examined by Dr. Donncha Hanrahan, Consultant in Paediatric Neurology.  N.B. He states that he did not have receipt of her Erne notes at this time, though he would have had the repeat electrolyte results that Dr. McLoughlin received.  He notes that she is cold (31°C), pale, that her pupils are fixed and unresponsive and he concluded that she is 'brain dead'  Fundi normal – no evidence of haemorrhage or papilloedema  Reflexes present but diminished  Differential diagnosis (without benefit of fluid chart): infection, haemorrhagic shock encephalopathy, metabolic	Ref: 061-018-062 & 063 (Clinical Notes)  Ref: 013-002-002 (Deposition of Dr. Hanrahan)



TIME	EVENT	REFERENCE
	disease, cerebral oedema from other cause. <i>"No cause clinically evident as yet"</i> .	
11:00	Drs. Hanrahan speaks to the parents. Dr. Hanrahan explains that Lucy is critically ill and possibly will die.	Ref: 061-031-096 (Relative Counselling Record)
Approx. mid-day	Dr. Crean contacts Dr. O'Donohoe to discuss the issue of Lucy's fluids	Ref: 027-010-024 (Clinical Notes)
Unknown	Dr. O'Donohoe claims to fax 'fluid administration sheet' to Dr. Crean	WS-278/1, p.5
13:50	Dr. Anthony Chisakuta, Consultant Paediatric Anaesthetist, inserts a central line and a left femoral arterial line.	Ref: 061-018-064 (Clinical Notes)
	CT scan of Lucy's brain CT scan performed – shows complete obliteration of the basal cisterns suggesting 'coning'	Ref: 061-018-065 (Clinical Notes) Ref: 061-031-097 (Relative Counselling Record)
	EEG performed - it is flat showing no discernible cerebral function	Ref: 061-032-098 (EEG Result)
17:00 / 17:45	Lucy's condition does not improve  Dr. Hanrahan informs Mr. and Mrs. Crawford that her prognosis is hopeless. Parents agree DNR. Dr. Hanrahan mentions possibility of post mortem and informing the Coroner.	Ref: 061-018-065 (Clinical Notes) Ref: 061-031-097 (Relative Counselling Record)
<b>14<sup>TH</sup> APRIL 2000</b>		
08:50	Brainstem tests performed by Drs. Hanrahan and Chisakuta on Lucy were negative	Ref: 061-019-070 (Brainstem Death Form)  Ref: 061-018-066 (Clinical Notes)

TIME	EVENT	REFERENCE
10:30	Brainstem tests performed on Lucy were still negative	Ref: 061-019-070 (Brainstem Death Form)  Ref: 061-018-066 (Clinical Notes)
11:30	Dr. Stewart telephones the Erne laboratory to get the results of the urine culture tests, which indicate no significant growth	Ref: 061-018-067 (Clinical Notes)
	Dr. Hanrahan contacts the Coroner's Office and Mrs. Dennison puts him through to Dr. Curtis	Ref: 061-018-067 (Clinical Notes)  Ref: 013-053a-290 (main register for deaths)
	Dr. Curtis advises that a Coroner's post-mortem is not required but that a hospital post-mortem would be useful to establish the cause of death and rule out other diagnoses.	Ref: 061-018-067 (Clinical Notes)
	Dr. Stewart makes an entry in the notes recording: " <i>case discussed, coroners PM is not required, but hospital PM would be useful to establish cause of death + rule out other Δ [diagnoses]</i> "	Ref: 061-018-067 (Clinical Notes)
	Dr. Hanrahan contacts Dr. O'Hara to request a hospital post mortem on Lucy	Ref: 115-022-001 (PSNI statement)
	Dr. Caroline Stewart obtains consent from Lucy's parents.	Ref: 061-018-067 (Clinical Notes)
13:00	Discussion regarding transplant / organ retrieval.  Lucy taken off the ventilator and extubated.	Ref: 061-018-068 (Clinical Notes)
13:15	Lucy's death confirmed	Ref: 061-018-068 (Clinical Notes)
	Mrs. Dennison records: " <i>Person reporting: Dr. Hanrahan, child RVH ICU Date &amp; Circumstances: Died 14.4.00 at RVH Childrens ICU. Gastroenteritis, Dehydrated, Brain Swelling. Admitted Erne Hospital 2 days ago – transferred to RVH. Spoken to D. Curtis</i> "	Ref: 013-053a-290 (main register for deaths)

TIME	EVENT	REFERENCE
	<i>Gastroenteritis D.C. [death certificate]"</i>	
	<p>Dr. Stewart completes Autopsy Request Form – notes fall of sodium from 136 to 126 in the Erne, and the clinical diagnoses of “<i>dehydration and hyponatraemia. Cerebral oedema leading to acute coning and brain stem death</i>”.</p> <p>Clinical problems in order of importance:</p> <ol style="list-style-type: none"> <li>1. Vomiting and diarrhoea</li> <li>2. Dehydration</li> <li>3. Hyponatraemia</li> <li>4. Seizure and unresponsiveness leading to brain stem death</li> </ol> <p>Also notes that, with the exception of Lucy’s heart valves, her other organs were not suitable for transplant due to the history of infective gastroenteritis – although the cultures were still pending.</p>	Ref: 061-022-073 (Autopsy Request Form)
	Post mortem on Lucy carried out by Dr. Denis O’Hara (Consultant Pathologist, Royal)	Ref: 061-011-035 (Provisional Anatomical Summary)
<b>17<sup>TH</sup> APRIL 2000</b>		
	<p>Royal’s Inpatient/Outpatient Advice Note signed by Dr. Dara O’Donoghue (SHO, acting Paediatric Registrar, Royal) recording the investigations carried out on Lucy and the results as “<i>CT brain – Cerebral Oedema + coning</i>” together with the diagnosis as:</p> <p><i>“Primary diagnosis:</i></p> <p><i>Cerebral Oedema</i></p> <p><i>Underlying conditions and co-morbidities:</i></p> <p><i>Viral gastroenteritis”</i></p>	Ref: 061-012-036 (Inpatient / Outpatient Advice Note)

TIME	EVENT	REFERENCE
<b>18<sup>th</sup> APRIL 2000</b>		
09:10	Post mortem verbal report given to Erne Hospital. " <i>ROTA gastroenteritis cerebral oedema</i> "	Ref: 027-010-025 (Clinical Notes)
11:00	Blood and urine cultures return negative for significant growth.	Ref: 027-010-025 (Clinical Notes)
<b>4<sup>TH</sup> MAY 2000</b>		
	<p>Post Mortem Report</p> <p>Stats: (i) body weight - 12kg; (ii) body length - 73cm</p> <p>Analysis: (i) features of generalised cerebral oedema ... sectioning confirmed presence of diffuse oedematous change in length; (ii) consistent with acute cerebral hypoxia occurring shortly after death</p>	Ref: 061-009-016 (Post Mortem Report)
	<p>Medical Certificate of Cause of Death</p> <p>I (a) cerebral oedema, (b) dehydration, and (c) gastroenteritis</p> <p>Signed by Dr. Dara O'Donoghue, Paediatric Fellow, RBHSC after speaking to Dr. Hanrahan</p>	<p>Ref: 061-018-068 (Clinical Notes);</p> <p>Ref: 013-008-022 (Medical Certificate of Cause of Death)</p>
<b>13<sup>th</sup> JUNE 2000</b>		
	<p>Final Post mortem Report on Lucy, which records "<i>Extensive bilateral bronchopneumonia</i>" and "<i>Swollen brain with generalised oedema and early necrosis</i>". The commentary states:</p> <p><i>"The autopsy also revealed an extensive bronchopneumonia. This was well developed and well established and certainly gives the impression of having been present for some 24 hours at least ... The changes seen in the brain are consistent with an acute hypoxic insult and there is no evidence of any underlying infective congenital or structural abnormality of the brain tissue"</i></p>	Ref: 027-002-003 (Final Post Mortem Report)