CORONERS ACT (Northern Ireland), 1959

Deposition of Witness taken on the day of 20 , at inquest touching the death of , before me

Coroner for the District of

as follows to wit: –

The Deposition of DR. HEATHER STEEN

of *(Address)*

who being sworn upon her oath, saith

I produce a draft death certificate C8. I would rely upon to prepare 'long' formulation. If a CT scan had been taken it had shown cerebral oedema & therefore would have been attributed to encephalitis & or seizure. Claire's fluid regime in 1996 was normal. The blood test results at 11.30 p.m. should have led to a clinical re-assessment & the test should have been repeated. Simultaneously there should have been a reduction in fluids. After 3 a.m. her condition was not retrievable & may not have been at 11.30 p.m. At the time I thought she died from cerebral oedema due to neurological ~~injury~~ cause.

Mr. McCrea: I was to consultant on take at that time Claire fell within my remit. I was aware that Claire ~~first saw Claire at~~ was on the ward at 9 a.m. on the Tuesday morning. I cannot recall if I examined her prior to that. My recollection is that when I contacted the ward I was told Dr Walsh had seen her & had taken over her management. I was not contacted until 3 a.m. on Tuesday morning.

I would have expected Dr Welsh to be contacted first if the concern was neurological. The GCS at 9 p.m showed a ~~det~~ deterioration that ~~the~~ her management should have been discussed with a consultant. Neither I nor Dr Welsh were contacted — until 3 a.m. I agree that intervention at 11.30 p.m. would have been too late. I had no involvement with Adam high output renal failure with intervention for Strauss. That related to surgical ~~care~~. I am unaware of any protocol used by the hospital following that. Fluid management significantly in cases such of clarity has changed in recent years. ~~The~~

Heather J Stern.

CR - CORONER

091-011-068

TAKEN before me this 4th day of May 20 06

Coroner for the District of Hamilton Trelawny

C8

THIS CERTIFICATE MUST BE DELIVERED WITH THE DECEASED'S MEDICAL CARD WITHIN FIVE DAYS TO THE REGISTRAR FOR THE DISTRICT IN WHICH THE PERSON (a) DIED OR

(b) WAS ORDINARILY RESIDENT (WITHIN NORTHERN IRELAND) IMMEDIATELY BEFORE DEATH

FOR INSTRUCTIONS TO INFORMANTS SEE OVERLEAF

MEDICAL CERTIFICATE OF CAUSE OF DEATH

Births and Deaths Registration (Northern Ireland) Order 1976, Article 25(2)

To be signed by a Registered Medical Practitioner WHO HAS BEEN IN ATTENDANCE during the last illness of the deceased person and given to some person required by Statute to give information of the death to the Registrar. (SEE OVERLEAF)

FOR USE OF REGISTRAR

Entry No .....

District .....

Name of Deceased .....

Usual Residence .....

Place of Death .....

Date of Death ..... day of ..... 20.....

Date on which last seen alive and treated by me for the undermentioned conditions ..... day of ..... 20.....

Whether seen after death by me .....

Whether seen after death by another medical practitioner .....

CAUSE OF DEATH	These particulars not to be entered in Death Register
	Approximate interval between onset and death (years, months, weeks, days, hours)
I **Disease or condition directly leading to death*** (a) Cerebral Oedema. due to (or as a consequence of)	.....
Antecedent causes Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last. (b) Status epilepticus. due to (or as a consequence of)	.....
(c) meningoencaphalitis SIADH ↓ sodium II	.....
II **Other significant conditions** contributing to the death, but not related to the disease or condition causing it. Epilepsy Previous history of epilepsy.	.....
	.....

*This does not mean the mode of dying eg heart failure, asthenia, etc. It means the disease, injury or complication which caused death.

I hereby certify that the above-named person has died as a result of the natural illness or disease for which he has been treated by me within twenty-eight days prior to the date of death, and that the particulars and cause of death above written are true to the best of my knowledge and belief.

Signature JS Sheri

Qualifications as registered by General Medical Council .....

Residence .....

Date ..... 20.....

The Health Service Number of the deceased should be entered here by the certifying doctor.

CR - CORONER

[redacted] 091-011-069

4-MAY-2006 09:13 FROM:DR CHAKRAVARTY & PAR TO:[redacted] P:1/1

Form 20

CORONERS ACT (NORTHERN IRELAND) 1959

Deposition of Witness taken on Tuesday the 25th day of April 2006 at inquest touching the death of CLAIRE ROBERTS, before me MR J L LECKEY, HM Coroner for the District of GREATER BELFAST as follows to wit:-

The Deposition of Dr Heather Steen

of

who being sworn upon his oath, saith

I am a registered Paediatric Consultant, having qualified at Queen's University Belfast in 1978 with MB, BCH, BAO. I also have a Diploma in Child Health, am a Member of the Royal College of Physicians (Edin) and a Fellow of the Royal College of Paediatrics and Child Health. This nine year old girl with a history of severe learning difficulty and previous history of epilepsy was referred to the Accident & Emergency Department of the Royal Belfast Hospital for Sick Children by her General Practitioner on the evening of the 21st October 1996 with a history of vomiting and lethargy since returning from school that day. She was triaged by the emergency nurse at 1903 hours and assessed by the emergency SHO at 1915 hours. The SHO being concerned that she may have been suffering from encephalitis, asked the paediatric registrar Dr O'Hare to see and assess Claire. The history given at that time was that Claire had suffered loose motions some three days prior to her presentation at the Emergency Department. It was noted that she previously had seizures in infancy requiring treatment with Sodium Valporate but anticonvulsant therapy had been discontinued in 1995 by the Ulster Hospital Dundonald Team without recurrence of her seizures to date. On examination her temperature was 37° and the only abnormalities noted were on examination of the neurological system.

Although able to sit up in bed, she stared vacantly in front of her and only responded intermittently to her parent's voice. She did however respond to deep pain. Fundi were normal and it was noted that her discs were not blurred. Pupils were equal and reacting to light and accommodation. Cranial nerves, 7, 9 and 10 were intact. On examination of her peripheral nervous system it was noted that tone was increased in all four limbs but more markedly on the right. There were brisk reflexes present with bilateral clonus and down going planters. Fuller assessment of the central nervous system was not able to be carried out because of Claire's inability to co-operate. Dr O'Hare felt that there was an underlying viral illness and had concerns that she may be also having seizure activity. Blood was taken at approximately 2230 hours for full blood picture, U&E, blood culture and nurses were requested to commence four hourly temperature pulse and respiration observations. She also advised that intravenous diazepam was given if there were seizure activity. Dr O'Hare reassessed her at midnight and felt she was slightly more responsive with no signs of meningism and so advised to continue with observations. It is noted that at the blood results from the sample taken earlier were U&E - sodium of 132 mmol/L, potassium 3.8 mmol/L, urea 3.5, mmol/L glucose, 6.6 mmol/L, creatinine 36 umol/L, chloride 96 mmol/L. her haemoglobin was 10.4 G/DL with a PCV of 0.35, white cell count 16.5 thousands/UL and a platelet count of 422 thousands/UL. It was noted over night that she had numerous small vomits and at 11a,m that she had a loose motion and oassed a large volume of urine. She was seen in and around 11 o'clock by Dr Sands Paediatric Registrar attached to Allen Ward at that time. Although no seizures had been noted, he was concerned at her continuing unresponsiveness and her overall general condition. He felt that the differential diagnosis should include non-fitting status epilepticus, encephalitis and encephalopathy. He advised that rectal diazepam 5mg be administered per rectum, that her previous notes should be accessed from the Ulster Hospital, Dundonald, where she had been attending for the precious few years and that a neurology opinion should be sought.

She was seen around lunchtime by Dr David Webb, Consultant Neurologist. Her parents were not present at the time but Dr Webb was able to obtain a history ~~form~~ from her grandmother. He noted that "The picture is encephalopathy most probably postictal in nature. I note (No biochemistry profile)". In view of her non fitting status he advised that she be loaded with intravenous phenytoin 18mg/kg stat followed by 2.5mg twelve hourly. He advised that the levels of phenytoin should be checked six hours after the loading dose. He requested that hourly CNS observations be carried out and that a CT scan be arranged for the following day if her condition did not improve. At 14.45 hours intravenous phenytoin was administered and she was reviewed again by Dr Webb at approximately 15.10 hours. He felt that she continued to be in status epilepticus and advised commencement of Midazolam with a stat dose of 12mg intravenously infusion of 2mg/kg per minute. The dose being increased hourly to achieve a dose of 69kg over 24 hours. Dr Webb reviewed Claire again at 17.00 hours and her mother was in attendance at this time. He notes that Mrs Roberts was able to report that Claire had had contact with a cousin on Saturday who had a tummy upset but Claire then went on to develop loose motions on the Sunday with vomiting on the Monday and some focal sounds on Monday with right sided stiffening. Although he did not think meningoencephalitis was likely he advised Cefuroxime and Acyclovir for 48 hours with further stool, blood and urine sent for viral cultures and that in view of her continuing non fitting status that intravenous Sodium Valporate be commenced with a loading dose of 20mg/kilo IV and then an infusion of 10mg/kilo over 12 hours. CNS observations continued to be carried out over this period of time and it was noted that Claire's Glasgow coma scale varied between 6 and 7. At 1915 hours Claire clenched her teeth and groaned for approximately one minute. It was noted at 2100 hours that she passed urine but also had an episode of screaming and drawing up of her arms. Her pulse rate increased at that time to 165 b/min and her pupils were large but reacting to light. This episode lasted approximately 30 seconds and the doctor was informed of this. At

approximately 2100 hours bloods were taken for phenytoin levels along with a repeat urea and electrolytes. Intravenous antibiotics were given and her drug card was rewritten by Dr Hughes. It is noted at that time she had a low grade pyrexia with a Glasgow coma scale of 6. at 2330 hours blood results were received from the sample takes at approximately 2100 hours showing a sodium of 121 mmol/L, potassium of 3.3 mmol/L, urea 2.9 mmol/L and creatinine 33 umol/L. Dr Neil Stewart, Paediatric SHO, was informed of these results and discussed them with Dr Brigitte Bartholome, the Paediatric Registrar, on call for the hospital. She advised that the N/5 saline be reduced to 2/3 of its present value ie 41 mls per hour and that urine be sent for osmolality. At approximately 0230 hours a nurse in attendance with Claire noticed a slight temor of her right hand lasting a few seconds and her breathing became laboured and grunted. Oxygen and suction were given and Dr Bartholome was called to assess her breathing. She felt that she had Cheyne-Stoke breathing and required Paediatric Intensive Care. Claire was intubated by the anaesthetic Registrar and transferred to PICU. Dr Seamus McKaigue, Consultant Paediatric Anaesthetist on-call for Paediatric Intensive Care, was contacted as was myself. We both attended and I noted at 0400 hours that Claire had been intubated and ventilated. She had had some Midazolam but it was no longer running. Her pupils, however, were fixed and dilated with bilateral papilloedema, more marked on the left fundus. She had no response to painful stimuli. Her blood pressure was maintained at 90/55 and her heart rate was 100b/min. I advised that an infusion of Manitol should be given along with a Dopamine infusion to maintain her blood pressure and an urgent CT scan be carried out. I also contacted Dr Webb who attended at 0440 hours. The CT scan was performed at 0530 hours and showed severe diffuse hemisphere swelling with complete effacement of the basal cisterns, no focal abnormality was identified. Dr Webb and myself discussed Claire's condition with her parents, emphasizing that we felt she had cerebral oedema as confirmed by her CT scan which had resulted in coning of her brain and brain stem death. We also discussed the possibility of organ donation. At 1600

hours Dr Webb and myself completed brain stem death protocol and blood which was drawn for U&E at that time showed a sodium of 129 mmol/L, urea of 3.7 mmol/L and osmolality of 274 mmol/kg. At 0710 hours Dr McKaigue summarised Claire's admission to Paediatric Intensive Care and highlighted his concern about deterioration in her arterial blood gases, which might have been in keeping with pulmonary aspiration or early neurogenic pulmonary oedema. At 0800 hours he advised that her maintenance fluids be changed to normal saline with urea and electrolyte levels checked two hourly. At approximately 1000 hours Dr Bob Taylor, Consultant Paediatric Intensive Care on the 23rd October noted that Claire had now become polyuric and hypotensive with a systolic blood pressure of 70. he advised a bolus of HPPF 500mls to be given along with an infusion of Desmopressin 4ncg in 39 mls of normal saline at 1ml per hour. A repeat urea and electrolyte carried out during the afternoon showed a sodium of 152 mmol/L, potassium of 2.8 mmol/L, urea 3.3 mmol/L, calcium 2.69 mmol/L and serum osmolality of 313 mmol/kg.

TAKEN before me this ~~25th April~~ 4th May 2006

Senior Coroner for Northern Ireland