Witness Statement Ref. No. 357/1

NAME OF CHILD: CONOR MITCHELL

Name: Dr. Michael B.H. Smith

Title: Consultant Paediatrician, Craigavon Area Hospital

Present position and institution:

Consultant Paediatrician, Craigavon Area Hospital

Previous position and institution:

August 1981 - March 1983	Junior House Physician Craigavon Area Hospital
March 1983 - June 1983	Family Physician, Langley, B.C. Canada
July 1983 - June 1984	Family Medicine training program UBC Vancouver Canada
July 1984 - June 1989	Paediatric training program UBC and Dalhousie Universities Canada
July 1989 - June 1990	Paediatric Emergency Physician IWK-Grace Health Centre, Halifax, Canada
July 1990 - June 1991	Fellowship training in Ambulatory Pediatrics, University of Ottawa
July 1991 - August 1992	Consultant Paediatrician in Sydney, Nova Scotia Canada
Sept 1992 – Oct 1999	Assistant Professor, Department of Paediatrics, Dalhousie University and the IWK-Grace Health Centre, Halifax, Canada

Membership of Advisory Panels and Committees:

- Designated liaison paediatrician to Emergency Department (1999-present)
- Co-director Pulmonary Function laboratory and AIR centre – 1999-present
- Clinical Director of Acute Paediatrics/Neonatology (2009-2012)
- NI IV Fluid Care Pathway regional group (2005-2007)
- Lead NI Clinical Research Network for Children (2007-present)
- Study Adoption committee - UK Medicines for Children Research Network (2007-2012)
- NI Regional Allergy and Respiratory Network (2007- present)
- NI Paediatric Safety and Quality Network (2012-present)
- American Academy of Pediatrics ALTE guideline committee (2013-present)

Previous Statements, Depositions and Reports:

8 June 2004 - 087-037-168 Deposition

OFFICIAL USE:

List of previous statements, depositions and reports attached:

Ref:	Date:	

IMPORTANT INSTRUCTIONS FOR ANSWERING:

Please attach additional sheets if more space is required. Please identify clearly any document to which you refer or rely upon for your answer. If the document has an Inquiry reference number, e.g. Ref: 049-001-001 which is 'Chart No.1 Old Notes', then please provide that number.

If the document does not have an Inquiry reference number, then please provide a copy of the document attached to your statement.

I. QUALIFICATIONS, TRAINING AND EXPERIENCE

(1) Please address the following matters:

(a) State your medical qualifications and the date you qualified as a medical doctor.

1981 MB, BCh, BAO	Queen's University, Belfast, Northern Ireland
1984 CCFP	Certificate of the Canadian College of Family Physicians
1989 FRCPC	Fellow of the Royal College of Physicians Canada (Paediatrics)
2002 FRCPCH	Fellow of the Royal College of Paediatrics and Child Health
2013 FAAP	Fellow of the American Academy of Pediatrics

(b) Provide a detailed account of your career history post qualification.

March 1983 - June 1983	Family Physician, Langley, B.C. (General Practice) Four month experience as a General Practitioner
July 1989 - June 1990	Paediatric Emergency Physician and Clinical Tutor, Izaak Walton Killam Children's Hospital, Emergency Department, Halifax, Nova Scotia. Physician providing urgent care service (primary, secondary and tertiary paediatric) for a Children's hospital (35,000 visits/year)
July 1991 - August 1992	Consultant Paediatrician in Sydney, Nova Scotia. Private practice with three other paediatricians covering a catchment area of 180,000 people in a regional centre. Provided all forms of paediatric care including neonatal intensive care, emergency care and inpatient general paediatrics as well as office practice.
Sept. 1992 – Oct 1999	Assistant Professor, Department of Paediatrics, Dalhousie University and the Izaak Walton Killam Grace Health Centre • Head, Division of Paediatric Medicine. Clinical director of 40 bed general paediatric unit (PMU) admitting a variety of paediatric illness (1500 admissions/year) • Physician Director of General Paediatric clinic and Comprehensive Care

clinic (multi-need children)

- Paediatric Emergency Physician. Provided part-time service in the Emergency department.
- (1992-1998) Director of Paediatric Ambulatory Services. Administrative responsibility for the operation and development of 25 paediatric specialty clinics
- (1998-1999) Physician Leader: Acute and Continuing Care Pediatric Program. Administrative responsibility for operations and development of six Pediatric interdisciplinary programs (Respiratory, Rheumatology, Gastroenterology/ Nutrition, Pediatric Medicine, Endocrine/Diabetes, and Infectious disease/ Allergy/Immunology)

Oct. 1999 – present — Consultant Paediatrician, Department of Paediatrics
Craigavon Area Group Hospital Trust

(c) Describe your work commitments to the Craigavon Area Hospital from the date of your appointment as a Consultant Paediatrician, stating the locations in which you worked and the periods of time in each department/location.

Consultant Paediatrician with the following responsibilities:

- Inpatient general paediatrics (Ward 3 North) in a rotating schedule: 1 week/month
- Emergency paediatrics (Emergency Department) during inpatient weeks and on call
- On-call coverage of the Neonatal Intensive Care Unit, Paediatric ward and the Emergency Department for one night out of seven.
- General paediatric outpatient clinics – once per week in the outpatient department
- Paediatric respiratory clinics – once per week in the outpatient department
- Paediatric allergy clinics – twice per week in the outpatient department

(d) Describe your duties as a Consultant Paediatrician in Craigavon Area Hospital on the 8 May 2003.

From 8:30 am until 5pm I attended meetings related to patient care and completed administrative tasks. From 5 pm until 9am the following morning I provided overnight on-call coverage of the inpatient paediatric ward, neonatal intensive care, and paediatric emergencies in the Emergency Department.

(2) Describe in detail the education and training you have received in fluid management, the prevention of hyponatraemia and record keeping in relation to fluid balance, to include any particular training relating to fluid management in children, and provide dates and names of the relevant institutions/bodies, by reference to the following:

(a) Undergraduate level.

I received basic intravenous fluid (IVF) management training for adult patients during my medical undergraduate training at Queen's University Belfast from 1976-1981

(b) Postgraduate level.

I received basic IVF management training for children and adults during my junior and senior house officer training in Craigavon Area Hospital from 1981 until 1983.

I received advanced training in managing IVFs in general/specialized paediatric and neonatal care during my residency training at BC Children's Hospital, Vancouver (1984-86) IWK-Grace Health Centre, Halifax (1986-89) and the Children's Hospital of Eastern Ontario, Ottawa, Canada (1990-91).

(c) Hospital induction programmes

In Craigavon hospital, BC Children's Hospital, IWK-Grace Health Centre, and the Children's Hospital of Eastern Ontario I received induction programs which covered IVF management in children.

(d) Continuous professional development.

As part of my continuous professional development I teach IV fluid management to all trainees in paediatrics in Craigavon, BC Children's Hospital, IWK-Grace Health Centre, and the Children's Hospital of Eastern Ontario.

I participated in the NI Regional Fluid Guideline development group from 2005-7

II. QUERIES ARISING OUT OF YOUR DEPOSITION TO THE CORONER

With reference to your deposition to the Coroner dated 8 June 2004, please provide clarification and/or further information in respect of the following:

(3) *"Age determined whether Conor should have been admitted to the paediatric ward – there had been no ongoing paediatric treatment so [there was] no advantage in Conor being admitted to a paediatric ward."* (Ref: 087-037-170)

(a) Did the Craigavon Area Hospital have an admissions policy which would have determined the ward to which Conor was to be admitted, and what was its application to this case?

The hospital followed the Northern Ireland guideline at the time for ward admissions in which the upper age limit was the day before the 14th birthday. This was the policy for all general paediatric wards at the time. The only exceptions to this rule were patients around this age with chronic illnesses who were regularly under the care of a paediatrician and in the process of transitioning to adult care.

(b) What was your understanding of the reasons behind the decision to manage Conor in the Medical Admissions Unit rather than under the supervision of a paediatric team?

It is my understanding that he was admitted to the MAU as he exceeded the age limit as noted above under (a) and he was not receiving regular care by a paediatrician.

(c) Why would age determine whether a patient would be admitted to a paediatric ward, rather than his physical characteristics? In Conor's case, he was aged 15 years at the time but had the body habitus of an 8 year old.

Age is the most objective and the best indicator of appropriateness of admission. To use weight or size alone would allow many young adults (with a variety of physical conditions) to be inappropriately admitted to a ward with young children.

(d) What do you mean by the phrase, "*there had been no ongoing paediatric treatments?*"

Conor was not receiving regular care by a paediatrician. Paediatric patients with a chronic illness who receive regular, continuing, paediatric treatment begin the process of "transitioning" to the adult services at around age 13-14 years. Discussions take place between the paediatrician and the family about the best location for admission, should this be required.

(e) Why was it considered necessary to seek input from a member of the paediatric team (Dr. Marian Williams, Paediatric Registrar) if it was appropriate not to regard this as a paediatric case?

The decision to seek input from the paediatric team was taken by the medical registrar in the MAU. Therefore I cannot answer this question.

(4) "*Fluid management was acceptable.*" (087-037-170)

(a) What was your understanding of the fluid management which was applied to Conor in terms of:

The following assessment of Conor's fluid management is based on my evaluation of the clinical notes. Please note that the charting used on the medical services (MAU) is different from the paediatric service in which I work.

(i) The steps that were taken to assess his fluid needs at any point after he arrived at Craigavon

From the clinical notes his fluid needs were assessed by history and examination, blood/urine testing in the Emergency department and then a repeat clinical assessment in the MAU.

(ii) The type(s) of fluid he had received by the time you saw him

I have listed the IVFs given and time course from the emergency department notes, nursing notes from MAU, intake/output chart and the Particulars of IVFs to be taken. The gaps in monitoring are marked as Unknown.

See table below.

Time course of intravenous fluids received according to notes/chart

Time	Type of fluid	Purpose	Volume in (mls)	Rate (mls per hr)	Running total
1120-1200	Hartmann's solution	Bolus to correct dehydration	220	330 (approx)	220
1200-1400	Normal saline	Maintenance IVF	Unknown	62.5	Unknown
1400-1600	None	Cannula not working	0	0	0
1610-1700	Normal saline	Maintenance IVF	250	62.5	470
1700-2000	Normal saline	Maintenance IVF	Unknown	62.5	Unknown

(iii) The rate at which any fluid(s) had been administered by the time you saw him

See table under question (ii)

(iv) The volume of fluid which had been administered by the time you saw him

See table under question (ii)

(v) The steps that were taken to supervise and monitor his fluid needs, including the steps, if any, that were taken to monitor his fluid input, output, and overall fluid balance

His fluid monitoring was noted on the Intake/Output chart and in the nursing observations (pulse, blood pressure).

(b) Having regard to the type(s) of fluid given to Conor, the rate of infusion, the overall volume of his fluid intake, and the steps taken to monitor his fluid needs including fluid balance, identify the factors which you took into account when concluding that Conor's fluid management was "*acceptable*", and if applicable, identify any standard or protocol which you took into account when reaching that conclusion.

Please address this question both in respect of the fluids that were given to Conor in accident and emergency, and the fluids that were given to him after his admission to MAU.

The following assessment is based on the guideline on "Prevention of hyponatraemia in Children" issued by the DHSSPS in March 2002 and Advanced Paediatric Life Support, the practical approach, BMJ Books 3rd edition, 2001.

1) Emergency department (ED)

Conor had an appropriate clinical assessment in the ED including weight measurement, and urea and electrolyte blood test. He was given an isotonic fluid as an immediate replacement over the correct period of time. The intake was recorded in the chart. There was no output recorded but this may reflect the short period in the ED.

The fluid management for this patient in this part of his care was completely consistent with the guideline and therefore acceptable.

2) MAU

Conor had appropriate clinical assessment in the MAU by the SHO which included a note on the blood and urine results. Further clinical assessments were completed by the medical registrar at 1 and 6:30pm. Conor was prescribed the correct maintenance fluids and rate according to his weight and this was recorded in the Nursing report/Evaluation notes but not in the Intake/Output chart. There was a gap in his maintenance fluid infusion due to an extravasated intravenous cannula. There were three IVF prescriptions on the "Particulars of IVFs to be taken" sheet with strokes through indicating a cancellation. No replacement fluids were added to the maintenance IVFs. Appropriate IVF prescriptions were listed from 4:10pm onwards. There was no output documented in the Intake/Output chart for the duration of his stay.

For this part of his care the IVFs received by Conor were correctly prescribed but he received less volume than planned. While this is less than optimal, it is important to note that safe, intravenous fluid replacement can be slow (over 24-36 hours) and can be adjusted up or down according to repeated assessments approximately every 6 hours. The documentation on intake and output was deficient. Based on the guideline, this deficiency in documentation was unacceptable.

(c) State whether any aspect of Conor's fluid management was unacceptable.

There were deficiencies the in the documentation of IV fluids and no documentation of urine output.

III. QUERIES ARISING OUT OF CONOR'S CAGHT HOSPITAL CASENOTES: FILE 88

With reference to the content of Conor's CAGHT Hospital Casenotes, please provide clarification and/or further information in respect of the following:

(5) You are referred to the following note made by Dr. Murdock: "*Discussed management to date [with] Dr. Smith. Happy that appropriate fluids had been given. Feels appropriate fluid management has been given to date.*" (Ref: 088-004-049)

(a) Please confirm that you held a discussion with Dr. Murdock which included consideration of the management of Conor's intravenous fluids.

I cannot remember the details of this discussion. It would be common practice to discuss the preceding clinical management of a patient whose condition had suddenly deteriorated.

(b) When did that discussion take place?

I cannot remember the precise timing of this discussion but it is likely that it took place around 9pm.

(c) Describe in detail the discussion which you held with Dr. Murdock.

I cannot remember this discussion in detail but it likely concerned the possible reasons for Conor's deterioration

(d) Why was the subject of Conor's intravenous fluids discussed?

Whenever a patient suddenly has a seizure, it is reasonable to consider the possibility of an electrolyte disturbance caused by inappropriate IVF. It would be therefore reasonable to assess the preceding IVF.

(e) Was there a concern that the management of Conor's intravenous fluids may have caused or contributed to the seizures which he suffered?

No, there was not a concern that the IVF management contributed to the development of the seizures. However, as noted above, when a patient suddenly has a seizure, it is reasonable to consider the possibility of an electrolyte disturbance caused by inappropriate IVF. It would be therefore reasonable to assess the preceding IVF.

If so,

(i) Describe those concerns. NA

(ii) How did they arise? NA

(iii) What was your view? NA

(iv) What was Dr. Murdock's view? NA

IV. QUERIES ARISING OUT OF THE 'GUIDANCE ON THE PREVENTION OF HYPONATRAEMIA'

With reference to the *Guidance on the Prevention of Hyponatraemia* (Ref: 007-003-004) which was issued by the Chief Medical Officer in March 2002, please provide clarification and/or further information in respect of the following:

(6) Was the Guidance brought to your attention and if so state,

(a) Who brought the Guidance to your attention?

Usually CMO guidance is sent by email and letter. I do not remember the individual who had sent these.

(b) When was it brought to your attention?

I do not remember exact date but it is likely that it was in March 2002

(c) In what way was the Guidance brought to your attention?

I received an email and letter with A4 version of the wall poster.

(7) Have you ever received training in the use or application of the Guidance and if so state,

(a) Who provided you with training?

No training was provided in the use or the application of the Guidance

(b) When and on how many occasions have you been provided with such training?

No training was provided

(c) What form did the training take?

No training was provided

(d) What did you learn from the training?

No training was provided

(e) Was the training of an adequate quality or standard for the work that you do?

No training was provided

(8) Have you ever received written information in relation to the use or application of the Guidance and if so please provide a copy and state,

I did not receive any written information in relation to the use or application of the Guidance

(a) Who provided you with the written information? NA

(b) When did you receive it? NA

(c) What did you learn from the written information? NA

(d) Was the written information which was given to you of an adequate quality or standard for the work that you do? NA

(9) Please address the following:

(a) The Guidance was reproduced as an A5 poster. Please clarify to the best of your knowledge whether the Guidance was displayed in the Medical Admissions Unit of Craigavon Hospital on the 8 May 2003?

I am unable to comment on this as I do not work in the MAU

(b) If you are aware of any other location(s) within the Hospital where the poster was displayed, please indicate.

It was displayed in the paediatric ward in several locations and in the children's areas of the emergency department.

(10) Was the Guidance applicable to fluid management in the circumstances of Conor's case?

Yes the Guidance was applicable in Conor's case.

(11) Insofar as you aware, if the Guidance was applicable to fluid management in the circumstances of Conor's case, was the Guidance actually applied?

If so, and where applicable,

(a) Describe the steps were taken under 'Baseline Assessment'.

From the clinical notes, Conor had an appropriate clinical assessment in the ED including weight measurement, and urea and electrolyte blood test. Similarly, Conor had appropriate clinical assessment in the MAU by the SHO which included a note on the blood and urine results.

(b) Describe the steps that were taken under 'Fluid Requirements'.

In the ED and the MAU he was assessed by the clinical staff who were competent to assess his level of dehydration and requirement for replacement/maintenance IVFs. Accurate calculation of IVFs were completed.

(c) Describe the steps that were taken under 'Choice of Fluid'.

In the ED he was given an isotonic fluid as an immediate replacement over the correct period of time. In the MAU Conor was prescribed the correct maintenance fluids and rate according to his weight but this was not documented in the correct areas.

(d) Describe the steps that were taken under 'Monitor'.

In the ED, the intake was recorded in the chart. There was no output recorded but this may reflect the short period in the ED. In the MAU the IVF was recorded in the Nursing report/Evaluation notes but not in the Intake/Output chart. There was a gap in his maintenance fluid infusion due to an extravasated intravenous cannula. There was no output documented in the Intake/Output chart for the duration of his stay.

(e) In respect of any part of the Guidance that was not applied, explain why it was not applied?

The fluids received by Conor were correctly prescribed but he received less than planned. The documentation on intake and output was deficient. As I was not the treating clinician, I am unable to explain why the Guidance requiring specific volume and documentation was not applied.

V. GENERAL

Please address the following:

(12) After Conor's death were you asked to take part in any process designed to learn lessons from the care and treatment which he received, to include any issue about his fluid management?

I was not asked to take part in any process designed to learn lessons on fluid management

If so,

(a) Describe the process which you participated in. NA

(b) Who conducted it? NA

(c) When was it conducted? NA

(d) What contribution did you make to it? NA

(e) Were you advised of the conclusions that were reached, and if so, what were they? NA

(13) Provide any further points and comments that you wish to make, together with any documents, in relation to:

I have no further comments

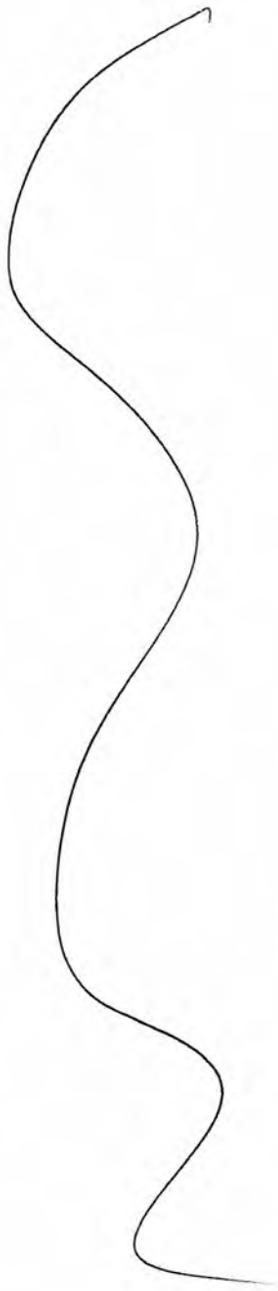
(a) The care and treatment of Conor on 8th May 2003. NA

(b) The Guidance on the Prevention of Hyponatraemia. NA

(c) Fluid management. NA

(d) Record keeping in association with fluid management. NA

(e) Any other relevant matter. NA



THIS STATEMENT IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF

Signed: MBH Smith **Dated:** Oct 5 2013