Witness Statement Ref. No. 011/2

NAME OF CHILD: Adam Strain

Name: Victor Boston

Title: Consultant Paediatric Surgeon

Present position and institution: Retired

Previous position(s) and institution(s):
[Since your Witness Statement of 21st July 2005]
See witness statement dated 21/07/05

Membership of Advisory Panels and Committees:
[Identify by date and title all of those since your Witness Statement of 21st July 2005]

President British Association of Paediatric Surgeons 2004-2006
Member of the Council of the College of Surgeons of England 2004-2006
Member of the Council of the College of Surgeons of Edinburgh 2004-2006
Member of the Federation of Surgical Speciality Associations of Great Britain 2004-2006
National Patient Safety Agency-Reducing the Risk of harm when administering intravenous fluids to children-Committee to decide guidelines 2005-2006

Other Statements, Depositions and Reports:
[Identify by date and title all those since your Witness Statement of 21st July 2005]

None since 21/07/05

OFFICIAL USE:
List of previous statements, depositions and reports attached (*):

Ref:	Date:	
011/1	21.07.05	Witness Statement to the Inquiry

BOSTON 9.07.11

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 such a number then please provide a copy of the document.

I QUERIES ARISING OUT OF YOUR INQUIRY WITNESS STATEMENT

With reference to your Inquiry Witness Statement dated 21st July 2005, please provide clarification and/or further information in respect of the following:

(1) Answer to Question 1 at p.2

"I was peripherally involved in Adam's care, mostly dealing with emergencies or urgent problems when On-Call."

(a) Identify and describe each surgical procedure that you performed on Adam, including:

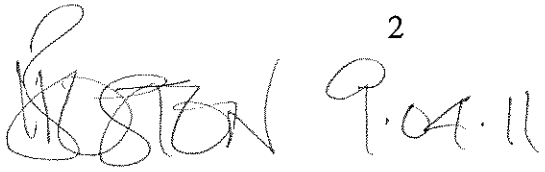
- **nature of the procedure**
- **date**
- **anaesthetist involved**

No 1.

- Nature of the Procedure: As the surgeon on call I was asked as an emergency to investigate and relieve obstruction to the left renal tract following a bilateral ureteric reimplantation approx 2 weeks previously by Mr Stephen Brown under whose surgical care Adam was being treated. Left ureter could not be cannalised from below through the bladder and the nephrostomy catheter previously inserted into the kidney had displaced. At laparotomy the lower end of the left ureter was necrotic-hence its failure to drain. Exteriorisation of the lower end of the left ureter was judged to be the safest and quickest solution to the emergency. The baby also required nutritional support and an intravenous feeding catheter was inserted into the right external jugular vein for this purpose.
- Date 08-12-91.
- c. Anaesthetist Involved: Dr Peter Crean.
- Ref: 050-008-031,032 (undated)

No 2

- Nature of the Procedure: There were continuing signs of upper renal tract dilatation...cause unclear. Cystoscopy identified the right ureteric orifice and a retrograde pyelogram showed both the ureters filling freely from the lower end of the right ureter and into the bladder, indictating no obstruction. No further action required. Oral feeding had become a problem and I was asked to insert a percutaneous feeding tube into the stomach through the abdominal wall.
- Date 21-4-93.
- Anaesthetist Involved: Dr Peter Crean.
- Ref: 055-046-093 (22/4/93 error for 21/4/93) and 055-053-119



No 3

- Nature of the Procedure: Renal failure was progressing and I inserted a peritoneal dialysis catheter at the request of Dr Savage. His percutaneous gastrostomy was causing problems and this was changed under the same anaesthetic.
- Date 23-03-94.
- Anaesthetist Involved: Dr Peter Crean.
- Ref: 055-010-017 and 056-037-089

No 4

- Nature of the Procedure: The previous peritoneal dialysis catheter had ceased functioning and was replaced at the request of Dr Savage.
- Date 24-08-94.
- Anaesthetist Involved: Dr Peter Crean.
- Ref: 057-102-181

(b)State your knowledge of the fluid management regime employed during each of those surgical procedures on Adam, and any lessons learned from them about Adam's fluid management

This in normal circumstances would be duty of the anaesthetist, modified if necessary by the involvement of Dr Savage, Nephrologist who was managing Adam's renal failure. However, with the presence of the functioning peritoneal dialysis catheter in-situ to control the plasma biochemistry, any intravenous fluids, their volume and chemistry would be less critical than if this was not working. I have worked under these circumstance on many occasions and have always relied on the advice and judgment of the anaesthetist and the nephrologist and have never intervened myself to alter the IV regimen that they have recommended.

(2) Answer to Question 1 at p.2

"In March 1993 the parents had requested a second surgical opinion"

(a) State to whom this request was made?

On 04-12-92 the mother requested of Dr Savage to obtain a second surgical opinion and to be referred to myself. (054-057-151)

(b)State whether a *"second surgical opinion"* was obtained and if so state:

- **whether you were the 'second opinion'**

Yes. I saw Adam at the mother's request on the 30-03-93. I recommended an urgent cystoscopy to investigate the lower end of the right ureter which appeared from the evidence available at that time, to be obstructed, at least in part. (055-053-116)

- **if not, identify the person who gave it**

.when it was given and what it consisted of

No other person saw Adam as a second surgical opinion

II ADDITIONAL INFORMATION

(3) Describe in detail the education and training you received in fluid management (in particular hyponatraemia) and record keeping through the following, providing dates and names of the institutions/bodies:

(a) Undergraduate education

Undergraduate education: I went to medical school in 1962-68. We had basic education commensurate with the knowledge at the time of IV fluid administration. Basic instruction was received in daily fluid management particularly postoperatively. Fluid overload was recognised as a problem and we were given basic training in how to avoid this complication.

(b) Postgraduate education and training

Postgraduate education and training: I was certified following a further 6 years of Royal College recognised specialist training in Paediatric Surgery in 1974. Part of this course was related to IV administration, IV feeding and the fluid management of renal failure.

(c) Hospital induction programmes

None

(d) Continuous professional development

I attended regular Morbidity Mortality meetings organised in the Hospitals in which I worked. In addition, I regularly attended the meetings of the British Association of Paediatric Surgeons, the Society for Pediatric Research, the Society for Research into Hydrocephalus and Spina Bifida. I received and read the Journal of Pediatric Surgery, Pediatric Surgery International and the European Journal of Pediatric Surgery. In the latter years of my career I was the editor for the Journal of Pediatric Surgery for UK and Ireland. As mentioned below, I have had a long interest in hyponatraemia as it impacted on the patients which I treated and had an active research profile looking into the possible causes of the condition.

(4) Prior to 26th November 1995, describe in detail your experience of children with hyponatraemia, including:

- **the estimated total number of such cases, together with the dates and where they took place**
- **the number of the children who were aged less than 6 years old**
- **the nature of your involvement**
- **the outcome for the children**

It is not possible to record the total number of cases I encountered in a career which spanned 40 years in three continents. These however would have numbered several hundred. This condition was a special interest of mine and I was the senior author in several laboratory research projects designed to identify the nature of this problem as it related to sepsis (which is probably the commonest aetiological factor to cause hyponatraemia). These are as follows: Hannon, R.J., Boston, V.E., Membrane Permiability in Hyperdynamic Sepsis. Brit. J. Surg. 1988; 75: 599. Hannon R.J., Boston V.E., Water and Ion Redistribution in Sepsis does not result in

Hyponatraemia. Clinical Nut. 1989; 48(2): 104-105. Hannon, R.J., Boston, V.E., Hyponatraemia and Intracellular Water in Sepsis:- The effect of fluid replacement with either 0.9% Saline or 5% Dextrose Saline. J. Ped. Surg., 1990; 25: 422-425. Hannon R.J., Boston V.E., Fluid and Ion Redistribution in Skeletal Muscle in an Animal Sepsis Model. J. Ped. Surg., 1990; 25: 599-603. Hannon R.J., Boston V.E, Bromide Space in Endotoxaemia is a Poor Reflection of Intracellular Volume. Clinical Nut. 1990; 49(2): 99-100. What we discovered is that hyponatraemia is a complex multifactorial condition but that injudicious use of 0.9% saline/dextrose was an important aetiological factor. The NPSA committee (referred to above) which I attended and gave evidence to in 2005/2006, came to the same opinion but for reasons never disclosed to me, never published their guidelines. With regard to those children where I had direct involvement in their management the majority (percentage unknown) survived. Part of the management which will reduce morbidity/mortality is to recognize patient groups at risk in advance, such as septic neonates and only cautiously employ IV fluid replacement avoiding dextrose saline where possible.

(5) Identify precisely on Adam's medical notes and records the entries that you made or which were made on your direction and state below:

(a) when each of the identified entries was made

(b) the source of the information recorded in the entry

07-12-91 Clinical status of child recorded and the fact that I had been consulted regarding status and management, recorded by Dr Weir surgical registrar after his examination in the ward (049-029-095)

07-12-91 Examined by myself and Dr Savage Recorded that we had decided that the child would be going to theatre for possible double "j" stent to overcome what appeared to be obstruction to the left ureter. Signed and written by an unknown registrar. (049-029-096)

08-12-91 Summary of operation note written by myself. Full operation note included in notes dictated and subsequently typed by secretarial staff. (049-029-097, 050-008-031,032)

28-02-92 Seen by Dr Savage and myself reviewed clinical behaviour and status and agreed that fundoplication was required to control gastro-oesophageal reflux which was causing major problems with feeding by mouth. Recorded by an unknown member of junior staff. (052-023-046)

16-03-92 Summary of fundoplication operation recorded by Mr Stewart senior surgical registrar. Full operation note dictated, typed by Mr Stewart and inserted in notes. (052-023-050, 050-008-033,034 – error typed record dated 13/3/92 instead of 16/3/92)

30-03-93 I saw the child as a second opinion following the mother's request. The note in the chart summaries the problems and what I thought the required management that was required. (055-053-116)

21-04-93 Summary of Operation note recorded by Mr Misra surgical registrar. Full operative note describing the cystoscopy, retrograde pyelogram which demonstrated no obstruction to the ureters and insertion of a percutaneous gastrostomy feeding tube, dictated, typed and inserted in

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case notes. (055-046-093 – 22/4/93 error for 21/4/93, 055-053-119)

23-03-94 Summary of further PEG and insertion of CAPD catheter written by me. Detailed description of the operation dictated, typed and inserted into case notes. (056-037-089, 055-010-017)

24-08-94 Summary of further insertion of CAPD catheter written by unknown (presumed surgical registrar). Typed operation note included in chart. (057-102-181)

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

(a) the care and treatment of Adam from his admission for the renal transplant surgery on 26th November 1995 to his death on 28th November 1995

I cannot comment on Adam's care from 26th to the 28th November because I was not involved.

(b)Record keeping

The record keeping is often not very detailed, hard to read because of the hand writing and because the volume of notes were so gigantic, notes relating to one episode are often not chronologically recorded. This is often in my experience due to the whole body of notes in such chronic patients not being immediately available from the medical records department. It is not that a case note has not been recorded but it is often filed in the wrong place in the notes. This is a possible source of confusion. Most of the detailed record is contained in the letters between consultants who are involved in the care of the child and in correspondence to GPs.

(c) Communications with Adam's family about his care and treatment in respect of the renal transplant surgery

I had nothing to do with the process of informing the parents of the need for renal transplant.

(d)Lessons learned from Adam's death and their impact upon your practice

Now that I am retired I have no lessons to be learned other than to say that hyponatraemia I know to be a complex condition with multiple causes some of which sadly may have no therapeutic solution. In other words, the onset of the condition may be inevitable rather than being the result of someone's ignorance or incompetence.

(e) Current 'protocols' and procedures

I have no knowledge of any protocols and procedures because I have now been retired for 6 years. It might however, be meaningful to enquire from the NPSA if the guidelines on the use of intravenous fluids in children (with particular reference to reducing the risk of hyponatraemia) which a committee of about 10 people chaired by Prof Stevenson over a period of about 18 months, was ever published. If not why not?

(f) Any other relevant matter

I have no other relevant matter.

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

Signed: 

Dated: 9.04.11.