Witness Statement Ref. No. 009/3

NAME OF CHILD: Adam Strain

Name:Terence Montague

Title: Dr

Present position and institution:

Consultant in Anaesthesia and Intensive Care, Our Lady's Children's Hospital, Crumlin, Dublin 12

Previous position and institution:
[Since your Witness Statement of 4th April 2011]

Membership of Advisory Panels and Committees:
[Identify by date and title all of those since your Witness Statement of 4th April 2011]

Previous Statements, Depositions and Reports:
[Identify by date and title all those since your Witness Statement of 4th April 2011]

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

Ref:	Date:	
093-037	30.11.2007	PSNI Statement
009/1	04.04.2011	Inquiry Witness Statement
009/2	22.07.2011	Inquiry Witness Statement

IMPORTANT INSTRUCTIONS FOR ANSWERING:
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 SUPPLEMENTAL WITNESS STATEMENT

With reference to your witness statement dated 22nd July 2011, please provide clarification and/or further information in respect of the following:

(1) Answer to Question 2(b) at p.2:

"I had never taken care of a child undergoing a renal transplant before and so Dr. Taylor would have made the management plan."

(a) State whether you discussed the *"management plan"* and if so with whom and when.
I don't remember the details of any discussion. However Dr Taylor and I would have discussed what we would need to do to prepare Adam for his operation, such as vascular access and the plan to use an epidural for pain management.

(b) Describe and explain what role you had in the formulation of the *"management plan"*.
This was my first and only renal transplant in a child. I would not have had a role in the formulation of the plan.

(2) Answer to Question 3(a) at p.3:

"I saw Adam's mother coming into theatre with Adam. I did not go into the theatre until Adam had gone to sleep."

(a) Describe where you were when Adam's mother went into the theatre with Adam and explain what you were doing at that time
I was in the anaesthetic room which was across the corridor from the theatre. I had been preparing drugs and equipment.

(b) Explain why you *"did not go into the theatre until Adam had gone to sleep."*
Adam was upset at the time and I felt it would be less upsetting for him if there were fewer strangers there. Dr Taylor did not need me for the induction of anaesthesia.

(3) Answer to Question 3(c) at p.3:

"Adam's mother was in the theatre with him when anaesthesia was commenced"

(a) State how many nurses were in the theatre at the time that *"anaesthesia was commenced"*.
I do not know how many nurses were in the theatre at that time.

(4) **Answer to Question 4(a) at p.3:**

"In so far as I can clearly recall I left not too long after this"

(a) **You have not adequately addressed the question, which was in relation to your statement that *"After he was anaesthetised I sited the epidural used for post operative pain management and tried to help Dr Taylor with the procedures he was undertaking. I remember he cited the central line"*. Please describe and explain what you did in *"[trying] to help Dr Taylor with the procedures he was undertaking"*.**

I would have helped get Adam into the correct position for line insertion. I may have poured out the skin cleaning solution or may have got the heparin solution used to flush the line.

(b) **State what role you had in monitoring Adam's vital signs.**

Both Dr Taylor and I would have been monitoring Adam's vital signs while we were in the theatre. These would also have been recorded and stored within the monitor.

(c) **Describe the vital signs that you would have been monitoring in carrying out the duties of an assistant anaesthetist to Dr. Taylor.**

I would have been looking at Adam, observing his colour. I also would have been watching the vital signs recorded on the monitor which would have included his ECG, pulse rate, oxygen saturation, blood pressure and temperature.

(d) **State whether prior to Adam's transplant you had previously assisted Dr. Taylor with anaesthesia for a surgical procedure. If so state on how many occasions you did so and the type of surgery concerned.**

Yes I would have assisted Dr Taylor prior to this procedure.

In 1990 / 1991 I worked with Dr Taylor during my first year of anaesthesia in Belfast City Hospital. He was one of the anaesthetic senior registrars there. He, along with the other senior registrars and registrars, would have taught me and supervised me, particularly at nights and weekends when I was on call. I have no record of the number of occasions when we actually worked together. The work would have included a large range of cases, mainly involving adult patients. The cases ranged in complexity from minor procedures in healthy patients to major emergency procedures such as a ruptured aortic aneurysm. We would have cared for some children in the ENT theatre.

In 1994 Dr Taylor was one of my supervisors for a research project that I undertook. This was based mainly in Queen's University Belfast. As part of this project I undertook clinical research on a small number of healthy children having minor procedures (probably fewer than 20 children) in RBHSC. Dr Taylor would have been one of the consultants looking after a proportion of these patients.

I started work as an anaesthetic senior registrar in RBHSC in November 1995. Dr Taylor and the other consultants in the department supervised my work. I do not know how many times Dr Taylor and I worked together during the 4 weeks I was there prior to Adam's transplant.

(5) **Answer to Question 5(c) at p.4:**

"It may have been possible to send bloods during this time but as far as I can recall our main focus up until the time that I left was the tasks that I have described."

(a) State the normal turnaround time for laboratory analysis of serum sodium on 27th November 1995 between dispatching the blood sample to the laboratory and receipt of the result during:

(i) Normal working hours (weekdays 09.00 to 17.00)
(ii) Out of hours (weekdays 17.00 to 09.00 or at weekends/holidays)
(iii) In urgent cases, whether or not they arise within working hours

I do not know the answer to this question.

(6) Answer to Question 5(d) at p. 4:

"The [blood gas] machine was used principally to check blood gases of patients in ICU. I have no recollection of any reference to the accuracy of the sodium estimations by that machine."

(a) State whether, in November 1995, the RBHSC had, or had access to, any portable blood gas analyser machines e.g. iSTAT blood gas analyser to measure sodium, potassium, urea, and creatinine. If so:

(i) identify the type of blood gas analyser was available at that time
(ii) state where it was located
(iii) state what arrangements would have been required for its use in Adam's transplant surgery

I do not recall any such portable machine being available in RBHSC at that time.

(b) State whether you are aware <u>now</u> of any issues with *"the accuracy of the sodium estimation"* with blood gas machines. If so, how do you account for it in your interpretation of results.

The machines currently in use appear to be very accurate with respect to electrolyte measurement. They correlate closely with samples sent to the laboratory for analysis.

(7) Answer to Question 6(b) at p.4:

"As Dr. Taylor was continuing to manage this case I think I would have given a brief summary to the in-coming registrar."

(a) Explain what information you would have provided to the in-coming registrar in your *"brief summary"*

I do not recall the information I gave that morning. I probably told the incoming registrar that Adam was a 4-year-old boy who was undergoing a renal transplant operation for polyuric renal failure. I would have said that he had had both an arterial line and a central line sited and that there was an epidural in place for post-operative pain management.

Dr Taylor was in the theatre and would have been able to answer any other questions.

(b) Explain the purpose of providing such a *"summary"* to the in-coming registrar

It would give the registrar some kind of overview of what case was being undertaken in the theatre.

(8) Answer to Question 6(b) at p.5:

"I think it is likely that Dr. Taylor and I had some discussion about fluid management as Adam had polyuric renal failure and had not received intravenous fluids due to the difficulties with access on the ward. However as it is so long ago I do not recall the details of our discussions or calculations".

(a) **Describe what you understood to be the fluid management plan that Dr. Taylor was following in relation to Adam's transplant surgery and the source/basis of your understanding.**

As I have stated, I do not recall the discussions that Dr Taylor and I had on the morning of Adam's transplant operation. I believe the plan would have been to replace calculated deficits, to give fluid to replace intra-operative losses and also to provide hourly maintenance fluid.

(b) **Explain the issues that you and Dr. Taylor would have discussed in the light of Adam's *"polyuric renal failure"* and the fact that he had *"not received intravenous fluids due to difficulties with access"*.**

I was aware that Adam normally received PEG feed and/or fluid overnight which I believe were given at approximately 180 mls per hour to compensate for his very high urine output. He was unable to have this the night prior to transplant as he was fasting. As intravenous access was difficult he did not receive fluids for at least 4 hours before his operation. Therefore he would have come to theatre with a large deficit. If this volume were not replaced prior to the transplanted kidney being vascularised there was potential for this deficit to compromise the kidney. Part of the management plan would have been to replace this volume as soon as was practicable.

(c) **Explain the nature of the *"calculations"* and your involvement (if any) with them.**

I do not recall the details of the calculations.

(9) **Answer to Question 8(b) at p.5:**

"I don't remember any discussion regarding the CVP."

(a) **You have not adequately addressed the question which seeks: *"State if you did anything in reaction to the CVP readings. If so, state what you did and when"*. Please state what you did, when and why.**

Your questions have highlighted the fact that the CVP initially read 17. I have no personal memory of the CVP reading from the actual day of surgery. I just remember that there was difficulty siting the line.

(10) **Answer to Question 8(b) at p.6:**

"As far as I can recall Dr. Taylor noted that Adam had undergone surgery to his neck veins in the past (and that some of these veins had been ligated)"

(a) **Explain from where Dr. Taylor "noted" that *"some of these [neck] veins had been ligated"***

My memory is that Dr Taylor noticed surgical scars on Adam's neck when he was preparing to insert the CVP line – scars left from surgically placed intravenous lines.

(11) Answer to Question 9(b) at p.6:

"As far as I can recall Dr Taylor noted that Adam had undergone surgery to his neck veins in the past (and that the [sic] some of these veins had been ligated), which probably accounted for the difficulty siting a CVP line."

(a) State whether it would have been possible to carry out a pre-operative x-ray on 27th November 1995 to check line position in relation to the CVP. If it was possible, explain why it was not done. If not, explain why not.

I imagine that it was possible to get an xray on the morning of surgery. I presume that there was an on-call radiographer for that date.
The practice then and now in the various hospitals where I have worked is that an xray is performed after the surgical procedure is finished. In theatre the CVP line is connected to a pressure transducer and placement in a central vein is confirmed by noting the typical waveform and pressure.

(b) State whose responsibility it would have been to obtain such an X-ray.

If it was felt necessary to obtain an an x-ray, this decision would have been made by the consultant, but as I have already stated, this was not a routine procedure until the operation was finished.

(12) Answer to Question 11(a) at p.6:

"I had some awareness that meetings took place"

(a) State what you, and other anaesthetists generally at the RBHSC, were told about the outcome of any internal reviews of Adam's anaesthetic and fluid management, when and by whom.

I don't remember being told of the outcome of any reviews of Adam's management.

(b) Explain to what extent any such internal review contributed to your *"much greater awareness of the risks of hyponatraemia"* to which you refer in your first Inquiry Witness Statement dated 4th April 2011 [Ref: WS-009-01, p.11]. If it made no contribution to your *"awareness"*, please explain how you acquired your *"much greater awareness of the risks of hyponatraemia"*.

As noted above I have no knowledge of the outcome of any internal review of Adam's fluid management.
I have acquired my greater awareness from
a. Personal experience:
Obviously Adam's death highlighted the danger of hyponatraemia for me. I also saw a child die from hyponatraemia who had been transferred to ICU in Manchester Children's Hospital where I was working as a consultant. My colleague Dr Stephen Playfor worked with the NPSA to develop an alert and guidelines for fluid management in children following this child's death.

b. Lecture attendance
I attended a lecture given by Dr Des Bohn from Toronto on the risks of hyponatraemia and fluid management in children.

c. Medical literature

I continue to read articles in the medical literature about hyponatraemia in children.

II. ADDITIONAL QUERIES

(13) Describe what, if any, knowledge you had in 1995 of the portering service available on 26th and 27th November 1995 to the theatre in RBHSC for tasks including the transporting of specimens to the laboratory.

I have no detailed knowledge of the portering services available at that time. I am presuming there was an on-call porter contactable via the hospital switchboard.

(14) State whether or not you knew in 1995 if a pneumatic tube system was available in RBHSC on 27th November for samples from the theatre to be sent directly to the laboratory.

I don't know if a pneumatic tube system was available. My memory is that such a system did not exist and that specimens were transported by hand.

(15) State whether you were aware of any application by the RBHSC to be an accredited institution with the King's Fund Organisation Audit (KFOA) Programme and standards in 1995. If so, state whether you believe the care and treatment of Adam complied with the KFOA standards, and explain the basis for your belief. If not, explain the respects in which it did not comply.

I have no knowledge of any application submitted by RBHSC to the KFOA. I don't know if it was accepted or rejected or the criteria that were used by the King's Fund Organisation.

(16) State your involvement, if any, at any stage with the clinical negligence claim which was pursued following Adam's death.

I was not involved at any stage in any negligence claim following Adam's death.

(17) Attached is a table showing the various phases in Adam's renal transplant operation. So far as you are able and using the initials of each person or, in the event of not knowing the identity of the person, the job title, state under each phase the personnel who were:

(a) present using the "+" symbol and

(b) actively participating using the "++" symbol.

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

Signed: Terence Montague **Dated:** 16/9/11

TABLE FOR PAEDIATRIC RENAL TRANSPLANT
Showing the involvement of personnel in the various phases

Phase of the transplant process	Physicians/ ward staff/ ICU staff	Anaesthetists	ODA/ ODP/ MTO	Surgeons	Scrub nurse	Runner
1. Transplant option first mentioned to family						
2. Transplant surgery consent process started; risks/benefits explained						
3. Preoperative preparation on evening of admission; consent confirmed						
4. Preoperative preparation; fasting, i.v. fluids; blood tests; dialysis; ultra sound of neck re: CVP line						
5. Preparing theatre for start of surgery/check monitors & equipment		RHT ++, TM++				
6. Preparing donor kidney						
7. Patient arrival in operating theatre; i.v. inserted; anaesthesia induced		RHT ++				
8. Insertion epidural, arterial and CVP lines; x-ray of the CVP line and uretheral catheter inserted		RHT ++, TM ++				
9. Pre-transplant phase of surgery		RHT ++, TM ++		PK ++ SB ++	++	
10. Vascular and ureteric anastomoses performed; ureteric and/or suprapubic catheter inserted						
11. Post-transplant phase of surgery including wound closure						
12. Post-surgery; anaesthesia stopped; drapes removed; drains connected						
13. Child transferred to ICU						
14. Communicating child's condition at end of surgery to parents						
15. Communicating child's death to parents						

RHT Dr Taylor; TM Dr T Montague; PK Mr P Keane; SB Mr S Brown

Terence Montague 16/9/11