Witness Statement Ref. No. 022/2

NAME OF CHILD: RAYCHEL FERGUSON

Name: Ragai R Makar

Title: Mr.

Present position and institution: Registrar transplant surgery, Churchill Hospital, Oxford

Previous position and institution: Senior House Officer, Surgery, Altnagelvin Hospital
[As at the time of the child's death]

Membership of Advisory Panels and Committees:
[Identify by date and title all of those since your Witness Statement of 13th December 2011]

Previous Statements, Depositions and Reports:
[Identify by date and title all those made in relation to the child's death since your Witness Statement of 13th December 2011]

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

Ref:	**Date:**	
012-045-216	05.02.03	Deposition at Inquest on Raychel Ferguson
012-014-116	16.01.02	Statement
022/1	13.12.11	Inquiry Witness Statement

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. QUERIES IN RELATION TO YOUR MEDICAL QUALIFICATIONS, EXPERIENCE, TRAINING AND RESPONSIBILITIES

(1) Please provide the following information:

(a) State your medical qualifications as of the 7th June 2001.

MBBCh, MSc (Surgery) and FRCS (Glasg)

(b) State the date you qualified as a medical doctor.

Dec 1988

(c) Describe your career history before you were appointed to Altnagelvin Hospital.

Surgical Training:

I have completed 4 years and 2 months of surgical rotation as a resident at the Coptic Hospital, Egypt, which was recognised for general surgery training by the four Royal College of Surgeons. This period also was recognised for the final exam of the FRCS. This was followed by 2 years at registrar level at the Anglo-American Hospital, Cairo. Thereafter I passed the MSc examination in General Surgery (Nov 1997).

In UK, following passing the final FRCS examination Feb 1999. I completed 6 months of SHO A&E training and 10 months of surgical training at SHO level at Belfast City Hospital and Ulster Hospital (from April 1999- August 2000).

Prior to the Final FRCS examination 1999, I had 12 months of clinical attachment to Hammersmith Hospital in London, North Staffordshire Hospital, Stoke-on Trent and James Paget's Hospital, as part of my preparation for the FRCS exam and to become familiar with the UK system.

(d) Describe your work commitments to the Altnagelvin Hospital from the date of your appointment in August 2000 to the 7th June 2001, stating the locations in which you worked and the periods of time in each department/location.

Answer: I was SHO general surgery with one in four days on call with prospective cover. During the on- call, I was responsible for general surgery and urology patients referred from GP, inpatients and A&E for assessment and management, including paediatric surgical referrals.

During the working day, I was working at the general surgery department (upper and lower GIT surgery and vascular Surgery).

(e) Describe your duties as Senior House Officer at Altnagelvin Hospital on the 7th – 8th June 2001.

On the 7th of June 2001, I was responsible for general surgery and urology patients referred from GP and the inpatients after assessment by the JHO and surgical assessment and management of the patients referred from the A&E by SHO or registrar, including paediatric surgical referrals.

On the 8th of June 2001. I was not on call. In the morning I covered the ward round of the surgical in-patients of my surgical team with the surgical registrar and JHO at wards 8,7 and 6 then I carried out my timetable for that morning (Clinic/ theatre). I was off post-on-call (post-oncall leave for rest) in the afternoon.

(f) How much experience did you have of performing intra-abdominal surgery on children by the 7th – 8th June 2001?

Answer: I had performed intra-abdominal surgery for patients older than 3 years old who were normally covered by the general surgery speciality at the Coptic hospital where I completed my residency program (4 years). By the end of that program I was able to carryout emergency laparotomies, emergency operations for complicated hernias and open appendicectomies independently for both adults and children (>100 cases) along side the elective surgeries. During my SHO training at Ulster Hospital from Feb 2000 to Aug 2000, I was covering the paediatric surgical unit during my on-call as part of my surgical SHO duties. SHO general surgery at Belfast city Hospital from April 1999- August 1999. During both these periods at BCH and Ulster Hospitals, I was carrying out emergency open appendicectomy which was mainly for adolescents and adults. I started my training at Altnagelvin Hospital in August 2000; during the 10 months prior to 7th of June I had performed appendicectomies for both adults and children (40 cases). My supervising consultant observed me during the daytime at more than one occasion, performing appendicectomy.

(g) How much experience did you have of working with patients recovering from surgery on a pediatric ward by the 7th - 8th June 2001?

As per my answer at 1(f) above, I had approximately 6 years of experience in busy units in assessment and management of general surgical patients including pediatric surgical patients.

(2) At the time of your appointment to Altnagelvin Hospital were you provided with training or induction and if so,

(a) Describe the training or induction, which you received.

Answer: Unable to recall the induction session which was on my first day which was the 2nd Aug 2000.

(b) State the date or the approximate date when you received any training or induction.

Answer: The 2nd Aug 2000

(c) Identify the person(s) who delivered this training or induction.

Answer: Unable to recall

(d) Indicate if you received any documentation at this training or induction.

Answer: Unable to recall the exact documents

(3) Provide full details of any advice, training or instruction which was provided to you at Altnagelvin Hospital in order to inform you of the appropriate approach to decision-making when considering conducting out of hours surgery in children's cases in that Hospital and state,

(a) Who provided this advice, training or instruction to you?

(b) When was it provided?

(c) What form did it take?

(d) What information were you given about the steps to be taken before deciding to operate on a child?

Answer: From memory I do not recall whether I received any special instructions concerning operating on children out-of-hours. Furthermore if there had been any advice, training or instructions I would have followed it, and the surgical registrar and the anesthetic doctors would have done the same.

(4) Provide full details of any advice, training or instruction which was provided to you at Altnagelvin Hospital in order to inform you of the appropriate approach to any of the following matters:

- Hyponatraemia

Answer: no specific advice

- Post-Operative Fluid Management

Answer: During the grand ward round as part of the training process, the consultant surgeons discuss the fluid and nutritional management of the surgical patients. However for the paediatric patients, normally, the maintenance fluid management and medications prescribed were based on advice and guidance from the paediatric doctors.

- Record keeping regarding fluid management

And address the following:

(a) Who provided this advice, training or instruction to you?

Answer: Record keeping for treatment of patients including fluid management was advised by the supervising consultants and the surgical directorate.

(b) When was it provided?

Answer: unable to recall the specific date

(c) What form did it take?

Answer: As part of the teaching ward rounds.

(d) What information were you given?

Answer: To keep an accurate, dated records of patient's assessment and management in order to facilitate the process of communication.

(e) In particular what information were you given in relation to the allocation of responsibility for prescribing intravenous fluids for post-operative children?

Answer: I can not recall specific information but it was a common practice that the immediate post-operative fluid was written by the anesthetic doctors, because it covered the time during which the patient was in recovery; because it depended on the intra-operative fluid given and whether there has been an estimated deficit or overload. Usually this period is extended to include the initial period the patient spends in the ward in order to avoid a gap in fluid management.

QUERIES ARISING OUT OF YOUR INITIAL STATEMENT TO THE INQUIRY (WS-022/1)

(5) "*Raychel Ferguson was kept fasting and started on IV fluids to maintain adequate hydration prior to surgery. A Hartman's solution was first prescribed by myself at the Accident and Emergency (A&E). I was called to ward 6 and asked by the duty nurse to change to solution 18 in accordance with the ward protocol. This was the recommended solution at the time for the children in the Paediatric ward (6). The rate was set at 80ml/hour during the pre-operative period, when she received 60ml in total.*

My choice of Hartman's solution was based on the fact that this solution composition is physiological, isotonic and nearly similar to normal plasma composition. It is also the fluid commonly used for fluid resuscitation." (WS-022/1 Page 2)

(a) Did you write a prescription for Hartman's solution? If so, please identify the document.

Answer: I have written and signed Hartman's solution in a fluid balance sheet at the A&E. However this document is not included in Raychel's medical notes. Also as far as I could remember that the A&E sheet is different in design from the ward 6 fluid chart.

(b) If you did not write a prescription for Hartman's solution please explain why you did not do so?

Answer: N/a- Please refere to my answer of question 5 (a) above.

(c) Did Raychel receive any Hartman's solution before the duty nurse asked you to change Raychel's fluids to solution 18? If so, how much did she receive and was this recorded?

Answer: To the best of my knowledge, Raychel did not receive any IV fluids before I went to the ward at approximately 10pm in order to change the presciption of the IV fluid because the ward has been waiting for me to prescribe the solution 18 instead of Hartman's solution. I was not informed that Raychel received any fluids whilst in A&E.

(d) Please confirm that the duty nurse who asked you to change the fluids to solution 18 was Staff Nurse Noble (as stated in your statement dated 16th January 2002 at Ref: 012-014-116)?

Answer: Yes, it was Staff Nurse Noble who asked me to change to solution 18 based on the peadiatric ward protocol at that time.

(e) Apart from being advised by the nurse that solution 18 was the "*ward protocol*" did you receive any other explanation or reason from her in support of her request that you should change the fluid?

Amswer: I can not recall any other strong reason. However I was informed that ward-6 keep only No 18 solution bags of one Litre not the smaler size 500ml; decause I equested the smaller volume bag (500ml). Additionally ward 6 did not routinely keep the Hartman's solution in its stock (from retrospective memory).

(f) Before you were asked by this nurse to change the fluids to Solution 18, were you aware that the ward protocol recommended the use of this fluid?

Answer: I was aware that solution 18 and half normal saline were commonly used by the peadiatricians as a maintenance fluid not only in Altnagelvin Hospital but also in other hospitals across Northern Ireland and UK.

(g) If you were aware that the ward protocol recommended the use of Solution 18, why did you initially prescribe Hartman's?

Answer: For the reason that it is an isotonic solution and both Hartmant's solution and normal saline are used for resuscitation / optimisation of surgical patients pre-operatively beacause hypotonic solutions e.g dextrose 5% or No 18 solution shift quickly into the intra-cellular space which could produce tissue eodema.; and also because lower volume of the latter fluids would stay in the intra-vascular compartment.

(h) Having decided to prescribe Hartman's solution because its "*composition is physiological, isotonic and nearly similar to normal plasma composition*," explain what factors you took into account when deciding that it was appropriate to change Raychel's fluids to Solution 18.?

Answer: I expected that Raychel would need IV fluid only for 1-2hours maximum to keep her confortable until the time of her operation. This was due to the fact that I had writen the IV fluids in ward 6 around 10pm (012-002-061). I was planing to proceede with appendectomy if the start of anesthesia and surgery before midnight to avoid night time surgery based on the NCEPOD reports in the 1990th. She was fasting form 5.30Pm so I expected that she would strat get dehydrated or feel thisty.

I have considered the probability that she could have had more of an inscencible loss due to the warm hospital environment; therefore a limited volume of pre-operative fluid with high water content would not have caused her any harm during these one-two hours wait. Hypothetically; if she was allowed to drink clear fluids, she could have had a small glass of water which would average 100-150 ml oraly. However She was fasting since her last meal (5:30PM).

To comply with the practice at Altnagelvin Hospital and the hospital protocol and guidelines. especially after I had been informed of the same by the staff nurse.

(i) Explain how you calculated the rate of 80 ml/hr?

Answer: I estimated her weight as 9+4=13x2= 26Kg. The fluid estimate was 40+20+6= 66ml/h. however this would have been an estimate for the volume of maintenance fluid. She had been fasting from 5:30pm and the fluid had to start after 10 pm (4 hours gap), warm ambulatory temperature and the possibility of third space loss because of the high probability of appendicitis. I increased her pre-operative fluid to 80 ml /h (by about 20%) which should have been easily compensated by her renal excretion (normal renal function and electrolytes) . I also estimated the total amount 80ml/h based on the expectation that she would go into theatre in an hour's time or less (ref 012-002-061) . I have also explained above (at 5 (e)) that the bag volume was 1 litre because there were no 500ml bags available at the peaditaric ward (the ward stock of solution 18) at that day.

(6) "*In the morning around 9.00am I met Rachel's father on the ward and I explained the operative findings to him. I was not involved in her post-operative management, which was carrried out by another surgical team (Registrar and SHO) who has seen her just prior to my arrival to the ward.*" (WS-022/1 Page 2)

(a) Did you come to the ward for the purpose of speaking to Raychel's father about the outcome of the surgery?

Answer: Yes, to speak to her parent (father or mother) about the operative finding and to see whether her pre-operative pain had settled. Normaly I would have spoken to her parent after surgery at night but I had a busy night duties with emergency calls. She was pain free this confirmed to me that her severe pre-operative pain was most probably secondary to the appendicular feacolith which I had noted in my contemporaneous pre-operative notes (ref 012-002-033) as well as the operative notes. I would also have assessed her recovery from surgery but I did not proceed for this assessment because of the fact that she was already seen by my surgical colleague.

(b) What did you tell Raychel's father about the operative findings?

Answer: I explained the exact finding during the opration as per my operative notes and reassured him that the operation had been straightforward and she would probably be able to go home by the next morning if she mobilised freely and was able to tolerate oral intake.

(c) Identify those clinicians (the Registrar and SHO) who were responsible for Raychel's post-operative management?

Answer: On the morning of the 8th June 2001 I did not know that Mr Zafar was the clinician who had seen Raychel. I thought that she had been seen by the registrar on that morning. I had been

told by the nurse that she had just been seen by the surgical registrar which for me implied during the morning ward round team including Mr Zafar.

(d) What were the arrangements for post-operative management of children at that time?

Answer: Normally the child is get seen by the surgical team (registrar , SHO and JHO) attached to the on-call consultant. Who formulate the management plan based on the clinical assessment. However the personnel of the surgical team included in the ward round could change based on what was happening that morning and the clinical priorities of the patients whom the surgical team care for.

(e) Was there a protocol, written or unwritten, or any other form of guidance in place in respect of post-operative management? If so, what did it say?

Answer: I do not recall any specific protocol or guidance, except that all surgical patients should be reviewed daily by a surgical doctor.

(f) Having carried out the surgery , why were you not involved in Raychel's post-operative management?

Answer: The surgical team who work with the consultant on call normally carryout the ward round to see all their patients and they put into place a management plan. They identify the patients and their wards based on the computer list of patients under their consultant which is updated as the patients get admitted (PAS system) and by the updated JHO list. The practice of one team (the consultant team) looking after their patients minimises the chance of mis-communication and should also avoid any mixed messages or confusion to the other healthcare staff. I had my own duties that day involving other patients which I had responsibility to complete. Additionally as I have explained previously. Raychel had already been seen by the surgical team who was looking after her during that day.

(g) Having carried out the surgery, why did you not participate in the ward round?

Answer: The surgical team who was working with the consultant on call normally carryout the ward round to see all their patients and put into place a management plan. I had my duties that day involving other patients which I had responsibility to complete. I was participating in the ward round at ward 8 and 7 after completing any urgent jobs from the early hours of that morning.

(h) Was there a provision for a 'hand-over' at the end of your period of duty?

Answer: the team who had looked after the patients admitted during the norning would normally receive updated lists of the patients including all of the admissions over-night. This would normally have been done by the wards JHO. Hand-over between registrars and SHOs involved criticaly ill patients or patients waiting for emergency or urgent surgery. For all of the other patients it depended on the communication via the patient's updated notes and charts and the JHO on night duty admission list. It was not uncommon that the surgical SHO would be busy around 8am dealing with referrals or unwell surgical patients from the night time and early hours of the morning.

If so, please address the following matters:

(i) Who participated in the'hand-over'?

Answer: I can not recall who was involved in the hand over on that day but the JHOs handed-over their ward patients if there had been any changes including any new admissions.

(ii) Was Raychel's case discussed during the 'hand-over'?

Answer: I do not know, but probably no specific discussion would have taken place as there was no spesific medical issue at that time apart form what expected to be a routine post-operative recovery and management. Normaly, following none complicated surgery for appendectomy, the child would be expected to strat oral intake and free mobilisation and stop IV fluids with the view for discharge in 24-48 hours.

(iii) If so, what was discussed?

(i) Regardless of whether you participated in a 'hand-over,' did you discuss the surgery that you performed and your findings with Dr. Zafar, who attended Raychel during the morning the ward round on the 8th June 2001? If so, what did you discuss with him?

Answer: No I did not because I did not meet with him that morning. However I have writen an accurate contemporaneous operative notes which would have informed the doctors who would be involved at any stage of Raychel's management about the pre-operative assessment and medical history and the operative finding.

(7) "*I did not examine Raychel that morning. She was sitting on the chair beside her bed. She was looking well and comfortable. The nurse in the bay told me as I arrived that the surgical registrar already saw her.*

I do not recall that I was aware about her vomiting episode that morning." (WS-022/1 Page 2)

(a) Why did you not examine Raychel?

Answer: She was sitting comfortably without any pain and she had just been seen by the surgical team- who would look after her during the post-operative period. The plan of management had already been decided. If there were any unanswered queries from the nurse who had looked after Raychel following her review at the morning round, she would have asked me. Also because of the fact that she had no change in her medical condition during that short period of time (probably about half an hour) which making further examination and assessment not warranted. If I were to review Raychel again very shortly after she had been seen by an other qualified surgeon this would have undermined my colleague's assessment and management plan which would be un-ethical practice especialy because the nurse who had been looking after her did not raise any new concerns during that time interval.

(b) Did you take any steps to check what fluids Raychel was receiving at that time?

Answer: No, because she had already been seen by my surgical colleague in the morning round. Who would have had formulated the management plan which would normally include the oral intake and whether to continue on IV fluids or not. .

(c) Would you have expected the nursing staff to have advised you that Raychel had vomited at 08.00?

Answer: Probably, yes, if the nursing staff had been concerned or if there had been any change in her condition since her review by the surgical doctors at the ward round. However it is not uncommon for the child or adult person to vomit once after recovery from anesthesia which could be from a throat irritation ,secretions or opioid. At that stage It would not have been alarming for other more serious causes of vomiting. Nevertheless once or twice vomiting episodes of small amounts of secretions normally settle and the child would then be able to tolerate fluid intake and a light diet.

(d) Would you have expected the nursing staff to have advised those responsible for Raychel's post-operative care that she had vomited at 08.00?

Answer: Yes, probably if they had been concerned. However it is not uncommon for the child or adult person to vomit once after recovery from anesthesia which could be from throat irritation, secretions or opioid induced.

(e) Did you see Raychel again after your visit to her at 09.00 on the 8th June 2001? If so, when did you see her and for what purpose?

Answer: I did not see Raychel again on the 8th of June. I went off duty after my on-call from 1 pm.

(8) "*I did not prescribe any fluid on the morning of the 08-06-2001 or at any time post-operatively (after the operation).*

I had prescribed intravenous fluid only at the pre-operative (before the operation) period to cover the third space fluid loss due to inflammation (meaning inflammation produce fluid extravagation in the tissues) and to cover the period of fasting until the operation time around 11:40PM on the 07-06-2001." (WS-022/1 Page 2)

(a) Did Altnagelvin have any protocol, written or unwritten or any other form of guidance in place for the purposes of allocating responsibility for post-operative fluid management? If so, outline your understanding of what that protocol or guidance said?

Answer: To my knowledge there was no protocol or guidance for post-operative fluid management. However the practice was that the anaesthetic doctors would write the IV fluid prescription during the patient's recovery period which would normally cover the initial period at the ward.

(b) Did you as the surgeon who carried out the operation have any responsibility with regard to Raychel's post-operative fluid management?

Answer: It would not have been the normal and safe practice for me to write the post-operative fluid blindly in advance without knowing what the patient was going to get during the recovery

period or before the patient get discharged from the recovery area. As the surgeon who carried out the operation I have witen the post-operative antibiotic prophylaxis.

However concerning the post-operative IV fluids, I am one member of the surgical team, the surgical firm work as a team, each person has their duries and responsibilities. I would normally look after the emergency surgical assessment and admissions from A&E while the JHO looked after the inpatients in the wards. However I was available for JHO advice when needed. I did not write any post-operative fluids for Raychel because it was my understanding that the anaesthetic doctor would write the recovery post-operative fluids which would normally cover the period pot-surgery until the morning . Moreover I would not have expected to have given any more IV fluids after she was fully awake and recovered from anesthesia because she would start oral fluids and a light diet in the morning specially because she had a straightforward appendicectomy with minimal peritoneal irritation. Nevertheless this expectation could change according to Raychel clinical status in the morning and during the day.

Explain why you did not precribe fluids for Raychel post-operatively? .

Answer: I did not write any post-operative fluids for Raychel because my understanding that the anesthetic doctor would write the recovery post-operative fluids which would normally cover until the morning. Also because the recovery fluid usually would be the continuation of the intra-operative fluids connected bags. Moreover I would not normaly give any more IV fluids because she would start oral fluids and a light diet in the morning after full recovery from the effect of general anesthesia, especially because she had a straightforward appendicectomy with minimal peritoneal irritation and no blood ooze at the site of surgery. However whether she needed IV fluids in the morning depend on the clinical assessment at that time.

(c) Before you commenced the surgery did you have any understanding of who was going to be responsible for prescribing Raychel's post-operative fluids? If so,

(i) Who did you understand would be responsible for prescribing Raychel's post-operative fluids?

Answer: My understanding that the anaesthetic doctor would write the recovery post-operative fluids which would normally cover the peroid Raychel was in recovery until the morning.

(ii) How did you reach that understanding?

Answer: Firstly, the immediate post-operative fluid was written by the anaesthetic doctors, because it covers the recovery time while the patient was in recovery area and because it depends on the intra-operative fluid given and whether there is an estimated deficit or overload. This was the common practice for the adult patients and paediatric patients. Secondly, during my earlier 10 months at Altnagelvin Hospital I did not need to write maintenance early post-operative IV fluids for any paediatric patients following appendectomy. My understanding was that they received the recovery fluid then they were assessed thereafter depending on whether they tolerate oral fluids. The need for more maintenance IV fluids or to cover the deficit, were normally written by the ward JHO or one of the surgical team under the advice of pediatricians when needed or by the pediatric doctors. The pediatric doctors were not uncommonly get to write IV fluids to surgical patients because of their availability at ward-6 and familiarity with the paediatric fluid management.

(d) Who actually prescribed fluids for Raychel post-operatively?

Answer: I do not know. However, upon retrospective observation of the fluid balance chart ref 012-002-060. I noted that the aneasthetic SHO who anaesthetised Raychel has written and signed on the fluid chart IV fluids (line 3) which was crossed by few lines across by somebody, that probably was for immediate post-operative fluids (retrosepective comment /opinion).

(e) Would you have expected the post-operative prescribing decisions to have been the subject of a written prescription?

Answer: Yes IV fluids or medications would not be given if they had not been prescibed and signed for by a doctor.

(9) At any time in the post operative period did you take any steps to check how Raychel's fluids were being managed having regard to the following matters:

(a) The type of fluid for maintenance;

(b) The rate of fluid (80 ml/hr);

(c) The total volume of fluid;

(d) The requirement, if any, for replacement fluids, and if so, whether this requirement was being met.

Answer; No, because of the fact that Raychel was being looked after by the surgical team from the morning of the 8th of June and it was they who would have adjusted her management according to her clinical condition and needs.

(10) If you did check how Raychel's fluids were being managed in respect of any of the above matters, did you identify any concerns, and if so,

Answer: Please refere to the previous answer (Q9).

(a) What were those concerns?

(b) What steps, if any, did you take to address those concerns?

(11) Did you discuss the arrangements for Raychel's post-operative fluid management with any of your nursing or medical colleagues? If so, please address the following:

Answer: No I did not discuss the post-operative fluid management of Raychel because I was not involved in her post-operative management. However I was available if contacted by the JHO or the nursing staff until 8:00 am on the 8th June after the operation when the day surgical team would be looking after her care.

When did you have those discussions?

(a) Who did you discuss those arrangements with?

(b) What did you discuss?

(c) Were you told the type of fluid Raychel had been prescribed?

(d) Were you told the rate at which the fluids were to be infused?

(e) Based on what you were told, what view did you form in relation to the appropriateness of the fluid management in Raychel's case?

II. QUERIES ARISING OUT OF THE STATEMENT YOU MADE ON THE 16 JANUARY 2002 (012-014-116)

(12) "*Raychel Ferguson was referred for surgical assessment by the Accident and Emergency SHO on 7th June 2001, at approximately 8.00pm, because of sudden onset of increasing abdominal pain suggestive of acute appendicitis. She had been given a cyclimorph injection for the pain.*" (Ref: 012-014-116)

(a) Why was Raychel given a morphine based injection in A&E before surgical assessment by you?

Answer: I can not recall accurately. However I think she had the cyclomorph prior to the assessment. (ref 012-002-031 cyclomorph 2mg at 08.20pm signed by the A&E doctor).

(b) Should the cyclimorph injection have been deferred until after surgical assessment?

Answer: No. as it should not mask the peritoneal signs of appendicitis or peritoneal irritation.

(c) Did the administration of a cyclimorph injection have any effect on your ability to obtain an adequate history or to interpret findings on examination of Raychel?

Answer: No, I do not think that it had an effect on the examination. Concerning the history, it would have been a combination of Raychel's family's observation and Raychel her self.

(13) "*I assessed Raychel's clinical picture which was a few hours history of periumbilical pain shifting to the right iliac fossa with pain pointing at McBurney's point associated with tenderness and guarding and mild rebound tenderness without respiratory symptoms. The symptoms were suggestive of acute appendicitis / obstructive appendix.*

Her blood tests were within normal limits including serum sodium level.

I obtained informed consent for appendectomy after explaining the operation…." (Ref: 012-014-116)

(a) Identify each of the factors which you took into account when reaching the view that the symptoms were suggestive of acute appendicitis /obstructive appendix.

Answer:

1) the start of peri-umblical pain shifting tto the right illiac fossa (ref 012-002-032)

2) nausea (012-002-031) and no appetite for food at the time of assessment (012-002-032)

3) localised tenderness to the McBurney's point (012-002-031 and 012-002-033)

4) guarding over McBurney's point (012-002-031 and 012-002-033)

5) +ve rebound tenderness (012-002-031 and 012-002-033)

6) absence of upper respiratory infection which could produce mesentric adenitis or referred pain (012-002-033)

7) sudden onsent of the pain suggestive of obstructed appendix (feacolith) (012-002-031)

8) increasing severity (012-002-031)

(b) Identify each of the factors which you took into account when reaching the conclusion that it was necessary to proceed to theatre for an appendicectomy.

Answer:

1) The severity of her pain and persistant pain which probably indicated an obstructed appendix.

2) The facts that she was a child which would put her at risk of generalised peritonitis if the appendix perforated along with its associated morbities and rare mortality, as well as the known higher risk in literature of atyepical presentations and complications of appendicitis in children.

3) The combination of first 5 factors mentioned in the previous question which increase to probability of acute appendicitis even in the absence of a change in white cell count (WCC) or C-reactive protein (CRP) during the early stage.

(c) Did you give any consideration to an alternative diagnosis? If so, please outline the alternative diagnosis that you considered and why you ruled it out?

Answer: Mesenteric adenitis, however there were no other symptoms or signs suggestive of upper respiratory infection of viral infection.

Urinary tract infection or renal pain were of low probability because of the absence of dysuria, presence only of urinary protinuria and absence of urinary nitrite, blood and leucocytes.

Right basal pneumonia excluded by the fact that she had no respiratory symptoms and the chest was clear.

Gastro-intestinal infection excluded by the absence of diarrhea and vomiting. She had the signs of localised peritoneal irritation over the McBurney's point.

Intestinal colick, the pain was persistent at the right iliac fossa which would be different from the intestinal colicky pain which tends to change site.

Intussusception, because of the absence of diarrhea at the start, no vomiting, no red current jelly motions and no palpable mass. She would have been more unwell with this condition . She had a normal bowel motion.

She was only 9 years old which would have made it unlikely to have pain from a tubo-ovarian cause.

No signs or symptoms of other rare systemic causes of abdominal pain.

(d) Please state whether you give consideration to any of the following factors before deciding that it was necessary to proceed to surgery to perform an appendicectomy and if so, fully explain why you considered that surgery was appropriate:

(i) It was late at night;

Answer: I was planning for surgery around 11pm after the anaesthetic assessment who would normally known to start anesthesia around 6 hours from last solid meal, with the view not to start after midnight.

(ii) The symptoms were of short duration;

Answer: Symptoms started at 4.30pm, if we were to wait until the morning then there would have been more than 16 hours before surgery. Obstructed appendix could perforate as early as 12 hours history, which is not uncommon concept about the appendicitis natural history if associated with luminal obstruction. In children perforation rate reached up to 39% at 24 hour (Prof D Leaper NCEPOD 1996, Chand and Kinnane Arch Ped Adolesc Med 1996).

(iii) There was an absence of inflammatory changes on blood testing;

Answer: The absence of abnormal blood tests does not exclude the possibility of acute appendicitis

(iv) Temperature was normal;

Answer: Normal temperature does not exclude the presence of acute appendicitis. Around 40% of cases with acute appendicitis would have normal temperature. Pyrexia could indicate the presence of complications e.g. mass, abscess, & / or perforation

(v) There was evidence of proteinuria on urine analysis;

Answer: This finding would be non-specific. The presence of isolated proteinuria would not explain the pain over the right iliac fossa and the associated signs.

(vi) There was evidence of pain on urination

Answer: Based on my contemporaneous notes, Raychel did not have dysuria she had pain when passing urine (no urinary symptoms as per my notes ref 012-002-032). I understood her pain as lower abdominal pain occurring when passing urine, which could happen with peritoneal irritation.

(e) When seeking to arrive at a diagnosis did you attempt to assess the significance of the presence of protein in the urine? If so, what conclusions did you reach?

Answer: The presence of proteinuria perse does not explain her presentation with right iliac fossa pain specially in the absence of other markers of uninary tract infection or renal angle pain.

(f) What consideration, if any, did you give to sending a urine sample for culture and microscopy given the presence of protein in the urine (Ref: 020-016-031 & Ref: 020-015-030), before deciding that it was necessary to conduct an appendicectomy? If you did give consideration to this issue, what conclusions did you reach?

Answer: Isolated protenuria was not an indication for routine urinary culture and sensetivity. Additionally the results of culture and sensitivities normally take 48 hours to be conclusive in most laboratories which could be too late if the cause of the pain was acute appendicitis.

(g) Did you advise any of your surgical or nursing colleagues of the presence of protein in the urine? If so,

Answer: I did not because the test was done at the A&E and was probably done by the A&E nurse (ref 012-002-052 A&E observation chart). It was a routine A&E test in most patients with query appendicitis. The A&E nurse who checked the urine would normaly inform the A&E doctor who reached the diagnosis of query acute appendicitis? (ref 012-002-031).

(i) Who did you advise?

(ii) When did you advise them?

(h) Did Altnagelvin Hospital have in place any protocol, written or unwritten, or any other form of guidance concerning the circumstances in which junior surgeons were expected to confer with their senior colleagues before undertaking any anaesthetic or surgical procedure? If so,

Answer: I was not aware of any writen guidance concerning operations for acute appendicitis or minor procedures like abcess drainage for a fit person. However there was a verbal agreement that any patient requiring emergency laparotomy or any criticaly ill patient needing theatre should be normally discussed with the consultant on call.

(i) State precisely what this protocol/guidance said;

(ii) How did it apply to Raychel's case?

Answer: Appendicetomy for a fit child would not normally require the consultant on call to be informed.

(i) Did you give any consideration to conferring with a senior colleague in relation to Raychel's case before deciding that it was necessary to undertake an appendicectomy? If you did give consideration to this, what conclusions did you reach?

Answer: Yes

Raychel was seen by the A&E on call doctor who reached the diagnosis of query acute appendicitis? which was confirmed by me when I assessed her. Also I have discussed the presentation of Raychel and the plan for appendectomy that evening with the oncall locum surgical registrar.

(j) Did you discuss the case for surgery with any medical or nursing colleague before deciding that it was necessary to proceed to theatre and if so:

Answer: Raychel was seen by the A&E on call doctor (I do not know the name in the A&E documenet) who reached the diagnosis of acute appendicitis? which was confirmed by me when I assessed her. Also I discussed the presentation of Raychel and the plan for appendicectomy that evening with the oncall locum surgical registrar.

(i) Identify that colleague by name and specialism;

Answer: I discussed with the on-call general surgery registrar (Locum on-call) Mr. Zawislak (Associated Specialist at Altnagelvin Hospital) around 10pm (I accessed via the switch board) and re-contacted him again before I went to start the operation (around 10:30-11 pm via switch board) after the theatre staff sent for Raychel.

The plan was to proceed for appendicectomy if the theatre sent for the patient before 11Ppm and to consider postponing the operation to the morning if there was any delay.

(ii) Outline what you discussed and the conclusions you reached.

Answer: We concluded that if there was a delay in theatre sending for Raychel before 11 pm to postpone the operation to the morning. Baring in mined the risk for complications of appendicitis versus operating after midnight.

(k) Did you give any consideration to deferring surgery until at least the next morning and keeping Raychel under observation and/or prescribing anti-biotics? If you did give consideration to these steps, or any of them, what conclusions did you reach?

Answer: As mentioned above. I considered deferring the operation to the morning if there was a delay in sending from theatre with the view to start the operation as first case in the emrgency theatre. However the theatre staff called me when Raychel had already send for the anaesthetic room / theatre around 11pm. Also I proceeded that evening because I was not sure that there would be emergency theatre availability for her in the morning which could have meant that she

would have to wait until the afternoon. The latter would increase her risks of complications from appendicitis. In balance of risk and potential benefit I proceeded with the appendicectomy.

(l) At that time (June 2001) were you aware of the conclusions of the National Confidential Enquiry into Perioperative Deaths (NCEPOD) which in its 1989 report found, inter alia, that trainees should not undertake any anaesthetic or surgical operation on a child without consultation with a consultant?

Answer: No, I was not aware of that report in 1989. However I was aware of the subsequent reports in the 1990s which recommended avoiding operating after midnight. However I always communicated with my seniors, registrars when I was oncall as SHO or directly to the consultant when I was on-call as Locum registrar during my work at Altnagelvin Hopsital before getting any patient to theatre adult or child for any procedure including minor procedure like drainage of an abcess. This because of the risk involved in anaesthetic or surgical procedures and to ensure available cover at short notice; meaning whilste the patient was in theatre.

(m) Whether or not you were aware of this finding of the NCEPOD, how do you consider this conclusion applied to you in your management of Raychel's treatment and surgery?

Answer: I have called the locum registrar on-call who normally was working as Associated specialist (Senior grade) at Altnagelvin Hospital. Please refer to the Q14 answer.

QUERIES IN RELATION TO THE WORKING ARRANGEMENTS OF THE SURGICAL TEAM AT ALTNAGELVIN HOSPITAL IN JUNE 2001

(14) What arrangements were in place to allow you to communicate with and seek advice from more senior doctors in the surgical team such as the Consultant or the Specialist Registrar?

Answer: switch board would have the contact tel number of the on-call SpR or Consultant. However as an SHO I would be expected to contact the oncall SpR prior to communicating with the consultant on call. I would contact the consultant if I could not get in contact with the registrar.

(15) In what circumstances were you expected to seek further information and advice from your more senior colleagues in the surgical team?

Answer: for advice or asking the registrar to see patient depending on the general condition of the patient, the underlying medical problem and urgency and whether I am confident in my competency in dealing with the clinical problem safley or I need the registrar's input by advice or presence in person. I was expected to discuss with the registrar any unwell in-patient and unstable emergency admissions or any emergency admission with unclear diagnosis especialy with abdominal pain and all trauma patients. I would inform the on-call registrar in all patients who would need to go to theatre for minor procedure (e.g abscess drainage), appendicectomy or acute hernia complication . For all other procedures the registrar would normally assess and decide which would need further dicussion with the consultant on call.

(16) In what circumstances were you expected to report the condition of a patient to more senior colleagues in the surgical team?

Answer: I would report the condition of any unstable patient, deteriorating clinical condition or patient who was not responding to the treatment or resuscitation . Additionally any patient who would require emergency or urgent surgery or who would need urgent scanning or invasive investigation.

(17) Were any arrangements in place in order to communicate to a Consultant Surgeon, such as Mr. Gilliland, that a patient had been admitted under his care during his absence, for a surgical procedure ? If so, how should those arrangements have been implemented in Raychel's case?

Answer: I was not aware of a spesific arrangements in place. However the usual practice was that:

All patients who were admitted normally were recorded in the admission computer system under the care of the oncall consultant. The consultant who would normally check in the morning the newly admmited patients under his name. However occasionally the patient could get admitted under an other consultant's name by mistake from the admission office which could lead to the patient get missed during the oncall consultant ward round. But the patient would be seen by other team who would rectify the mistake. Patients who went to theatre for major surgery were discussed with the consultant oncall who would normally attend on site for these cases. In cases such as appendecictomy and abcess drainage there were no specific arrangements and these depended on the competency and skills of the on-call persons. In the case of Raychel, the oncall registrar who was informed, happened to be a senior surgeon (Associate Specialist). With his permission, I conducted the procedure of appendectomy which I was competent in and I was confident that I had the skills to carry out this procedure safely.

(18) What arrangements were in place for the supervision of your work as a surgical senior house officer?

Answer: All patient who I assessed , admitted to hospital , reviewed in the ward as a referral for assessment, had also been reviewed by other senior staff either for a 2nd opnion or as part of the ward round including the major teaching ward rounds. Patient who were operated up-on by me, sometimes under direct supervision of the consultants, but if they were satisfied with my skills they allowed me to carry out the operation without supervision. For operations done without supervision the outcome of the patient would be reviewed by the consultant in most cases during the in-patient or at the outpatient post-operative review which, would identify any complication directly related to the procedure e.g appendicectomy, hernia repair, varicose vein surgery, abcess drainage. In cases which had histopathology reports e.g lymph node biopsy and appendicectomy, the report would be reviewed by the consultant who was responsible for the patient care. At the outpatient clinics the consultant would normally review and assess, if required, the quality of the my outpatient assessment, management and decision making process either directly or by review of my outpatient letters.

(19) Are you aware whether any steps were taken by Consultant Surgeons at Altnagelvin Hospital to ensure that you had acquired sufficient knowledge to carry out all of the duties expected of you when working without supervision? If you are aware that steps were taken,

(a) Specify to the best of your knowledge the steps that were taken.

Answer: My medical knowledge and clinical skilled including decision making were assessed regularly at the grand ward rounds and outpatient clinics where I was given a positive feedback on several occasions by Mr. Gilliland, Mr. Neilly, Mr. Bateson, Mr. Panasar and Mr. Thompson.

I had also been assessed in theatre when I had been carrying out complex procedures with consultants scrubbed or not scrubbed but in theatre. I was also observed by Mr. Bateson in carrying out appendicectomy, during the daytime.

I was allowed to do Locum registrar on call shifts while I was an SHO at Altnagelvin based on those assessments and my post-graduate higher qualifications and experience.

(b) Identify the Consultant(s) who took any particular steps to ensure that you had acquired sufficient knowledge.

Answer: Mr. Gilliland, Mr Neilly, Mr. Bateson, Mr. Panasar and Mr. Thompson

(c) Explain how you demonstrated that you had acquired sufficient knowledge to enable you to perform the duties expected of you without supervision.

Answer: In addition to my answer to the previous question explaining the assessment and feedback for my clinical skills and knowledge. My medical knowledge was assessed in exams which I have passed; the MSc exam 1997 which involve assessment of the basic, surgical knowledge and clinical skills (the degree is equivalent to UK qualifications as recognized by the NARIC UK). Similarly the FRCS examination in February 1999, which has two components, primary part for the basic sciences and the viva and clinical part (final) for assessment of clinical skills and surgical management skills.

(20) Were any arrangements in place for ward rounds to be conducted by senior members of the surgical team (ie, Consultant or Registrar led)? If so, in what circumstances would a senior member of the surgical team lead a ward round?

Answer: Normally the morning round was led by the surgical registrar and during most days the consultant joined the morning ward round and reviewed his patients. After on-call most of the consultants review all the new admission in the morning round except in rare occasions. .

(21) Did Altnagelvin have a 24 hour emergency operating room in June 2001?

Answer: As far as I remember the emergency theatre was available from 1 pm at all the weekdays and occasionally from 8am on weekdays.

(22) Clarify whether there were any arrangements in place in 2001 to allow members of the surgical team in Altnaglevin to obtain paediatric medical advice or assistance for the care of a surgical patient?

Answer: Yes

If so, please address the following matters:

(a) Were these arrangements formal or informal?

Answer: Unable to recall exact type of arrangement. We were able to refer any of our paediatric patients to the paediatric medical team who would see and assess. The paediatric medical team

was commonly involved with advising or even writing up the doses of medication and the iv maintenance fluid management .

(b) Describe the main features of those arrangements?

Answer: These involved the ward patients but to my knowledge the pre-admission assessments were done by the surgical team for surgically referred child.

(c) Was paediatric medical advice and assistance available upon request to surgical junior house officers and surgical senior house officers caring for surgical patients on Ward 6?

Answer: Yes

If so, please address the following:

(i) How was a JHO or a SHO expected to make a request for paediatric medical advice or assistance?

Answer: The usual way was by direct contact with the paediatric SHO or registrar in the ward or by the bleep system.

(ii) To whom was a request to be directed?

Answer: paediatric SHO or registrar depending on the advice requested and the experience of the person.

(iii) On what matters could paediatric medical advice or assistance be requested by a JHO or SHO?

Answer: for referrals advised during the ward round requesting assessment of the child for possible underlying medical problem which needing paediatric medical input or SHO or JHO requesting help with venous access and doses of medications (in addition to the paediatric BNF).

(iv) How was a JHO or SHO advised of the arrangements by which they could make a request for medical advice or assistance?

Answer: I could not recall if there was a formal system or process

(v) On the evening of the 7 June 2001 could you have accessed advice or assistance from a paediatrician if you had decided that this was necessary?

Answer: Probably yes. However, in addition to my assessment, there was no pediatric medical issues raised by the A&E doctor or the aneastheic doctor who were involved in the assessment of Raychel that evening which would require pediatric referal.

(vi) Did you give any consideration to seeking input from a paediatrician in Raychel's case, and if so what conclusions did you reach?

Answer: I have considered the referal for paediatic medical advice nevertheless Raychel did not have symptoms or signs suggestive of other cause of her abdominal pain. Usualy from my previous experience, the paediatric medical doctors would ask the surgical team to exclude the possibility of appendicitis as the 1st probability and a common cause for the right side abdominal pain.

(d) In general, were any arrangements in place to promote good communications between the paediatric medical team and the surgical team with regard to the care of surgical patients? If so, please describe those arrangements.

Answer: to my knowledge there was no defined arragement in place.

III. QUERIES ON THE ISSUE OF FLUID MANAGEMENT

Please provide clarification and/or further information in respect of the following:

(23) In June 2001 who in Altnagelvin Hospital was responsible for organizing the structure and allocation of responsibilities for post-operative fluid management for paediatric cases?

Answer: not able to identify whom exactly. However the paediatric medical team were involved in the process of prescribing the post-operative fluids probably because of their presence and availability at the paediatric ward6 and the anaesthetic team were involved in the immediate post-operative IV fluid prescription in recovery which normally cover early post-operative fluids.

Prior to 7th – 8th June 2001:

(a) State your knowledge and awareness of the cases of Lucy Crawford, Claire Roberts, or Adam Strain, and the issues arising from those cases.

Answer: not aware of these patients

(b) State the source(s) of your knowledge and awareness and when you acquired it.

(c) Describe how that knowledge and awareness affected your care and treatment of Raychel.

(24) Since 7th – 8th June 2001:

(a) State your knowledge and awareness of the cases of Lucy Crawford, Claire Roberts or Adam Strain, and the issues arising from these cases.

Answer: brain oedema 2nd to hyponatremia

(b) State the source(s) of your knowledge and awareness and when you acquired it.

Answer: from the current inquiry

(c) Describe how that knowledge and awareness has affected your work.

Answer: it made me aware of the risk and the devastating effects of hyponatremia in children.

(25) Prior to Raychel's death were you aware of the literature, which highlighted the dangers posed by the administration of hypotonic fluids to children during the immediate post-operative period? e.g. Arieff AI, Ayus JC. British Medical Journal 1992: 304; 1218-1222. Hyponatraemia and death or permanent brain damage in healthy children, or Halberthal M, Halperin ML, Bohn D. British Medical Journal 2001: 322; 780-782. Lesson of the week: acute hyponatraemia in children admitted to hospital: retrospective analysis of factors contributing to its development and resolution.

Answer: not specific papers for the paediatric population. However I was aware of the risk of IV fluids in inducing electrolyte imbalance in surgical patients adults or children which included both hyper or hyponatraemia.

(26) Describe in detail the education and training you have received in fluid management (in particular hyponatraemia) and record keeping, 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.

Answer: during my academic 1st and 2nd years of medical school studies the physiology of the electrolyte balance and hormonal effect including anti-diuretic (ADH) hormone, in-appropriate ADH release and the kidney's role in this balance. Faculty of Medicine, Ain Shams University, Cairo, Egypt.

During the 4th year of Medical School in paediatrics; attending a high volume paediatrics department at Ain Shams University Hospitals (3300 beds, total hospital beds); received training in management of paediatric patients with electrolyte imbalance and the effects of repeated vomiting and severe gastro-enteritis which was a common problem in rural areas in Egypt.

(b) Postgraduate level.

Answer: During my compulsory year of primary care at El-Zahrah Medical Centre, Ain Shams, Cairo, Egypt; I was trained in paediatric primary care including management of severe gastro-enteritis and or vomiting and the risk of hyponatremia and electrolytes imbalance when hypotonic fluid used in replacement of the gastro-intestinal loss by vomiting +/_ diarrhoea.

Education on electrolyte balance, endocrine and renal function was part of preparation for the MSc (Cairo University 1997 recognised by the UK NARIC as equivalent to MSC from UK Universities) and the FRCS (RCPS Glasgow1999) examinations.

Education as part of preparation for the United States Medical Licence Examination (USMLE), including causes and management of electrolytes imbalance, paediatrics, endocrine, renal and surgical studies (1995 step 1 examination and 1996 step 2 examination, both passed).

Education as part of preparation for the Canadian Evaluation Exam. Review of the same subjects related to causes and management of electrolytes imbalance, paediatrics, endocrine, renal and surgical studies (passed 2000)

Education and updating my knowledge in basic sciences and medical sciences as part of preparation for the MRCP(UK)part 1 examination at the Royal College of Physicians of England, passed January 2001.

(c) Hospital induction programmes.

Answer: I do not recall that fluid management and hyponatraemia were included in any hospital induction program. However records keeping for patient management and prescription were included in some hospital inductions

(d) Continuous professional development.

Answer: In addition to what was mentioned under the postgraduate section of continuous studies in the wide medical and surgical fields. I have attended the Advanced Trauma Life Support (ATLS) Course (passed in Sep 2000 ranked top 2 and offered instructor status). This course advises isotonic solution (Hartman's solution or normal saline) for fluid resuscitation in children with trauma.

(27) In June 2001 were you aware of the factors that could cause an electrolyte imbalance in a paediatric patient following surgery? If so, please identify those factors.

Answer: anxiety, pain, stress or opioids analgesics could produce the release of ADH, which lead to water retention and tendency for hyponatraemia. The use of hypotonic solution in the presence of inappropriate ADH release further increase the risk of hyponatraemia. This effect occurs because of the failure of the kidney to excrete the excess water load. This condition was reported to be more common among pre-pubertal female patients.

The loss of sodium via gastrointestinal tract in diarrhoea & or vomiting combined with the replacement of these losses with hypotonic solution could produce or accelerate the development of hyponatraemia.

(28) In 2001, what did you regard as the appropriate way to manage a child who was experiencing **prolonged vomiting after surgery**, and who was in receipt of **hypotonic intravenous fluids**? Please set out all the steps that a doctor should have taken in those circumstances.

Answer: although post-operative vomiting is not uncommon after general anaesthesia and surgery in children. Occurrence of vomiting would indicate stopping the hypotonic solution infusion because of the increasing risk of hyponatremia with this type of fluid.

1) Full assessment for underlying causes for vomiting e.g abdominal examination, check opioid or other medications.

2) Fluid balance to assess volume of fluid input and the urinary output and the volume of the fluid loss with vomiting. Hypotonic IV fluid should be stopped and replaced with isotonic solutions

3).Urgent electrolyte assessment in blood and adjustment of the component of the IV fluid usually would give normal saline with added potassium (1L of o.9% saline with 20mmol of Kcl).

4) If hyponatremia detected that could be one of the causes of vomiting as well as a result of vomiting. Urinary electrolytes would be indicated and hormonal assessment including ADH and pituitary functions.

5) Multidisciplinary approach involving paediatrics, surgeons and endocrinologist and in severe cases neurologist and anaesthetist

(29) In 2001, what did you understand were the possible dangers for a child who was experiencing prolonged vomiting after surgery and who was in receipt of hypotonic intravenous fluids?

Answer: development of hyponatremia with its consequences of produces more vomiting and development of tissue and brain oedema because of the intra-cellular shit of water and also extra-vascular shift of fluid.

(30) Prior to 7th – 8th June 2001, describe in detail your experience of dealing with children with hyponatraemia, including the:

(a) Estimated total number of such cases, together with the dates and where they took place.

Answer: As a medical student at Ain Shams University Hospitals for children with repeated vomiting in the paediatric medical department (not post-operatively, Cairo, 1986). They were treated according to severity with normal saline or dehydration WHO solutions. We did not have any of the other known hypotonic solutions available at that time in practice except Dextrose 5% which was obviously not used.

(b) Nature of your involvement.

Answer: medical student

(c) Outcome for the children.

I do not recall any adverse effect of the WHO solution use in these children.

(31) Since 7th – 8th June 2001, describe in detail your experience of dealing with children with hyponatraemia, including the:

Answer: I have not dealt with any case of child with hyponatremia during my work in general surgical practice in the last 11 years. Normally the paediatricians would have more exposure.

(a) Estimated total number of such cases, together with the dates and where they took place.

(b) Nature of your involvement.

(c) Outcome for the children.

IV. GENERAL

Please address the following:

(32) The Inquiry has been provided with observation sheets in respect of Raychel for the 7th June (Ref: 020-016-031) and the 9th June 2001 (Ref: 020-016-032)? Do you know whether an observation sheet was completed for the 8th June 2001?

Answer: I do not know because of the fact that I was not involved in the post-operative management of Raychel on the 8th of June. I have only spoken to her father on the morning of the 8th of june and I did not review her chart or notes because she had already just been seen by the "surgical registrar" as I was told by the nurse who looked after her at that morning.

If an observation sheet was completed for the 8th June 2001, please address the following matters:

(a) Do you know what has become of that document?

(b) Did you make any entries in that document?

(c) If you did make entries in that document are you able to provide any indication of the content of those entries?

(33) After Raychel's death were you asked to take part in any process designed to learn lessons from the care and treatment, which she received, and your role in it, to include any issue about her fluid management? If so,

Answer: yes I was involved in the 1st meeting of risk management to look at the causes of Raychel hyponatremia and the resulting complications.

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

Answer: we started with a chronological review of the fact of what happened and the treatment she received from her arrival to hospital.

(b) Who conducted it?

Answer: It was multidisciplinary meeting involves risk management, anaesthetic consultant Dr Nesbitt, surgical consultant Mr Gilliland, paediatrics, sister ward 6, radiologist and other medical staffs.

(c) When was it conducted?

Answer: 14th of June, possibly

(d) What contribution did you make to it?

Answer: I gave a summary of the assessment and management explaining the process of the diagnosis of appendicitis, finding of surgery and confirmed that the operation was straightforward with minimal tissue handling or peritoneal irritation. I explained the reasons for

which I had chosen to use Hartman's solution and not the No18. I expressed my concerns about the use of hypotonic solution pre-as well as post-operatively even if it is half normal saline (0.45% saline in dextrose) because it caries risks of electrolyte imbalance.

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

Answer: the meeting concluded the need to change the current paediatric ward protocol / practice of using No 18 solution for surgical patients and move towards the use of Hartman's solution instead. However this until final evidence based protocol for IV fluids in post-operative children is generated. Additionally, to communicated with other hospitals concerning their practice of IV fluids in children.

(f) Were you advised of any issues relating to your role in Raychel's care and treatment?

Answer: No any issues were raised concerning my care for Raychel.

(g) Describe any changes to fluid management practice that you were made aware of at Altnagelvin Hospital following Raychel's death.

Answer: a new protocol was disseminated. It advised to avoid the use of solution 18 for paediatric surgical patients.

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

(a) The care and treatment of Raychel in Altnagelvin Hospital between the 7th – 9th June 2001.

(b) Record keeping.

Answer: I kept accurate contemporaneous clinical records throughout my involvement in Raychel care on the 7th of June.

Ref 012-002-032 and 012-002-033 I documented the full pre-operative assessment and the results of the blood tests and the plan of management.

Ref 012-002-039 I documented an accurate operative finding which was confirmed later by the histopathology report (012-002-068) of presence of feacolith inside the appendicular lumen this finding also confirm my clinical impression during the pre-operative assessment of the query presence of appendicular obstruction (ref 012-002-032) as the cause of Raychel's pain.

Ref 012-002-061 I have recorded the prescription of the IV fluid on the ward fluid chart, which was presented to me in the ward, and I have recorded the patient name and the date personally on the front of the sheet (012-002-060).

Ref 012-002-056 when I have changed my prescription and cancelled the Metronidazol (was written by both general name and commercial name) from IV to suppository I have put a single

waved line across and signed the cancellation and dated it 7th of June which is the proper way of cancelling any written medication which still can be read but has been cancelled.

(c) Communications with Raychel's family about her condition, diagnosis, and care and treatment.

No further comment

(d) Working arrangements within the surgical team and support for junior doctors.

No further comment

(e) Lessons learned from Raychel's death and how that affected your practice at Altnagelvin or elsewhere.

No further comment

(f) Current Protocols and procedures.

No further comment

(g) Any other relevant matter.

No further comment

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

Signed: Ragai A Moher **Dated: 01-11-2012**