GEORGE FOSTER MD FRCS
Consultant General, Gastrointestinal and General Paediatric Surgeon

Supplement to my report: 'An analysis of the surgical care of Raychel Ferguson at the Altnagelvin Hospital Londonderry from June 7th to June 10th 2001'.

Written after study of various witness statements delivered to me between December 12th 2012 and January 15th 2013 at the request of the Inquiry into Hyponatraemia related deaths in Northern Ireland.

This supplement deals only with further information available following a study of the latest witness statements answering specific questions submitted by the Inquiry.

I will not refer to witness statements that are largely unchanged from those I had previously referred to in my main report (March 2012).

1. Statement of Marie Ferguson (WS020-/0201, December 13th 2012).

1.1 Mr and Mrs Ferguson refer to and recall only one doctor seeing Raychel in A&E on the evening of June 7th 2001. In fact the records clearly confirm an initial assessment by an SHO in A&E, Dr B Kelly at 20.00 when a diagnosis of appendicitis? was made. Cyclimorph, a commonly used combination of cyclizine and morphine, 2mgs intravenously was administered at 20.20 by Dr Kelly before Raychel was seen by the surgical SHO Dr R Makar (020-006-010, 020-007-011) I have commented on these events in my main report (5.1, 5.2, 5.3). Mr Makar confirmed the administration of the Cyclimorph in his latest witness statement (WS-022/2, Page 13). It is notable that Mrs Ferguson makes no reference to Dr Kelly in her statement.

1.2 Mrs Ferguson is clear in her statement that after the Cyclimorph injection pain relief was almost immediate, by the time Raychel reached the children's ward 6 she was pain free.

The immediate effect of the injection suggests to me that Raychel's pain was not due to inflammatory causes but was more likely visceral in origin. The most common reason for this in a child would be simple intestinal spasm likely secondary to a degree of constipation. It responded instantly to a powerful intravenous analgesic. Taken together with normal blood tests all this should have prompted a review of the appendicitis diagnosis (main report 5.2, 5.3).

1.3 Mrs Ferguson confirms that Raychel remained pain free when taken to theatre later in the evening around 23.00 (WS020-1 page 4).

1.4 Mrs Ferguson further confirms a delay in the return of Raychel from theatre due to a lengthy stay in recovery. This is covered in my report when it has been suggested this was due to prolonged sedation secondary to opiates.

1.5 Raychel's vomiting throughout the 8th June and deterioration in the afternoon and evening is confirmed once more by her mother. I have covered these events in my main report.

2. Witness Statements from the Nursing Staff.

2.1 I have studied the latest witness statements from the nursing staff on ward 6 and in theatres and have compared them to earlier statements. The latest statements from all nurses (WS048-20/2 to 056/2):

2.2 Confirm repeated vomiting from 08.00 on the 8th June.

2.3 Confirm that volumes were not accurately recorded and that the methods of describing them were entirely subjective.

2.4 Confirm that Raychel's urine output was not accurately recorded.

2.5 Confirm that vomiting was not properly recorded in the episodic care plan or observation sheets.

2.6 Confirm that all nursing staff admit that detailed observation sheets were completed for the 7th June (020-016-031) and the night of the 9th after Raychel's seizure (020-016-032). Observations during the day of the 8th June however were kept on a 4 hourly observation sheet only (020-015-029). There were only four one-line entries between 09.00 and 21.15; only in the 21.15 entries is there a mention of vomiting.

I cannot understand why a different observation sheet was apparently kept for the 8th June when it is admitted that Raychel suffered multiple episodes of vomiting throughout this day. Larger, more commonly used observation sheets, would have allowed the contemporaneous recording of specific events (such as vomiting) and requests for medical visits with times and outcomes from these. More detailed records throughout the 8th would have assisted the nursing staff to detect an ongoing deterioration throughout the afternoon and evening of the 8th. In reality there was so little written down that it would only have been by verbal communication that the nurses would have realised the reality of the clinical situation and it is my belief that this communication was lacking.

2.7 None of the nursing staff were aware of the dangers of electrolyte imbalance in a situation of persistent vomiting. They all considered that fluid replacement with hypotonic solution 18 was adequate to replace these losses.

2.8 It is confirmed by all that no protocol existed on ward 6 for the use of specific fluids in postoperative children.

2.9 It is confirmed that when attempts were made to contact the pre-registration House Officer there was some delay thought due to the presence of doctors in theatre.

In my experience PRHO's do not visit theatres on take days, they look after the wards and clerk in admissions. It would be extremely uncommon for these junior doctors to spend any time in theatres on busy days, as after all they have to cover not just the paediatric wards but also the main wards accepting general surgical admissions.

2.10 It is confirmed that the paediatric staff were available on the ward almost at all times but the nurses did not consult these doctors, as "Raychel's vital signs were stable."

These vital signs were only being recorded four hourly on a vomiting child.

All of the nursing statements confirm to the reader the lack of any formal system to identify a patient whose clinical course fell outside an expected envelope. There was universal complacency that all was well until Raychel had a seizure in the early hours of the 9th June. By that time events were too late. No doctor more senior than a junior house office saw Raychel throughout the day of the 8th when she persistently vomited. This was in spite of the presence of the paediatric team on the wards. The nursing staff have admitted that they did not feel it necessary to consult this team and as I have stated in my main report I am certain if any paediatric SHO had seen Raychel they would have carried out the necessary investigations and detected a developing hyponatraemia.

In a ward with junior house officers first on call for surgical children a safety net should have been experienced nurses. In my view in this case the safety net was seriously defective. On these issues, however, I defer to the views of a nursing expert.

Witness Statements of Doctors. I will discuss these more or less in the order that Raychel saw various doctors after arriving at the A&E Department at Altnagelvin Hospital on the evening of the 7th June 2001.

3. Witness Statement of Dr B Kelly (WS 25/1)

I received this witness statement on the 15th January. Dr Kelly was the SHO on duty in the A&E department who saw Raychel on the evening of the 7th June 2001. He wrote a note (020-006-010), which I have discussed in my main report. In this I had misread the name and signature as Dr Bhilly (not surprising considering the writing) and have corrected this.

3.2 Dr Kelly had qualified from Queens University Belfast in July 1999. He did junior house jobs at Victoria Hospital Blackpool. These jobs comprised three four-month periods of surgery, medicine and general practice. He started a two-year GP training SHO attachment at Altnagelvin Hospital in August 2000. Initially he worked in geriatrics for six months commencing six months as an A&E SHO in February 2001. His experience at working with children after qualification was limited to his 4 month GP PRHO attachment and the four months he had spent in A&E up to June 2001 (WS-25/1 page 2).

3.3 Dr Kelly confirms that he saw Raychel on June 7th and that he wrote in the A&E notes a note timed at 20.15 (020-006=010). He describes (WS-25/1 page 4) a history of a sudden onset of abdominal pain at 4.30pm. It should be noted from previous reports that after this Raychel had had her supper at around 5.00pm. Her pain had increased in severity and whilst nauseated she had not vomited. He wrote that Raychel described pain on passing urine. Raychel was noted to have a normal temperature and blood pressure. Dr Kelly found her to be tender in the right iliac fossa with rebound tenderness and guarding. As the tenderness was maximal over McBurney's point Dr Kelly suspected appendicitis.

McBurney's point is a well-described landmark on the abdominal wall one third of the way along a line between the right anterior superior spine and the naval. It is supposedly the surface marking of the appendix. Whilst tenderness in this area is found in appendicitis in truth the site of the appendix is variable and use of this sign as a diagnostic indicator is highly limited. In addition and more important it is vital to take care in interpreting clinical signs such as guarding and rebound tenderness in children. Classically guarding and rebound signify peritoneal inflammation with a tensioning of the abdominal wall muscles over inflamed peritoneum. Small children often tense their abdominal muscles voluntarily and such findings particularly in the face of a short history and normal vital signs requires considerable experience (and usually repeat examinations) and it is unfortunate that in this case Dr Kelly came rapidly to the diagnosis of possible appendicitis (see my main report).

Blood was taken for testing and a urinalysis performed in line with standard practice. Dr Kelly noted that he requested a surgical opinion and prescribed and administered intravenous Cyclimorph (a commonly used combination of Morphine and Cyclizine) 2mgs. This is a very powerful analgesic and as I have stated in my main report would highly likely cause difficulties in evaluating symptoms and findings later on. If Dr Kelly was concerned at Raychel suffering severe pain and symptoms he could have prescribed simple Paracetamol (either as oral syrup or by suppository).

3.4 In his statement (WS-25/1 page 4) Dr Kelly confirms that he was suspicious of appendicitis:

If he was unsure he should not have administered such a powerful analgesic as intravenous Cyclimorph. Dr Kelly states that he could not give oral analgesia as an operation might be needed (WS-25/1 page 5). I cannot accept this, a small amount of syrup would have no implication from an anaesthetic point of view and in reality as Raychel had eaten only at 17.00, one would have to have allowed for a 6 hour pre-anaesthetic delay in any case. Thus any surgery if required would not take place until 23.00 at the earliest. I cannot remember when I last saw an appendicectomy delayed because of recent feeding. Invariably children with appendicitis had last fed well outside the 6 hour rule (see 5.4).

3.5 Dr Makar in his witness statement to the PSNI (098/009/021) confirmed that the Cyclimorph had been given before he saw Raychel and confirmed this once again in his most recent witness statement (WS-022/2).

The administration of a powerful analgesic before Raychel was seen by a surgeon and within little more than 15 minutes of her arrival at A&E is much to be regretted. If Raychel was in very severe pain then such a prescription as this should only have been administered if sanctioned by the senior clinician in A&E at the time: I presume a consultant or SPR.

3.6 In spite of being the first clinician to see Raychel at Altnagelvin Dr Kelly was not asked by the Trust to participate in any learning event or inquiry after the death of Raychel.

3.7 *Dr Kelly had limited experience of paediatrics at the time of examining Raychel Ferguson and when he suspected appendicitis it is to be regretted that he administered a powerful intravenous analgesic before Raychel was seen by a surgeon. This triggered events that led to surgery later on the evening of June the 7th.*

4. Witness Statement of Mr Ragai Redar Makar FRCS (WS-022/2)

4.1 Earlier witness statements from Mr Makar FRCS, SHO in surgery, are referred to in my main report. These were a little short in detail and it is only on the 10th January 2013 that I received a much longer and detailed witness statement in which Mr Makar explains much more fully his role in the treatment of Raychel. He also supplies some (but still incomplete) details of his CV. It should be noted that Mr Makar was the most senior surgical clinician to see Raychel when she attended the Altnagelvin Hospital and he thus played a pivotal role in decisions regarding her management and treatment.

4.2 In 2001 Mr Makar had been qualified for 13 years having graduated in 1988 from a respected medical school in Cairo. Before leaving Cairo he underwent surgical training at the Al Shams Medical Centre and when he came to the UK in 1999 he passed the FRCS qualification in the December of that year. His

junior surgical posts in Cairo had qualified him to take this examination. In addition he passed in January 2001 the Part 1 MRCP examination.

4.3 Mr Makar started as surgical SHO at Altnagelvin Hospital in August 2000. In June 2001 his immediate surgical experience in relation to appendicectomy was some 40 appendix operations on adults and children since commencing duties as surgical SHO at Altnagelvin in August 2000 (WS- 022/2 page 3).

4.4 This witness statement contains no details of posts held by Mr Makar after June 2001 apart from detailing his present post as registrar in transplant surgery at the Churchill Hospital Oxford. Mr Makar is still a junior doctor 23 years after qualifying and 13 years after obtaining the FRCS. It should be noted that after this time interval trainee surgeons following a normal Royal College of Surgeons recognised training program would by this point have obtained a Certificate of Completion of Surgical Training (CCT) and likely a consultant post.

4.5 Mr Makar like many junior surgeons in the UK had not been involved in a formal surgical training of the sort that would lead to a CCT. Normally at SHO level a junior surgeon would train for up to 3 years and thereafter obtain an SpR post for a further 6 to 7 years. This would involve general and specialist training leading to a completion certificate which would give he or she the eligibility to apply for consultant posts. The numbers of these higher surgical training posts are strictly controlled and administered by a Regional Postgraduate Deanery assisted by a Regional Advisor in Surgery and a Program Director who would ensure that trainee surgeons rotated through an organised program designed to expose a young surgeon initially to the generality of surgery and later to specialisation in a recognised specialty within general surgery. There are not enough of these posts and with numbers strictly controlled there are too few of them to fully staff busy hospitals. If a Hospital only employed higher surgical training juniors they would not be able to fulfil their rota obligations particularly in these days of European Working Time directives. It thus follows that around 30% of junior posts held in hospitals throughout the United Kingdom are held by doctors not following formal surgical training programs. These doctors move from one junior job to another with little control of direction or of vision. In addition there is little formal assessment and feedback for them. This may have been the case at Altnagelvin as I note that none of the the surgeons involved in Raychel's case, Mr Makar, Dr Zafar and Mr Bhalla were formal trainees. Dr Bhalla for instance in 2001 had been qualified 26 years (see section below). It would in this regard be useful to know something of the structure of surgical training at the Altnagelvin Hospital and its control by the Postgraduate Deanery. A proportion of the surgical juniors in a Hospital such as this must have been formal trainees.

5. Specific decision making by Mr Makar in relation to Raychels's surgery (WS 022/2 page 13).

5.1 Mr Makar recalls Cyclimorph 2mgs being given prior to him seeing Raychel. In answer to the question 'should the Cyclimorph have been deferred until after surgical assessment' he states 'no as it should not mask the peritoneal signs of appendicitis or peritoneal irritation'.

This is exactly what a powerful analgesic given intravenously would do. I have already referred to difficulties in assessing children with abdominal pain and I believe Dr Makar was likely not greatly experienced in this field, as his exposure to children was not great. As I have mentioned in my main report I believe that after the administration of an analgesic such as Cyclimorph intravenously he would have been prevented from making an accurate assessment only a little over 3 hours after the onset of pain in this little girl. It should be noted that in her statement (WS 020/1) Marie Ferguson confirms an almost immediate improvement in Raychel's symptoms after the injection had been administered.

5.2 I find it difficult to accept the answers to section 13a of the witness statement (page 13).

- Dr Kelly did not note movement of the site of pain.
- Tenderness, guarding and rebound are extremely difficult to clarify in a child.
- I cannot accept the argument of an obstructed appendix in a patient with no systemic signs of inflammation. It is not possible to diagnose a faecolith in an appendix preoperatively
- The pain was not increasing in severity, after the injection it improved and almost disappeared.
- The dysuria noted by Dr Kelly and recorded in the notes together with finding of protein on urine testing is not mentioned by Mr Makar.

5.3 Continued reference to obstructed appendix (020-007-012).

The term 'obstructed appendix' is one that I personally never use. I believe Mr Makar was using it retrospectively to justify operating on a child with a very short history of pain. After all one should bear in mind that Raychel was in a hospital where repeated examinations and vital sign recording could be done. Blood tests (all initially normal) could be repeated when required and imaging done if necessary. Proteinuria had been noted and urine microscopy should have been performed. When I worked as a Registrar in Paediatric Surgery I was taught the importance of repeating examinations of children with abdominal pain thought due to appendicitis.

5.4 Mr Makar intended to operate at 23.00 or so, a time dictated by the need for 6-hour starvation after her last food, which was her supper at 5pm. I must say I cannot recall when I have seen an appendicectomy operation having to

be timed by the 6-hour rule. Almost universally patients attending with acute appendicitis because of the nature of the problem have not eaten a solid meal for some time, usually over 12 and often over 24 hours. They may well have drunk fluids but the nature of appendicitis is such that to have eaten a full supper, felt nauseated but not vomited only some 3 hours before a decision to operate on appendicitis is made, is one that I cannot recall. It should be noted by the time 23.00 approached according to her mother's statement Raychel was virtually pain free.

5.5 In my main report I have referred to the NCEPOD (1989) report, which recommends that no junior should operate on a child at night without senior consultation.

It is only in (WS-022/2 page 17) do we learn that Mr Makar did in fact consult the duty SpR who in fact was the Associate Specialist in surgery Mr Zawislak acting down as SrR locum (*a not uncommon situation and suggesting a shortage of SpR's)*. This is the first reference to this doctor in any documentation that I have read regarding this case or in any witness statement including those from the Consultant in charge of Raychel's care Mr Gilliland. There is no reference to Mr Zawislak in any statements given to the PSNI or statements related to the coroner's inquest. Mr Makar in his witness statement confirms that after consultation with Mr Zawislak it had been decided to postpone surgery until morning unless Raychel had been sent for before 23.00. In fact the theatres sent for Raychel Ferguson just before that time and she arrived in theatre at 23.00. Mr Makar went ahead with the operation, which started at 23.30 (020/009/016).

5.6 *There is no contemporaneous note detailing this important discussion between Mr Makar and Mr Zawislak. I cannot understand why this was not recorded and why apparently this discussion with a senior was not known to Mr Gilliland and had not been emphasized subsequently. There is no mention of Mr Zawislak's name as attending any of the meetings at Altnagelvin Hospital after the death of Raychel.*

5.7 If theatres had been 15 minutes later in their timings it seems that the operation would have been deferred until the following day. Overnight observations could have been continued and Raychel would have been reassessed on the morning ward round on the 8th June presumably by Mr Makar himself rather than Dr Zafar who took the round.

5.8 In his witness statement (page 18) Mr Makar confirms that it was his usual practice to inform the on call registrar regarding clinical problems and before taking any patient to theatre. He considered that the registrar would be responsible for communicating upwards from this to the consultant on call if problems were more major.

5.9 He considered (WS- 022/2 page 20) that the Consultants at Altnagelvin had between them taken steps to assess his clinical knowledge and operative skills and recalls that an emergency theatre was in fact available from 1pm on all weekdays (occasionally from 08.00 am).

I am not certain that this is in fact confirmed by Mr Gilliland in his witness statement to which I will refer below. If this were the case however this would satisfy the recommendations made by NCEPOD in 1997.

5.10 It is confirmed that a surgical registrar usually took the morning ward round and most days joined by a consultant (022/2 page 20).

Unfortunately on the morning of the 8th June 2001 the ward round was taken by the SHO on call that day (Dr Zafar). (See 6 below). Neither Mr Zawislak who was on call on the 7th and until 9am on the 8th or Mr Bhalla (see section 9 below) on call between the 8th and 9th attended the round that morning. Mr Gilliland did not attend. In his statement (WS 044/2 page 12) he states that 'in 2001 it was not normal clinical practice for all patients to be reviewed by a consultant or SPR if they had already been seen by an experienced member of staff'. Unfortunately the round was taken by Dr Zafar whose qualifications for this role were debatable. Amongst other problems he had never worked with children before (WS 025/2 page 4).

5.11 Mr Makar confirms that at about 22.00 on the 7th June he was asked by Staff Nurse Noble (ward 6) to change his IV fluid prescription (Hartmann's prescribed in A&E) to solution 18 as 'this was ward protocol'. He recalls in his statement being told that Hartmann's solution was not kept in paediatric ward 6 (WS 022/2 page 6).

5.12 Mr Makar considered that the paediatric medical team (WS 022/2 page 22) were involved in the prescription of intravenous fluids for surgical cases. Dr Zafar also thought this (WS 025/2 page 18).

It is to be regretted that both surgical SHO's thought that intravenous fluid prescribing for surgical children was the responsibility of the paediatricians. This was clearly not the case and I cannot understand why they did not know this.

5.13 In his statement Mr Makar describes his calculation of intravenous fluid requirements for Raychel (WS 022/2 page 7) that it should be recalled was for Hartmann's solution and Mr Makar considered that fluids would only be required for some 4 hours or so. He states that he realised 80mls per hour was an over calculation but thought it reasonable to do this to make up for fasting and dehydration.

I would not argue with this for short-term fluids but it is inexplicable why the calculation remained unchanged for 24 hours.

5.14 On Page 7 of his statement Mr Makar describes visiting ward 6 on the morning of the 8th June and speaking to Raychel's father. He noted Raychel to be pain free and considered that this confirmed that her severe preoperative pain was surely due to an obstructed appendix with a faecolith

In fact Raychel was nearly pain free when she went to theatre. Mr Makar could not have been able to assess the severity of her pain preoperatively as I have mentioned on more than one occasion she had already received 2mgs of Cyclimorph intravenously.

5.15 He did not examine Raychel as she looked well and had already been seen by Dr Zafar the SHO on call for the day. He did not discuss the case with Dr Zafar and continued with his duties elsewhere until 13.00 on the 8th June when he went off duty.

It is to be regretted that no formal arrangements for hand over existed. In my hospital in 2001 the morning ward round was accompanied by the team that were on call the night before plus the new team for the day ahead. It was usually consultant led and if not certainly led by a senior SPR. A proper hand over was performed particularly of children, the ward round always started on the children's ward.

6. Witness Statement of Dr Mohamed Zafar (WS - 025/2 15th November 2012)

6.1 Like Mr Makar, Dr M H Zafar was another example of a long term peripatetic junior doctor attached to no formal surgical training rotation. He had qualified in Russia in 1984 (only 1 year after Mr Gilliland himself). He came to the UK in 1993 working as a registrar in cardiothoracic surgery until 1998 when he became an honorary SHO in Manchester (*I do not know what is meant by honorary, was this a supernumary unpaid post?).* Dr Zafar came to Altnagelvin in February 2001 working there until the 30th July 2001. *This is an odd timing, was this, in fact, a locum post* He is now, 11 years later, a clinical research physician at the Surrey Clinical Research Centre, University of Surrey. Dr Zafar's witness statement does not tell us what appointments he had between July 2001 and his present job in Surrey. <u>This was his first job working with children</u> (WS 025/2 page 4). According to his witness statement Dr Zafar's qualification in June 2001 was MD (presumably from his Russian Medical School). Although Mr Gilliland in his statement (WS 044/2 page 12) describes Dr Zafar as FRCS there are no details anywhere of this qualification in Dr Zafar's statement.

Dr Zafar had worked at Altnagelvin for 4 months before June 2001 and his qualifications are uncertain. I cannot see how he could be considered by a selection panel as an appropriate candidate for the post of SHO in surgery in a

busy hospital such as Altnagelvin. He had no experience of children before this job, he cannot have had extensive operating experience and he should not have been an SHO on call to junior house officers looking after surgical children. I really cannot see how this situation was allowed to arise. One has to ask how these SHO posts were inspected by the Postgraduate Deanery or its representatives and was the hospital in general visited by the Royal College of Surgeons Specialist Advisory Committee (SAC) members. This doctor through no real fault of his own had been placed in a vulnerable position.

6.2 Dr Zafar recalls receiving no training or an induction on starting work at Altnagelvin in February 2001.

6.3 He thought that on the children's ward the paediatric team prescribed intravenous fluids (WS 025/2 page 5).
(Mr Makar of course also thought this was the case). Mr Makar however accepts that the RHO's/SHO's/SPR's in surgery were responsible for providing advice regarding paediatric patients on the ward.

6.4 Dr Zafar describes the surgical team on call as responsible for attending the morning post take ward round. These rounds were attended by the JHO/SHO/SPR and he states 'sometimes the consultant'.

6.5 On the 8th June Dr Zafar (with 4 months experience as an SHO) was solely responsible for this important round (no consultant or SPR was present).

This is entirely unsatisfactory and unsafe and evidence of disorganisation of the surgical services at the Altnagelvin Trust.

6.6 Dr Zafar thought Raychel was well when he saw her on the morning of the 8th and advised that she start oral fluids: Thereafter her intravenous input could be stepped down if all was well.

This was reasonable advice but I do not believe Dr Zafar was experienced enough to understand the importance of checking the charts (he would have detected vomiting if he had) and making a decision about possible blood testing and future important observations. He apparently did not know about the proteinuria detected in Raychel's urine testing the evening before. Dr Zafar did not speak to Mr Makar a considerably more experienced SHO. He could not recall giving the nursing staff specific advice on fluid management and the possible modifications through the day (WS 025/2 page 10). He gave no specific directions to the nurses as to who to contact if there were problems.

6.7 Dr Zafar did not see Raychel again until over an hour after her seizure on June 9th, he could not attend earlier as he was busy in A&E.

However Raychel by that time was being attended by paediatric and anaesthetic consultant led teams and I cannot see what Dr Zafar's input could have added.

6.8 Dr Zafar does not recall any steps taken by senior staff to ensure that he could carry out his duties without supervision (WS 025/2 page 5). Clearly there was little supervision of Dr Zafar throughout the 8th of June 2001.

6.9 Dr Zafar thought that much of the day to day care of paediatric surgical patients including prescribing was organised by the paediatric team (WS 025/2 page 18). Dr Zafar thought he was aware of the NCEPOD recommendations of 1989 (WS 025/2 page 22).

6.10 He was not asked to take part in any learning processes or discussions after Raychel's death.

7. Witness Statements of The Junior Anaesthetists. Dr V J Gund and Dr Clare Jamison (WS 023/2 and 024/2)

7.1 I have discussed anaesthetic input to the case in my main report (6.1).

7.2 Drs Gund and Jamison were experienced SHO's on formal SHO training rotations. Although they were not aware of the NCEPOD recommendations of 1989 they state that it would have been normal practice to inform the Consultant on call of a child on the emergency list (WS 024/2 page 5).

7.3 Both anaesthetists considered their preferred postoperative intravenous fluid for a child would be Hartmann's solution. (Dr Gund WS 023/2 page 10).

7.4 As a non-anaesthetist the only concern I have regarding the anaesthetic care of Raychel was a comment made by Dr Gund (WS 020-009-017) regarding "prolonged sedation due to opioids "in recovery. My understanding is that Raychel remained in recovery for at least an hour after completion of her appendicectomy. This caused some anxiety to her parents to which I have referred. Raychel had been given 2mgs of Cyclimorph in A&E at 20.20 and according to the anaesthetic record sheet a further amount in theatre (? ½ ml ? 5mgs). In view of the strong possibility that an element of Raychel's vomiting might have been opiate induced it is essential to know the views of an anaesthetic expert on this matter.

8. Witness Statements of the PRHO's (including SHO in paediatrics Dr Butler)

8.1 I have dealt in detail with input from these doctors in my main report (9.4).

8.2 Dr Butler re-prescribed Solution 18 when asked by the nursing staff. She admits she did not check the rate of infusion or see Raychel but the nurses

expressed no concerns to her. She is certain that if they had done so she would have seen Raychel (WS 026/2 page 7).

8.3 Dr Devlin prescribed an antiemetic Odansetron on the 8th and noted Raychel to be vomiting when he saw her (WS 027/2 page 8). He believed this to be around 17.00 to 18.00. He did not examine Raychel and made no note in the clinical file. The nurses expressed no concerns to him.

8.4 Dr Curran was asked to see Raychel at about 22.00 on the 8th after further vomiting including the vomiting of coffee grounds. From his witness statement (WS 028/2) it is not clear whether or not he was told of the vomit that had contained blood. He recalls examining Raychel and administering intravenous cyclizine. The nurses expressed no concerns.

These were junior house officers who had no experience of paediatrics. They should not have been first on call for surgical children. They were busy looking after all new surgical admissions and patients on the wards. It is much to be regretted that at 22.00 Dr Curran did not himself realise that nearly 24 hours after surgery something was abnormal in this little girl. I believe he should have done and he should have contacted his senior colleagues or discussed Raychel with one of the paediatricians. The nurses should certainly have expressed their concerns to him and insisted that he seek senior help. It is at this point that the nursing presence as a safety net of care failed, as at 22.00 I believe there was just still time to retrieve the situation.

9. Witness Statement of Mr Naresh Kumar Bhalla FRCS (WS 034/2)

Dated' 15th August 2012

9.1 Mr Bhalla was the SPR on call from the morning of June 8th until the morning of June 9th. He was, therefore, available for advice on the 8th when Raychel was vomiting and on the night of the 8th/9th when she had her seizure. Like Mr Makar and Dr Zafar he was not in a recognised training post but was a very experienced doctor having qualified in 1975 (8 years before Dr Gilliland himself). He had trained in surgery since qualification and possessed the FRCS (Glasgow). He states that he had regularly taken care of children (WS 034/2 page 2). Although he took over on call on the morning of the 8th there is no evidence that he attended the morning ward round on the 8th. (Neither did the SPR on call the night before, Mr Zawislak).

9.2 Mr Bhalla never saw Raychel Ferguson at all throughout the 8th and was not aware of her admission and surgery until on the 9th June he was called at 05.00 by a staff nurse from ward 6 (WS 034/2 page 4). He immediately

attended the ward where Raychel was being intensively treated by a consultant led team of anaesthetists and paediatricians.

9.3 Mr Bhalla studied the notes and records but did not inform the consultant on call (Mr Neilly) as he did not consider the immediate problem a surgical one.

I have no doubt that a senior doctor like Mr Bhalla rarely called a consultant as I have no doubt that he was experienced enough to cope with the overwhelming majority of emergencies and probably had as much experience as a junior consultant. However in this case he failed to recognise that he was facing an impending serious clinical incident and because of this he should have informed the consultant on call Mr Neilly and also if possible Mr Gilliland under whose care Raychel had been placed. A doctor as senior as Mr Bhalla would, in truth, almost consider it a loss of face to call a Consultant out of hours. Unfortunately when teams of highly experienced non training grade doctors, are in place this situation does unfortunately allow consultants to disengage from the front line of care as they are very unlikely to be called upon. We do not know the mix of SpR's at Altnagelvin; a proportion must have been part of a surgical training rotation under the supervision of the Deanery in Belfast. These doctors would no doubt have called consultants more frequently and certainly in this situation. It is possible that for practical reasons (distance from the centre, attraction of the posts to trainees, the need to provide mixed skills to suit surgical rotas) SPR jobs at Altnagelvin were difficult to fill and control from the centre. This may be a matter to raise with the Belfast Deanery and the Regional Surgical Advisor in that area.

The failure of Mr Bhalla to contact a senior in the early hours of the 9th June meant that no consultant surgeon at Altnagelvin Hospital was aware of Raychel's admission until after she had died at the Royal Belfast Hospital for Sick Children. This is a very unacceptable situation which must have caused embarrassment and concern at Altnagelvin. Because of this the surgeons should I believe have made it a priority to talk to Raychel's family at the meeting organised in September 2001. Instead no surgeon attended this crucial meeting.

9.4 Mr Bhalla (WS 034/2 page 6) was aware of NCEPOD recommendations and believed that a consultant surgeon should have been consulted and involved before surgery.

At the eleventh hour of course the inquiry has been informed that Mr Makar did discuss the case with Dr Zawislak preoperatively (WS 022/2 page 17).

9.5 Mr Bhalla does not state why he was not present at the ward round on the morning of June 8th 2001.

Mr Bhalla was an experienced doctor and there is no doubt that if he had seen Raychel on the afternoon or evening of the 8th he would have

immediately recognised that there were impending serious problems. I have no doubt that he would have taken immediate steps to correct the situation. Unfortunately he was never informed at all of Raychel's predicament during the day of June 8th.

10. Witness Statement of Mr Robert Gilliland Consultant Surgeon, (WS 044/2): dated 13th July 2012

10.1 In June 2001 Mr Gilliland Consultant General and Colorectal Surgeon was on call at the time of Raychel's admission. She was placed under his care.

10.2 Mr Gilliland commenced as a consultant surgeon at Altnagelvin in August 1997. Between August 1994 to July 1995 he was Senior Surgical Registrar at the Hospital

10.3 Mr Gilliland no longer works at Altnagelvin. In addition to his surgical duties he is also Core Surgical Training Programme Director and was Deputy Head of the School of Surgery in Northern Ireland (2208 - 2011). He is very well placed to assist the inquiry with details of Northern Ireland surgical rotations at both SHO and SPR levels.

10.4 Mr Gilliland was never informed that Raychel had been admitted under his care and did not know of her death until the 11th June. He must have been much distressed by this and will I have no doubt have taken urgent steps to find out why he had not been informed sooner of the death of a child in his care. He does not clarify this in his witness statement. However Mr Gilliland cannot recall why he was not informed at all of Raychel's admission under his care (WS 044/2 page 5).

10.5 In his statement (WS 044/2 page 5) Mr Gilliland states that it is a consultant's responsibility to ensure that anyone delivering clinical care is appropriately qualified to do so.

On paediatric ward 6 doctors first on call for children were junior house officers, they had never done a paediatric job and were also on call for all the surgical wards. The SHO to whom they would report had worked at Altnagelvin for only five months and had never before worked with children. I cannot accept that these doctors were appropriately qualified for the role in which they were placed on the 8th June 2001.

10.6 In relation to the selection process of juniors it is possible that Mr Gilliland, who had been a Consultant for a relatively short time, had no input. In June 2001 he may not have been aware of Dr Zafar's lack of experience for the role in which he was placed. It is also possible that Dr Zafar was acting only as a locum (he started in February 2001 and left in July, an odd timing for a substantive job).

10.7 Mr Gilliland states (WS 044/2 page 6) that he was unaware of the NECPOD recommendations of 1989 that juniors operating on children should not do so without senior advice.

I find this difficult to accept as Mr Gilliland himself had worked at the Royal Belfast Hospital for Sick Children as a registrar in 1992.

10.8 Mr Gilliland seems to think that Mr Makar consulted no person more senior when planning the appendicectomy (WS 044/2 page 7).

Mr Gilliland clearly was not aware of the discussions held between Mr Makar and Mr Zawislak. After the death of Raychel he discussed the case informally with Mr Makar (WS 04/2 page 9) when the discussion between Makar and Zawislak must surely have been raised. Unfortunately no contemporaneous notes were made either of the meeting between Mr Gilliland and Mr Makar to discuss the case or indeed of Mr Makar's discussion on the evening of the 7th June with Mr Zawislak.

10.9 Mr Gilliland throughout large parts of his witness statement tries hard to justify the performance of an appendix operation late at night without apparent senior input.

He does not need to justify this as he was never informed about it.

10.10 Whilst he states that proteinurea can be seen in appendicitis (*usually in adults I emphasize*) Raychel did not have appendicitis.

10.11 Mr Gilliland does not tell us why he did not attend the ward round on the morning of the 8th and admits that this was done by Dr Zafar 'FRCS' who he describes as 'an experienced member of staff'. (WS 044/2 page 12).

Dr Zafar had never looked after children and there is no evidence on his own witness statement that he had the FRCS qualification (WS 025/2) in June 2001.

Mr Gilliland confirms that the consultant on call in the early hours of the 9th was Mr Neilly. In my main report I stated that I thought the consultant on call was Mr Panesar as it is his name that appears on the blood result forms in the clinical file (020/022/044/43) that document the low sodium levels. It is possible that the lab were not up to date regarding the consultant rota.

10.12 Mr Gilliland believed that the consultant on call should have been contacted when Raychel deteriorated (WS 044/2 page 15).

10.13 Mr Gilliland admits (WS 044/2 page 17) that the default IV fluid was solution 18 and that the correct rate of its administration should have been 65mls per hour. He agrees that in the situation of vomiting normal saline or Hartmann's

would have been better management. Mr Gilliland confirms that after the death of Raychel major changes in practice were implemented (WS 044/2 page 19 and 20).

10.14 Mr Gilliland considered that if a child vomited more than twice the SHO in surgery should be contacted. No attempt was made by the nursing staff to do this.

10.15 Mr Gilliland tries hard to demonstrate that the postoperative care given to Raychel was acceptable and it was reasonable that the nursing staff had no concerns (WS 044/2 page 25).

As I have mentioned above he does not need to do this as he was not consulted by anyone. I have no doubt tha tif Mr Gilliland had seen Raychel at any time through the afternoon or evening of the 8th he would have taken immediate action. Mr Gilliland does not need to defend poor management.

10.16 Mr Gilliland stated at the Inquest that he only became aware of hyponatraemia after the death of Raychel (WS 012/038/178).

I can scarcely believe this as Mr Gilliland was a well qualified and respected consultant surgeon.

10.17 Finally Mr Gilliland accepts that prior to June 2001 there was no formal advice given to new members of the surgical team regarding hyponatraemia, postoperative fluid management or record keeping.

10.18 He states that he was not aware in 2001 of the danger of infusing hypotonic fluid in children who had prolonged vomiting (WS 044/2 page 34).

I really don't believe he means this. It is well known that hypotonic fluids may cause dilution. In my hospital when a student firm changed over (about every six weeks) the first tutorial I always gave was one on fluid balance and the use of intravenous fluids as it was a subject not well taught at pre-clinical school. I made certain the students were aware of the dangers of dilution. The matter was also quite fully covered in the basic text books (my main report 8.3).

10.19 On the 3rd September 2001 a meeting took place with the Ferguson family. Mr Gilliland confirms that he was informed of this but did not attend as he did not think he could materially contribute (WS 044/2 page 36).

Raychel had been admitted under his care. She did not have appendicitis. Mr Gilliland should have been there and spoken to the family, ideally he should have arranged to meet them sooner. I believe he must regret this omission.

10.20 As a final matter it should be noted that Mr Makar states that an emergency theatre was available at Altnagelvin on week days (WS 022/2 page 2) Mr Gilliland states that this was not the case (WS 044/2 page 8).

General Comment

1. Each Witness Statement in my file contains the question; "Prior to 9th June 2001: State your knowledge and awareness of the cases of Lucy Crawford, Claire Roberts, or Adam Strain and the issues arising from these cases".

None of the witnesses, all of whom had taken part in the care of Raychel, had any knowledge of these cases all of which involved deaths in which hyponatraemia had been implicated. They had all involved the use of hypotonic 1/5 normal saline, solution 18. It must be a matter of great regret that because details of these cases were not circulated hypotonic intravenous fluids remained in common use. It was only after the death of Raychel Ferguson that widespread changes took place in the post operative fluid management of children.

21 January 2013