SUPPLEMENTARY REPORT ON RAYCHEL FERGUSON, Prepared for the Inquiry into Hyponatraemia Related Deaths in Northern Ireland (amended 22ndJanuary 2013)

By: Dr Simon R. Haynes, Consultant in Paediatric Cardiothoracic Anaesthesia and Intensive Care, Freeman Hospital, Newcastle upon Tyne NE7 7DN, UK

Signed: 22nd January 2013 22nd January 2013

1: <u>Instruction</u>: This supplementary report is provided following a request from the Inquiry team to comment on witness statements which were not available at the time of my first report on Raychel Ferguson dated 14<sup>th</sup> December 2011.

These witness statements comprise the following:

- 020/1 Marie Ferguson
- 21/1 Raymond Ferguson
- 22/2 Mr Makar
- 23/2 Dr Gund
- 24/2 Dr Jamieson
- 26/1,2 Dr Butler
- 27/2 Dr Devlin
- 28/1 Dr Curran
- 28/2 Dr Curran
- 30/2 Dr Trainor
- 32/2 Dr McCord
- 33/2 Dr Allen
- 38/2 Dr Crean
- 39/2 Dr Hanrahan
- 44/2 Mr Gilliland
- 48/2 Ms Patterson (Staff Nurse)
- 49/2 Ms Noble (Staff Nurse)
- 51/2 Ms McAuley/Rice (Staff Nurse)
- 52/2 Mrs Roulston (Staff Nurse)
- 53/2 Ms Gilchrist (Staff Nurse)

54/2 Ms Bryce (Staff Nurse)56/2 Ms Millar (Ward Sister)

2: <u>Input of senior medical staff and experience of those involved in Raychel</u> Ferguson's care while in Altnagelvin Hospital 7<sup>th</sup> – 9<sup>th</sup> June 2001.

Raychel was not seen by a consultant of any speciality from the time of her admission on 7<sup>th</sup> June until after she had had a fit on 9<sup>th</sup> June. In my initial report I drew attention to this (page 3). The statements provided give insight to the experience of some of those involved.

<u>Dr Gund:</u> although working as an SHO at Altnagelvin was actually a considerably experienced anaesthetist by June 2001, having completed 5 years in the speciality in India, including 3 months in a children's hospital in India. He had been at Altnagelvin for approximately 4 weeks prior to anaesthetising Raychel. It is my opinion that the main difficulty he would have encountered would have been lack of familiarity with the working environment of a UK hospital rather than lack of practical skills or theoretical knowledge. Before being allowed to be on call at SHO grade without direct supervision there should have been some discussion – albeit brief – amongst consultant staff to confirm his abilities, which on paper are more than adequate. I emphasise again that Dr Gund initially made an appropriate prescription for Hartmann's solution which was then rescinded.

<u>Dr Jamieson</u>: she was actually less experienced than Dr Gund, but familiar with the working environment of a UK hospital. She states "it would have been normal

practice to let the on call consultant be aware of a child on the emergency list" (WS 024/2 p6). It is my opinion that the arrangements for the provision of anaesthesia per se in a 9 year old for a straight forward operation on 7<sup>th</sup> June 2001 at Altnagelvin Hospital were satisfactory, assuming that the consultant on call a: was confident in the capabilities of Drs Gund and Jamieson, and b: that he/she had been informed of Raychel's case prior to her being taken to the operating theatre.

<u>Mr Makar</u>: Mr Makar's statement (022/2) describes his surgical experience, which is considerable. Notably he had passed the FRCS examination in 1999, and had considerable experience of general surgery in children. He states that he had not received instruction whilst at Altnagelvin on decision making with regard to operating on children out of hours (p4). On page 17 he gives his reasons for proceeding with Raychel's appendicectomy on the night of admission. It is clear that he has an understanding of the need to give isotonic fluids postoperatively (p6).- yet allowed his prescription to be countermanded. I note that he estimated Raychel's weight. Although it is a reasonable estimate for a 9 year old, the fact that she was not automatically weighed on admission either to A/E or to the ward is unusual and is not good practice. In paediatric wards one of the first tasks on admitting a child – especially for surgery, is to obtain an accurate weight.

Mr Zafar who was on call on 8<sup>th</sup> June and Mr Gilliland also held FRCS qualifications. The first part of the FRCS examination requires knowledge of physiology, including fluid and electrolyte balance. The Inquiry may wish to confirm with the Royal College of Surgeons (of England, Ireland, Glasgow and Edinburgh) that knowledge of this topic is expected for the Fellowship examination). I have already provided the Inquiry with a reference from a standard textbook of physiology covering this topic

(204-004-292 to 305) in reference to Adam Strain. One of these principles is that abnormal fluid losses (eg vomit) should be replaced with isotonic solutions. I have previously furnished the Inquiry with 2 references from standard textbooks of anaesthesia published in 1993 (204-002-127 to 139) and 2008 (204-002-107 to 126) which emphasise the need to replace electrolytes when replacing fluid losses.

Mr Gilliland: I wish to comment on his witness statement. (044-2).

- He had spent a total of 15 months during his training involved in the care of children; during this time he would have realised the importance of fluid and electrolyte balance in paediatrics.
- P5 "there was no formal protocol for ensuring that the on-call consultant was informed of all patients under his care at that time". " It was normal practice for the Consultant to be informed the following morning of patients admitted under his care....." and P3 " I was the on-call surgeon from 9am 7<sup>th</sup> June until 9am 8<sup>th</sup> June 2001". This leads me to believe that Mr Gilliland never knew that Raychel had been admitted, was not on call the following day, and in fact took no direct responsibility for her care. (This is my interpretation from of the information made available to me and if the truth is otherwise, I will retract the preceding sentence). There is no mention of handing over responsibility for her to a consultant colleague, nor is there mention of any formal expectation of handover at trainee level. I am surprised that Mr Gilliland did not carry out a ward round to review the patients admitted under his care following the 24 hours leading up to 9am on 8<sup>th</sup> June 2001. There had been two children and 18 adults admitted during the 24 hour period it had been busy (p36). It is my opinion that it would have been both prudent and

standard practice in 2001 for a consultant to review on at least one occasion, all patients admitted under his care; especially a child when paediatric surgical practice in the hospital was occasional.

- P5 "The on-call consultant would oversee the totality of the patient's care". I am unclear whether or not Mr Gilliland saw Raychel during her stay in Altnagelvin
- P6 deals with the NCEPOD 1989 Report. Equally pertinent in my opinion is the 1999 NCEPOD report referenced in my initial report on Raychel; this states on page 39 – 40 "when a child is about to undergo a surgical procedure in theatre, the appropriate consultant must be informed".
- P35. Mr Gilliland did not attend the meeting with the Ferguson family convened by the Chief Executive. In his own words "he was responsible for the totality of her care" If that was the case it is my opinion that he should have attended that meeting.

## 2: <u>Experience of medical staff available in ward 6 to deal with Raychel Ferguson</u> <u>during her admission</u>

The impression given from the various witness statements is that the first tier of medical support for the general surgical patients in the Children's ward at Altnagelvin was the on call JHO, who would have had no formal paediatric experience at post graduate level. The JHO would mainly be involved in the care of adult surgical patients and would have very little involvement with children. This put these inexperienced doctors in a difficult situation; rather than examine Raychel and draw their own conclusions, the expectation of the nursing staff was that they should simply prescribe anti-emetic medication rather than give thought to the possible reasons why Raychel was still vomiting during the daytime on 8<sup>th</sup> June 2001. Dr

Devlin states (027/2 P 3) "As a surgical JHO one would sometimes have been on the paediatric ward as part of the surgical team only. Much less time would be spent on paediatric wards than general surgical wards".

By his own admission Dr Devlin was out of his depth, and it is my opinion that more experienced advice should have been sought about Raychel's condition during the afternoon or evening of 8<sup>th</sup> June 2001.

# 2: <u>Responsibility for post-operative intravenous fluid prescription in children at</u> <u>Altnagelvin Hospital.</u>

As stated in my previous report, Dr Gund initially wrote an appropriate prescription (Hartmann's solution) for the immediate post-operative period – which he knew to be correct. This was altered. Why was this so? Scrutiny of the relevant witness statements shows that prior to Raychel's death there was lack of clarity about responsibility for this.

- 023/2 P4; Dr Gund states "I was instructed by Dr Jamieson to cross it off"...."reason I was given was that fluid management on the paediatric ward is managed by the ward doctors". (ie paediatric team)
- P9: Dr Gund states that he expected fluid prescription to be part of patient management carried out by the surgical team.
- 024/2 P7: Dr Jamieson states that she was not aware who actually prescribed fluids for Raychel during the post-operative period.
- 026/1 p2: Dr Butler states that "The policy at the time in Altnagelvin....was that if paediatric patients required fluid the fluid prescribed was solution 18". It is my opinion that this statement gives no consideration to the fact that

children may require fluids for differing reasons – either as "maintainence" because oral intake was not possible, or to replace abnormal fluid losses, and that there was little or no consideration of the need to maintain electrolyte as well as fluid balance.

O26/2: Dr Butler's second witness statement draws attention to several issues which I believe should be addressed; p4 para 4a first part "I do not remember having any advice, training or instruction with regard to hyponatraemia, postoperative fluid management or record keeping regarding fluid management." It is unclear whether she is referring simply to her experience at Altnagelvin, or if she is including undergraduate teaching or other postgraduate experience when making this statement. Regardless, it is my opinion that this demonstrates that inadequate importance had been attached to fluid and electrolyte management in the paediatric ward by senior staff at Altngelvin prior to Raychel's death. .

The second part of this paragraph states "I am aware that I *knew* that urea and electrolytes needed checked daily on paediatric patients on ongoing intravenous fluids and recorded on and acted on if necessary....." Given that Dr Butler *knew* that this was the case, it is my opinion that even if this test had not been carried out, Raychel's further need for intravenous fluids meant that electrolyte assay should have been done at some point during the 8<sup>th</sup> June. It is my opinion that the lack of a clear line of responsibility for postoperative paediatric surgical patients mitigated against this test being carried out in a timely manner.

Dr Butler did not perform a calculation (p5) to check the fluid administration rate to Raychel when she prescribed fluid to be continued at 80 mls/hour,

relying on a calculation made by another person for the previous prescription. It is my opinion that the majority of paediatric trainees would always check the weight of the patient and ensure that the correct rate of fluid administration was ordered, and that she should have done so. Equally, although the rate of 80 mls/hour was a little excessive, given that Raychel had lost a considerable amount of fluid through vomiting by this time it may have been an appropriate rate to give fluid at had the fluid been of a different type. Had a different fluid been used (eg Hartmann's, or 0.9% saline), even at an increased rate, then it is likely in my opinion that no harm would have come to Raychel.

It is apparent from other comments in Dr Butler's statements that she was not aware of the extent to which Raychel had been vomiting. Had this been the case, Dr Butler states that she would have asked for Raychel to be reviewed by the surgical team.

- 027/2 P 4. Dr Devlin states "As far as I can recollect JHOs did not write up fluids for children and I cannot recall any specific training offered by Altnagelvin in this regard". I interpret this as Dr Devlin stating that he did not have the necessary knowledge to manage fluid and electrolyte balance in children.
- 028/2 P13 Dr Curran states that he did not know who was responsible for organising postoperative fluid management for paediatric cases.
- 030/2 P3 Dr Trainor states "I was not directly responsible for fluid management. This was undertaken by the surgical team".
- 032/2 P5 Dr McCord states " I am not aware of the exact details but I assume a written fluid balance/IV fluid prescription sheet was returned from theatre

with the patient.

- 033/2 P4 Dr Allen states "I have no recollection of being told who specifically had the responsibility for prescribing intravenous fluids postoperatively to children.
- 044-2 P16. Mr Gilliland states that fluid prescription is in the domain of the surgical team. He also suggests that it was appropriate for Mr Makar to have made a prescription pre-operatively for fluids to be given post-operatively. It is my opinion that in most cases that may have resulted in an appropriate prescription, but not so were unexpected fluid losses to be encountered during the immediate preoperative period. In my opinion such pre-emptive prescribing is not good practice.
- 048/2 P3. Ms Patterson states "pre 2001 any instructions regarding postoperative fluid management would have been verbal advice provided by senior nursing staff in ward 6. .....surgical doctors to prescribe intravenous fluids preoperatively and these fluids were recommenced postoperatively." It is my opinion that this is unsatisfactory practice.
- 049/2 P5. Ms Noble states "I told Mr Makar that Solution 18 was the usual fluid children received and would he change the prescription, and he did."
  Further on Ms Noble states that she had not received an instruction to recommence Raychel on Solution 18 on return from theatre.
- 051/2 p4. Ms Mcauley staets that she had no idea prior to 2001 who was responsible for postoperative fluids. In an earlier statement 051/1 p 3 she "asked Dr Butler, a paediatric SHO to prescribe another bag of Number 18 solution"
- 053/2 p 4. Ms Gilchrist states that she had been advised that it was the

responsibility of the surgical doctors/anaesthetist who was looking after a child to prescribe intravenous fluids.

- 054/2 p4. Ms Bryce "surgical doctors prescribed fluids".
- 056/2 p 15. Ms Millar (ward sister) states that there were no written protocols or guidance for postoperative fluid management and that solution 18 was the preferred choice for as long as she could recall.

My interpretation of these statements is that standard custom and practice had evolved in Altnagelvin such that solution 18 was given to all children requiring intravenous fluids post-operatively, regardless of their underlying condition. The surgical team were expected by the nurses to furnish a prescription for this solution, even though more experienced members of the surgical team might have known otherwise. It thus seems that in practice an inexperienced junior house officer, or in Raychel's case, an experienced surgical SHO, (Mr Makar) would be told by nursing staff - who by their admission in the various witness statements - had not received teaching or training in the necessary physiological principles, to prescribe "solution 18" to children after surgery.

3: <u>Documentation of fluid balance in Raychel. How much did Raychel actually vomit</u> <u>during 8<sup>th</sup> June 2001? Was there an indication for her to have either a urinary catheter</u> <u>or a noasogastric tube?</u>

Firstly, it is not standard practice to insert either a nasogastric tube or a urinary catheter into patients having an uncomplicated appendicetomy. Were the child to be particularly unwell – an example would be a child with a perforated appendix causing peritonitis with associated severe systemic upset, then either or both may be required. It is not normal practice to carry out either of these procedures in a non-anaesthetised

child; if needed, they would be done while the child as anaesthetised at the time of the initial operation.

Secondly, much emphasis is placed by the questions posed to the various individuals, especially nurses whilst writing the witness statements, about the details of fluid balance documentation both generally and specifically in the case of Raychel. The purpose of detailed fluid balance recording is to guide fluid and electrolyte replacement, and to alert staff to any unusual losses eg prolonged vomiting. If fluid and electrolytes are lost in significant quantity, they should be replaced. If the amount lost is known, and the composition of the fluid lost is known then both the amount and composition of the required replacement is known. It can of course sometimes be difficult to measure how much is lost. For example if a patients vomits over the bedding, an estimate of volume lost has to be made. In the vast majority of children following an uncomplicated appendicectomy, where there are not large volume losses of fluid or electrolytes, the body's own mechanisms can compensate for minor shortages or excesses; this is mainly done by the kidneys. To me, the precision of the documentation of Raychel's fluid balance is less important than the recognition that she was continuing to vomit significant amounts throughout the day and into the evening of 8<sup>th</sup> June 2001, and that this persistent vomiting was not a normal course of events after appendicetomy. Each individual nurse may not have seen her vomit on multiple occasions, but collectively there should have been a realisation that this was the case, and that the vomiting experienced by Raychel was unusual.

Thirdly, how much did Raychel vomit? Reading the various nurses' witness statements there were at least 7 episodes and possibly an eighth between 0800h on 8<sup>th</sup>

June 2001 and 0035h on 9<sup>th</sup> June 2001 ( 49/2 p11, 51/2 pp 10,12, 053/2 pp 6, 10). Ms Patterson states that nausea and vomiting was not a problem overnight 7<sup>th</sup>/8<sup>th</sup> June (48/2 p10.). The nurses witness statements thus of 8<sup>th</sup> June combine to give a picture of persistent vomiting throughout the day. The undigested food vomited at 10am (051/1 p3) would have been the meal consumed the previous evening. Gastric emptying would have been delayed by the condition causing the abdominal pain which led Raychel's parents to bring her to hospital, by diminished bowel motility caused by surgical handling of the bowel, and by the opioid analgesics given both on admission and during the operation. The witness statements of Raymond and Marie Ferguson are a little less precise with timings but convey the impression that Raychel vomited as frequently as the nurses' records show, but with significant volume, unlike the nursing statements.

Fourthly: why did Raychel vomit as much? As I have stated in the previous paragraph there were reasons for her to vomit overnight and during the early part of the day. These include: the presenting illness, a side effect of morphine given, delayed intestinal motility consequent to handling of the bowel by the surgeon, and the phenomenon of post-operative nausea and vomiting. In my experience postoperative nausea and vomiting attributable to anaesthesia is usually a phenomenon which rarely continues more than 12 hours postoperatively. However a relatively recent review (ref 1) states that it may be troublesome as a secondary phenomenon up to 24 - 48 hours following anaesthesia. As stated in my previous report, rapidly evolving hyponatraemia is also associated with nausea, vomiting, and headache. On balance, it is my opinion that Raychel initially vomited during the day on 8<sup>th</sup> June 2001 because of the factors listed above, but as the day progressed, hyponatraemia developed and

caused the vomiting to persist

4: <u>Education about fluid and electrolyte balance and prescribing in Northern Ireland at all levels (medical school, postgraduate, hospital induction, nursing)</u> It is my opinion that there was ignorance at all levels about the management of fluids and electrolytes amongst all staff at Altnagelvin in 2001. Fluid and electrolyte physiology is part of the undergraduate medical curriculum, and is usually taught early on in the undergraduate course in most medical schools. Knowledge of it is also certainly expected in the first part of surgical and anaesthetic postgraduate examinations. It is clear that Dr Gund and Mr Makar knew what was correct, but neither felt empowered to insist on what they knew to be a correct course of action.

The Inquiry may also wish to ascertain how fluid and electrolyte physiology and management is taught at Queen's University Belfast – most of the junior doctors in Northern Ireland were, are, and will be Belfast graduates.

Before Raychel's death the nursing staff had no training on fluid and electrolyte management, and the junior house officers did not have the necessary knowledge...

Intravenous fluid therapy is one of the commonest interventions in a wide range of hospital patients, especially around the time of surgery. Prior to Raychel's death it was not managed well, with little consideration to maintaining safe practice or adequate thought to potential hazards and pitfalls at Altnagelvin Hospital

#### 5: Were opportunities missed?

Undoubtedly opportunities were missed during the day of 8<sup>th</sup> June 2001 to prevent Raychel's decline and subsequent death. Both nurses and parents in their statements describe her as being up and about, cheerful, and communicative during the morning. She was then troubled by frequent vomiting during the afternoon. By 18.45h on 8<sup>th</sup> June Raychel's father was concerned about her condition, especially by the fact that she did not acknowledge her father, brothers or her friend and was listless (021-1 p7/8). By 9pm she had a severe headache and was unable to stand and her condition had not improved by the time her father left at around 0040h.

It is my opinion that at any point in time from late afternoon onwards the correct course of action was to take a blood sample for electrolyte assay. I think it likely that a low serum sodium level would then have been identified and intravenous fluid therapy altered accordingly to give either 0.9% saline or Hartmann's fluid. Had a suitably experienced doctor (in my opinion that would have been a paediatric or surgical registrar or consultant) seen Raychel , I believe it likely that that course of action would have occurred. Instead, surgical junior house officers were the only doctors asked to review Raychel; and they did not fully understand and appreciate the need for careful fluid and electrolyte management.

It is my opinion that had a blood sample for electrolyte assay been taken in a timely manner and any abnormality been acted upon, then Raychel would have survived. Any number of opportunities were missed, even up to the point when she had a fit. It is my opinion that the situation was reversible even up to the point when Raychel had her first fit at 3.15 am on 9thJune 2001, and possibly even after this. It would have

been irretrievable by the time Raychel's pupils were fixed and dilated and she required manual ventilation. According to Dr Trainor's note, Raychel's condition was such at 0415h on 9<sup>th</sup> June when Dr Trainor attended (020-015-023).

I enclose a reference from 1991 (ref 3) which describes neurological recovery in 41 children with seizures caused by acute hyponatraemia. It is a distinct possibility therefore that had treatment with hypertonic saline been administered when she first had a seizure, that the process might have been halted and she could have made a good recovery. It must be noted that the patients described in this reference were in a specialist paediatric intensive care setting, and that although some of the children having a seizure were as old as 12 years, the average age was 10 months.

# 6: <u>Education regarding fluid and electrolyte replacment in Altnagelvin Hospital</u> following Raychel's death.

As stated in my previous report, everything that could possibly have been done took place within a very short space of time. This is confirmed in particular by the statements of the nursing staff. I have previously commented at some of the frustration experienced by those taking the lead on the problem of hyponatraemia in a wider forum (Drs Fulton and Nesbitt).

#### 8: The management of Raychel when she had a seizure:

In my previous statement I commented on the speed with which it was realised that she had an electrolyte disturbance. I particular I commend Dr Johnson (020-007-013) the paediatric SHO who recognised that the seizure was possibly caused by electrolyte disturbance caused by prolonged vomiting. He clearly realised the urgency

of the situation and contacted his immediate seniors and arranged for a blood sample to be taken. He attended Raychel at 0315h. On reading the Altnagelvin notes again it was then 0415h before Dr Trainor was able to attend, by which time the serum sodium was identified as being 118 mmol/l. Dr McCord was asked to attend, which he did. According to the case notes (020-015-024) the serum sodium was known by Dr Trainor at 0415h when she contacted Dr McCord to have been 118 mmol/l. Even if hypertonic saline had been in the room and given at that point in time it is likely in my opinion that the situation was by then irretrievable. If it had been given prior to the point in time when Raychel's pupils became fixed and dilated, she lost respiratory drive and airway protective reflexes (ie cessation of brain stem function), then it is possible that the situation may still have been recoverable. I believe it unlikely that any of those attending would have had to deal with acute hyponatraemia before. The Inquiry has already ascertained that hypertonic saline was not routinely kept in the paediatric ward at Altnagelvin prior to Raychel's death, although it was held in the hospital pharmacy (316 - 002); as such there would have been considerable delay in obtaining it for administration to Raychel. Mannitol, which would have helped to reduce cerebral oedema may have been more readily available either in the operating theatre or in the accident and emergency department, but again it probably was not available on the paediatric ward (316-002). Even if hypertonic saline were available, it is likely that some searching in a textbook would have had to be made by those attending to establish an appropriate dose - again, the Inquiry could ascertain if ready access to the internet was available at Altnagelvin in June 2001. The British National Formulary (universally used as an aide-memoire by British doctors, both in hospital and general practice is unhelpful). I have previously quoted (with reference to Adam Strain) a reference from a textbook of paediatric anaesthesia published in 1993 (204-

002-135, left hand column, last 8 lines), which suggests a dose, and I include a reference from a more general textbook published in the 1980's which offers vague guidelines (ref 2).

Dr Trainor's decision to administer 0.9% saline at 40 mls/h would not correct such acute hyponatraemia, but would have been helpful had the sole cause been admisistration of excessive free water rather than failing to replace electrolyte loss in vomit.

The initial CT scan report was confusing and unfortunately distracted attention from the correct diagnosis. The expert radiological opinion sought by the enquiry (225-002 p1-7) gives insight as to how this occurred

Although the attending doctors may have seemed hesitant to correct the hyponatraemia, it must be remembered that it was of a severity that none of them would previously have seen. Information regarding the correct dose of hypertonic saline would not have been readily available, but I would have expected Dr Traynor to have to have made some attempt to obtain hypertonic saline to correct the abnormality – even if meant giving an estimated dose and making serial serum electrolyte measurements. By the time Dr McCord attended, the situation was irretrievable. However, assuming that he was informed that the serum sodium was 118 mmol/l he could have instructed Dr Trainor to try and give hypertonic salinme while he was on his way in to the hospital.

There was a delay in attendance of senior staff following Dr Johnson's attendance at 0315h. Given that Dr Trainor was already busy in another area of the hospital it

would have been perfectly reasonable for either Dr Johnson or the nursing staff on his behalf to have contacted Dr McCord at an earlier juncture to have asked him to attend; especially since Dr Johnson had made the correct diagnosis but not unreasonably was unsure of how best to manage the problem.

### References:

- Gan TG. Risk Factors for Postoperative Nausea and Vomiting. Anestheia and Analgeia 2006; 102: 1884 – 98.
- Anesthesia. 2<sup>nd</sup> edition. Edited by Ronald D Miller.Churchill Livingstone 1986. p1308.
- Sarnok AP et al. Management of Hyponatremic seizures in children with hypertonic saline: a safe and effective strategy. Critical Care Medicine 1991; 19 (6) 758 - 762

#### 4. Expert witness declaration

I, Simon Haynes declare that:

1: I understand that my duty in providing written reports and giving evidence is to help the Court, and that this duty overrides any obligation to the party by whom I am engaged or the person who has paid or is liable to pay me. I confirm that I have complied and will continue to comply with my duty

2: I confirm that I have not entered into any arrangement where the amount or payment of my fees is in any way dependent on the outcome of the case

3: I know of no conflict of interest of any kind, other than any which I have disclosed in my report.

4: I do not consider that any interest which I have disclosed affects my suitability as an expert witness on any issues on which I have given evidence

5: I will advise the party by whom I am instructed if, between the date of my report and the trial, there is any change In circumstances which affect my answers to 3 and 4 above 6: I have shown all the sources of information I have used

7:I have exercised reasonable care and skill in order to be accurate and complete in preparing this report

8: I have endeavoured to include in my report those matters of which I have knowledge or of which I been made aware, that might adversely affect the validity of my opinion. I have clearly stated my qualifications to my opinion 9: I have not, without forming an independent view, included or excluded anything which has been suggested to me by others, including my instructing lawyers.

10: I will notofy those instructing me immediately and confirm in writing if, for any reason, my existing report requires any correction or qualification.

11: I understand that:

11.1: my report will form the evidence to be given under oath or affirmation

11.2: questions may be put to me in writing for the purposes of clarifying the report and that my answers shall be treated as part of my report and covered by the statement of truth

11.3; The court may at any stage direct a discussion to take place between experts for the purpose of identifying and discussing the expert issues in the proceedings, where possible reaching an agreed opinion on those issues and identifying what action, if any, may be taken to resolve any of the outstanding issues between the parties.

11.4: the court may direct that following a discussion between the experts that a statement should be prepared showing those issue which are agreed , and those issues which are not agreed, together with a summary of the reasons for disagreeing

11.5: I may be required to attend court to be cross-examined on my report by a cross-examiner assisted by an expert 11.6: I am likely to be the subject of public adverse criticism by the judge if the court concludes that I have not taken reasonable care in trying to meet the standards set out above

12: I have read part 35 of the Civil Procedure Rules and the accompanying practice direction including the "Protocol for Instruction of Experts to give evidence in Civil Claims" and I have complied with the requirements 13; I am aware of the practice direction on pre-action conduct. I have acted in accordance with the Code of Practice for Experts.

Statement of Truth:

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Sum nichagues

Signed: Dr Simon R. Haynes

27ml Jamany 2013

Dated: 22nd January 2013

Dr Simon Haynes MBChB, FRCA