EDUCATION & TRAINING OF THE DOCTORS IN ADAM'S CASE
In fluid management (in particular hyponatraemia) and record keeping

Witness Ref No	Name	Undergraduate	Postgraduate	Hospital Induction	CPD	Experience
116/1, p.3	Dr. Meenakshi Bhat	MBBS from University of Mysore. 5½yr training – fluid management was taught in various modules. Infectious diarrheal diseases are very common in India. Many children and adults are brought to Indian hospitals acutely and severely dehydrated. Fluid management and the correction of electrolytes constitute a large part of every medical student's clinical training. Clinical assessment, documentation, making care plans, calculation of fluid and electrolytes as well as recordkeeping were emphasised.	MD in Paediatrics from Seth GS Medical College and KEM hospital, Mumbai. During 3 year postgraduate training in Paediatrics, hundreds of children of all ages were admitted with severe dehydration and electrolyte imbalance due to diarrheal and other infectious diseases. Management of fluid and electrolyte balance in these children was a core part of the post-graduate Paediatric curriculum and training and workload. Comprehensive management and correction of electrolyte imbalance were undertaken under the supervision of a consultant in Paediatrics. After completing post-graduation, the responsibility of managing children with fluid and electrolyte imbalance was usually the responsibility of	Introduction to hospital polices and protocols was part of the induction in the first 2 days of starting training at RBHSC. Does not recall any specific training in fluid management.	Emergency Paediatrics Life Support course 11/03/96 Advanced Paediatric Life Support course 23-25/07/99 Fluid and electrolyte management for paediatric patients were taught as part of the curriculum of these courses.	10 years of medical practice pre-Nov 1995 – had experience of managing children and adults with dehydration on hundreds of occasions. In more remotely located rural health centres, blood electrolyte levels could not be monitored because of non-availability of these tests. Clinical examination guided management in these situations. In postgraduate teaching hospitals, average of 30-40 children/day admitted, at least a quarter with fluid and electrolyte imbalance due to diarrheal diseases. Many of these children had associated hyponatraemia requiring correction of electrolyte imbalance. Cannot recall exact numbers with hyponatraemia, but a reasonable guess of several dozen aged less than 6 years old.

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			consultants in Paediatrics.			Children with acute severe dehydration usually showed good response to fluid and electrolyte correction. Children with grade IV dehydration with associated chronic illnesses or malnutrition were less likely to have a favourable outcome. Overall, in Indian hospitals, mortality rates of around 5-10% were recorded with severe dehydration and associated severe and chronic illnesses.
117	Dr. Rosalie Campbell	Queen's University, Belfast 1982-1987. Hyponatraemia was taught as part of the physiology course in relation to abnormal electrolytes, causes and treatment. Water intoxication was the term used. Did not describe perioperative fluid management. A high standard of record keeping was always taught as essential but	N. Ireland / West Midlands 1987-1995. Training included calculation of fluid and electrolyte requirements in adults and children, including compensation for illness e.g. burn injuries and high fever. Did not include the fluid management of a child with high output renal failure. Hyponatraemia secondary to glycine absorption in adult patients	No recollection of any hospital induction programme that included hyponatraemia	In more recent years, has attended several lectures and read a number of article on paediatric fluid management including hyponatraemia.	

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		unfortunately the available paperwork often made this impractical e.g. some institutions provided only a carbon stamp for the anaesthetic record with no section for recording vital signs. Improvements in record keeping were already well underway in 1995 but have continued to improve steadily over the last decade.	undergoing prostate surgery (TURP syndrome) was widely taught to anaesthetists and well recognised.			
003/2, p.8	Dr. Jacqueline Cartmill	Queen's University, Belfast 1989-1994	Diploma in Child Health 1996 MRCP part 1 1996 MRCOG 1999 MRCPI (Obs/Gynae) 2000 FRANZCOG 2007 Diploma in Medical Education for the Healthcare Professions 2010	Several during career	Registered with the RCOG CPD programme	Cannot recall details
097/1, p.5	Dr. Jayne Larkin	Queen's University, Belfast Sep 1987-June 1992. Received standard medical education in fluid management and chemical	MRCP and MRCPCH June 1997 – included modules in fluid and electrolyte management, in neonates and children of all ages.	Attended each Hospital induction programme during training period. Would have all included a section on fluid	Consultant since May 2004. Up-to-date CPD records as part of Appraisal process with RCPCH. BMJ e-learning module in	Was aware of risk of hyponatraemia in young children. Would have sought advice in any child with significant electrolyte

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		pathology. Passed the appropriate modules to medical degree standard. Received practical, ward-based education during this period.	Would have covered hyponatraemia specifically-clinical problem that all paediatricians need to be aware of. Certificate of Completion of Specialist Training RCPCH – Jan 04. Signifies completion of paediatric training to a level suitable to apply for consultant posts. Represents significant training and experience, both in fluid management and record-keeping.	prescription and electrolyte management, as appropriate to the time when delivered. Emphasis would also have been put on good communication and record-keeping. Training, monitoring and audit in relation to both these areas of work has significantly improved over course of paediatric career.	hyponatraemia (2010). Paediatric unit at the Ulster Hospital was subject to RQIA inspection in 2010 in relation to training issues and management of fluid balance with particular reference to prevention and management of hyponatraemia in the unwell child. Training was therefore updated at this time. DHSSPS guidelines on paediatric parenteral fluid therapy are followed.	imbalance.
111/1, p.2	Dr. Charles McKinstry	As some stage at Queen's University, Belfast 1974-79	Nothing specific	None	None	Does not recall any.
114/1, p.2	Dr. Jean McKnight	Started paediatrics in Belfast in 1989 - was taught that the maintenance fluid of choice in paediatrics was Solution 18 and that for resuscitation fluid, one should only ever use normal saline or colloids. Also remembers being taught as a junior in paediatrics that if a child was receiving full IV fluid, they should have electrolytes checked daily as a minimum, but more frequently if child was ill or required intensive care. During re-training in PICU, received additional training in fluid balance and management. Teaching has changed considerably over the years – no longer prescribes Solution 18 to a child. Tend to prescribe normal saline as maintenance fluid as		No clear recollection of any	Member of Paediatric Intensive Care Society. Fluid management is regularly discussed at paediatric intensive care meetings as well as local teaching programmes.	No clear recollection, suspects numbers were small.

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		well as resuscitation fluid and to monitor electrolytes closely. In Nov 1995, teaching was clearly different and Solution 18 was the standard paediatric maintenance fluid. Does not recall any formal training in record-keeping. As trainee received teaching from consultant paediatricians in terms of record keeping and making entries in hospital records. Clearly remembers being taught to date and time all entries, to make accurate concise notes and to attempt to make all entries clearly legible. Remembers clear emphasis on the importance of record keeping as notes were legal documents holding accurate records of all aspects of the patient's care.				
223	Dr. Meenakshi Mirakhur	Cannot recall due to passage of time	Cannot recall due to passage of time	Cannot recall due to passage of time	Not relevant to a pathologist	
009/1, p.9	Dr. Terence Montague	Studies at University College, Dublin included basic information re: renal function, fluid balance and renal disease. Same would apply to training in Anaesthesia in Belfast (1990-1996), but in more detail. When started as trainee anaesthetist in RBHSC in Nov 1995, consultant anaesthetists provided induction lectures that included fluid management for common conditions in children. Teaching received re: hyponatraemia included the causes and emergency management. Education and training is a continuing process drawing from many sources. Knowledge develops through a combination of formal education and training, practical experience, peer discussion and consultation and access to the scientific literature which is evolving and developing over time. Importance of good note keeping has been emphasised through medical training. Learning largely by example. Clinical audit, specifically including a regular qualitative review of anaesthesia records, was carried out in the Ulster Hospital. Defence bodies such as the MPS continually highlight the importance of good comprehensive note keeping.				Adam Strain was the first such patient he encountered

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004/2, p.5 & 004/3, p.4	Dr. Donagh O'Neill	Received training during studies at University College, Dublin – does not recall details.	Received training – does not recall details.	Does not recall.	Does not recall.	Does not recall any.
002/2, p.28	Professor Maurice Savage	Queen's University, Belfast – virtually impossible to answer	Qualified in 1971, awarded Diploma in Child Health in 1983 passed exams for Membership of the Royal College of Physicians (London) in 1976. All of postgraduate training except for one year in Medical Paediatrics. Received teaching and undertaken study in the management of fluid balance and prescription, particularly for children.	In the 1970s during postgraduate training in various UK hospitals, there were generally no formal induction programmes.	Regular weekly postgraduate training sessions and workplace education and training – gained knowledge and experience of managing fluid and electrolyte problems. Since becoming a Consultant, has regularly kept up CPD, attending national meetings of the Royal College of Paediatrics, the British Association for Paediatric Nephrology, Paediatric Nephrology update courses at the Institute for Child Health, University College London, and most years has attended scientific meetings of the European Society for Paediatric Nephrology or the International Paediatric Nephrology Association to	Cannot give any realistic estimate of the total number of cases, though undoubtedly did look after children. Did not know of any children who did not recover, other than Adam.

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					ensure his knowledge and understanding of his subject is current. I regularly attend weekly clinical update meetings in the RBHSC. Subscribes to the BMJ, Archives of Disease in Childhood and the International Journal of Paediatric Nephrology.	
107/1, p.5	Dr. David Webb[1]	University College Dublin & St Vincent's Hospital Dublin 1979-1985. Fluid management, biochemical arrangements and hyponatraemia in particular were covered initially in Medical Physiology (1981) and subsequently in Final Year Medical School (1985)	Training in fluid management and electrolyte disturbances continued during hospital appointments at: St Vincent's Hospital, Dublin 1985-1987 The Coombe Women's Hospital, Dublin – Neonatal Unit 1987-1988 Our Lady's Hospital, Crumlin, Dublin – 1988 Southmead Hospital, Bristol 1988-1990 Royal United Hospital, Bath 1990-1993 Southampton General Hospital 1993-1994 Children's Hospital, Vancouver 1994-1995	Does not recall receiving any induction courses on fluid management.	Fluid management not a major part of CPD of a Paediatric Neurologist.	Estimates fewer than 15 cases, mainly during time in neonatal ICU positions, and occasional older child with SIADH. Does not recall saying any child with hyponatraemia coming to harm.

[1] Dr Webb was also involved as a Consultant Paediatric Neurologist in Claire Roberts' case

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			Fluid management was supervised by the Senior Non-Consultant Hospital Medical Staff at Registrar and Senior Registrar level. Most informative experience in fluid management was obtained during work at the Coombe Women's Hospital, Dublin and Southmead Hospital, Bristol where he worked at a Neonatal SHO level supervising intensive care management of sick newborn infants on ventilation.			
006/02 p.15	Mr. Patrick Keane	1975-8 University College Galway- lectures and practical experience in wards and passing final MB	Practical experience in paediatric surgery in Galway, lectures and passing FRCS examination. Was paediatric Surgical Registrar in Temple Street for a year in 1982-3. Examiner in primary and Fellowship examinations of the Royal College of Surgeons of Ireland. Examiner in iMRCS exam and also examiner in FRCS (Urol) examination. Fluid	Postgraduate Tutor in the Belfast City Hospital from 1997-9 and Lead Clinician in Urology for 7 years 1995-2003. Programme Director in Urology for 7 years and responsible for the post graduate education of all trainees in Northern Ireland. Hyponatraemia is a very common problem in urology and its diagnosis and management were dealt with on multiple	See 'Postgraduate'. Also attended the Good Clinical Practice course.	Directly responsible for the fluid management of at last 20 surgical patients day and daily for a year as Paediatric Surgical Registrar. 100s of patients aged less than 6 years old per year, and with hyponatraemia of Adam's severity, less than five. In a year of paediatric surgery no patient died of hyponatraemia. No longer involved in paediatric

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			management in surgical patients an integral and important subject in those examinations. Contributed chapter 'Insertion of Kidney' in Clinical Management of Renal Transplantation edited by Professor McGeown (1992). Intraoperative fluid management and management of hyponatraemia in transplantation, relevant at the time of Adam's transplant, are death with in chapters 14 and 20 by Drs. Alexander and McNamee respectively.	occasions and it a continuing and important part of the urology curriculum. Member of the Specialist Advisory Committee in Urology, editor of the urology curriculum nationally for 2 years 08-10- the curriculum outlines the knowledge on fluid and electrolytes required by urologists.		transplantation after Nov. 1995.
007/2 p.9	Mr. Stephen Brown	1967- routine teaching and training	Fellow of the Royal College of Surgeons of Edinburgh 1971. Routine teaching and training	None stated	Completed an annual programme of continuous professional development. Cannot provide with more detail.	Cannot answer this- not possible to quantify from the records

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008/2 p.46	Dr. Robert Taylor	No records of training in fluid management as medical student at Queen's University, Belfast	No records of training in fluid management as an anaesthetic trainee in Northern Ireland or Canada.	No records of training in fluid management during hospital induction programmes. Generally these were to familiarise doctors with the new departments.	Course and conferences where fluid management was discussed: Paediatric Anaesthetic Travelling Society of Ireland (PATSI). Co. Monaghan, June 4-6 1999 Paediatric Intensive care Society (PICS) Institute for Child Health, London 19/10/2002 Paediatric Anaesthetic Travelling Society of Ireland (PATSI). Co. Mayo, May 10-12, 2002 Association of Paediatric Anaesthetics (APA), Edinburgh 2004, 12-13/03/2004	Cannot estimate the total number of cases or dates. The numbers were small and these children had good outcomes. Prior to Nov 1995 estimated 15-20 children anaesthetised per week, but no records of each renal transplant nor ages. After Nov.1995 estimated 10-15 children under 6 years of age anaesthetised per week.

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014/1 p.17	Mary O'Connor	Degree of MB, BCh, B.A.O with commendation in Medicine and Surgery from Queens University Belfast 1984- won Gold Medal prize in Paediatrics in 1984. Does not recall details of training with particular reference to fluid management , record keeping and hyponatraemia but these subjects would have been addressed	Junior House Officer 1984-1985 Royal Victoria Hospital (incl three months in Children's Hospital). Responsible for prescription of fluids and recording of notes for patients. Senior House Officer 1985-1987 One year in Adult medicine and two in Paediatrics, during which time routine responsibilities would have included prescribing of fluids and recording of records. Provided with RBHSC in house manual 'paediatric Prescriber' which contained guidance about fluid and electrolyte replacement for children. Attended all post graduate lectures in Hospital and received qualification MRCP. Would have studied fluid and electrolyte management for examinations etc.	Induction programmes were not available in any hospitals during post-graduate career. Has delivered part of induction programme in RBHSC.	Written several protocols for management of pre and post operative care for Paediatric renal patients between 1996-2011 Read extensive literature in Nephrology and Paediatric journals relating to hyponatraemia. Working group in RBHSC designing wall chart about fluid balance chart for ward use. BMA learning module hyponatraemia in children. European Society for Paediatric Nephrology in Amsterdam. Since 1995 British Paediatric Association College meetings regularly. Renal Association Advance Nephrology Course in 2010	Paediatric and renal Trainee 1986-1995 regularly prescribed fluids for children- many moderate cases of hyponatraemia and some severe cases (number unknown) Prior to 26 Nov. 1985 involved in acute perioperative care of 13 children undergoing transplants, 12 in Bristol, 1 in Belfast. Two of these children aged less than 6 years. From 1 Nov 1995- 27 Nov 1995 responsible for the pre and post operative care of one 3 year old who was transplanted in RBHSC on 17 Nov 1995 Since Nov 1995 consulted about fluid management for patients with hyponatraemia in RBHSC. Involved in the immediate peri-operative care of 36 transplant patients, and the

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			Registrar and Senior Registrar in Paediatrics 1988-1992 Note keeping, prescription of fluids, regular post graduate meetings. Senior Registrar in Paediatric Nephrology 1992-1994 Acute care of 12 renal transplant children in pre and post operative phases. Specialist consults in Southmead Hospital, Bristol with regard to electrolyte disturbances. Postgraduate meetings including Great Ormond Street renal week, the British Paediatric Association College, and European Society for Paediatric Nephrology in Amsterdam. Completed Advanced Paediatric Life Support course in Bristol Nov. 1994			postoperative care in 26 others (all age range 5-17).