

Curriculum Vitae

Dr Jonathan Hayden Smith

Consultant in Paediatric Cardiothoracic Anaesthesia and Intensive Care
Associate clinical lecturer Newcastle University

Date of Birth 2nd of January 1959

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Qualifications MB, ChB. Leeds 1982
MRCP (UK) 1986
FRCA 1989

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Education 1970-1977 Queen Elizabeth Grammar School,
Wakefield, West Yorkshire.
1977-1982 Leeds University Medical School

Membership of professional organisations

I was on the council of the Association of Paediatric Anaesthetist of Great Britain and Ireland (APAGBI, 2011-2017). I was the meetings secretary between 2015-2017, responsible for the organisation of three of our annual meetings with >300 delegates each year. I was co-opted to Association of Anaesthetists working groups on 'Cell Salvage' and 'Care of the Jehovahs Witness', since published, and joined the paediatric organ donation group of NHSBT to represent paediatric anaesthesia.

I am the Honorary Treasurer of European Extracorporeal Life Support organization (EUROELSO 2012-present). I was responsible for our incorporation and the registration of the organisation as a charity in the UK and the formation of the related commercial enterprise.

I am a member of the Paediatric Intensive Care Society (PICS), The Association of Cardiothoracic Anaesthetists (ACTACC) and the international society for heart lung transplantation (ISHLT). In 2018 I am part of one of the ISHLT working groups on Donor Organ Management.

I joined the Clinical Reference Group (CRG for paediatric cardiac surgery) in 2016. This group contains representatives of senior clinicians and lay organisations drawn from across the UK and to advises NHS England on their plans for congenital cardiac surgery.

Current Post.

I am one of 12 consultants that provide the anaesthesia and intensive care for the Freeman paediatric cardiothoracic program (Survival 97.7% 20011-13, NICOR). We are involved in the full range of congenital heart surgery from neonates to the elderly. We are one of two paediatric cardiac transplant centres for the UK performing 20 or more grafts each year (and have some of the best results in the world) with an associated mechanical assist program (VAD or Berlin Heart). We have a very busy extra-corporeal life support program {one of six such centres in the UK}.

Our paediatric intensive care has 360-400 admissions each year. (0.85, 2011-13 SMR in Picanet) Almost 80% of our patients are less than one year old. The Freeman ECMO program has treated more than 500 children in the last twenty-two years (mortality of respiratory ECMO currently about 28%) and we have funding from NHS England for the mechanical cardiac assist program (VADs, in tandem with Great Ormond Street).

Special Interests

I was the director of the paediatric ICU at the Freeman Hospital until September 2008. I was the lead clinician for the ECMO program (and firstly author and subsequently editor of the Freeman Hospital VAD and ECMO Manual; 176 pages, 63,000 words) until 2018. We are the largest paediatric Berlin Heart centre in the world after Berlin. I am an expert in the management of heart failure in children. All of the above mesh very well with the

paediatric cardiac transplant program. The variety of therapies that we use at the Freeman and our successful application of them has been a huge stimulus to me in the last 22 years. I was a co-author, “ECMO for primary graft failure” in the ISHLT guidelines for the care of heart transplant recipients (2012).

Postgraduate Medical Experience

I trained in general medicine in the Leeds teaching hospitals and Leamington Spa and obtained my MRCP (UK) in 1986. I then studied and practiced anaesthesia in Nottingham and Bristol. I received the FRCA in 1989. I went on to do my higher training in anaesthesia in Newcastle and obtained my CCST in 1994. It was during my higher training that I developed an interest in the care of children and then cardiothoracic anaesthesia and intensive care.

During my training I travelled to gain extra experience as follows:-

1 Anaesthesiologist Project ORBIS, August 1989-March 1990

This post is unique. I was the crew doctor and anaesthetist on a DC9 aircraft that flew from country to country, teaching techniques of ophthalmic surgery to the local specialists. Anaesthetising in such a strange environment and working so closely with a small group of people from widely different backgrounds and cultures was challenging. It was also hugely enjoyable and allowed me to visit China, Eastern Europe, The Sudan and West Africa in a little over half a year.

2 Senior registrar in Paediatric anaesthesia, Our Lady’s Hospital for Sick Children, Dublin. January-June 1991.

This hospital serves the entire population of The Republic of Ireland. At the time I worked there it had a busy cardiac program and intensive care unit. It was here that my interest in paediatric cardiothoracic work was confirmed.

3 Instructor in Paediatric Anaesthesiology, The University of Michigan, C.S. Mott Children’s Hospital, Ann Arbor, Michigan. 1992-1993.

The year I spent in this unit expanded my cardiothoracic and general paediatric anaesthetic experience. I was fortunate to work with Prof. E Bove, one of the leading paediatric cardiothoracic surgeons in the North America. I also developed an abiding interest and affection for the USA.

Management

Between 2006-2008 I was the lead Clinician for PICU within the Newcastle Hospitals. This began after I was asked to review the service and suggest changes that might improve the PICU on both sides of the city. This involved leading the consultant group to improve relationships across the city; preparing for the unification of the PICU in the new hospital across town and employing new consultants to both the PICUs in the city. This project failed as the Trust eventually decided **not** to have a unified PICU. Vital experiences during this included: -

- Going from an outline to a program of how things might work
- Changing my mind as to how the consultants should best be deployed.
- Re-assigning a locum who was manifestly in the wrong job
- Arbitration in disputes between specialists
- Persuading the administration of the merits of change in a particular direction.
- Learning to leave issues behind once sorted out.
- Gaining an understanding of how complex and how poorly worked out are the finances of the NHS
- Undertaking a review of the adult VAD program in the Freeman at the Medical Director's request.

As a consultant I have been involved in the full spectrum of problems and challenges that can fall to one. These include:

- Organising the relocation of a PICU twice during my career.
- Attendance at Coroners court
- Equipment purchase.
- Medical Staff Committee secretary
- Peer review participant and organiser.
- External reviewer of other services

Medico-legal experience

I have done medicolegal work for 15 years. I have written twenty reports, attended joint conferences with counsel, joint expert conferences and attended court to give evidence. These have always been in my own areas of expertise; cardiothoracic or paediatric anaesthesia, PICU and most particularly the use of ECMO and any problems pertaining to that.

Topics include:-

Brain injury after cardiopulmonary bypass in a child
 ECMO and brain injury in children
 Complications of Anaesthesia in children
 Complex post-operative intensive care in children
 Complications of central lines in children

I have done external peer reviews of other centres and reviewed problems in other hospitals when asked by their medical director or NHS England.

Research

I have initiated and taken part in published research projects in my principal interests. For the national ECMO service we have surveyed the incidence of lethal lung anomalies and the outcome of congenital diaphragmatic hernia. We looked at the outcome and complications in infants with severe RSV disease that receive ECMO. We have published papers on the results of our mechanical assist program; our ABO mismatch experience (first outside Toronto) and our use of transplantation for the failing Fontan. Our paper on the haematological changes during ECMO was from our own experience. Our group

published a paper on all cause mortality in children born with congenital heart disease. I was the external examiner for an MD thesis on “ECMO and the systemic inflammatory response” in 2008 at the University of Leicester.

I was a member of the ELSO working group on infection in ECMO which produced data and recommendations on the prevalence, risk and prevention of this complication (2009). My own role was to perform studies on antibiotic binding on oxygenator membranes; I completed these but the antibiotic levels were never completed. I worked with the A&E and Hepatobiliary services to develop ECMO for abdominal organ retrieval and resuscitation in the adult population. We completed one series of animal experiments and this technique is now undertaken in adult organ retrieval.

I have an interest in infant tracheal disease. I have experience of endo-bronchial and endotracheal stents and tracheal surgery. I led a research group at the Freeman Hospital looking at the topic of paediatric endotracheal intubation and its consequences. We collected detailed data on respiratory pressures and flows in a series of 135 infants intubated after cardiothoracic surgery. We defined endotracheal tube fit and looked at how this might be more usefully quantified when ventilating children. This was a joint project with the Regional Department of Medical Physics; we have presented eight abstracts and published two papers. In 2009 we got a “Flexibility and Sustainability” grant for £39,343 awarded by the Joint Research Executive of the Newcastle upon Tyne NHS Teaching Hospitals Foundation Trust to further this project. As a result of this work I am on the board of the Airway Intervention Registry, run for NICE by the Newcastle upon Tyne Trust.

I was the principal investigator for the study of infant haemodialysis versus peritoneal dialysis in post operative renal failure after cardiac surgery. The M5 neonatal dialysis machine was invented and developed by Dr Malcolm Coulthard and the department of medical physics at the Freeman Hospital and is a requirement for the MHRA to consider licensing the device. We have an EME grant for the clinical study of the dialysis machine. I am a co-applicant on the EME funded national study of this device that will start in late 2018.

I was a member of the Data Monitoring Committee (DMC) of the CHIP trial. This is “The Control of Hyperglycaemia in Paediatric intensive care trial”. This was a national multi-centre study looking at the use of insulin in the paediatric intensive care unit. I was a member of the DMC for the ‘morbidity in paediatric cardiac surgery study’ run by Great Ormond Street that was completed in summer 2018.

I was the site Principal Investigator for the Intravenous Sildenafil in the treatment of Children (aged 0-17) with pulmonary hypertension (A1481134) after corrective cardiac surgery. This trial was halted in early March 2005 because of low recruitment and a low incidence of pulmonary hypertension in the study population.

I coordinated and validated the submission of data to the national Picanet database until the end of 2008. I maintain a large collection of medical images mostly culled from my own photographs.

I review papers for a variety of journals in my fields of interest, most recently these were for Intensive Care Medicine, Pediatric Anaesthesia, and Thorax.

Publications

Association of Anaesthetists guidelines: cell salvage for peri-operative blood conservation 2018. A. A. Klein, C. R. Bailey, A. J. Charlton, E. Evans, M. Guckian-Fisher, R. McCrossan, A. F. Nimmo, S. Payne, K. Shreeve, **J. Smith** and F. Torella. *Anaesthesia* 2018, 73, 1141–1150

Anaesthesia and peri-operative care for Jehovah's Witnesses and patients who refuse blood. A. A. Klein, C.R. Bailey, A. Charlton, C. Lawson, A.F. Nimmo, S. Payne, A. Ruck Keene, R. Shortland, **J. Smith**, F. Torella and P. Wade *Anaesthesia* 2018, in press.

Haemodialysing babies weighing <8 kg with the Newcastle infant dialysis and ultrafiltration system (Nidus); comparison with peritoneal and conventional haemodialysis. Malcolm G Coulthard, Jean Crosier, Clive Griffiths, Jon Smith, Michael Drinnan, Mike Whitaker, Robert Beckwith, John N S Matthews, Paul Flecknell, Heather J Lambert. (accepted *Paediatric Nephrology* June 2014).

A longer waiting game: Bridging children to heart transplant with the Berlin Heart EXCOR device—the United Kingdom experience. J Cassidy, T Dominguez, S Haynes, M Burch, R Kirk, A Hoskote, Jon Smith, M Fenton, M Griselli, TY Hsia, L Ferguson, C Van Doorn, A Hasan, A Karimova. *The Journal of heart and lung transplantation* :Nov 2013:11; pp 1101-1106

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granulomatous disease presenting as fulminant *Aspergillus* pneumonitis: A lethal combination?
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