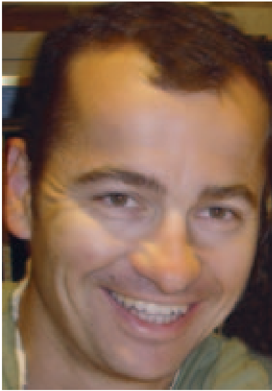
Air transport in the UK: what is the direction of travel?



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During the last 20 years both neonatal and paediatric intensive care services within the UK have embarked on a process of centralisation, currently focusing on gestational thresholds, cardiac and neurosurgical services. Fundamental to centralisation is the formation of regional clinical networks, including the designation of 'lead centres' and provision of a transport/ retrieval service for stabilisation and transfer of patients between the district general hospitals and the lead centres. In neonatal networks the transport service usually has a wider remit and is responsible for all network transfers including long-distance repatriations.

In England, Wales and Northern Ireland the majority of intensive care transfers are carried out by specialist teams by road with small numbers of air transfers performed by a few teams. The logistical challenges of organising an air transfer (rotary or fixed wing) are considerable. Provision of aircraft is dependent on commercial, Search and Rescue (SAR), Helicopter Emergency Medical Service (HEMS) or Ministry of Defence (MOD) aircraft availability. For the most part, teams transferring critically ill children over larger distances are committed to very long road journeys, sometimes in excess of ten hours for a round trip, because of the lack of air transport provision[1]. This is in stark contrast to Scotland which has a nationally funded air ambulance wing within the Scottish Ambulance Service[2] and centrally funded transport teams which have recently become harmonised into a single service for Scotland to support its remote and rural communities. Increasingly this aeromedical resource has been called upon to support the rest of the UK, particularly northern England, when air transport is required but cannot be provided.

A robust case can now be made to establish a coordinated national UK air transport service for critically ill infants and children requiring intensive care and has been championed by groups within the Paediatric Intensive Care Society (PICS) and the neonatal Transport Interest Group (TIG). In parallel to the work that these groups have undertaken there has been support for the concept from the charitable sector. This editorial aims to summarise the progress made so far towards this goal, describe the key evidence underpinning the proposed development and discuss the next steps.

Aeromedical transport has a military history with the first recorded activity in 1915 when Serbian patients were carried in an unmodified French fighter plane and the first helicopter used in 1945 by US Army Airforce in Burma. However it is only since the conflicts in Korea and Vietnam that the use of aircraft to transport civilian patients has proliferated. This is despite controversies over efficacy, costs and safety[3,4].

Much of the evidence on safety relates to 'primary' HEMS operations with common causative factors including flying at night and in poor weather using only visual flight rules and the effect of the 'rescuer ethic' that drives risk taking. We must be cognisant of these risks and set the highest standards for aircraft, aircrew and landing provision as well as developing systems for recording and publishing data on safety[5].

The American Academy of Pediatrics has published guidelines for the air and ground transport of neonatal and paediatric patients[6] in which it proposes that individual transport services should have the ability to provide or arrange transport by ground ambulance, helicopter and/or fixed wing aircraft. The choice of specific mode of transport should be based on a number of factors including patient clinical condition, immediately available level of medical care delivery, number of transport staff required, distance to the referring institution, traffic and weather conditions and other transport logistical considerations. While speed may be a clinical priority, patient and team safety are of paramount importance.

In 2007, the Children's Acute Transport Service (CATS) put forward a proposal to develop an air transport service for children in the UK, delivered from London and building on their extensive aeromedical experience and activity[7]. Although this proposal did not progress through to funding, it ignited enthusiasm to investigate current service provision in the UK and develop proposals for a national air transport service for children with equitable access throughout the UK.

Around the same time there was increasing activity in the charitable sector. The Air Ambulance Association (AAA) is an umbrella organisation for the HEMS operations in the UK (24 operators, 36 aircraft) and in 2008 stated that 'whilst the use of an air ambulance can bring clinical benefits to patients that require transfer, transfers are predominately secondary missions that take the aircraft away from its primary role as a HEMS aircraft'[8]. In this relative vacuum a number of new charities have developed. The Children's Air Ambulance (TCAA), Lucy Air Ambulance for Children (Lucy) and Newborn and Paediatric Emergency Transport Service

(NETSUK) all have a stated aim of delivering an aeromedical service dedicated to children, although as yet no intensive care transfers have been completed.

A different model has been adopted by the AirMed air ambulance company based in Oxford who offer a national and international perinatal service on a commercial basis, led by Dr Charlotte Bennett from John Radcliffe Hospital and utilising specialist NHS staff. Similar relationships exist between commercial companies, such as CEGA Air Ambulance, with established paediatric retrieval teams.

In 2009 PICS established a working group 'PICS Aeromedical Working Group' with membership drawn from the PICS-Acute Transport Group (PICS-ATG). The remit of the group was to:

- examine and put forward the case for establishing a national coordinated aeromedical transport service for children, with equitable access for all
- produce standards for delivery of such a service
- propose models of delivery.

The interim report addressing the first issue reported to PICS Council in 2011[10]. The results of the modelling suggested that between 495 and 649 (9% and 12%) of the total 2008 transport episodes should have been considered for air transport. This is consistent with current international figures (10-15%)[1]. Although stating that road ambulances would remain the dominant vehicle in paediatric intensive care transport, the report demonstrated a case for establishing a national coordinated aeromedical transport service for critically ill or injured children who require inter-hospital transport to a PICU delivering on a significant unmet need identified by internationally accepted criteria.

In response to the report, PICS coordinated a national meeting and invited representatives from TIG, AAA, the charitable sector and NHS commissioning to review progress, discuss the next steps and agree a coordinated way forward. A follow up meeting demonstrated the difficulty in reaching consensus over this broad base of interests, however there was commitment to refresh the data collection, create a database of existing resources, use existing referral pathways more efficiently and open up funding streams from the charitable sector to 'get things done'. It is conceivable that partnership between regional transport services, charities and aircraft providers will provide regional solutions which can then be harmonised into a coordinated national service.

We are at a cross roads. It is clear that there is an unmet need in the UK for high quality, coordinated, benchmarked aeromedical transport for neonates and children requiring secondary transfer. The proposed re-configuration of specialist services (cardiac, neurosurgery) is likely to increase this demand to ensure that intensive care retrieval teams are able to provide a safe, efficient high quality service in the future. Much has been achieved over the last few years but if we are to take the next steps to a truly national, sustainable and equitable service we need to pull together and bridge the gap.

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PICS-ATG Aeromedical Working Group:

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