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INTRODUCTION OF NEW CHILDREN'S INTENSIVE CARE AMBULANCES: THE CHANGE PROCESS IN ACTION

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In February 2010 the South Thames Retrieval service finally took delivery of three new retrieval ambulances. This was the culmination of over 12 months work.

We are fortunate to have had an ambulance contract which enables us to have control over the type and internal layout of the vehicles we use for retrievals.

In 2008 the ambulance contract once again went out to tender. We seized this opportunity to re-design our ambulance layout looking at new ways of working.

We were keen to ensure all parties that used the vehicle were involved in the new design and understood the benefits of the change. Potential new designs were disseminated to all staff and opportunities given for feeding back ideas and suggestions. Following several meetings with the designer our teams agreed on the final internal layout.

The vehicles were ready to view in the WAS factory in Germany in November 2009. Two team members went to oversee the vehicles and discussions were had with the design team and engineers relating to some minor adjustments.

The ambulances arrived with us in February 2010. They were packed and equipped. Technicians were trained and assessed in driving the new vehicles. Medical and nursing teams were orientated to the ambulances with the aim of smoothing out the transition.

The vehicles were launched on the 18th February 2010. Initial feedback was positive. A questionnaire was designed and sent out to all members of the team to formally assess the impact of this change.

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MONITORING VENTILATION DURING FLIGHT RETRIEVAL OF CRITICALLY ILL CHILDREN

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Background: The CATS team (The Children's Acute Transport Service, London) undertake between 40 and 50 air retrievals each year involving critically ill children. It is a challenge to retrieve safely and specifically to monitor the ventilation of these children whilst at altitude.

Objectives: To examine oxygen saturations and end-tidal carbon dioxide concentrations (ETCO₂) compared to arterial blood gas (ABG) analysis at altitude.

Methods: Retrospective study in a dedicated paediatric retrieval service. Prospective data collection during fixed wing and helicopter flight retrievals from January 2005 until January 2009.

Results: 154 retrievals were audited, 71 (46%) by helicopter and 83 (54%) by fixed wing aircraft. A total of 74 (48%) underwent blood gas analysis mid flight; this rose from 40% in 2005 to 100% in 2009. 55% of patients that had an ABG in the air were ECMO referrals. Of the 74 children that had ABGs at altitude 27 (36.5%) had their ventilator settings changed mid flight; 78% (21) of these in response to changes in sats/ETCO₂ and 22% (6) in response to ABG results. On 19 (16%) occasions there was a clinically significant difference between values of oxygen saturations and PaO₂, and on 9 (12%) occasions there was a clinically significant difference between ETCO₂ and PaCO₂ results.

Conclusions: Whilst continual measurement of ETCO₂ and oxygen saturations are necessary to monitor ventilation during flight retrieval, ABGs are a useful adjunct and should be routinely checked mid flight during the transportation of the critically ill child.