Time to Transfer: An Audit on the Preparation and Transfer of the Critically Ill Child

On behalf of the North of England Paediatric Anaesthetic Network (NEPAN)
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BACKGROUND

The past 25 years have seen the development of dedicated Paediatric retrieval services, necessitated by the centralisation of services for the care of critically ill children[1]. The North East Children's Transport And Retrieval (NECTAR) was set up in 2016. NEPAN[2] wanted to review our processes with NECTAR with a view to improved collaborative working.

Quality standards in the care of critically ill children state that 'Anaesthetists and Intensivists are crucial to the resuscitation and stabilisation of the critically ill child.' These standards also outline a number of points in the stabilisation and retrieval of the critically ill child, of note they specify that Paediatric intensive care retrieval teams should reach the patient bedside within 3 hours of accepting a referral for transfer.

During the resuscitation and stabilisation of the critically ill child, there are often a number of interventions performed by the referring team. Anecdotally we understood that NECTAR often performed further interventions upon their arrival to prepare for a safe transfer. Through analysing the data collected we hoped to improve pathways in order to facilitate a safe and timely transfer.

METHODS

Data was collected retrospectively from the NECTAR database over a 4 month period from May to August 2019. We reviewed the data obtained for the transfer of ventilated patients only.

We asked the following questions:
1. How long does a stabilisation and retrieval take?
2. Which interventions are performed by the Referring hospital?
3. Which interventions are performed by NECTAR and is there any repetition?

We then identified areas to standardise practice in order to aid the safe and timely transfer of the critically ill child.

RESULTS

Overview

75 Retrievals

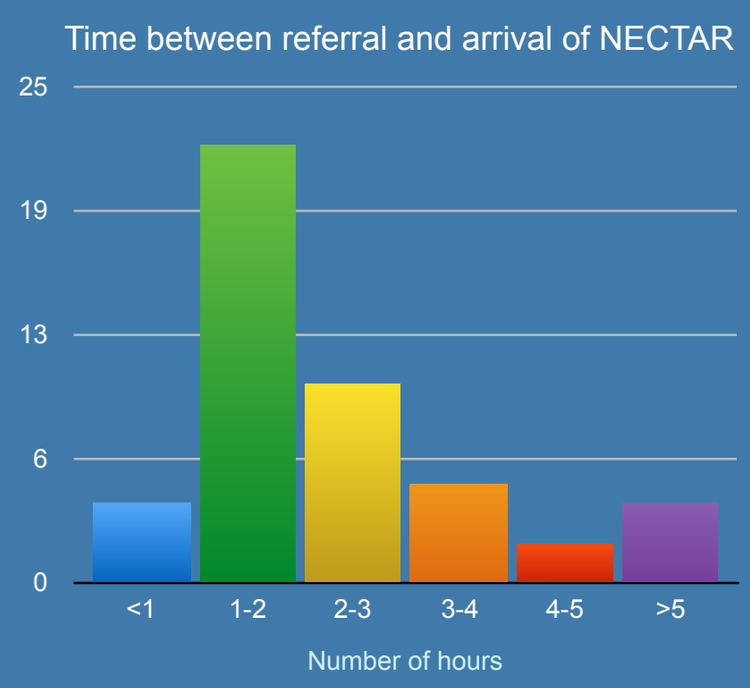
47 were invasively ventilated

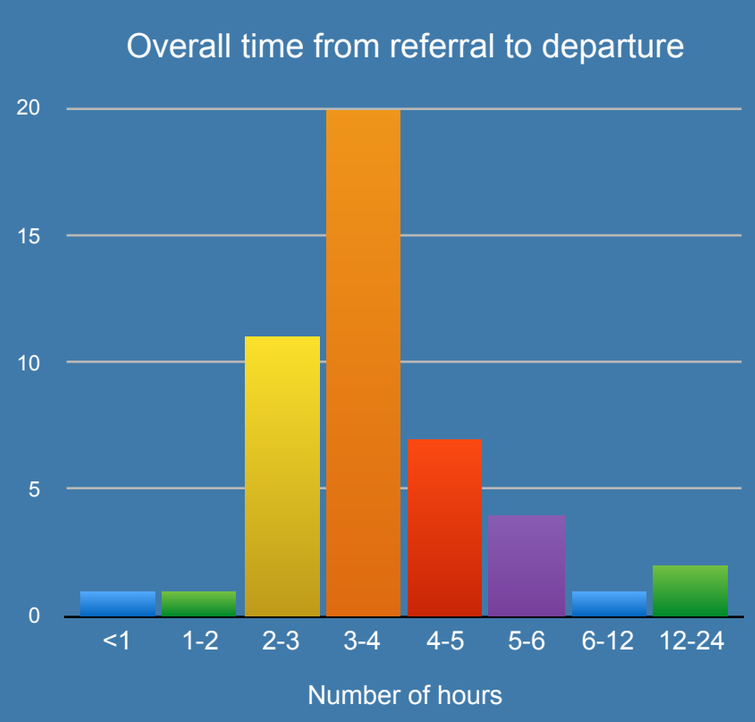
Demographics: Even spread across the Northern region. Age range: 80% were < 6 years. Respiratory or Neurological causes made up 60% of diagnoses

Working pattern: 60% of retrievals took place out of hours

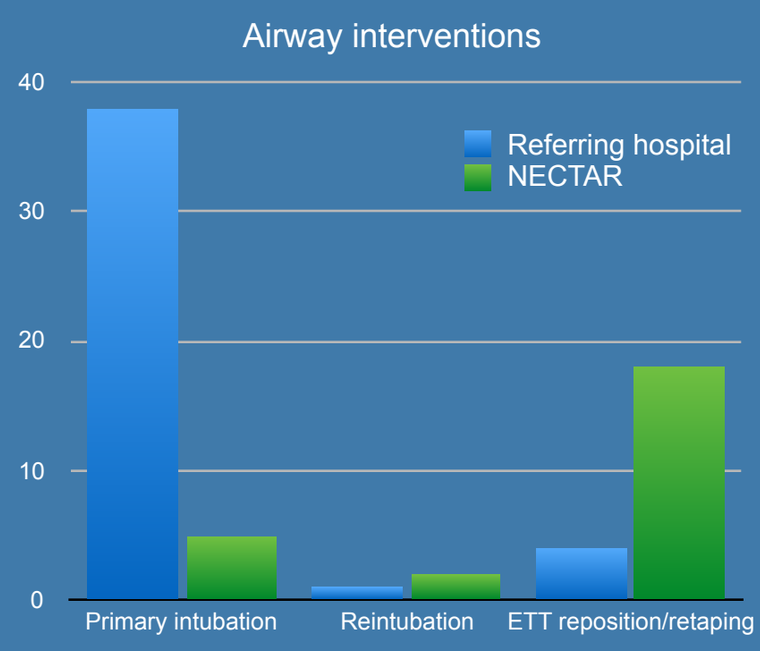
Patient location: 61% were stabilised in either ED or Theatres

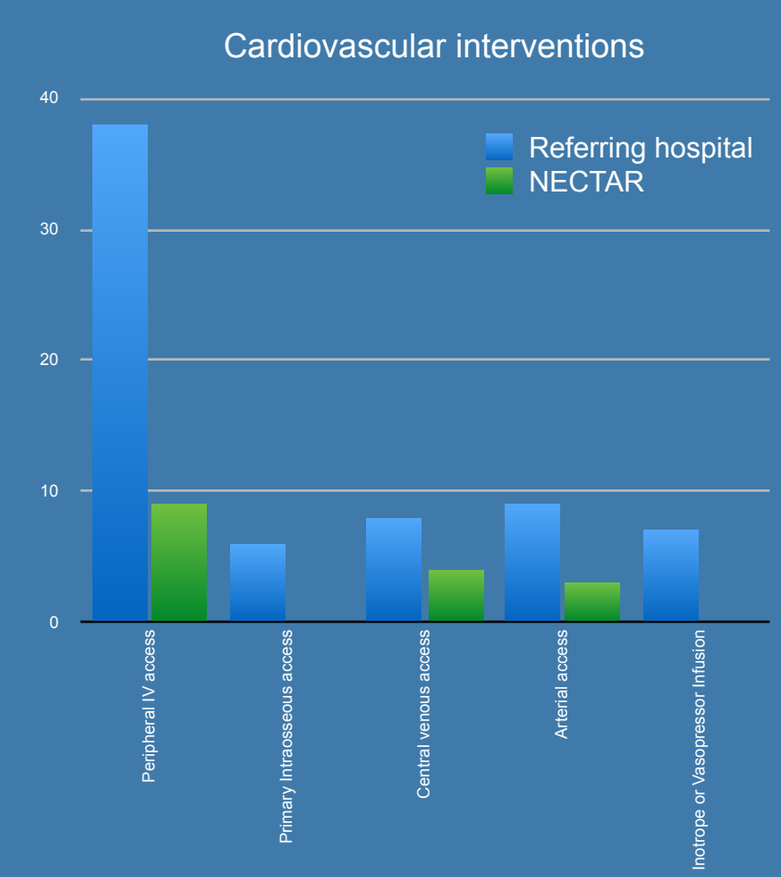
Time for stabilisation and Transfer





Interventions performed





In response to the questions we asked:

1. How long does a stabilisation and retrieval take?

- Median time between initial referral and the arrival of NECTAR : 1110 minutes (Range 35 - 1255 minutes).
- Median time between the decision to transfer and the arrival of NECTAR : 65 minutes (Range 15 - 475 minutes).
- Median time taken for stabilisation was 90 minutes (Range 15- 245 minutes).

2. Which interventions are performed by the Referring hospital?
3. Which interventions are performed by NECTAR and is there any repetition?

- Interventions were categorised into Airway, Cardiovascular and Other.
- Of the airway interventions performed; the referring hospital frequently performed the primary intubation and NECTAR often repositioned or retaped the ETT.
- Of the cardiovascular interventions performed, NECTAR often obtained further IV access.
- There was a frequent occurrence of NECTAR performing suction/ physio and siting of nasogastric or orogastric tubes.

ANALYSIS

NECTAR provides a timely response and a valuable service in the transfer of critically ill children across the Northern region of England. The cases which fell outside of the PICs standards[3] for retrieval times were some distance away from the NECTAR base, highlighting the geographical challenge that this region poses. The referring hospitals are performing a large number of interventions, however, there are still a number of interventions that are regularly undertaken once NECTAR arrive.

DISCUSSION

It is reassuring that we are performing most procedures prior to the arrival of NECTAR

It is clear that by looking at the overall timescales from time of the initial referral to the time that NECTAR depart the referring hospital, there is a huge utilisation of resource which no doubt impacts upon patient care throughout other departments within our hospitals.

The majority of retrievals take place out of hours and overnight, further compounding the utilisation of a potentially stretched resource.

Furthermore, stabilisation may take place in unfamiliar locations or departments that are geographically distant from our usual working areas e.g. ICU and this can impact upon patient care.

SUGGESTIONS FOR FUTURE

Working together with NECTAR, we plan to implement changes, including promoting the use of the an existing checklist[4], standardisation of ETT used (cuffed vs uncuffed) and recommendations for securing the ETT. We will undertake further work to see what effect this has upon the service.

Further publicity for the existing education programme may improve working relationships. Liaison with other retrieval teams across the country may help us in overcoming the obstacles identified

REFERENCES

1. Department of Health. "Paediatric Intensive Care, 'A Framework for the Future". London. Department of Health, 1997.
2. NEPAN - The North of England Paediatric Anaesthesia Network. Available from: http://www.nepan.org.uk [Accessed 23rd January 2020].
3. Paediatric Intensive Care Society. Standard Ref T-703. "Standards for the Care of Critically Ill Children 5th Edition". London: Paediatric Intensive Care Society; 2016.
4. North East Children's Transport and Retrieval (2016) "Ventilated Patient Transfer Checklist". Available from: http://www.newcastle-hospitals.org.uk/downloads/NECTAR/NECTAR_ventilated_patient_transfer_checklist_v1.1.pdf [Accessed 23rd January 2020].