

## O2

# IMPROVING DIFFICULT PAEDIATRIC INTRAVENOUS ACCESS IN A TERTIARY CHILDREN'S HOSPITAL

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### Background

Neonatal and paediatric cannulation is challenging with high rates of failure and complications<sup>1,2</sup>. Multiple cannulation attempts are painful and cause psychological stress<sup>3</sup>. When intravenous access is difficult, anaesthetic registrars may be called, but trainees often have limited experience of cannulating children, particularly early in training.

### Problem

We audited frequency of intravenous access requests to the on-call anaesthetic registrar at a tertiary children's hospital. Over 3 weeks in December 2021 we recorded 20 requests. Of these, 18 (90%) occurred overnight. The anaesthetic registrar was successful in 9 (45%) cases, with success less likely with younger age. 6 (30%) referrals were neonates, only 1 cannulated successfully. In 5 cases (25%) no senior paediatrician had attempted cannulation, yet in other cases over 10 previous attempts had been made – neither practice is compliant with local intravenous access policy. Only 1 patient had topical anaesthesia applied and the vast majority (82%) of patients were deemed to be “distressed” or “very distressed”.

### Strategy for change

To improve care, we are implementing three measures. Firstly, developing an educational module for all new anaesthetic trainees focused on skills for cannulating neonates and infants, including equipment guides, techniques, and patient management strategies. Secondly, running an approved ultrasound cannulation course at our hospital. Finally, we secured funding to appoint a specialised paediatric intravenous access team. These vascular access nurses are able to insert a variety of different devices (e.g. cannulas, peripherally inserted central lines etc.) and can act as a hub for early identification, triage and management of patients with difficult access. The vision is to identify patients with complex needs early, to get the most appropriate device. Doing so will avoid patients experiencing multiple traumatic cannulation attempts, often overnight and/or missing necessary medications due to lack of intravenous access.

### Measure of Improvement

Measuring improvement will occur through (1) Audit of intravenous access referrals (2) Patient and staff satisfaction surveys of the new intravenous access service, once established.

### Lessons Learnt

Paediatric intravenous access is challenging for clinicians and unpleasant for children. We found that patients with difficult intravenous access are often not identified until multiple attempts at access have already failed, leaving patients distressed and having missed medications. We plan on upskilling both anaesthetic and paediatric teams and introducing a central intravenous access hub to reduce this occurrence.

### Message for others

It is often presumed that anaesthetists are the most skilled cannulation practitioners. Whilst this is generally true in adult practice, in paediatrics this may not be the case. It is essential anaesthetic registrars are equipped with the skills to manage children with difficult intravenous access and that these patients are identified early, with proactive decisions made regarding choice of access device, in order to optimise patient experience.