

Non-Emergency Cannulation of Children with Difficult Venous Access

- a decision algorithm for junior medical staff -

All children should have instruction in their notes from middle grade / Consultant staff re options available if peripheral iv access fails

Step 1: Is access really required and which type is best?

What are the other options (e.g. NG tube / NJ tube, oral or im medication)?

How long is the cannula required?

<7 days:	peripheral cannula
7-14days	peripherally inserted mid- or long-line or PICC
14-30 days	peripherally inserted long-line or PICC (or consider Hickman catheter)
>4-6weeks	Hickman catheter (or venous port device if appropriate)

Step 2: Decide on analgesia

Select the veins first and then apply local analgesia in appropriate locations.

Options: Ametop (allow 45mins to work), Emla (allow 90mins to work)

Step 3: Increase the chance of successful cannulation

- Personal – for holding (positioning, tourniquet and safe restraint) and securing the cannula
- Overhead lighting +/- cold light (located in CSP's Office – bleep CSP to obtain)
- Give distressed relatives permission to leave if they would prefer to not be present
- Careful selection of the best vein for cannulation
- Proceed to cannulate with care

Step 4: Unsuccessful cannulation (non emergency situations)

For SHO's: Number of attempts before referring to middle grade level:

<6 months of experience in paediatrics: MAXIMUM 2 attempts

>6 months of experience in paediatrics: MAXIMUM 3 attempts

For Middle grade level: Start from Step 1 again and consider options other than cannulation and also urgency (i.e. can the child have a break for 24hrs). A similar MAXIMUM of 2-3 attempts should be appropriate. Failure to place a cannula at this point should then prompt full reassessment of the child's case and this should involve discussion with the child's Consultant.

Step 5: Call for further support when cannulation fails in step 4

General surgeons (bleep 0777): (1) for surgical specialities when middle grade(s) are in theatre or off site (2) for surgical specialities where the middle grade needs support in training in paediatric cannulation.

Clinical Site Practitioners (CSP bleep 0313): for surgical specialities where the middle grade is unavailable (in theatre/off-site), the RAS is also in theatre and the cannula is needed before the RAS is out of theatre.

Medical Registrar (MRC bleep 0520): (1) for medical units where there is no available middle grade (2) for dental patients who have no named GOSH medical Consultant (3) for surgical specialities where the CSP and RAS are unable to provide support with cannulation.

Mid- or long-lines and PICC: refer to Interventional Radiology

Middle grade staff may be able to insert mid- or long-lines on the wards using local anaesthetic +/- oral sedation (training can be supported on an individual basis with Interventional Radiology)

Ethyl chloride can be used to numb the skin through cooling but can only be used in those >5yrs. It should not be used near wounds, or eyes and in certain skin disorders. Cleanse the skin, spray for <10s and cannulate within 45 seconds. Do not re-spray the skin.

Training in paediatric cannulation is available through the CSP's. It is also an important skill to be able to safely and securely strap a cannula in place.

No other light source should be used in place of a cold light.

A **MAXIMUM** number of attempts is stipulated, if a child has no visible access then one should not have a go for the sake of it.

It is also important that staff check with colleagues that they are the best person to do the procedure e.g. at the end of a night shift it might be best to allocate a difficult cannula to the day shift if you are particularly fatigued and it is non-urgent.

Referral for support should initially be from the SHO to the middle grade (medical or surgical) who is responsible for the child, then to General Surgeon/MRC/CSP. The referral must be made by a member of the medical staff stating the reason for cannulation, outlining the number of attempts already made and what discussions have taken place as to what will happen if further cannulation attempts are unsuccessful. The referring doctor must be present on the ward to assist with the set-up, the procedure itself and to continue care if all attempts at cannulation are unsuccessful.