

Title	Longline for Intravenous antibiotics
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1. **Introduction**

Children with Cystic Fibrosis (CF) need venous access for a longer duration (usually 10-14 days) than a peripheral cannula can offer when intravenous (IV) antibiotics are administered. This guideline covers paediatric peripheral long line insertion, care, and removal.

2. **Objectives**

To highlight the clinical indications and contraindications of peripheral long line.

To ensure children are appropriately prepared for the procedure in terms of consent, analgesia, and sedation.

To outline the technique for performing a peripheral long line.

3. **Indications**

IV access for 14 days for home or inpatient antibiotics after a MDT decision has been made.

4. **Planning for pain relief**

MDT support:

Involve Play team, psychologist, CF specialist nurse, child and parents in discussion and arrive at an appropriate strategy for the child.

Pharmacological pain relief: (see local policy & BNF children)

Topical: AMETOP (30-45 minutes to work) or EMLA (60 minutes to work).

Entonox.

Oral Sedation.

5. **Consent**

Informed verbal consent should be obtained, which should include a discussion of the benefits of the procedure and the potential complications. If sedation or Entonox is used this should be documented in the child's medical notes.

6. **Longlines**

Multiple types of longline are available and may vary between centres. Ensure you have familiarised yourself with the long-line you are going to use. Always check the expiry date before use.

7. **Performing the Procedure**

7.1. **Preparation for the procedure**

Adequate preparation is vital to a good long line insertion and positive patient experience. Decide before the procedure as to who is staying in the treatment room during the procedure. Plan their roles and prepare them before. If Parents are supporting the child, debrief them the procedure.

7.2. **Equipment.**

- Long line of choice
- Sterile gloves
- Disposable tourniquet
- Skin preparation – Povidone iodine solution (Betadine) or Chlorhexidine swab sticks
- Non toothed forceps
- Sterile scissors
- Steristrips or Grip-Lok
- Clear sterile dressing (Note child's allergy status)
- 10ml 0.9% saline
- 10ml syringe x 1
- Bionector
- Bandage

- Extension set
- 18G blunt needle with filter – Use this to load saline into the syringe. Do not pour into galipot and aspirate.

7.3. Method

Vygon Leaderflex 22G pack contains: catheter x 1, needle introducer x 1, guide wire x 1. The length of the line is at the discretion of the individual clinician.

Technique:

Step 1: Position the patient in a comfortable position with the arm extended. Remove the anaesthetic cream and use a tourniquet. Wash hands and put on sterile gloves and gown. Flush the catheter with 0.9% saline to ensure that line is intact. Clean the skin with a chlorhexidine swab stick and then place a sterile drape around the arm/leg to create a sterile field. Veins in the antecubital fossa are the preferred sites of insertion (preferably the non-dominant hand). An assistant should tighten the tourniquet.

Step 2: Cannulate the vein using the needle introducer. Alternatively, a 22-gauge cannula can be used. Observe for a backflow of blood. Hold the needle stationary and advance the guide wire. Release the tourniquet and remove the needle with the guide wire in place. Thread the line over the guide wire (Seldinger Technique). Make sure that the guide wire is held by one of your fingers at all times. Once inserted to a certain length you will see the other end of the guide wire distal to the catheter. Now you can remove the guide wire and advance the catheter to sufficient length. Then flush with saline to confirm patency. Apply gentle pressure to the exit site to stop bleeding. Secure the line in place initially with steristrips over the insertion site. Secure with a sterile clear dressing. Flush the Bionector and connect to the line before covering the whole dressing with a bandage.

If insertion of a long line is unsuccessful, consider a cannula while alternate means of access are considered. Do not delay the treatment as the line is for antibiotics.

Vygon Lifecath Midline pack contains: a Catheter with an in-situ guide wire, peelable cannula introducer, Grip-lock, Bionector, sterile Tape measure and Midline identification label.

Technique:

Step 1. As above.

Step 2.

Cannulate the vein with the peelable cannula introducer. Remove the needle and introduce the catheter to length required. After advancing to sufficient length, peel the introducer. Then gently pull the guide wire from the catheter. Flush the Bionector and connect to the line. Fix the catheter with either Grip-loc or steristrips. Secure with a sterile clear dressing. Cover the whole dressing with a bandage.

8. Post procedure care

Monitoring should continue in sedated patients until they have fully woken up. The procedure should be documented in the child's medical notes and the procedure checklist should be completed and signed.

9. Thrombophlebitis

9.1. In the event of thrombophlebitis an urgent discussion with the responsible consultant is warranted before a decision to remove the line is taken.

9.2. Treatment Options:

- **Hydrocortisone:** There is anecdotal evidence for hydrocortisone in long lines complicated by thrombophlebitis. This is NOT suitable for blocked lines. It appears to be safe and can be repeated as necessary. The steroidal dose is minimal & may work in 24 hours. Use 3mg hydrocortisone made up to 3 mls (with 0.9% saline) in line. Leave in line until next dose of IV antibiotic. Aspirate and flush line in the usual way prior to IV antibiotic.
- **0.5% or 1% hydrocortisone cream** topically on arm (over erythematous area) with the above
- **Ibuprofen:** There is anecdotal evidence for use of systemic ibuprofen (Oral) for 12 – 48 hours to reduce the inflammation. The dosage in mild to moderate pain dose in BNFC. If the thrombophlebitis is not resolved after this period, then alternative access should be considered.

10. Daily care & Removal of the Longline

Any symptom of early thrombophlebitis should be brought to the attention of the clinicians. Early action might salvage the line. Please discuss with the consultant responsible for the patient. Remove the line once the course of treatment is completed or if the line is not used for 24hrs after discussion and agreed by the consultant.

11. References/Acknowledgements

Clinical guidelines: Care of children with cystic fibrosis 2020, Royal Brompton and Harefield Hospitals; Longlines & Thrombophlebitis: <https://www.rbht.nhs.uk/childrencf>