

LRI Children's Hospital

Procedure for Insertion, Care and Removal of a Peripheral Cannula in Infants, Children & Young People cared for on UHL Children's Wards

Staff relevant to:	Health Professionals who insert, care for or remove cannulas in babies, children and young people at UHL Children's Hospital Wards
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1. Introduction and who this LocSSIP applies to

This document sets out University Hospitals of Leicester (UHL) NHS Trust procedure for the insertion, care of and removal of a peripheral cannula in Infants, Children and young people with the aim to provide safe, effective care and prevent micro-organism contamination.

This procedure uses the principles of Aseptic Non-Touch Technique (ANTT) and protecting the key parts

- 1.1 This procedure applies to all Health Professionals who insert, care for or remove cannulas in babies, children and young people at UHL Children's Hospital Wards.
- 1.2 Whilst the principles of insertion, ANTT and infection prevention are universal within all areas of UHL treating Neonates, Infants, Children and Young People, due to practical departmental differences, please see separate guidance for patients being cared for in Paediatric Intensive Care Unit, Children's Emergency Department and the Neonatal Unit.
- 1.3 All staff who undertake this procedure must be authorised by their line manager to carry out peripheral cannulation and signed off as competent.
- 1.4 All staff who undertake this procedure must be appropriately trained as detailed in section 4.4 of the policy
- 1.5 UHL is a teaching hospital and provides placement or work based learning for Pre-registration students such as Medicine, Nursing, Midwifery, Paramedic, Radiography, Physiotherapy, Occupational Therapy and Pharmacy and Trainees in the workplace such as Assistant Practitioners and Nursing Associates. This LocSSIP applies

to these learners in the following circumstances:

- a) If peripheral cannulation is a specific competency requirement of their placement or programme then the pre-registration student / trainee is able to perform the skill under direct supervision of their mentor / supervisor once they have received the relevant underpinning theory and passed a simulated practice
- b) If the pre-registration student/trainee has passed an LCAT/DOPS competency assessment in practice they may be able to perform the skill with indirect supervision at the discretion of their mentor/supervisor and the Registered Professional delegating the task.
- c) If peripheral cannulation is not a specific competency requirement of their placement or programme then the pre-registration student/trainee must only participate in the process as an observer.

1.5 This procedure must be used in conjunction with:

[Vascular Access UHL Policy](#) Trust ref B13/2010

[Consent to Examination or Treatment UHL Policy](#) Trust ref A16/2002

[IV \(Intravenous Therapy\) UHL Policy](#) Trust ref B25/2010

[Hand Hygiene UHL Policy](#) Trust ref B32/2003

[Patient ID Band UHL Policy.pdf](#) Trust ref B43/2007

[Sucrose Solution \(Algopedol\) for Painful Procedures UHL Childrens Nursing Guideline](#)
Trust ref C21/2016

[Aseptic Non Touch Technique UHL Guideline](#) Trust ref B20/2013

2. Standards and Procedures

2.1 Administration of the 0.9% Sodium Chloride Flush preferably in 0.9% Sodium Chloride pre-filled syringe

- a) 0.9% Sodium Chloride is a Prescription Only Medicine (POM) and must be prescribed prior to being administered as a flush.
- b) Non-Registered Professionals must have the 0.9% Sodium Chloride Flush prescribed before it is administered and will be able to sign for its administration on the prescription chart.

No.	2.2 Procedure for the Insertion, Care of and Removal of a Peripheral Cannula in Children
	2.3 Pre-Procedure
2.3.1	<p>As far as possible all venous access procedures should occur in the clean treatment room or within an area dedicated to undertaking this procedure</p> <p>Introduce yourself and other members of staff to the child and family</p> <p>IDENTIFY CHILD BY CHECKING NAME AND DATE OF BIRTH</p> <p>Depending on the age and development of the child or young person, explain the procedure to them and their parents or carers and obtain their verbal consent.</p>
2.3.2	<p>Allow the child or young person and family to ask questions and discuss any problems, which have arisen previously. Check allergy status of patient.</p>
2.3.3	<p>Locate possible cannulation sites.</p> <p>Depending on the age and preferences of the child or young person, consider applying local anaesthetic cream (Ametop®) to the potential cannulation site(s). Emla cream may be used if a child has had a topical reaction to Ametop previously.</p> <p>Ethyl Chloride spray can be used at the time of cannulation; however this is extremely cold and can cause undue distress in younger children.</p>
2.3.4	<p><u>WARNING OF POTENTIAL SKIN DAMAGE</u></p> <p>Warm packs/ water sealed gloves SHOULD NOT BE USED AS THESE CAN CAUSE BURNS TO THE SKIN</p> <p>Gloves, Socks, blankets should be used if warming skin is required.</p> <p>Consider the use of a vein finder/light to look for potential cannulation sites.</p> <p>(For experienced practitioners, cold lights are available on CICU & CPICU)</p>
2.3.5	<p>Clean hands, as per UHL hand hygiene policy. Check hands for any visibly broken skin and cover with a waterproof dressing</p> <p>Put on a plastic apron and clean gloves from a dedicated box.</p>
2.3.6	<p>Clean tray in line with ANTT policy.</p>
2.3.7	<p>Assemble and prepare the individual items of equipment necessary for inserting the cannula, ensuring you have the correct cannula size (recommend the smallest size appropriate)</p> <p>Check all packaging for any damage and expiry date before opening. Prepare the equipment protecting key parts before the child comes into the room.</p> <p>Key Parts of the Cannulation Procedure:</p> <ul style="list-style-type: none"> • Cannula • Bonded extension with a T-connector with bonded needle free hub • Clear transparent dressing

2.3.8	<p>Equipment Required:</p> <ul style="list-style-type: none"> • Large plastic tray • Tourniquet or person to act as a tourniquet • 24g-22g safety cannula • Children's sterile transparent semi-permeable dressing (with integrated tapes) • Bonded extension with a T-connector with bonded needle free hub • Prefilled Sodium Chloride 0.9% flush (prescribed) • Appropriate blood bottles & syringes if taking blood • ChloroPrep® SEPP® applicator for cleaning the skin • Sterile gauze and plaster • Requisition forms if taking blood • Clean gloves from a dedicated box (e.g. not from a box kept in the sluice) and sharps bin • Needles and syringes • Ethyl Chloride spray if Ametop® or Emla® has not been used • Splints • Tubular bandage to cover splint and cannula for immobilisation • Cannulation care pathway- For Inpatients • Orange Cannula Sticker for Day-care patients on Children's Day Care
2.3.9	Prime the bonded extension-with a T and place carefully on clean surface protecting key parts.
2.3.10	<p>The 0.9% sodium chloride prefilled syringe must be checked by two members of staff, one of whom must be a registered practitioner who has been assessed as IV competent.</p> <p>Prime the needle free hub extension set with the 0.9% Sodium Chloride and place carefully in your aseptic field protecting key parts.</p> <p>Place the syringe back in its original packet or attach a blind end hub on the syringe tip and then place in the aseptic field.</p>
2.3.11	<p>Have someone available to distract and/or help to hold the child or young person such as a play specialist or another nurse / HCA</p> <p>Consider Use of Sucrose Solution 24% for Procedural Pain Management, guidance can be found on INsite UHL ref C21/2016</p>
2.3.12	Correctly identify the patient checking the name, date of birth and unit number against the requisition form (if taking blood) and identification band as per the UHL Patient ID Policy
2.3.13	Ensure that you have sufficient light and that the comfort and privacy of the child or young person and family can be maintained.
2.3.14	<p>Apply PPE</p> <p>Remove the local anaesthetic cream from all sites and identify the appropriate vein and site for cannulation using visual inspection and palpation</p>
2.3.15	<p>Ensure that if the child is under 1yr they are securely wrapped with the appropriate limb exposed.</p> <p>For older children the parent/carer can hold the child securely on their knee with the appropriate limb tucked behind the parents back play distraction can then take place from the front.</p> <p><i>(For further information please see RCN Guidelines (2010) Restrictive physical intervention and therapeutic holding for children and young people https://www.rcn.org.uk/professional-development/publications/pub-003573)</i></p>

2.3.16	If appropriate, support the arm leg or hand in the required position using a pillow or second practitioner.
2.3.17	Clean hands and put on clean gloves PPE
	2.4 The Procedure
2.4.1	Apply the tourniquet (or person hold) 2-3ins above cannulation site making sure it does not obstruct arterial flow. <i>(To increase the prominence of the veins of the hand or arm some older children & young people can be encouraged to assist by clenching and unclenching a fist prior to the cannulation. The vein may also be massaged gently)</i>
2.4.2	If using Ethyl Chloride local anaesthetic, remind the child or young person how cold the spray becomes, hold hand up behind the chosen site to protect child's face from the mist and spray onto the chosen site for 3 - 7 seconds.
2.4.3	Dab the patient's skin carefully using SEPPS® and allow to dry naturally for at least 30 seconds without fanning, blotting, or blowing the skin. Do not re-palpate the vein or touch the skin
2.4.4	Anchor vein by applying manual traction to the skin a few centimeters below the proposed insertion site.
2.4.5	Insert the cannula smoothly at an angle of approx 30 degrees (depending on size and depth of vein)
2.4.6	Reduce the angle of descent and level off the cannula as soon as a flash back of blood is seen in the neck of the butterfly or when puncture of the vein is felt.
2.4.7	Advance the complete cannula into the veins a few millimeters more until a second flashback is seen at the end of the stylet (second flashback) this may be very slow in infants who have lower pressure in their veins.
2.4.8	Now advance the cannula into the vein 'over-the-stylet' whilst slowly withdrawing the stylet until the cannula is in place up to the hub. Completely withdraw stylet and release the tourniquet effect
2.4.9	If unsuccessful after 2 attempts seek assistance from experienced colleague or ST3 and above. - a new cannula must be used for each attempt
2.4.10	Attach Sodium Chloride primed T-connector and flush cannula to ensure patency. The amount of flush used will be dependent on the weight and size of the child/young person, other fluids being given and the treatment to be commenced (approx 0.5 ml for neonate to 5ml for older child) Secure the cannula with strips of tape integrated with the dressing. Ensure entry site is visible when applying strips. If no blood samples are required- Go to 2.4.14
2.4.11	If taking blood from the cannula Attach empty syringe and withdraw 1-2mls of blood and discard. Attach new syringe and withdraw the amount of blood required into a syringe, maintaining stability of the cannula and T extension throughout. After obtaining blood samples, flush cannula again to ensure patency.

2.4.12	<p>Transfer the blood into appropriate specimen bottles as soon as possible, making sure that the correct quantity is placed in each container.</p> <p>Blood should be placed into tubes in the correct order:</p> <ul style="list-style-type: none"> • Blood Culture • Coagulation • Additive tubes such as – gel separator tubes (may contain clot activator or heparin) <ul style="list-style-type: none"> o Heparin tubes o EDTA • All other tubes <p>(Care must be taken with small babies and children not to withdraw more than the recommended blood volumes on a single or multiple occasions)</p> <p>Care must be taken to not contaminate tip of syringe or top of bottle. This may cause inaccuracies in results e.g. a contaminated syringe could cause increased potassium levels within U&E's</p> <p>It is critical in many tests that the correct volume is added to the bottles.</p> <p>Gently invert tubes at least 6 times.</p>
2.4.13	<p>Apply suitable securing devices such as splints to prevent dislodging however if molded splints are being used, it is imperative that the correct size is applied, and pressure points protected and inspected frequently. Cover with tubular bandage.</p>
2.4.14	<p>If Blood samples have been obtained, they should be labelled immediately.</p> <p>Label the bottles with the following details:</p> <ul style="list-style-type: none"> • Patients full surname • Full forename • Date of birth • Hospital Number • Ward or department <p>Samples must always be labelled at the Child's side. They should never be removed from the Child's side unlabeled</p> <p>Inadequately labelled samples will be rejected by the Laboratory and will need to be repeated</p> <p>During this time ensure patients confidentiality by making sure that the patients' details are not on display to the public.</p>
2.4.14	<p>Ensure Blood samples are placed in the correct specimen blood request bag.</p> <p>Ensure urgent samples are air tubed or hand delivered to the labs</p> <p>Check all samples as to whether they need special transportation to labs i.e., Hand delivering, or ice. NB Certain samples will be damaged if sent in the air tube transportation system</p>
2.4.15	<p>Blood from children & young people who are carriers of blood borne viruses must be placed in a bio-hazard bag and a 'danger of infection' sticker applied to the request form.</p>
2.4.16	<p>Dispose of all sharps into a sharps container at the point of use</p>
2.4.17	<p>Ensure that the child and parents are comfortable after the procedure.</p>

2.4.18	Remove gloves, apron and any other protective equipment, dispose in a clinical waste bag and then clean hands before leaving the child's side.
2.5.19	Clean tray in accordance with infection prevention guidelines
2.5.20	Document the procedure in the child or young person's notes noting if the child or their parents were particularly upset or if the procedure was traumatic or any marks or bruising was caused by holding the child still. Insert completed orange cannula insertion sticker or cannula pathway into nursing notes.
2.6 Aftercare	
2.6.1	Maintaining patency Peripheral cannulas must be flushed with 0.9% Sodium Chloride: <ul style="list-style-type: none"> • Before, between and after the administration of drugs or infusions • At least every 12 hours if not accessed to administer drugs or fluids (consider whether the cannula is still required and should be removed as soon as no longer required)
2.6.2	Ongoing Monitoring All patients with an intravenous access device in place must have the IV site checked for signs of phlebitis. <ul style="list-style-type: none"> • 2-3 times a day during routine flushing • Each time bolus injections are administered • IV flow rates are checked or altered (at least hourly) • When solution containers are changed • Ensure giving set and IV infusions are labelled as per UHL IV policy
2.7 Cannula Removal	
2.7.1	In children and young people peripheral cannula should only be removed when treatment has been discontinued or sooner if complications are suspected. In circumstances where venous access is limited e.g. neonates the removal must be discussed with medical staff A peripheral cannula must be removed as soon as it is no longer required Only in exceptional circumstances should a cannula remain in situ for more than 5 days at which stage a referral to the vascular access team is required and these circumstances must be clearly documented in medical and nursing notes.
2.7.2	Non-registered staff are able to remove a cannula once they have been assessed as competent.
2.7.3	Introduce yourself to the child and family Depending on the age and development of the child or young person, explain the procedure to them and their parents or carers and obtain their verbal consent. (<i>You may need to involve a play specialist to gain a suitable level of understanding and distraction during the procedure</i>)

2.7.4	Using a clean plastic tray (as detailed above in 1.5) collect equipment– clean gloves, apron, sharps bin, sterile gauze, plaster
2.7.5	Apply apron and clean hands
2.7.6	Reassure child and family and make sure they are in a comfortable and safe position.
2.7.7	Clean hands and apply clean gloves
2.7.8	Remove dressing from around the cannula allowing the child to help as appropriate and then using an aseptic non-touch technique pull back on the cannula to remove it from the vein. Consider the use of adhesive remover (Apeel) to minimize trauma to the skin.
2.7.9	Apply pressure to the insertion point using the sterile gauze until the bleeding has ceased.
2.7.10	After checking if the child is allergic to plasters cover the insertion site with a sterile dressing/plaster. Consider ingestion risk when applying plasters to infants and very young children.
2.7.11	Inspect the removed cannula to ensure it is complete. Any incomplete cannula should be reported to the Doctor or Nurse in charge immediately
2.7.12	Dispose of all sharps into a sharps container at the point of use.
2.7.13	Ensure that the child and parents are comfortable after the procedure
2.7.14	Remove gloves and apron and dispose as clinical waste, clean hands before leaving patients side, clean plastic tray as before.
2.7.15	Document the removal of the cannula and the anxiety levels of the child and family in the patients notes. DOCUMENT any damage caused by the cannula. If advice is needed, refer to Tissue Viability or medics immediately.

3. Education and Training

- 3.1 Staff undertaking this procedure must have had the necessary training and assessment of competence using a suitable competency assessment tool such as Leicester Clinical Assessment Tool (LCAT) or Direct Observation of Supervised Practice (DOPS)
- 3.2 Training is provided by the Clinical Skills Unit and can be booked via HELM
- 3.3 Staff new to the Trust who have been trained elsewhere must:
- a) Provide evidence of the training and assessment programme they have successfully completed
 - b) Comply with the relevant Trust policies and undertake additional training relating to equipment and documentation as required
 - c) Undertake a one off practical assessment by an appropriate assessor within own CMG/Ward/Unit if deemed necessary or insufficient evidence of previously competence provided

4. Monitoring Compliance

The Monitoring and Audit criteria for the procedure detailed in the guideline is described in Section 7 of the Venous Access in Adults and Childrens policy (Trust ref B13/2010)

5. Supporting References

<https://www.gosh.nhs.uk/health-professionals/clinical-guidelines/peripheral-venous-cannulation-children>

6. Key Words

Cannulation, Cannula, Peripheral, IV,

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) M Holyland – Children's Specialist Nurse E Hall – Children's Specialist Nurse	Executive Lead Chief Nurse
Details of Changes made during review: June 2023	
Added reference to prefilled sodium chloride syringes	
Re-worded point 2.3.1 in regards to introductions and explanations	
Added 2.3.4 – warning of potential skin damage	
Updated key parts section	
When administering Ethyl chloride spray onto the chosen site for 3 - 7 seconds (previously 7 seconds only)	
2.4.8 Completely withdraw stylet now added – ‘and release the tourniquet effect’	
2.4.10 – added guidance regarding flushing the cannula	
2.4.12 – updated blood sample taking section	
2.6.2 added labelling of IV infusions in accordance with Trust policy	
2.7.8 added - Consider the use of adhesive remover (Apeel) to minimize trauma to the skin	
2.7.15 – Added DOCUMENT any damage caused by the cannula. If advice is needed, refer to Tissue Viability or medics immediately	