1.Introduction and Who Guideline applies to

1.1 This document sets out University Hospitals of Leicester (UHL) NHS Trust procedure for the insertion, care of and removal of a peripheral cannula in adults with the aim to provide safe and effective care and prevent Infection caused by the introduction of micro-organisms

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

1.3 This procedure applies to all Health Professionals employed by UHL and includes (not a definitive list) Doctors, Registered Nurses, Registered Midwives, Phlebotomists, Healthcare Assistants, Nursing Associates, Assistant Practitioners, Clinical Aids, Scientific Staff, Radiographers, Research Assistants.

1.4 All staff who undertake this procedure must be appropriately trained as detailed in Section 6 of Venous Access in Adults and Children Policy (Trust ref B13/2010) and section 3 of this guideline. They must also be authorised by their line manager, carry out this activity as an integral part of the key responsibilities within their role and it must not be considered outside their scope of professional practice

1.5 This guideline must be used in conjunction with:

a) Venous Access in Adults and Children Policy (Trust ref B13/2010)

b) IV Policy (B25/2010) V6 16/12/2022

1.6 For cannulation in children please see the Procedure for the insertion, care of and removal of a peripheral cannula in a child (Trust ref B34/2010)

2.Guideline Standards and Procedures

2.1 Administration of the 0.9% Sodium Chloride Flush

a) Registered Professionals authorised to use Patient Group Directions (PGDs) are able to administer under this protocol

b) Staff not authorised to use a PGD and unregistered professionals (i.e. Healthcare assistants, Clinical aides) may administer a single 0.9% prefilled, labelled sodium chloride flush immediately after peripheral cannulation to adult and paediatric patients. There is no requirement to prescribe or document the administration of a flush after cannulation when using as this product is deemed a medical device rather than a POM. The flushing of the cannula will become part of the cannulation procedure.

c) Any learner (i.e. Medical, Nursing, AHP) who as part of the formal requirements of their course, can cannulate, may only administer a pre-filled and labelled sodium chloride flush to patients under supervision of a Registered practitioner, who is competent in the skill of cannulation.

d) If a prefilled and labelled sodium chloride flush is not available and a 0.9% Saline flush must be drawn up from an ampoule, this will need prescribing and signed after administration, and will require an independent check. Completion of the cannulation competency is required for any staff who cannulate.

2.2 **Key Parts of the Cannulation Procedure**

Key parts are items which come into contact with broken skin or mucosal layers creating a potential portal of entry for micro-organisms. They include: cannula tip and hub, needle free extension connector and hub / 0.9% Sodium Chloride, syringe tip, needle and dressing

2.3 The Peripheral Vascular Access Device Care Bundle supplied with the cannulation packs is detailed in Appendix two of the Venous Access in Adults and Children Policy (Trust ref B13/2010).

No.	Procedure for the Insertion, Care of and Removal of a Peripheral Cannula in Adults
1.	**Pre Procedure**
1.1	Clean hands, as per UHL hand hygiene policy. (Trust Reference B32/2003) Sanitiser is appropriate unless hands are visibly soiled. Check hands for any visibly broken skin and cover with a waterproof dressing Put on a plastic apron and clean gloves from a dedicated box (e.g. not from a box kept in the sluice) Clean both sides of the aseptic field, (a large plastic tray with sides is most suitable for transporting equipment safely) with Chlorclean or distel wipes, starting on the inside and finishing on the outside. Allow to air-dry. Disinfection occurs during the evaporation process. if this cannot be achieved dry the tray with paper towels and then disinfect using 70% Industrial Methylated Spirits. Remove gloves and apron, clean hands
1.2	Where available a cannulation pack must be used and supplemented with the equipment asterisked* below. Where NOT available 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) Check all packaging for any damage and expiry date before opening and preparing the equipment protecting key parts Equipment: a) *Tourniquet – single use b) Appropriate sized safety Cannula c) *Needlefree hub / extension set d) *10 ml Syringe, Filtered blunt needle e) 10 mls 0.9% Sodium Chloride Flush or Pre-Filled saline flush Syringe, 5ml to prime the needle-free cannula extension and 5 ml to flush the cannula at the end of the procedure. If a need free extension set is NOT being used, then use 5ml to flush. Prescription practice may vary, e.g. some departments may utilised pre-printed use stickers. f) 2% Chlorhexidine gluconate in 70% alcohol skin preparation g) Transparent Dressing h) *Sharps Bin i) *Clean gloves from a dedicated box (e.g. not from a box kept in the sluice) and apron j) *Other protective clothing as risk assessed (see Preventing Transmission of Infective Agents Policy and Isolation Guidelines Trust Ref B62/2011) k) * Peripheral Vascular Access Device Care Bundle and insertion sticker
1.3	If using a pre-filled saline flush syringe (BD), break the seal, remove air bubble and remove cap once ready to flush. Prime the needle-free hub extension set and place carefully in your aseptic field protecting key parts If using an ampoule of 0.9% sodium chloride - the 0.9% sodium chloride flush must be checked by two members of staff, one of whom must be a registered practitioner who has been assessed as IV competent. Draw up the flush with a needle and syringe and 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

1.4	Approach the patient in a confident manner, Clean hands before touching any items in the patient zone Confirm the patients identity as per the UHL Patient ID Policy (Trust ref B43/2007)

No.	Procedure for the Insertion, Care of and Removal of a Peripheral Cannula in Adults
1.5	Explain and discuss the procedure with the patient / family / carer. Allow the patient to ask questions and discuss any concerns
1.6	Check allergy status of patient, including skin preparation, dressings, latex, medications
1.7	Ensure there is sufficient lighting, ventilation and privacy to perform the procedure Protect the patient's clothing and surrounding area with sterile field support the chosen arm with a pillow
1.8	Before contact with the patient clean hands again Identify the appropriate vein and site for cannulation taking into consideration any specific sites that should be avoided. Discuss with the patient any preferences
1.9	Consider applying local anesthetic cream (AmetopTM) to the potential cannulation site(s). This may be beneficial for some groups of patients who may find cannulation a distressing experience. The local anesthetic cream must be prescribed
2	**During the Procedure**
2.1	Apply a tourniquet 2-3 inches above the chosen cannulation site making sure it does not obstruct arterial flow. If the radial pulse cannot be palpated then the tourniquet is too tight. To increase prominence of the vein the patient can be encouraged to clench and unclench their fist and where possible let the arm hang down. A heat pack can also be used or the patients hand placed in a bowl of warm water The tourniquet should not be applied for an extended period of time in order to prevent circulatory impairment and should be removed whilst cleaning the skin and then reapplied.
2.2	Select the vein using visual inspection and palpation.
2.3	Select the device, based on vein size, site etc.
2.4	Clean hands and put on apron and gloves Clean the patient's skin carefully using 2% chlorhexidine gluconate in 70% alcohol skin preparation, rubbing for at least 30 seconds and allow to dry naturally without fanning, blotting or blowing the skin. Do not re-palpate the vein or touch the skin
2.5	Remove the cover from the cannula and inspect the device carefully for any defects
2.6	Anchor the vein by applying traction to the skin a few centimetres below the proposed insertion site and insert the cannula through the skin at an angle of 25-35 degrees
2.7	Penetrate the skin and advance the cannula into the vein until there is evidence of blood into the flashback chamber
2.8	Slightly lower the cannula until it is almost flush with the skin, adjusting the direction of the cannula to that of the vein
2.9	Withdraw the introducer 2-3mm from the cannula at this point blood should be seen between the cannula and needle

2.10	Whilst stabilising the introducer, advance the cannula forward into the vein OR slowly advance the cannula and introducer as one into the vein Release the tourniquet ,remove the introducer, and cap the cannula with the needle-free hub extension set

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2.11	Secure the cannula with a sterile transparent semi-permeable dressing, write the date of insertion on the dressing
2.12	Using the needle-free hub extension flush the cannula with 5mls of 0.9% Sodium Chloride
2.13	If cannulation is unsuccessful after 2 attempts seek assistance – a new cannula must be used for each attempt
3	**After the Procedure**
3.1	Dispose of all sharps into a sharps container at the point of use
3.2.	Ensure the patient is comfortable and they know how to contact staff if they have any concerns
3.3	Remove gloves and apron and dispose as clinical waste, clean hands before leaving patient zone Put on PPE, clean plastic tray as before
3.4	Document procedure in the patient's case notes, using the sticker and Peripheral Vascular Access Device Care Bundle documentation provided in the pack.
4	**Aftercare**
4.1	**Maintaining patency** Peripheral cannulas must be flushed with 0.9% Sodium Chloride: • Before, between and after the administration of medicines or infusions • At least every 8 hours if not accessed to administer drugs or fluids (consider whether the cannula is still required and remove as soon as no longer required)
4.2	**Ongoing Monitoring** All patients with an intravenous access device in place must have the IV site checked for signs of phlebitis. • 3 times a day during routine flushing (literature recommends flushing every 8 hours therefore cannula should be checked at this time) • Each time bolus injections are administered • When IV flow rates are checked or altered • When solution containers are changed
5	**Cannula Removal**
5.1	Do not change the cannula routinely to reduce the risk of infection. The cannula must be removed as soon as it is no longer required or if there are any signs of infection, inflammation or extravasation. (Please refer to the Venous Access in Adults and Children Policy, Trust ref B13/2010 for specific timeframes)
5.2	Using a clean plastic tray (as detailed above in 1.1) collect equipment - clean gloves, apron, sharps bin, sterile gauze, sterile dressing and assemble protecting the key parts
5.3	Apply apron and clean hands
5.4	Reassure patient and make sure they are in a comfortable position

5.5	Clean hands and apply clean gloves, remove dressing from around the cannula and without touching the insertion site pull back on the cannula to remove it from the vein
5.6	Apply pressure to the insertion point using the sterile gauze until the bleeding has ceased

No.	Procedure for the Insertion, Care of and Removal of a Peripheral Cannula in Adults
5.7	Cover the insertion site with a sterile dressing (checking the patient has no allergies to the dressing)
5.8	Inspect the removed cannula to ensure it is complete. Any incomplete cannula should be reported to the Doctor or Nurse in charge immediately
5.9	Dispose of all sharps into a sharps container at the point of use
5.10	Ensure the patient is comfortable and is not experiencing any further bleeding from the puncture site
5.11	Remove gloves and apron and dispose as clinical waste, clean hands before leaving the patient zone, clean aseptic field as before
5.12	Document the time and date of removal of the cannula
6	**Decontamination of Ultrasound probes – UHL Policy B33 / 2016**
6.1	If an Ultrasound probe is used as part of the insertion of peripheral cannula procedure it is essential that all probes are decontaminated correctly. Please refer to UHL Policy for the decontamination of Ultrasound probes B33 / 2016
7	**Safe use of Ultrasound Gel – UHL Guideline B4 / 2022**
7.1	For guidance on the Safe use of Ultrasound Gel please refer to UHL policy B4 / 2022

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 or delegated to CMG / Wards / clinical areas with agreement and support of the clinical skills lead.

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

3.4 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 policy 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.

4.**Monitoring Compliance**

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

5.**Supporting References (maximum of 3)**

O'Grady et al, (2011) Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011Center for Disease Control http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf

H.P. Loveday et al (2014) epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England, Journal of Hospital Infection, Elsviere, London

6.**Key Words**

Cannulation, cannula, venflon, IV,

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) **Lee Rowley, Clinical Skills Unit Manager**	**Executive Lead:** **Andrew Furlong, Medical Director**
Details of Changes made during review: V1 Approved by: Policy and Guideline Committee on 28th May 2010 V2 Approved by PGC 30 May 2014 V3 – June 2017, review of V1. Updated into latest Trust template, revised education and training section and scope of guideline to include new roles. Procedure reviewed to reflect latest infection prevention practice. V4 – February 2023 - Routine guideline review as renewal required by June 2023 - revised guidance in relation to the administration of Pre Filled saline flush to align this guideline with the Administration of Injectable Drugs policy V6 (IV Policy) B25/2010 as approved by P&G December 2022. (see section 2 of main guideline and section 1.3 of procedure guidance). Revision of Education and training section 3.2 to reflect CMGs/ Wards / Clinical areas can be delegated to cannulation training with the agreement and support of clinical skills lead.	