

Acute Care Team Adult Lower Limb Cannulation and Venepuncture SOP

Issue Date	Review Date	Version
June 2019	June 2024	4

Purpose

To set out guiding principles on the use of lower limb cannulation and venepuncture by Acute Care Team staff, including Doctors Assistants

Who should read this document?

These guidelines are applicable to all Acute Care Team (ACT) Registered Nurses and Support Workers
 Medical Staff
 Trainers and Clinical Educators involved in cannulation training
 All staff involved in the care of patients with difficult venous access within or on behalf of Plymouth Hospitals NHS Trust.

Key Messages

- Assessment of need for intravenous access should be completed before any cannulation attempt.
- Cannula insertion site should be determined by risk of infection and other complications.
- Lower limb cannulation / venepuncture should **not** be performed routinely.
- Before a lower limb cannulation / venepuncture is considered, upper limb cannulation should be attempted by at least one *experienced* practitioner. This practitioner should have had two attempts at two separate upper limb sites.
- When upper limb cannulation fails, this may pose a significant clinical risk for the patient requiring urgent intravenous treatment.
- When upper limb cannulation attempts fail, lower limb cannulation is currently only attempted by medical staff, many of whom have little practical experience in these skills and have had no formal training/competency assessment completed.
- Acute Care Team Staff who are expert in cannulation and venepuncture, are regularly called to assist with patients who have difficult venous access.
- If the lower limb is used the cannula should be re-sited as soon as possible , and within 48 hours

Core accountabilities

Owner	Colin Fairhurst, Clinical Nurse Specialist Vascular Access
Review	Vascular Access Team
Ratification	Dr Andrew Porter, Clinical Lead Vascular Access
Dissemination (Raising Awareness)	Trust-wide
Compliance	All staff undertaking lower limb cannulation and those staff involved in the care and maintenance of these devices.

Links to other policies and procedures

Guidelines for the Management of Peripheral Intravenous Devices v3
 PHNT Venepuncture Policy V4, 2013
 PHNT Hospital Transfusion policy 2012

Version History

V1	July 2013	
V2	Feb 2016	Minor Amendments
V3	September 2016	Minor Amendments
V4	May 2019	Minor Amendments

The Trust is committed to creating a fully inclusive and accessible service. Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff. We will treat people with dignity and respect, promote equality and diversity and eliminate all forms of discrimination, regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/maternity.

**An electronic version of this document is available In Document Library.
Larger text, Braille and Audio versions can be made available upon request.**

Standard Operating Procedures are designed to promote consistency in delivery, to the required quality standards, across the Trust. They should be regarded as a key element of the training provision for staff to help them to deliver their roles and responsibilities.

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Standard Operating Procedure (SOP)

Acute Care Team Adult Lower Limb Cannulation and Venepuncture Standing Operation Procedure

1 Introduction

Veins in the lower limbs should not be used routinely in adults due to the increased risk of embolism and thrombophlebitis (Maki and Marmel 1988), and should be re-sited in an upper limb as soon as possible (PHNT Guidelines for the Management of Peripheral Intravenous Devices).

Currently ACT staff members are called to assist with “difficult access” patients and regularly successfully place a cannula after a number of failed attempts by other health care professionals. The current position is when upper limb cannulation attempts fail, lower limb cannulation is only attempted by medical staff, many of whom have little practical experience and additional training in these skills.

2 Definitions

Before performing the skill of lower limb cannulation or venepuncture independently, the practitioner must complete additional training and have been assessed as competent in these skills.

3 Regulatory Background

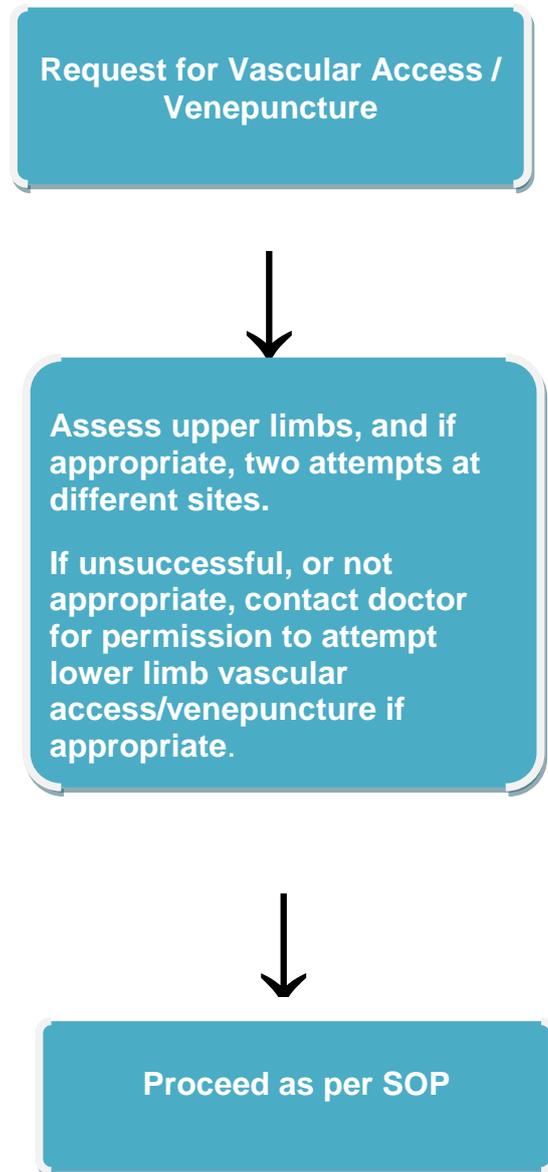
- Department of Health Code of Conduct for Healthcare Support Workers and Adult Social Workers in England 2013
- EPIC 3: National Evidence-Based Guidelines for Preventing Healthcare Associated Infections in NHS Hospitals in England H.P. Lovedaya*, J.A. Wilsona, R.J. Pratta, M. Golsorkhia, A. Tinglea, A. Baka, J. Brownea, J. Prietob, M. Wilcoxc.(2014) Journal of Hospital Infection 86S1 (2014) S1– S70
- Maki DG and Marmel LA 1988. Infections due to Infusion Therapy (1988) in Bennett JV, Brachman PS, eds. Hospital Infections. 4th Ed Philadelphia: Lippencot-Raven, 158:81-7.
- Nursing and Midwifery Council 2008 The Code; Standards of Conduct, Performance and Ethics for Nurses and Midwives
- Plymouth Hospitals NHS Guidelines for the Management of Peripheral Intravenous Devices v4 2013
- Plymouth Hospitals NHS Medicines Management Policy 2012 V7
- Plymouth Hospitals NHS Trust Guidelines for Aseptic Technique 2012
- Plymouth Hospitals NHS Trust Hand Hygiene Guidelines 2015 V1.
- Plymouth Hospitals NHS Trust policy for Non-Medical Prescribing 2014 V5.1
- The Health and Social Care Act 2008 Code of Practice on the Prevention and control of

infections and related guidance.

4 Key Duties

Once trained and assessed as competent in the skill, staff must identify and training needs or other concerns through their line manager and report to the Vascular Access CNS.

5 Procedure to Follow



Lower Limb Venepuncture

Prior to undertaking this competency, the practitioner must receive theoretical training, have previously been assessed as competent in venepuncture, **and** be regularly using this skill

Before practicing this skill independently the practitioner must be directly supervised by an SpR or Consultant working within Anaesthetics, Critical Care or the Vascular Access CNS's or their delegates and assessed as competent.

Note to assessor: The learner needs to have achieved enough supervised practice to feel confident to complete the practical assessment. The assessor should be aware of the learner's ability prior to the assessment. The assessor must be confident in the learner's competence before signing assessment documentation.

Procedure to follow:

General Guidelines

- The patient must be positively identified before obtaining a blood sample.
- Pre labelling of samples must not occur under any circumstances (PHNT Hospital Transfusion Policy 2012).
- All equipment must be within its expiry date and packaging intact prior to use.
- Patients should be informed about the procedure, including rationale and potential risks and consent gained.
- If patients are needle phobic, a local anaesthetic cream may be used under direction of medical practitioner. This must be prescribed.
- The BD Eclipse safety needle and Vacutainer system, or Safety Lok Butterfly methods **MUST** be used to take bloods. Syringe and needle method should only be used in very exceptional circumstances. Where syringe and needle methods are used a Transfer device should be utilised to minimise haemolysis and personal risk whilst transferring the blood to the vacutainer.
- The veins of the foot are particularly friable and sensitive, and a suitable sized butterfly should ideally be used.
- Gloves should always be worn
- Skin does not need cleaning prior to venepuncture unless;
 1. Blood cultures are being taken
 2. The patient is socially unclean
 3. The patient is immuno-compromised.
- Blood should be taken from the non-cannulated side of the patient. If this is not possible the infusion should be stopped for at least 20 minutes and documented. If the infusion cannot be turned off then the line should be stopped, flushed, and the sample taken below (distal) to the cannula. This should only be undertaken by someone competent in IV drug administration and documented accordingly.
- Blood should be taken as per UHPNT Order of Draw.
- Once the needle is removed from the patient, a minimum of 2 minutes direct pressure should be placed onto the affected area. If the patient is receiving treatment which will cause blood to take longer to clot e.g. anticoagulants, steroids, then at least 5-10 minutes of pressure will be required.
- An appropriate dressing should be applied to the venepuncture site after the procedure. The patient should be advised to keep the dressing in place for a minimum of 30 minutes.

- ICM requests / forms and blood bottles should be completed with patient's details whilst by the patient's bedside, using the patient's ID band. They should never be taken away from the bedside to be labelled (PHNT Hospital Transfusion policy 2012).
- All samples must be signed by the person performing the venepuncture, without obscuring other details or the barcode (in case of iSOFT specimens)

Improving Venous Access

The tourniquet should be placed 8-10cm above the insertion point (RCN Standard 2011) Rubber gloves should not be used as these cannot be released quickly and can cause tissue damage. Tourniquets should be removed after 3 minutes whilst finding the vein, but must be removed within 1 minute of blood sampling to prevent haemolysis.

The following techniques can be used to try to improve venous access:

- Lowering the limb
- Applying a warm compress
- Massaging the area in one direction (tapping is not recommended as this can cause pain and bruising)

Taking Blood Cultures

Please refer to the following for guidance in this procedure:

- Plymouth Hospitals NHS Trust Policy Guidelines for the Management of Peripheral Intravenous Devices. 2013
- Saving Lives Taking Blood Cultures, 2010

Procedure for peripheral venepuncture

Equipment

- Clinically clean tray containing prepared equipment and sharps bin
- BD Eclipse safety needle or Safety Lok Winged Infusion Set.
- Needle holder
- Appropriate vacuumed specimen tubes
- Order of Draw Card.
- Sterile dressing or swab for puncture site.
- Clean Tourniquet.
- Gloves and aprons as required for standard precaution measures.
- Specimen request form or appropriate Order Communications equipment (iCm laptop and printer)

1. Positively identify the patient. Positive ID entails asking patient to state their full name and DOB and checking against wristband. (note: wristbands may not be available in OPD Phlebotomy suite and in the Emergency department)
2. Explain the procedure about to be undertaken.
3. Obtain informed consent.
4. Allow the patient time to ask questions and discuss previous problems with blood taking.
5. Assemble the equipment necessary
6. Wash hands using soap and water and dry thoroughly

7. Operator should cover any visibly broken areas of own skin with a waterproof dressing. Gloves and other protective measures should be worn as appropriate
8. Check all packaging before opening and prepare the equipment on a clean receptacle.
9. Proceed to the patient and check identity, using their wristband.
10. Ensure lighting, ventilation, privacy and positioning are adequate.
11. Choose which limb to use, being careful to avoid the same side where an infusion is present. Avoid any area with poor skin integrity e.g. eczema. Support the chosen limb.
12. Apply the tourniquet (if required) 8-10cm from the puncture site to help with vein selection. Ensure arterial flow is not obstructed.
13. If there is difficulty feeling a suitable vein you may do the following;
 - Gently massage the vein.
 - Apply warmth to the area.
 - Lower the limb.
14. Select the vein of choice and then remove the tourniquet again until ready to proceed when it should then be re-applied again
15. Select a suitable device, based on vein size, planned treatment etc.
16. Use hand rub to decontaminate hands
17. Put on gloves and other protective measures.
18. Inspect the device carefully.
19. Anchor the vein by applying manual traction on the skin a few centimetres below the proposed insertion site.
20. Insert the BD Eclipse safety needle smoothly at an angle of approximately 15 degrees, ensuring bevel of needle is pointing up.
21. Push vacutainer bottles into the needle holder using firm but gentle pressure, ensuring the needle remains still. Bottles to be drawn in the order on the 'Order of Draw' card
22. When blood is collected in a syringe using a butterfly (or in the very exceptional circumstance that a syringe and needle has been used), a blood transfer device should be used to transfer blood into specimen bottles.
23. Release the tourniquet when blood is seen entering the first vacutainer tubes i.e. within 1 minute.
24. Ensure all bottles are filled to the fill mark.
25. Prepare swab, remove the needle fully and then apply pressure
26. Dispose of the needle safely into the sharps box.
27. Apply digital pressure directly over the puncture site until bleeding has stopped (approx two minutes, possibly longer with clotting disorders.)
28. Label the bottles with the relevant patient details (see general guidelines). This must be done by the person taking the bloods, at the patient's bedside. Pre labelling of samples is not acceptable practice. Partial pre-labelling (Immediately prior to collection) should only be undertaken in exceptional circumstances for samples such as split bilirubin where the sample has to be kept in the dark and sent immediately to the laboratory.

29. Inspect the puncture site and apply dressing.
30. Discard waste into appropriate containers.. Dispose of sharps at the bedside replacing temporary closure on sharps bin.
31. Remove gloves and discard in appropriate clinical waste bag and wash hands thoroughly
32. Ensure the patient is comfortable.
33. Follow hospital procedure for collection and transportation of specimens to the laboratory
34. Document actions in patient records, including reason for lower limb venepuncture and requesting doctors' details.

N.B if the patient is immuno-compromised or having blood taken for blood cultures or the skin is not socially clean the skin must be cleaned with Chloraprep prior to venepuncture. (Please note: Chloraprep not licenced for children under 8 weeks).

Lower Limb Cannulation :

Course Title:

Lower Limb Cannulation

Assignment Title:

Lower Limb Cannulation Practical

Submission Deadline Date:

2 months from date of theory

Task:

Prior to undertaking this competency, the practitioner must receive theoretical training from the Vascular Access CNS or deputy, have previously been assessed as competent in cannulation and be regularly using this skill

Assessment:

Before practicing this skill independently the practitioner must be directly supervised by an SpR or Consultant working within Anaesthetics, Critical Care or the Acute Care Team and assessed as competent, or by an Acute Care Team Assistant Practitioner who has been assessed as competent as above.

Learning Outcomes:

The learner will be able to :

- Know and understand the procedures and policies relating to cannulation
- Know and understand the boundaries of responsibility of their role
- Be able to identify individual and select appropriate equipment required.
- Know & understand how to apply a tourniquet
- Know and understand how to prevent infection/sepsis
- Be able to identify suitable vein for cannulation
- Be able to introduce appropriate cannula for patient
- Be able to secure cannula
- Be able to support patient following procedure
- Be able to communicate procedure with colleagues
- Be able to discuss when it is appropriate to use this skill

Note to learner: When practising in this skill you must be directly supervised by an SpR or Consultant working within Anaesthetics, Critical Care or the Vascular Access CNS or their delegate.

Note to assessor: The learner needs to have achieved enough supervised practice to feel confident to complete the practical assessment. The assessor should be aware of the learner's ability prior to the assessment. The assessor must be confident in the

learner's competence before signing assessment documentation.

Procedure

To Improve Venous Access:

A disposable single patient use tourniquet should be used. This should be placed 8-10cm above the insertion point. Rubber gloves should not be used as these cannot be released quickly and can cause tissue damage.

- Lower the limb below heart level
- Applying a warm compress Opening and closing of the fist
- Massaging the area in one direction (excessive tapping is not recommended as this can cause pain and bruising).

Equipment required

Clinically clean tray containing prepared equipment and attached sharps bin with temporary closure across

Safety engineered Cannula(e) of correct gauge for use

Cannulation packs where available which contain the equipment listed below or where not available the practitioner will need to collect :

SEPP applicator (70% alcohol / 2% chlorhexidine)

Sterile cannula dressing (IV3000)

10ml 0.9% Sodium Chloride for flushing or use a pre-filled syringe.

10ml syringe, blunt draw needle

Needleless connector e.g. VAD site

Gloves and aprons as required for standard precaution measures

Tourniquet

Procedure

1. Identify the patient and explain the procedure. Obtain informed consent. N.B if required apply local/topical prescribed anaesthetic in accordance with prescription and guidelines.
2. Collect appropriate equipment in clean tray
3. Wash and dry hands thoroughly
4. Put on gloves and apron
5. Apply the tourniquet and other methods of venous dilation, select the vein

6. Clean the area of the selected vein with SEPP applicator, using a back and forth motion for a minimum of 30 seconds and allow to dry thoroughly. Do not re-palpate the area once cleaned. Ensuring patient has no allergies to product prior to use. **N.B** For neonates please consult the neonatal intensive care unit guidelines.

7. Remove the cannula from packaging and inspect for any faults

8. Stabilise the vein by applying manual traction on the skin

9. Ensure the cannula is in the bevel up position and placing the device over the vein, insert the device at the selected angle (10 – 30 degrees) according to the depth of the patient's vein

10. Wait for the first flashback to appear in the primary flashback chamber of the cannula

11. Level the device by decreasing the angle between the cannula and the skin and advance the cannula a few millimetres to ensure entry into the lumen of the vein

12. Withdraw the needle slightly and a second flashback should appear along the shaft of the cannula. NEVER attempt to reinsert the needle

13. Slowly advance the cannula off the needle into the vein

14. Release the tourniquet and apply pressure to the vein above the cannula tip, remove the needle and place into the sharps bin (sterile gauze may be placed under the cannula to absorb any blood leakage). **DO NOT COVER END OF CANNULA WITH FINGERTIP AT ANY STAGE AS THIS WILL CONTAMINATE CANNULA.**

15. Attach a primed closed connector e.g. VADsite

16. Apply sterile IV3000 dressing, tape should NEVER be used. Date and time to be written on labels provided and this to be adhered to dressing.

17. Flush with 0.9% Sodium Chloride to ensure patency, observing site for signs of swelling or leakage and ask patient if they feel any discomfort

18. Remove gloves and apron

19. Dispose of waste according to appropriate policy and clean tray

20. Wash hands with soap and water

21. Document date and time of insertion, lot number, flush, size / colour of cannula, site, and number of attempts and any complications / actions on prescription chart and patient's notes. Any failed insertions should be documented in the patient's clinical record.

6 Document Ratification Process

The design and process of review and revision of this procedural document will comply with The Development and Management of Formal Documents.

The review period for this document is set as default of five years from the date it was last ratified, or earlier if developments within or external to the Trust indicate the need for a significant revision to the procedures described.

This document will be reviewed by the Dr Andrew Porter and ratified by the Medical Devices Committee

Non-significant amendments to this document may be made, under delegated authority from the Director, by the nominated author. These must be ratified by the Director and should be reported, retrospectively, to the group or committee.

Significant reviews and revisions to this document will include a consultation with named groups, or grades across the Trust. For non-significant amendments, informal consultation will be restricted to named groups, or grades who are directly affected by the proposed changes.

7 Dissemination and Implementation

Following approval and ratification, this policy will be published in the Trust's formal documents library and all staff will be notified through the Trust's normal notification process, currently the 'Vital Signs' electronic newsletter.

Document control arrangements will be in accordance with The Development and Management of Formal Documents.

The document owner will be responsible for agreeing the training requirements associated with the newly ratified document with the named Medical devices committee and for working with the Trust's training function, if required, to arrange for the required training to be delivered.

8 Monitoring and Assurance

- All lower limb cannulation or venepuncture attempts must be requested or agreed by a doctor, and this to be documented in the clinical record by the practitioner.
- All complications related to peripheral vascular access devices are currently reported via the Datix system and reviewed weekly by the Infection Control Team.
- Following lower limb cannulation or venepuncture attempts on-going care is as per Trust Policy Management of Peripheral Intravenous Devices V4.
- All lower limb cannulation or venepuncture attempts must be recorded on the ACT database to allow tracking of any complications.

9 Reference Material

Department of Health Code of Conduct for Healthcare Support Workers and Adult Social Workers in England 2013

- Maki DG and Marmel LA 1988. Infections due to Infusion Therapy (1988) in Bennett JV, Brachman PS, eds. Hospital Infections. 4th Ed Philadelphia: Lippencot-Raven, 158:81-7.
- Nursing and Midwifery Council 2015 The Code; Standards of Conduct, Performance and Ethics for Nurses and Midwives
- Plymouth Hospitals NHS Guidelines for the Management of Peripheral Intravenous Devices 2013 v3
- Plymouth Hospitals NHS Trust Injectable Medicines Policy 2012 V8
- Plymouth Hospitals NHS Trust policy for Aseptic Technique 2012
- Plymouth Hospitals NHS Trust Hand Hygiene Policy 2015 V1.
- Plymouth Hospitals NHS Trust policy for Non-Medical Prescribing 2014 V5.1
- Plymouth Hospitals NHS Trust Standard Operating Procedure Peripheral Cannulation Procedure 2013

- Plymouth Hospitals NHS Trust Standard Operating Procedure Peripheral Venepuncture 2013
- Plymouth Hospitals NHS Trust Hospital Transfusion policy 2012,V7
- The Health and Social Care Act 2008 Code of Practice on the Prevention and control of infections and related guidance