



**SDRN:** Scottish Diabetes Research Network

# Insertion & Removal of a Peripheral Intravenous Cannula

**Clinical S.O.P. No.: 20**

Version 1.0

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## DOCUMENT HISTORY

Version number	Detail of purpose / change	Author / edited by	Date edited
1.0	New SOP	Shona Brearley	

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## 1. Introduction

Peripheral intravenous infusion is a procedure whereby a device, such as a cannula with a flexible tube containing a needle, is inserted into a small peripheral vein for the purpose of administering fluids and/or medications or the obtaining of blood samples.

## 2. Objectives

To describe the procedure on how to insert a peripheral venous access device, that is to remain in situ for a comparatively short period of time, safely reducing the risk of trauma, infection, discomfort and complications to the participant.

## 3. Responsibility

Only research nurses who have attended, and successfully completed, an appropriate training session and have been certified as competent in the insertion of IV cannulae will perform this procedure.

It is the responsibility of the individual to ensure they are appropriately trained to carry out this procedure safely and that they are documented on the trials delegation log to carry out this procedure.

## 4. Equipment List

- Couch or chair for the patient
- Trolley/tray
- IV stand
- Antiseptic gel/rub
- Disposable gloves
- Alcohol impregnated wipe
- Tourniquet
- Cannula (e.g., 18 Gauge – green, 20 Gauge – pink, 22 Gauge-blue)
- Gauze swabs
- Tape to secure the cannula
- Semi-occlusive or transparent dressing
- Selection or appropriate connectors/adapters
- Syringe (for saline flush)
- Sterile sodium chloride for flush
- Giving set
- Intravenous solution
- Vacutainer shield
- Blood sample tubes
- Sharps bin
- Orange plastic disposable bag

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## 5. Procedure

- The delegated member of staff must ensure the correct participant is identified. The identification elements that require to be confirmed are surname, forename, date of birth, research study name/number and if appropriate hospital identification number (CHI - Community Health Index).
- Explain the procedure to the research participant and obtain verbal/informed consent before commencing procedure.
- Ensure all equipment and documentation required for the procedure is at hand before you start to insert the peripheral intravenous cannula. The trolley/work area must be cleaned according to the local infection control guidelines.
- Check all expiry dates on your equipment/materials.
- Ensure the patient is lying down and throughout the procedure continually observe the patient in order to detect pallor/sweating which may indicate a tendency to faint. (If the patient does feel faint during the procedure this needs to be documented as an adverse event and stay with patient until they feel well.)
- Identify an appropriate IV site - the preferred site is a non dominant upper limb avoiding any joints. The state of the participant's veins should be taken into consideration and the vein should where possible be easily detected, patent and healthy.
- Select an appropriate cannula based on purpose, duration of use and age of patient. The smallest sized cannula suitable for the purpose should be selected. (Inspect cannula before insertion to ensure the needle is fully inserted into the plastic cannula and that the needle tip is not damaged.)
- Ensure the patient is comfortable and the arm is supported. Obtain assistance if necessary e.g., if the patient is nervous.
- Throughout the procedure apply the principles of asepsis.
- Prior to commencing procedure wash hands following your local hand hygiene policy and use an alcohol rub/gel. (If there is a known allergy to alcohol use an aqueous based alternative.)
- The wearing of correctly fitting disposable gloves is recommended.
- Prepare the site by wiping with an appropriate skin preparation/alcohol swab and allow to dry naturally before proceeding. (Do not re-palpate after preparing skin.)
- Apply tourniquet above the insertion site. The tourniquet should not be applied for longer than 1 minute. If possible use a single use tourniquet to avoid cross contamination between patients.
- Inform participant that an injection/scratch is imminent.

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- Anchor the vein by applying manual traction on the skin a few centimetres below the proposed cannulation site – this stabilises the vein. With the bevel of the cannula facing upwards insert the needle (and cannula) into the vein.

If there is any sign of swelling, haematoma, pain or resistance the vein wall may be ruptured. The tourniquet must be released and the cannula and needle must be removed immediately and pressure applied with cotton wool.

- Wait for the first flashback of blood in the flashback chamber of the needle and as soon as blood is visible in the cannula advance the cannula over the needle into the vein.
- Withdraw needle slightly and a second flashback of blood will be seen along the shaft of the cannula.
- Maintaining skin traction with the non-dominant hand, and using the dominant hand, slowly advance the cannula off the needle into the vein.
- At this point release the tourniquet and apply pressure to the vein above the cannula tip and withdraw needle from cannula and apply connector/adaptor.
- Secure the hub of the cannula in place with a semi-occlusive or transparent dressing.
- After insertion of the cannula, if any redness, tenderness or swelling is observed around the cannula site, the cannula should be removed and re-sited.
- **IF INFUSION REQUIRED** - prime the line and connect the intravenous giving set to the cannula via the appropriate adaptor.
- Fit any additional connections/adaptors and check for tightness.
- Flush the cannula with 0.9% normal saline or prescribed flush.
- Dispose of clinical waste appropriately at point of use.

### 6. Removal of a Peripheral Intravenous Cannula

- Prior to commencing procedure wash hands following your local hand hygiene policy and use an alcohol rub/gel. (If there is a known allergy to alcohol use an aqueous based alternative.)
- The wearing of correctly fitting disposable gloves is recommended.
- Carefully remove the dressings securing the peripheral intravenous cannula in place.
- Hold a piece of dry sterile gauze over the insertion site and as you remove the cannula immediately apply firm pressure to the site for approximately 2-3 minutes or long enough to ensure that there is no subcutaneous leakage of blood. (This process may take longer if the patient is on any anticoagulation or aspirin therapy.)

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- Apply a suitable dressing to the site where the cannula has been removed. (Before applying any dressings check that patient does not have any known allergies to any of the materials to be used.)
- Inspect the removed intravenous cannula and check that it is complete and undamaged.
- At the end of the procedure dispose of all equipment safely in the appropriate sharps bin and disposable plastic bags.
- Make a record of the procedure in all relevant documentation

## 7. Additional information

- Record the date, time and the name of the person carrying out the cannulation procedure in study specific documentation.
- Document all system equipment used for this procedure e.g., type of cannula, type of connection/adaptors, giving set etc.
- If unsuccessful after 2 attempts consider referring to another competent health care worker to carry out procedure. The same needle must never be re-inserted if unsuccessful.
- Keep the number of lines, connections/adaptors to a minimum and consistent with clinical need.
- If any blood spillage occurs the nurse/delegated person should clean up the spillage in accordance with local infection control policies.

## 8. Patient focused risks associated with PVC's

The use of peripheral intravenous cannulae and the administration of drugs and solutions can occasionally result in complications. Venous reactions can be painful. Correct technique, appropriate standards of hygiene and a sound knowledge of the equipment can minimise their occurrences and severity.

- Extravasation
- Entry site infection
- Blood stream infection
- Phlebitis

It is important that if complications occur they are documented and managed appropriately.

## 9. Staff focused risk factors associated with PVC's

- All blood should be considered potentially infectious and handled accordingly.