

## Intravenous Cannulation

### Purpose

- To provide best practice guidelines for all Registered Nurses accredited as competent to undertake IV Cannulation in the community.

### Scope

Registered Nurses who have completed an approved IV Cannulation Course through an accredited IVNNZ or DHB programme.

### Definitions

- a. Cannula Hollow tube made of silastic, rubber, plastic or metal, used for accessing the body.
- b. Catheter Tube for injecting or evacuating fluids
- c. Catheter dislodgement Movement of the catheter into and out of the insertion site. Causes of catheter dislodgment include inappropriate securement of the catheter, and motion of the extremity, neck or shoulder. Catheter dislodgment may cause occlusion of the catheter and lead to a change in the catheter tip location. Signs and symptoms include changes in the external length of the catheter, clinical signs of local catheter infection, and inability to flush or infuse via the catheter
- d. Closed System Administration system with no mechanism for external entry after initial set-up and assembly.
- e. Extravasation Inadvertent infiltration of vesicant solution or medication into surrounding tissue; rated by a standard scale.
- f. Intermittent intravenous therapy Intravenous therapy administered at prescribed intervals with periods of infusion cessation
- g. Parenteral Administered by any route other than the alimentary canal, for example by the intravenous, subcutaneous, intramuscular or mucosal routes.
- h. Phlebitis Inflammation of a vein; may be accompanied by pain, erythema, oedema, streak formation and/or palpable cord; rated by a standard scale.

### Responsibilities

#### Clinical Nurse Leaders/Clinical Managers/Clinical Team Leaders

- i. To ensure that only those Registered Nurses who have been deemed competent to cannulate following attendance at an approved course and who have maintained their competency through regular skill utilisation are allocated clients requiring cannulation.
- ii. To maintain the Clinical Skills Spreadsheet so up to date information is available as to those Registered Nurses deemed competent.

- iii. To ensure this documentation is made available to TCHS/ACH RNs.

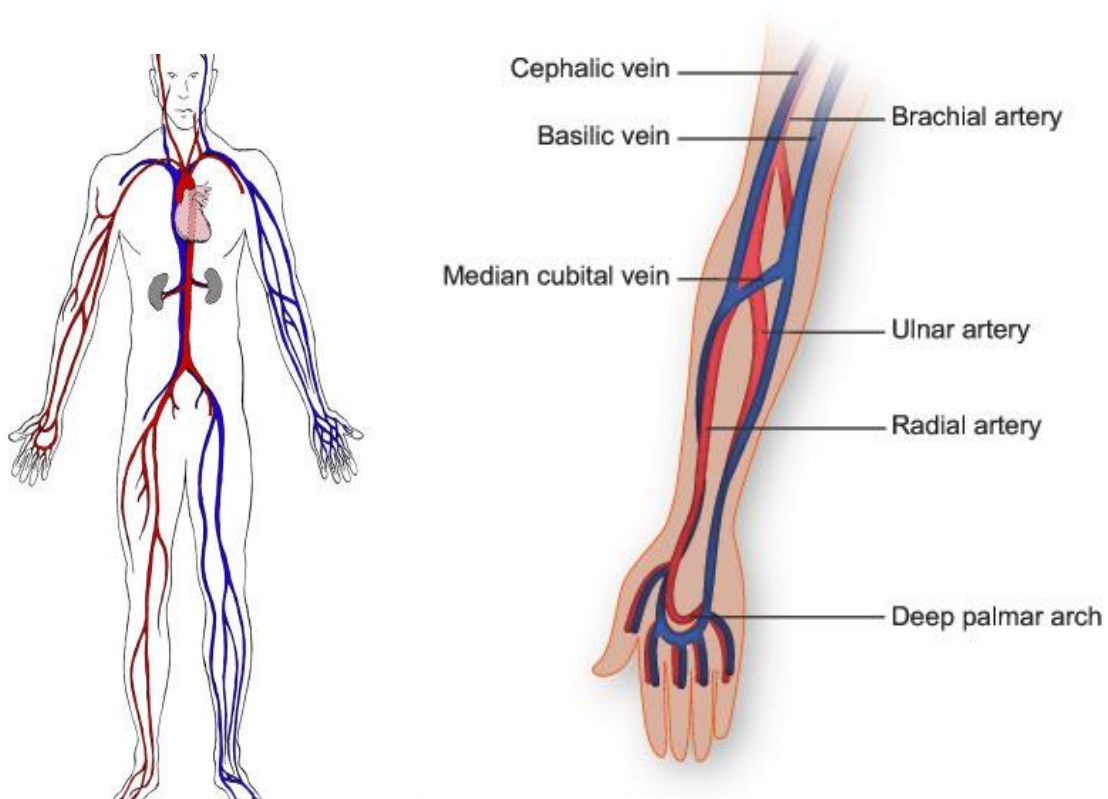
**Registered Nurses**

- i. To attend an approved course and be identified as competent before undertaking the delegated task of cannulation.
- ii. To maintain competency through skill utilisation and attendance at clinical skill update sessions.
- iii. To be familiar with all policy and procedures relating to IV Cannulation and IV Medication Administration.

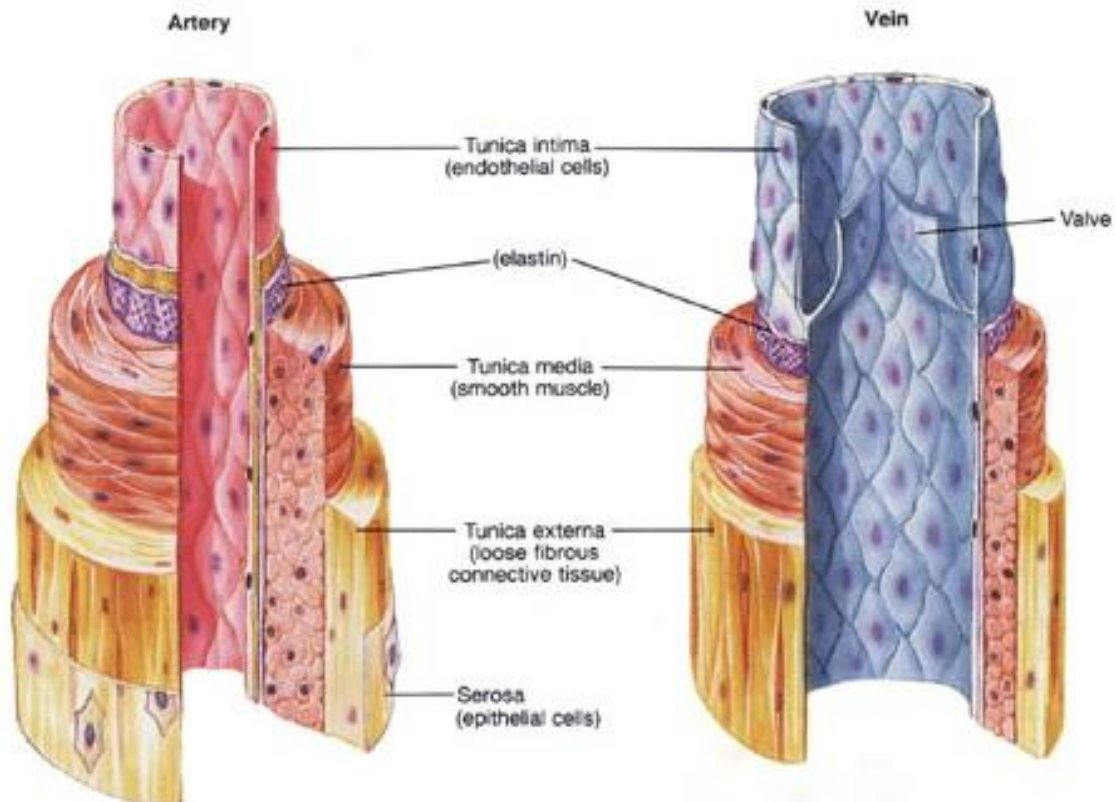
**Procedure**

**SECTION ONE** Venous anatomy and physiology relating to peripheral cannulation

*Diagrams show anatomy of arteries and veins*



<p>Version Number: 2.0 Date Approved: 17-Jul-2020 Review Date: 17-Jul-2025 Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS Title: Intravenous Cannulation Approved by: SLT</p>
--	---	---



### Layers of the Vein

Knowledge of vein wall anatomy and physiology is necessary in understanding the potential complications of intravenous cannulation. The vein wall consists of three layers and each has very specific characteristics and considerations involved in the introduction of IV catheters and the administration of IV fluids.

### TUNICA INTIMA

#### Characteristics

The tunica intima is the inner layer of the vein and consists of a smooth, elastic endothelial lining. This surface allows for an uninterrupted flow of blood cells through the vein. The endothelial lining has several different functions, one of which is its immunologic properties. This allows it to recognise foreign bodies within the vein. Damage to the endothelial lining or introduction of foreign material initiates an inflammatory response. Complications that may develop from damage to the tunica intima include:

- **Phlebitis:** Inflammation of the intimal lining. This response involves the release of chemical mediators from the damaged cells that initiate the inflammatory response. Phlebitis is progressive in nature and if not appropriately managed can seriously affect client outcome.

- **Thrombus:** The development of a blood clot is another potential result of injury to the tunica intima. If roughening occurs on the endothelial layer, platelet aggregation (clumping of cells) occurs which stimulates thrombus formation.



**Injury to the endothelial lining can be mechanical, chemical or bacterial in nature**

- **Mechanical damage** is the actual tearing away of the endothelial lining. This can happen during traumatic IV insertion or by excessive motion of the catheter from frequent manipulation or inadequate taping. This causes roughening of the vein wall surface and allows platelet aggregation to occur.
- **Chemical damage** to the endothelial lining can be a result of administering irritating medications and solutions. Skin prepping agents that aren't allowed to completely dry prior to venipuncture are also irritating to the tunica intima. This allows the skin prep to be dragged into the vein along with the IV catheter.
- **Bacterial** introduction into the vein is related to contamination of the IV site or IV catheter during or after the venipuncture procedure.

**Special Considerations**

**Older Population**

- The endothelial lining becomes thickened and less smooth, increasing the risk of platelet aggregation and thrombus formation.
- The vein lumen becomes smaller as a result of this thickening and may affect the ability to successfully thread the catheter.
- Thickening of the intimal layer slows perfusion.

**Paediatric Population**

- The vein lumen is much smaller in paediatric patients.
- The intimal lining increases in fragility with the degree of prematurity.
- The vein fragility increases the potential of infiltration.

**TUNICA MEDIA**

**Characteristics**

The middle layer of the vein wall consists of muscle and elastic tissue. This layer is thick and comprises the bulk of the vein. The nerve fibres that control vasoconstriction, vasodilatation and maintain muscle tone are in the tunica media.

Vasospasm can also occur in a patient who is anxious, making the venipuncture difficult. Patients may also feel pain during the venipuncture when the needle penetrates this layer.

**Specific Considerations**

**Older Population**

- Elastin fibres become frayed, fragmented and brittle. This affects the ability of the vein to dilate and constrict. The loss of elasticity may cause difficulty with optimal vein dilation and leaking at the IV site.

<p>Version Number: 2.0 Date Approved: 17-Jul-2020 Review Date: 17-Jul-2025 Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS Title: Intravenous Cannulation Approved by: SLT</p>
--	---	---

- Muscle fibres are replaced with collagen, fatty plaques and calcium deposits. This can make the vein hard and more difficult to access.
- Remove the tourniquet immediately following venipuncture to avoid increased vascular pressure that may stretch the venipuncture site and cause leaking at the insertion site.

## TUNICA ADVENTITIA (externa)

### Characteristics

The outer layer of the vein consists of connective tissue. The adventitia provides support and protection for the vein. Also contained in this layer are vessels that supply nutrients to the vein. This is the layer where a "pop" is felt when penetrated by the IV device. A haematoma may form at the insertion site if one of the nutrient vessels is penetrated by the needle.

### Specific Considerations

#### Older Population

- The veins become tortuous requiring good skin traction to straighten the vein for catheter insertion and threading. It may be necessary to do a one-handed insertion while maintaining adequate skin traction with the opposite hand for threading.

## VALVES

### Characteristics

Valves are structures within the lumen of the veins that are formed by the endothelial lining of the tunica intima. They are a system of half- moon shaped flaps arranged in pairs. Valves are predominantly found in the large veins of the extremities.

The valves function to keep blood flowing upward to the heart by opening and closing like a "trap-door". The opening and closing of the valves is facilitated by contraction of the large muscles in the extremities.

Valves present as bumps along the course of the vein and also occur at bifurcations (an area where two veins join). There are no valves in the veins of the head and neck.

### Specific Considerations

#### Older Population

- Valves become dysfunctional and hardened leading to venous pooling.

## ARTERIES

### Characteristics

Arteries do not have valves. The pressure within the artery keeps blood moving in the appropriate direction and arterial flow is downward with gravity as opposed to the upward flow of blood in the veins. Structural changes in arterial walls that accommodate increased pressure include:

<p>Version Number: 2.0 Date Approved: 17-Jul-2020 Review Date: 17-Jul-2025 Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS Title: Intravenous Cannulation Approved by: SLT</p>
--	---	---

- The muscle layer in the tunica media is stronger.
- The arteries will not collapse like veins.
- The tunica adventitia (externa) is thicker.

For protection, arteries are located much deeper than veins and are surrounded by more nerve endings that make arterial puncture painful. Arteries pulsate.

Uses of Arteries

- Radiology for arteriogram.
- Blood pressure monitoring in emergencies and critical care.
- Arterial blood gases.
- Chemotherapy e.g. hepatic artery.

**Arteriospasm is a serious potential complication from infusion of medication into an artery. Each artery supplies oxygen-rich blood to a specific area. Tissue hypoxia as a result of arteriospasm may lead to tissue necrosis and gangrene. Care must be taken to avoid inadvertent cannulation of an artery for routine intravenous therapy.**

**SECTION TWO** Choosing a Vein and Peripheral Intravenous Cannulation

**VESSEL CHARACTERISTICS**

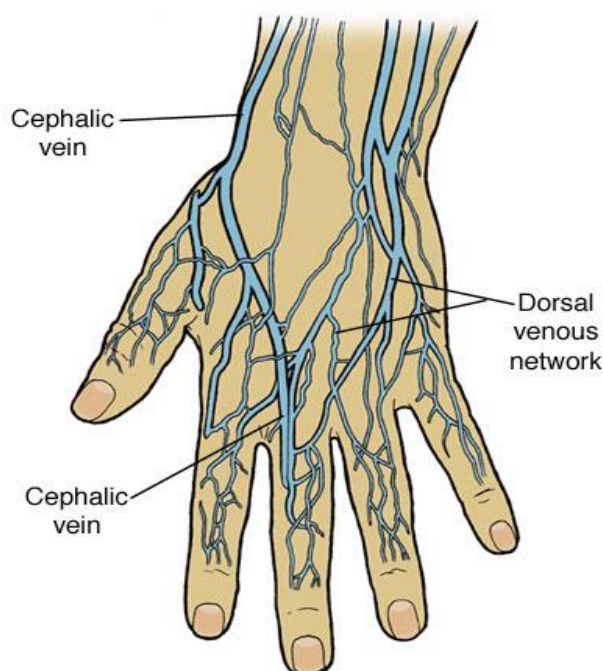
**DIGITAL VEINS**

**Considerations:**

- Used as last resort. May be used when other veins are not available.
- Used for short-term therapies.
- Only non-irritating solutions/medications to be infused due to risk of infiltration.
- Area should be suitably supported and taped securely
- Will impact client's ability to use their hand.
- Do not use if veins in dorsum of hand have been recently accessed.

<p>Version Number: 2.0          Date Approved: 17-Jul-2020          Review Date: 17-Jul-2025          Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS          Title: Intravenous Cannulation          Approved by: SLT</p>
---	---	---

Diagram to show Digital and Metacarpal Veins



## METACARPAL VEINS

### Considerations

- May be first choice for cannulation, unless client requires high volume fluid resuscitation.
- Usually visible, lie flat on the hand, easy to feel, and easily accessible.
- Hands provide a flat surface for stabilisation. Initiate the cannulation at the most distal point on the extremity. Consecutive cannulation must be above the previous site.
- Consider the distance from the insertion site to the prospective catheter tip site avoiding tip positioning in the wrist area. (An arm board may be necessary if the catheter tip is near the wrist).
- Infiltrations may occur more easily.
- Increased risk of phlebitis due to smaller vessel size and movement.
- Irritating medications and solutions should be given in larger veins of the forearm.
- May not be appropriate for elderly patients. Diminished skin turgor and loss of subcutaneous tissue provides poor support for the catheter. Haematomas may form easily and rapidly.
- Consider the impact that limited ability to use the hand will present to patients requiring crutches, walkers, and home infusion therapies. Patients who require frequent use of their hands to support or change positions, or who have use of only one extremity should also be considered.

## CEPHALIC VEIN

### Considerations

- Excellent route for IV infusion.
- Larger veins provide dilution for hypertonic and irritating solutions.
- Can handle rapid infusions.
- Arm bones act as a natural splint.

- May access this vein from the wrist to the upper arm. Always access the most appropriate distal region of the vein first.
- Vein can roll during insertion. Access in the wrist and the antecubital fossa can result in possible phlebitis and/or infiltration secondary to arm movement. An arm board may be necessary for these sites. Other areas do not impair mobility.

## BASILIC VEIN

### Considerations

- Large, usually prominent vein
- Larger and straighter in the upper arm than the cephalic vein
- Often not considered due to position on the ulnar side of forearm
- May be accessed anywhere along its course, above as well as below the antecubital fossa
- Vein can roll during insertion
- Venipuncture and site maintenance may be awkward due to vessel position. To access this vessel in the forearm, have your patient roll to the side with their arm extended over the hip, or lie flat bending their forearm upward ensuring the catheter tip is positioned in the direction of venous flow.

## MEDIAN ANTEBRACHIAL

### Considerations

- Medium sized vein. Location and size vary.
- May be difficult to palpate, but generally easy to visualise.
- Not used as a first choice. Venipuncture in the inner wrist area may be excessively painful due to close proximity to the nerve. Use as a last resort.
- Easy to stabilise due to location on the flat inner aspect of the forearm.

## ANTECUBITAL VEINS

These are the veins that pass through the antecubital fossa.

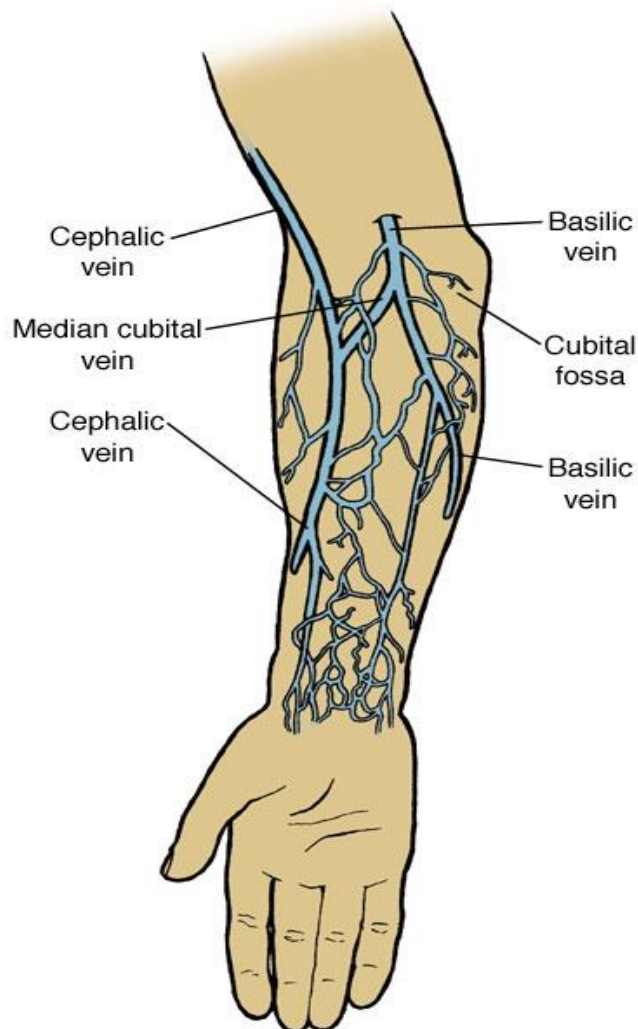
- Cephalic Vein - located along the radial aspect.
- Basilic Vein - located along the ulnar aspect.
- Median Cubital Vein - branches from the cephalic to the basilic vein. (Located between the two vessels).

### Considerations

- Often used for emergency or short-term access.
- Generally reserved for drawing blood.
- Used as last resort for routine IV therapy.
- Used for insertion of PICC or mid-line catheters.
- Veins may be hard if these sites have been accessed frequently.
- Numerous nerve endings in the area may result in a painful venipuncture.
- Infiltration can occur easily secondary to arm movement. Infiltration may often be unrecognised in early stages, resulting in adverse effects due to medications and solutions deposited in the subcutaneous space.
- Site may require immobilisation with an arm board.



Diagram to show veins in the arm



## KEY POINTS TO SITE SELECTION

### Considerations

#### Location and condition of veins

- Carefully examine both arms for the most appropriate vessels.
- Site selection should be routinely initiated in the distal areas of the upper extremities; subsequent cannulation should be made proximal to the previously cannulated site.
- The most commonly used veins for placement of IV catheters are the metacarpal, cephalic and basilic veins.
- Straight, soft, elastic veins are preferred.
- Prominent veins may not always be your best choice, as they may be sclerotic or positioned in an unsuitable location.
- Veins of the hand may not be appropriate for infusion of hypertonic solutions and/or medications.
- Veins of the forearm are suitable for most medications and solutions.

- Accidental removal of catheters placed in the vein of the upper arm may be less likely to occur. In the event that infiltration occurs in this region recognition may be difficult.

#### **Purpose and type of infusion**

- Medication and solutions with high osmolality and high and low pH irritate vein walls.

#### **Duration of therapy**

- If prolonged duration of therapy is anticipated, preservation of veins is essential.
- Select the most distal and appropriate vein first. If medication/solution has high potential for vein irritation, select the largest and most appropriate vessel to accommodate the infusion.
- Perform venipuncture proximal to a previous cannulation site, injured vein, bruised area or site of a recent complication (infiltration, phlebitis, infection).
- Rotate access sites to apposite extremity, when possible.

#### **Catheter material**

- Softer materials are less irritating to intima of the vein.

#### **Catheter size needed to deliver therapy**

- Select smallest gauge appropriate to accommodate prescribed therapy

#### **Patient's age, diagnosis, prior surgeries, procedures and IV therapies**

#### **Patient Activity**

#### **Patient preference (if possible)**

#### **Avoid**

- Areas of flexion except in emergencies.
- Sclerotic veins.
- Bruised, injured or oedematous areas.
- Access near a site experiencing a recent complication (infiltration, phlebitis, infection, haematoma).
- Sites located under or adjacent to bifurcations.
- Locations with impaired circulation, varicosities.
- Lower extremities in adults due to the risk of embolism and thrombophlebitis. It may also limit ambulation and /or access to IV lines.
- Veins located at the inner wrist region.
- Veins located in the affected arm of a mastectomy patient. If use of arm is the only option, consult a relevant health professional prior to cannulation.
- Paralysed limbs
- Veins in an arm with an arteriovenous (AV) shunt or fistula.
- Cubital fossa – last option.

## SELECTING THE RIGHT CANNULA

A peripheral cannula is defined as one that is less than 7.5cm in length. (INS, 2006). The nurse should have necessary knowledge to select the most appropriate device for the patient and the intended therapy. This should include:

- Knowledge of the product in regard to insertion technique
- Potential complications
- Appropriateness to prescribed therapy
- Manufacturer's guidelines

## CATHETER GAUGE SELECTION

Select the device with the shortest length and the smallest diameter that allows for proper administration of the prescribed therapy.

### Key Points to consider

- Type of intravenous solution or medication to be delivered.
- Type of procedure or surgery to be performed.
- Patient's diagnosis, history or IV therapy.
- Patient activity level.
- Patient ages.
- Venous status.

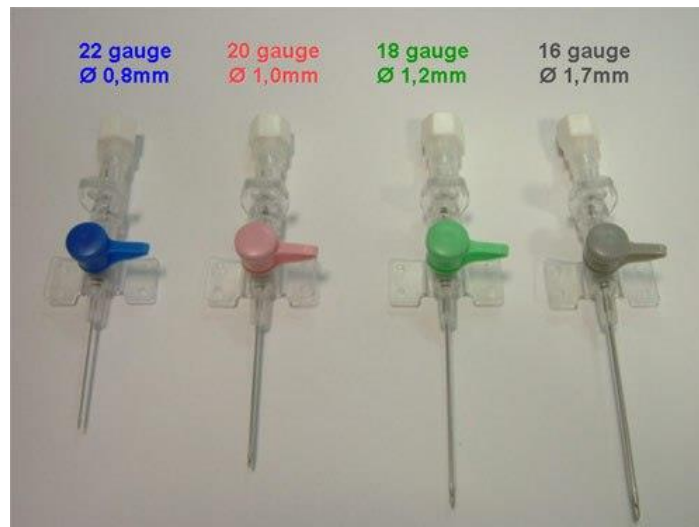
### GAUGE 14 – Flow rate 290ml/min and

#### Uses

- High risk surgical procedure.
- Trauma.
- Large fluid volume and blood volumes, rapid infusions.

#### Considerations

- Large gauge catheters increase likelihood for painful insertion. (May consider local anaesthesia. Refer to Policy and Procedures).
- Requires a vein large enough to accommodate the catheter.
- Depending on location, larger catheter sizes can create increased mechanical irritation to vein wall.



**GAUGE 16** – Flow rate 225ml/min

**Uses**

- Multi trauma, blood transfusions.
- High volume fluids, major surgery.
- Labour & elective LSCS.

**GAUGE 18** – Flow rate 103ml/min

**Uses**

- Blood & blood products, large volume fluids and major surgery.
- Improved flow rates for viscous solutions and whole blood/red cell transfusion.
- Rapid infusions.
- Various emergency situations.

**Considerations**

- Requires vein large enough to accommodate catheter.

**GAUGE 20** – Flow rate 59ml/min

**Uses**

- Maintenance fluids, antibiotics, long term medications.
- Suitable for most routine infusions.
- Minor surgical procedure, routine outpatient procedure requiring IV access.
- Appropriate for delivery for blood components, when rapid rates are not required.

**Considerations**

- Versatile in use.
- Frequently selected gauge size.

**GAUGE 22** - Flow rate 42ml/min

**Uses**

- Suitable for most infusion e.g. Antibiotics, hydration therapy at slower rate.
- May be used for blood administration. Acceptable for transfusions of plasma products.
- Red cell components may not flow as freely.
- Recommend for small and/or fragile veins.

**Considerations**

- Paediatrics, cytotoxic therapy, small fragile veins.
- Easier to insert into small, thin, fragile veins.
- Easily accommodates routine administration of antibiotics and hydrations therapies at slower flow rates.
- Would not be appropriate gauge size if rapid flow rates are required.
- May be difficult to insert into tough skin.

**GAUGE 24** - Flow rate 29ml/min

**Uses**

- Paediatrics, cytotoxic therapy, elderly patients with very fragile veins.
- Suitable for most infusions, but flow rates are slower.

**Considerations**

- Extremely small veins when larger veins are not accessible.
- May be difficult to insert into tough skin.

**TO INCREASE THE VISIBILITY OF A VEIN**

- Tourniquet 10-15cm above site of insertion
- Swabs over site can highlight veins
- Take time to select site
- Warm facecloths over area
- Hang arm lower than heart
- Know anatomy
- Tap lightly over vein
- Open-Close fist
- Reassure patient

**HAIR REMOVAL**

Hair removal should be achieved using scissors or clippers

- Shaving with a razor should not be performed due to potential of causing micro-abrasions which increase the risk of infection (INS, 2006).
- Depilatories potentially cause allergic reaction or irritation and therefore should not be used (INS, 2006).

<p>Version Number: 2.0 Date Approved: 17-Jul-2020 Review Date: 17-Jul-2025 Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS Title: Intravenous Cannulation Approved by: SLT</p>
--	---	---

#### IV CANNULATION PROCEDURE

1. Ensure that the desired intravenous therapy is prescribed.
2. Accurately identify the patient asking the patients name and date of birth verifying the patient details verbally with patient and or whanau present.
3. Ensure the patient understands the cannulation process and that informed consent is obtained.
4. Identify allergy status.
5. Consider relevant medical concerns.
6. Cultural and religious must be considered and respected.
7. Position the patient comfortably using a pillow to support their arm if necessary and place a paper towel or absorbent underpad under the patient's arm.
8. Select appropriate cannula and prepare equipment
  - a. Remove catheter from its plastic case. Inspect the device for product integrity. Rotate the plastic hub by 180° or until you 'feel' the seal release, then place it back into plastic casing.
  - b. Draw up Sodium Chloride Injection BP 0.9% in syringe and attach syringe cannula.
  - c. Prime the extension set, prepare IV dressing by opening packet, set out tape and secure cover.
9. Wash your hands.
10. Apply the tourniquet to the selected arm approximately 10 - 15 cm above the selected site. Use a sphygmomanometer cuff for patients with difficult veins. Pump up the cuff to just below the patient's diastolic blood pressure.
11. Ask the patient to clench and unclench his or her hand. Once the vein has been well dilated, affirm your choice of site. Loosen tourniquet.
12. Clean the site using a 70% alcohol or >0.5% chorhexidine swab for a minimum of 30 seconds in order to decontaminate the skin effectively. Using a circular motion start at the intended site and work outwards. Allow to dry – at least 30 seconds (pratt et al, 2007).
13. Place your thumb approximately 5 cm below intended entry point and apply downward pressure. Anchoring the vein is a key to successful cannulation.
14. Maintain traction on the skin whilst inserting the intravenous cannula.

<p>Version Number: 2.0          Date Approved: 17-Jul-2020          Review Date: 17-Jul-2025          Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS          Title: Intravenous Cannulation          Approved by: SLT</p>
---	---	---



15. Insert the cannula into the vein at a 15 - 20° angle with the stylet bevel uppermost. Entry of the stylet tip into the vein is indicated by a flashback of blood into the cannula.
16. Upon flashback, lower the angle of the cannula to skin level, and advance the cannula a further 5mm. (The stylet is 1-2 mm longer than the tip of the cannula tubing and both need to be in the vein to allow the cannula to be advanced smoothly).
17. Firmly hold the flash chamber immobilising the needle and while maintaining traction on the skin/vein advance the catheter forward off the stylet into the vein until the hub is at the skin.
18. Release the tourniquet.
19. Place sterile tape over the hub of the cannula to secure in place.
20. Apply digital pressure above site and remove stylet. Connect the extension set to the hub of the cannula.
21. Place stylet into Sharps Container.
22. Apply clear film sterile dressing. e.g. Tegaderm IV
23. Anchor extension set using tape.
24. Flush the intravenous cannula with Sodium Chloride injection BP 0.9% 2.5 - 5mls using the 'turbulent flow technique' checking carefully for any signs of swelling.
25. Record the date and time of insertion on the white section of the intravenous dressing.
26. Discard equipment and wash hands.
27. In the clinical notes record:
  - a. The date and time of insertion.
  - b. Consent obtained.
  - c. The name and designation of the person who inserted the intravenous cannula.
  - d. Site used.
  - e. Gauge of the intravenous cannula.
  - f. Also document removal of cannula.

**IMPORTANT NOTES**

- A new cannula device should be used for each cannulation attempt.
- The cannula device should be changed and re-sited routinely every 72 hours provided no catheter related complications requiring cannula removal are encountered before this.

**CHANGING IV DRESSING**

The dressing should remain for the life of the cannula unless it becomes loose, damp or soiled. If this happens then it should be removed, the site cleaned with antiseptic wipe Chlorhexidine 2% plus Alcohol and a new transparent dressing applied. Date and document dressing change in patient notes and on dressing.

**REMOVAL OF CANNULA**

- Wash Hands, wearing gloves.
- Peel back tape or and secure dressing.
- Apply gauze over the insertion site, hold firmly and remove cannula.
- Apply pressure over site for at least 2 minutes until bleeding has stopped.
- Cover site with dressing.
- Dispose of waste according to waste disposal practice policy.
- Record in patient’s notes.

NB: Any IV no longer clinically indicated must be removed and documented in the patient's notes.

**PREVENTION OF NEEDLE STICK INCIDENTS**

The health professional's safety should be considered at all times when performing any IV intervention. The following are some reminders.

- No recapping of needles
- Use a needle-less system
- Safe disposal of all sharps
- Do not dispose of sharps in rubbish bags
- Do not leave sharps at the bedside
- Dispose of all sharps in sharps containers (do not detach needle from syringe)
- Take care when handling sharps
- Have adequate sharps containers
- Do not overfill sharps containers
- Only place sharps into sharps containers
- Never place hand into sharps container

<p>Version Number: 2.0          Date Approved: 17-Jul-2020          Review Date: 17-Jul-2025          Document Number: C 2.15</p>	<p>This is a controlled document. The electronic version of this document prevails over any printed version. Printed versions of this document are valid only for the day of printing. This is an internal document and may not be relied upon by third parties for any purpose whatsoever.</p>	<p>Author: TCHS          Title: Intravenous Cannulation          Approved by: SLT</p>
---	---	---



## Associated Documents

- IV Medication Policy
- Intravenous and Medication Procedure
- Intravenous and medication Flowchart
- PICC Therapy Process

## References

- Provisional Infusion Standards of Practice - Intravenous Nursing New Zealand, March 2012
- Infusion Nurses Society (INS) (2011). Infusion nursing standards of practice. *Journal of Infusion Nursing*, 34(15) January/February supplement.
- Pratt, R.J et al (2007). epic 2 National Evidence based guidelines for preventing healthcare associated infections in NHS Hospitals in England. *The Journal of Hospital Infection*. 65 (Supplement): S1- S31.



## Tegaderm™ I.V. Transparent Dressing 1633

### Easy to apply



1. Open package and remove sterile dressing. Remove the centre panel and place on sterile surface. The tape strips will remain attached to this piece. Peel the liner from the dressing, exposing the adhesive surface.



2. Remove tape strip from card. Apply sterile tape strip to secure hub (option).



3. Position the transparent window over the insertion site whilst holding the notched portion off the skin. Gently press the clear part of the dressing into place ensuring securement around the cannula. Slightly overlap the soft cloth tabs under the hub to form a tight seal and press into place. The hub should rest on the soft cloth.



4. Slowly remove the frame while smoothing down the dressing edges, moving from the centre outwards. Use firm pressure to enhance adhesion.



5. Sterile tape strips can be used under the cannula wings or hub to protect the skin, over the cannula wings or hub to enhance cannula stability, or to secure IV tubing or stabilise cannula lumens. Record information on label, remove from frame then place on or near the dressing.



**Easy to remove.** Firstly remove tape strips. Separate cloth tabs and avoid skin trauma by gently peeling the dressing back on itself whilst supporting the skin, rather than pulling it up from the skin. A medical adhesive solvent can also be used if required.

### Ordering Information

3M™ Tegaderm™ I.V. Transparent Dressing 1633 with label and securing strips



Product Code	Size	Dressings/Box	Boxes/Case
1633	7.0 cm x 8.5 cm	100	4



**3M Healthcare**  
250 Archers Road  
Glenfield  
Auckland  
New Zealand  
Freephone: 0800 200 710  
3M is a trademark of the 3M Company

Please recycle. Printed in New Zealand.  
© 3M 2007. All rights reserved.

Reference: 1. Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report. Guidelines for the Prevention of Intravascular Catheter-Related Infections. August 9, 2002/51(RR10)-1-26.

## Tegaderm™ I.V.

# Nurses Initiating and Administering Intravenous Therapy in Community Settings

**The use of intravenous drug administration and therapy in communities has rapidly increased and will continue to do so due to early discharge and community management to deliver seamless health care.**

Community nurses are involved in the management of patients receiving intravenous therapy. This may include line insertion, administration of therapy and care of peripheral and central catheters.

The NZNO guidelines are to be used in conjunction with local policy and procedures for the giving of IV therapy in the community setting, including emergency procedures in case of anaphylaxis. In particular, NZNO recommends nurses are familiar with Intravenous Nursing New Zealand's (2012) *Provisional Infusion Therapy Standards of Practice*.

## Insertion of Peripheral Intravenous Cannulae/Needles/Midlines

1. The nurse must be a Registered Nurse with a current practising certificate.
2. Appropriate education must be undertaken prior to the nurse attempting IV access. This should include:
  - anatomical location of peripheral vessels and surrounding structures;
  - appropriate equipment selection and use;
  - observation of a skilled practitioner inserting IV cannulae, needles or midlines;
  - supervised practice on patients who have given informed consent until insertion of peripheral lines is skilled;
  - the nurse should ask that the trainer signs and dates a certificate stating that the above process has been observed and the nurse is now competent at gaining IV access.
3. The IV access is authorised by a registered medical practitioner.
4. Informed consent is gained from the patient.
5. There must be a process for maintenance of competence.
6. No more than three attempts are made on any one patient.
7. The patency of the line is checked with a saline flush prior to its use.
8. Principles of asepsis and infection control procedures are followed.
9. The insertion site and any relevant points are documented on the patient's notes.

## Intravenous Medications and Infusions

1. Medications/fluids are charted by a registered medical practitioner/dentist, midwife or nurse practitioner.
2. The nurse must be a Registered Nurse with a current practising certificate.
3. Education must be undertaken prior to the nurse administering IV medications/fluids. This should include:

## Intravenous Medications and Infusions

1. Medications/fluids are charted by a registered medical practitioner/dentist, midwife or nurse practitioner.
2. The nurse must be a Registered Nurse with a current practising certificate.
3. Education must be undertaken prior to the nurse administering IV medications/fluids. This should include:
  - equipment selection and use;
  - non-splash back technique for mixing and drawing up vials;
  - the correct administration flushing techniques for the specific IV access devices which will be used;
  - care and maintenance of the IV access devices in use.
4. The nurse agrees to accept the delegated responsibility of administering the medication/fluids.
5. The patient is assessed, including known allergies, prior to, during and after administration of IV Therapy.
6. Medication/fluids are checked against the prescription with another responsible person, preferably the prescriber or another health professional. If this is not possible, then the check should be with the recipient of the medication or their care provider.
7. The nurse must be aware of the action of the medication, the usual dosages and possible adverse effects.
8. Patency of the IV access is checked prior to, during, and after administration of medication/fluid.
9. Principles of asepsis and infection control procedures are followed.
10. Emergency procedures in case of anaphylaxis must be in place.
11. A system must be implemented to monitor for adverse effects and to implement appropriate action should they occur. Monitoring may be via direct observations by the nurse or providing instruction to caregivers. This would be dependent on the drug/fluid to be administered and the setting.
12. Equipment is disposed of safely.
13. Following administration the drugs/fluid are to be signed as given and care is documented.

## Infusion Pumps

1. Medications/fluids are charted by a registered medical practitioner, dentist, midwife or nurse practitioner with prescriptive authority.
2. The nurse must be a Registered Nurse with a current practicing certificate.
3. Education must be undertaken prior to the nurse administering medications/fluids via a mechanical pump. This should include:
  - how the pump functions;
  - the correct equipment to use with the pump;
  - priming the line;
  - change/recharging of batteries;
  - problem solving strategies for faults.
4. Principles of asepsis and infection control procedures are followed.
5. Lines are changed according to local policy and procedures.
6. The patient/carer receives instruction on the pump and knows who to contact should s/he be unable to rectify a problem.
7. Any problems are fully documented and followed-up as necessary.
8. The care provided is documented.

## Reference

Intravenous Nursing New Zealand. (2012). *Provisional Infusion Therapy Standards of Practice*. Available:  
[http://www.ivnnz.co.nz/files/file/7672/IVNNZ\\_Inc\\_Provisional\\_Infusion\\_Therapy\\_Standards\\_of\\_Practice\\_March\\_2012.pdf](http://www.ivnnz.co.nz/files/file/7672/IVNNZ_Inc_Provisional_Infusion_Therapy_Standards_of_Practice_March_2012.pdf)

**Date adopted:** 2011  
**Review date:** 2017

**Reviewed:** June 2006, May 2012  
**Correspondence to:** nurses@nzno.org.nz

### Mission statement

NZNO is committed to the representation of members and the promotion of nursing and midwifery. NZNO embraces Te Tiriti o Waitangi and works to improve the health status of all peoples of Aotearoa/ New Zealand through participation in health and social policy development.

© 2011 This material is copyright to the New Zealand Nurses Organisation. Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, no part of this publication may be reproduced by any process, stored in a retrieval system or transmitted in any form without the written permission of the Chief Executive of the New Zealand Nurses Organisation (NZNO), PO Box 2128, Wellington 6140.

Commentary from original document;

Document originally compiled by; Helen Butler NZRN and Prue Lennox NZRN

Acknowledgments - Therese van Kerkhoff NZRN and Adrienne Coakley, NZRN WDHB, CHS, Harbour Health PHO and Health Waikato for the document's initial concept. Also IVNNZ for their support and guidelines to which this document is aligned with.