DEPARTMENT: Nursing Service Division		**POLICY NUMBER:** DPOTMH-IPP-NSD-P031-(01)	
TITLE/DESCRIPTION: **INTRAVENOUS (IV) THERAPY**			
EFFECTIVE DATE: April 30, 2025	**REVISION DUE:** April 29, 2028	**REPLACES NUMBER:** NSD-QP-56	**NO. OF PAGES:** 1 of 11
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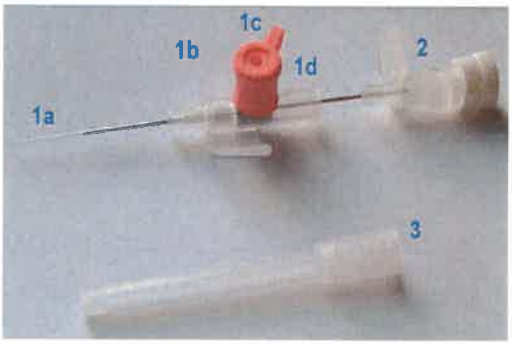
PURPOSE:

1. To outline the proper steps and techniques for IV insertion.
2. To minimize the risk of complications associated with IV insertion and maintenance.
3. To ensure proper care and maintenance of venous access to improve patient outcomes.

DEFINITIONS:

Vein - (from the Latin word *vena*) these are blood vessels that carry blood toward the heart.
Intravenous (IV) - this means "into a vein."
Intravenous (IV) Therapy - this refers to the insertion of a needle/ catheter/ cannula into a vein based on physician's written prescription.
Intravenous Catheter/Cannula - It is a small tube that is inserted into a vein for supplying medications or nutrients directly into the bloodstream or for diagnostic purposes such as studying blood pressure.
PARTS:



(1a) **Tip** - this is for insertion into the vein.
(1b) **Wings** - this is for manual handling and securing the catheter with adhesives.
(1c) **Valve** - this is to allow injection of drugs with a syringe.
(1d) **Connecting hub** - this is an end which allows connection to an intravenous infusion line, and capping in between uses. It can be connected to a syringe or an intravenous infusion line, or capped between treatments.
Needle - (partially retracted) this serves only as a guide wire for inserting the cannula.
Protection cap - this normally covers the needle's tip.

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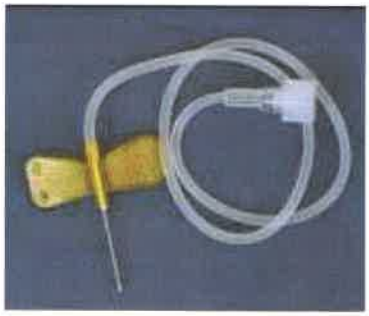
TYPES

- **STEEL NEEDLE OF BUTTERFLY SETS**



Example: Butterfly catheter.
They are named after the wing-like plastic tabs at the base of the needle. They are used to deliver small quantities of medicines, to deliver fluids via the scalp veins in infants, and sometimes to draw blood samples (although not routinely, since the small diameter may damage blood cells). These are small gauge needles (i.e. 23 gauge). Infiltration is more common.

- **PLASTIC NEEDLE**
  This is used in short term therapy. This is also used for rapid infusion and more comfortable for the client. In-needle catheter can cause catheter embolism.

- **IV GAUGES**
  The caliber of cannula is more commonly indicated in gauge. The smaller the gauge the larger the outside diameter.

Gauge 16 - this is for rapid fluid administration (blood products or anesthetics).
Gauge 18 - this is for rapid fluid administration (blood products or anesthetics).
Gauge 20 - this is for peripheral fat infusion.
Gauge 22 - this is for IV fluid and clear liquid medication.
Gauge 24 - this is for very small veins (pedia usually).
Gauge 26 - this is for very small veins (pedia usually).

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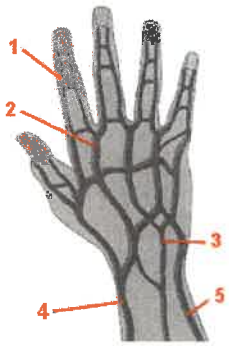
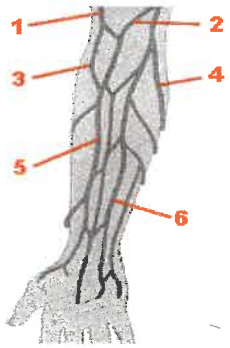
- **IV CONNECTING HUBS**

- Clave - these are one-piece valves that directly connect syringes filled with medications to a patient's IV line without the use of needles. The clave requires no additional components or adapters to access and requires no end cap for sterility. To infuse, simply swab the top of the clave and connect.

- Luerlock IV Connector - the Connector is used for attachment to IV lines for bolus administration and for sealed drug transfers from syringe-to-syringe. This connector requires a needle for administration of fluid.

- **FREQUENTLY USED SITES**

	
Veins of the Hand 1. Digital Dorsal veins 2. Dorsal Metacarpal veins 3. Dorsal Venous Network 4. Cephalic vein 5. Basilic vein	Veins of the Forearm 1. Cephalic vein 2. Median Cubital vein 3. Accessory Cephalic vein 4. Basilic vein 5. Cephalic vein 6. Median Antebrachial vein

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COMPLICATIONS:

- The trained and certified nurses must ensure that in cases that the patient develops the following complications, it must be documented and be included in the plan of care:
  Infection - this may be redness, swelling or drainage at site; chills, fever, malaise or headache.
  Tissue damage – this may be evidenced by skin color change, sloughing of skin or discomfort at site.
  Phlebitis - this refers to an inflammation of the vein that can result mechanical or chemical trauma or local infection (heat redness, tenderness, not hard and swollen).
  Thrombophlebitis - this may be evidenced by heat, redness, tenderness or hard and cordlike vein.
  Infiltration - this is the seepage of IVF out of the vein and into the surrounding interstitial space (edema, pain, and coolness at the site).
  Air embolism - this is an obstruction caused by a bolus of air that enters the vein through an inadequately primed IV line, from a loose connection, or during tubing change or removal of IV line.
  Catheter embolism - this refers to an obstruction that results from breakage of the tip of the catheter during IV line insertion (decrease BP, pain along vein, weak, rapid pulse, cyanosis of nail beds or loss of consciousness).
  Circulatory overload - this may be evidenced by an increase in BP, distended jugular veins, rapid breathing, dyspnea, moist cough and crackles.
  Electrolyte overload - the signs depend on the specific electrolyte imbalance.
  Hematoma - this is evidenced by ecchymosis, immediate swelling and leakage of blood at the site, and hard painful lumps at the site.

RESPONSIBILITY:
Nursing Supervisor, Head Nurse, Staff Nurse

POLICY:

1. All IV insertions shall require a doctor's order.

2. Only nurses who have been certified as competent (trained, and certified in Intravenous Therapy Training) shall be allowed to perform IV insertion.

3. In case of two (2) unsuccessful attempts of insertion, the assistance of VAM Expert on duty shall

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be sought.

4. Proper patient and vein assessment must be observed prior to initiating intravenous (IV) insertion.

5. Checking Intravenous Sites
   - 5.1 All IV sites shall be checked for patency and redness or swelling 1 hour after insertion.
   - 5.2 After ensuring its patency, the IV site must be monitored every 2 hours noting the following signs of infiltration:
     - 5.2.1 Tubings (blood backflow and signs of kinking)
     - 5.2.2 Tenderness or swelling
     - 5.2.3 Dressing integrity (wet, soaked)
     - 5.2.4 If tenderness is present, check if patient has elevated temperature if any of these signs are present, the dressing, cannula, tubings, must be removed or replaced, when deemed necessary to maintain patient's safety.
   - 5.3 Patients receiving peripheral infusions like blood, high alert medications or additives with IV solution must be closely monitored with extreme precautions, and the assessment of the IV site must be documented at the chart every endorsement to mitigate serious risks and prevent possible tissue damage.
   - 5.4 **Routine site rotation every 72–96 hours is no longer recommended** unless clinically indicated. Sites may remain as long as they are functional and free of complications.
   - 5.5 Only transparent dressing should be used for IV sites, and must be changed every 5-7 days unless compromised. Use of plaster is NOT ALLOWED. Transpore tape maybe used if needed. Use of any other IV dressings other than transparent dressing is not allowed.

6. **Maintenance of a Peripheral Intravenous Lock (Heparin/Saline Lock)**
   - 6.1 Intermittent IV locks shall be flushed every 8 hours (every shift) strictly with the use of **pre-filled syringe of normal saline (0.9% NaCl)** if no medication is being administered, through the post, unless otherwise ordered by the physician (use of heparin solution is not routine). Apply direct friction to the hub or injection cap with an alcohol swab (povidone- iodine or chlorhexidine) before and after each flushing.
   - 6.2 For IV medication administration, apply direct friction to the hub or injection cap using an alcohol swab, povidone-iodine, or chlorhexidine for **at least 5 to 15 seconds**, then allow it to air dry completely. After proper disinfection, flush the access using a pre-filled syringe of normal saline (0.9% NaCl).

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PROCEDURE (SOP):

1. Nurse on duty checks doctor's order.
2. Nurse on duty introduces self and explains the procedure to the patient.
3. Nurse on duty secures informed consent
4. Nurse on duty performs hand hygiene.
5. Nurse on duty prepares materials.
   - 5.1 IV Tray
   - 5.2 Gloves
   - 5.3 Alcohol Prep Pad/chlorhexidine swab
   - 5.4 IV Cannula
   - 5.5 Pre-filled syringe of normal saline (0.9% NaCl)
   - 5.6 Medical tape/Clear dressing
   - 5.7 IV Tubing
   - 5.8 IV Fluid
   - 5.9 Site label
   - 5.10 Splint (as needed)

6. Nurse on duty performs the procedure.
   - 6.1 The Nurse on duty applies a tourniquet proximally on the upper arm to aid in vein selection and identifies an appropriate vein for insertion
   - 6.2 Nurse on duty dons disposable gloves. Clean the entry site carefully with the alcohol prep pad.
   - 6.3 With the bevel up, enter the skin at about a 10 to 15 degrees angle and in the direction of the vein.
   - 6.4 Advance the catheter to enter the vein until blood is seen in the "flash chamber" of the catheter.
   - 6.5 After entering the vein, advance the plastic catheter (which is over the needle) into the vein while leaving the needle stationary. The hub of the catheter should be all the way to the skin puncture site.
   - 6.6 Release the tourniquet.
   - 6.7 Apply gentle pressure over the vein just proximal to the entry site to prevent blood flow. Remove the needle from within the plastic catheter. Dispose of the needle in an appropriate sharps container.
   - 6.8 Remove the protective cap from the end of the administration set and connect it to the

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plastic catheter.

6.9 Adjust the flow rate as ordered.

6.10 Secure the catheter in place by applying a transparent adhesive dressing over the insertion site, ensuring it fully covers the catheter and surrounding area.

6.11 Reinforce the stability of the catheter by using surgical tape to secure the IV tubing to the patient's skin, ensuring there is no tension on the tubing and that the catheter remains firmly in place.

6.12 Ensure the dressing is snug but not restrictive, and check that the IV site remains accessible for monitoring.

7. Nurse on duty labels the IV site with the date, time, and patient initials using IV label.
8. Nurse on duty documents the procedure done.

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WORK INSTRUCTION:

KEY TASKS	PERSON RESPONSIBLE
1. Checks doctor's order.	Nurse on duty
2. Introduces self and explains the procedure to the patient.	
3. Secures informed consent.	
4. Performs hand hygiene.	
5. Prepares materials such as (IV Tray, gloves, alcohol prep pad/chlorhexidine swab, IV cannula, pre-filled syringe of normal saline (0.9% NaCl), medical tape/clear dressing, IV tubing, IV fluid, site label, splint (as needed).	
6. Performs the IV insertion.	
7. Labels the IV site with the date, time, and patient initials using IV label.	
8. Documents the procedure.	

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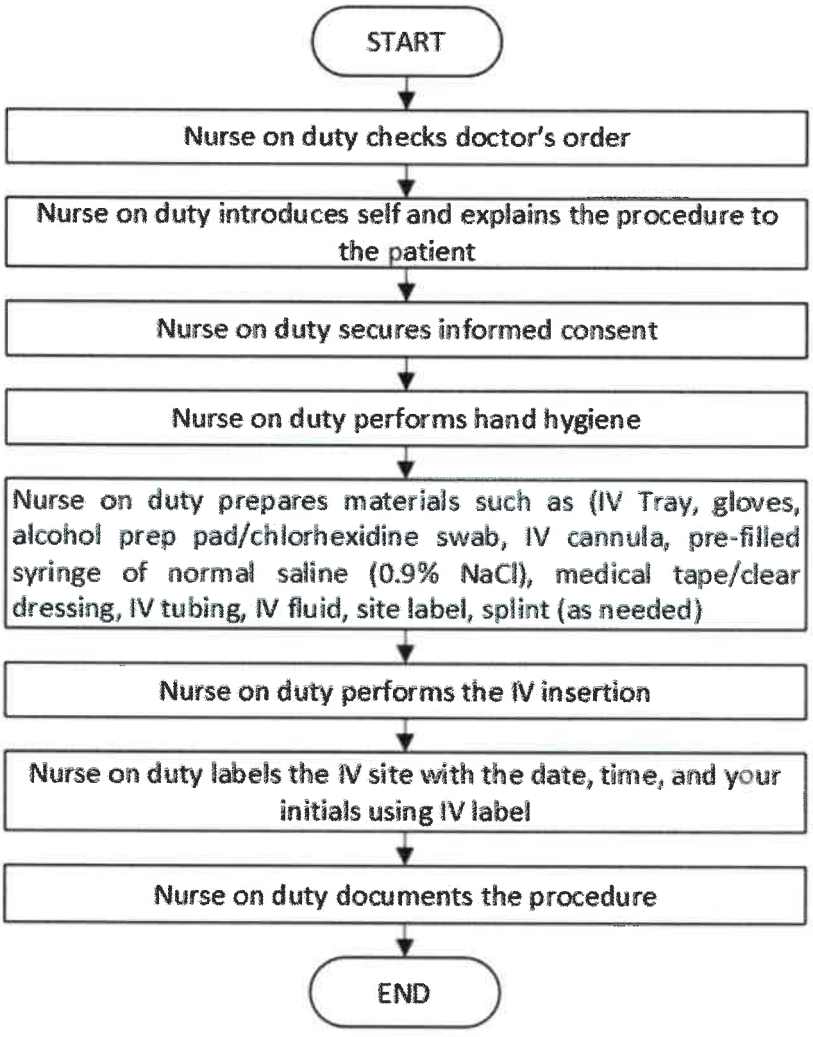
WORK FLOW:



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DR. PABLO O. TORRE MEMORIAL HOSPITAL

METRO PACIFIC HEALTH
THE HEART OF FILIPINO HEALTHCARE

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FORMS: N/A

EQUIPMENT: N/A

REFERENCES:

1. Fraser Health Authority, 2014; McCallum & Higgins, 2012
2. Fraser Health Authority, 2014; Fulcher & Frazier, 2007; McCallum & Higgins, 2012; Perry et al., 2014

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