IV THERAPY & PERIPHERAL VENOUS ACCESSES

PRACTICE STATEMENT: Upon the order of a Provider, nursing personnel may initiate and administer intravenous fluids and medications through a peripheral intravenous access.

Nurses may administer bolus injections (IV push) as approved by the Pharmacy and Therapeutics committee.

Licensed Vocational Nurses that have successfully completed IV therapy class may administer IV push medications.

Peripheral intravenous sites with continuous infusions shall be assessed as part of the caregiver's assessment and reassessment.

Peripheral intravenous sites, dressings, tubing, administration sets and connections shall be changed and labeled every 72 hours and/or prn by licensed nursing personnel. Manufactured prepared intravenous fluids shall be changed every 72 hours. Fluid bags with additives prepared by the Pharmacy shall be changed according to the expiration date for a maximum of 72 hours.

Intravenous sites on patients difficult to find an acceptable site may remain longer than 72 hours with an order from the provider.

PURPOSE: To maintain patent venous accesses and administer intravenous therapy in patients receiving regular or intermittent medications.

EQUIPMENT: IV start kit: cleansing and antiseptic preparations, tourniquet, dressings, and a small roll of sterile tape
Intravenous catheter or butterfly needle
Antimicrobial solution
Infusion plug *(needleless)*
Extension set
Needleless system
Arm board
Normal saline for injection
3-10 ml syringes
Gloves
IV fluid — labeled
IV tubing — labeled
Sharps container

PROCEDURE:

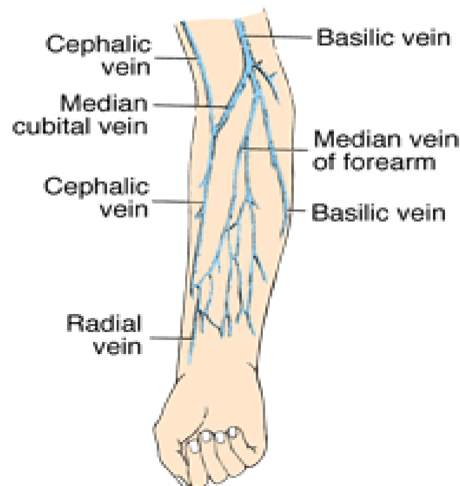
NOTE: Many providers do not write an order to "initiate peripheral access" or "Start IV". The order to initiate peripheral access is implied when an order for intravenous fluids or medications is written and the patient has no other IV access. If the order is confusing or in question, clarify with the provider before proceeding.

A. Preparation of Intravenous Fluid

1. Verify the solution with the order.
2. Visually examine the solution for the absence of particulate matter of discoloration and the medication has not expired.
3. Attach a label to the IV fluid bag.
4. Maintain sterility of all connections when manipulating tubing.
5. Do not contaminate tubing or spike port, close the clamp on the tubing and insert the spike into the outlet of the bag.
6. Squeeze the drip chamber to initiate a fluid level to 1/2 the drip chamber.
7. Prime the tubing, expelling all air from the tubing.

B. Initiation of the Peripheral IV Site

1. Wash hands and assemble equipment.
2. Identify the patient using two patient identifiers, and explain the procedure.
3. Ascertain if the patient is allergic to antimicrobial solution or adhesive.
4. Carefully select the puncture site *(preferably a vein in the non-dominant arm).* Check for provider order regarding site selection or review for contraindications i.e. recent surgery/shunt/cannula, etc.
5. Instruct the patient to squeeze the hand several times or apply a warm moist towel to selected site to dilate vein.
6. Palpate and identify accessible vein for placement of IV cannula. Cephalic, basilic, and median cubital veins are preferred in adults. If the vein rolls or feels hard when palpated, select another vein.



7. Clip long hair, if necessary. Do not shave the area. Shaving may cause microabrasions and predispose to infection

8. Apply flat tourniquet around arm, above antecubital fossa or 4 to 8 inches above proposed insertion site. Do not apply tourniquet too tightly to avoid injury or bruising to skin. Check for presence of radial pulse. Tourniquet may be applied on top of thin layer of clothing, such as a gown sleeve, to protect fragile skin or excess hair. It may become necessary to remove tourniquet and move it lower down arm.
   Option: Apply blood pressure cuff instead of tourniquet. Inflate to a level just below patient's normal diastolic pressure. Maintain inflation at that pressure until venipuncture is completed.

9. Prepare dressing materials.

10. Don gloves.

11. If area of insertion appears to need cleansing, use soap and water first. Use antiseptic swab agent to cleanse insertion site for 30 secons, using friction in a horizontal plane, then a vertical plane, followed with a circular motion (middle to outward)or per manufacture guidelines; allow agent to air dry (2 to 3 minutes for povidone-iodine, 60 seconds for alcohol, 30 seconds for chlorhexidine). Refrain from touching cleansed site unless using sterile technique.

    Rationale: Mechanical friction in this pattern allows penetration of antiseptic solution into cracks and fissures of epidermal layer of skin. Antiseptic solutions should be allowed to air dry completely to effectively reduce microbial counts. If antiseptic agents are used in combination, allow each to air dry separately. Chlorhexidine 2% preparation is preferred.

    Touching cleansed area introduces microorganisms from nurse's fingers to site. Site would need to be prepped again.

12. Accessing of the vein

    a. Butterfly needle

1) Retract the skin near the site of insertion, using either thumb or fingers. Exert tension toward the patient's hand.

2) With bevel up, hold the needle at a 10-30° angle and pierce the skin slightly to one side of the vein.

3) After piercing the skin, lower the needle to a position almost parallel to the skin and slowly advance the needle into the vein.

4) When blood appears in the catheter, advance the needle fully, if possible, and hold it in place. Release the tourniquet, attach the administration set, open the clamp and check for free flow or signs of infiltration.

5) Secure the butterfly in place.

b. PIV Catheter:

1) Hold device by ribbed needle housing. Insert with bevel up at 10- to 30-degree angle, slightly distal to actual site of venipuncture in direction of vein.

2) Observe for blood return through flashback chamber, indicating that bevel of needle has entered vein. Lower needle until almost flush with skin. (Advance catheter approximately ¼ inch into vein) Continue to hold skin taut, and advance catheter into vein until hub rests at venipuncture site. Advance safety device by using push-off tab to thread catheter.
NOTE: The needle is not to be reinserted into catheter at any time as needle could cut the catheter.

3) Stabilize cannula with one hand, and release tourniquet with other. Apply gentle pressure with middle finger of nondominant hand 1¼ inches (3 cm) above insertion site. Keep cannula stable with index finger. For safety device, slide catheter off stylet while gliding protective guard over stylet, or retract stylet by pushing safety tab. A click indicates device is locked over stylet. Place directly into sharps container.

4) Secure the catheter in place with tape.

13. Apply occlusive, with clear occlusive dressing.

14. Write catheter insertion date, time, and initials on the dressing or tape.

15. Dispose of needle in the sharps container.

16. Remove gloves and wash hands.

17. Record all required information in the Lines Assessment electronic flowsheet. Document patient's response, presence of blood return and other pertinent information in the Nurses Notes and/or Flowsheet.

C. Checking IV Site

1. All IV Sites should be checked for redness or swelling and patency at least every shift (adults) or every two hours (pediatrics).

2. Patients that are receiving peripheral infusions blood, medications, or additives with IV solution should have the IV sites checked with assessments.

3. Checking for patency involves assessing the site for redness, swelling, infiltration, complaints of pain and confirming that the fluids are infusing without difficulty.

4. Document assessment in the Lines Assessment electronic flowsheet. .

D. Changing IV Site, Tubing and Connections and Dressing Changes

1. When changing an IV site, always maintain the present IV until the new one is initiated and functioning. If unable to change a site after 72 hours, document the reason and notify the provider. Tubing, sets, connecting devices and dressings must be changed every 72 hours. If piggy back tubing is disconnected, it should be re-capped with a sterile cap.

2. Repeat steps 1-18 for implementation of a new site.

3. Assess site and document findings in the Lines Assessment electronic flowsheet.

E. Maintenance of a Peripheral IV Lock (adult patient)

1. Apply direct friction to the hub with an alcohol swab. Flush the peripheral IV lock every 8-12 hours (each shift) with at least 1-2 milliliter normal saline for injection, unless the access is used for medication administration.

2. For IV medication administration, apply direct friction to the hub with an alcohol swab then flush the access with at least 1-2 milliliter normal saline to determine patency and/or blood return. Administer the bolus injection or infusion. Disconnect the syringe or tubing and flush the access with at least 1-2 milliliter normal saline for injection to restore the IV lock.

   NOTE: Central Line Heparin locks will be maintained as described in policy NSG 18-06 "Central Venous Catheters: Insertion, Care, Use & Removal (Single or Multilumen)—Adult Patient" http://intranet.pmh.org/home/PP-Index/Nursing/18-06.pdf

F. For a Patient Allergic to Antimicrobial and/or Dressing Materials

1. Cleanse the skin for at least one minute with alcohol sponges from the center outward and allow to dry.

2. Stabilize the catheter with hypo-allergenic tape; or consult with provider regarding suturing in place.

3. Apply dressing and hypo-allergic tape.

4. Document procedure.

Possible complications

- Infiltration/extravasation
- Phlebitis
- Circulatory overload
- Air embolism
- Allergic reaction
- Infection at insertion site
- Septicemia

Patient Teaching

- Instruct patient about signs and symptoms of infiltration, phlebitis, and inflammation. Urge patient to report early onset to nurse.

- Instruct patient to inform nurse if pain at the site, flow slows or stops or if blood is seen in the tubing or on the dressing.

- Instruct patient how to ambulate with IV pole or stand.

- Instruct patient to protect IV when performing hygiene activities.

Link to Mosby's Nursing Skills

Peripheral Intravenous Catheter: Starting an IV

Peripheral Intravenous Catheter: Discontinuing and IV