



<b>VOLUME 5: NURSING SERVICES</b>	Effective Date: 8/1/10
<b>CHAPTER 16B</b>	Revision Date(s):
<b>PERIPHERAL INTRAVENOUS THERAPY</b>	Attachments: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

## I. POLICY

1. Intravenous (IV) fluids and medications shall be administered upon the order of a provider. The provider's order shall include:
  - a. Initiation or termination of IV therapy.
  - b. Type of IV fluids to be administered, additives, and rate of administration.
2. An IV may be inserted by a registered nurse (RN), or licensed vocational nurse (LVN) who has completed an approved (IV) Therapy course.
3. Intravenous fluids that include medications may only be administered by an RN.
4. An infusion containing additives or an infusion ordered at a specific rate shall be administered via an infusion pump.
5. Hands shall be washed with an antiseptic containing product before palpating, inserting, changing, or dressing any intravascular device. Gloves shall also be worn when starting and discontinuing IV's.
6. Veins that should be considered for peripheral cannulation are those found on the dorsal and ventral surfaces of the upper extremities. Site selection for vascular access shall be based upon:
  - a. Assessment of the patient-inmate's condition, age, diagnosis, vascular condition, history of previous access devices with their subsequent injury to the vein, along with type and duration of therapy.
  - b. The vasculature shall accommodate the size and length of the catheter required by the prescribed therapy.
    - 1) Manufacturer's labeled use with directions for device insertion
  - c. Veins of the lower extremities shall not be used if the patient-inmate is diabetic or in other conditions where circulation may be compromised, such as peripheral vascular disease, Congestive Heart Failure, stasis ulcers.
  - d. A provider order is required to cannulate the arm:
    - 1) of a patient-inmate who has undergone breast surgery requiring axillary node dissection
    - 2) with a preexisting fistulated access or graft
    - 3) with any other complications
7. Peripheral IV sites, tubing and dressings shall be changed at a minimum of every 72 hours. The insertion site shall be cleansed with alcohol or other antiseptic and a sterile dressing applied, either gauze and tape or bio-occlusive transparent dressing (e.g. Opsite or Tegaderm). When dressings become loose, damp, or soiled, the dressing shall be replaced. Tubings and dressings shall be dated, timed and initialed when changed and documented in the medical record.
8. The insertion site shall be evaluated at a minimum of every four (4) hours with documentation in the medical record regarding dressing, site condition, type of fluid administered, and rate of administration. The catheter site shall be palpated for tenderness

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through the intact dressing. The site should be visually inspected if tenderness/pain develops, if there is fever with no obvious source, and/or symptoms of local or bloodstream infection occur.

9. If visual inspection of the site is not possible, or the patient-inmate has large bulky dressings that prevent palpation, the dressing shall be removed and the site visually inspected. Peripheral venous catheters shall be removed when signs and symptoms of infection present, i.e., the patient-inmate complaint of pain at site, warmth, tenderness, erythema at the insertion site. Any signs of infection shall be reported to the immediately and documented in the medical record.
10. Infusion bags shall be changed at least every 24 hours.
11. With the exception of known products (i.e., blood or medications for which the manufacturer recommends filtration) filters are not necessary for IV administration.
12. When an IV is inserted under emergency conditions, the site shall be changed within 24 hours.
13. If an IV is ordered and the nursing staff is unable to start/restart the infusion, the provider shall be notified.

## II. PURPOSE

To introduce fluids, blood/blood components, and medications directly into the vascular system by peripheral access.

## III. RESPONSIBILITIES

The Chief Executive Officer/Health Care Manager (CEO/HCM) at each institution is responsible for implementation of this policy in collaboration with the Chief Nurse Executive/Director of Nursing (CNE/DON).

## IV. PROCEDURE DETAILS

### A. Equipment/Supplies

- IV Catheter (appropriate size)
- IV Fluid (as prescribed by the provider)
- IV Tubing and label
- Antimicrobial skin prep (i.e., alcohol prep, chloraprep, or iodine-based antiseptic)
- Tourniquet
- Sterile gauze and bio-occlusive transparent dressing
- Tape
- Gloves and eye protection
- Sharps container

### B. General Instructions

1. Maintain sterility of solution and intravenous set. Check solution before and during administration for clarity and breaks or cracks in administration set.
2. Ensure the compatibility of additives and solutions. Refer to Pharmacy, if needed. Never add sterile distilled water to an intravenous set-up.
3. Maintain flow rate with frequent observations and use of infusion pump. Monitor fluid intake and output (I&O) accurately for all patient-inmates receiving continuous IV fluid infusion.

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4. Observe intravenous site for thrombophlebitis and prevent embolus. Check area above site for tenderness, edema, and erythema. Use large veins for irritating solutions, such as Potassium, Compazine, Dilantin, and electrolyte solutions, and change site at a minimum of every 72 hours. Discontinue intravenous administration and notify the provider if thrombophlebitis is suspected.
5. Prevent air embolus by ensuring that air bubbles do not enter the system.
6. Observe the patient-inmate for signs of circulatory overload, i.e., headache, flushing, rapid pulse, distended neck veins, elevated blood pressure, pedal edema, cough, shortness of breath, breath sounds with crackles, syncope, or cough. Decrease IV rate to keep vein open (KVO) and notify the provider **IMMEDIATELY** if any signs are present.
7. Inspect catheter to ensure it is intact. If catheter breaks off from the hub into the vein, apply a tourniquet or other pressure immediately above site and notify the provider.

## C. Procedure

1. Verify the provider order which is to include:
  - a. Initiation or termination of IV therapy
  - b. IV fluid; additives
  - c. Rate of administration
2. Explain the procedure to the patient-inmate and instruct him/her to report to the nurse any pain/tenderness, redness, swelling, drainage, etc., which could indicate infection and/or other complications.
3. Wash hands.
4. Assemble equipment.
  - a. Check the intravenous fluid for expiration date, discoloration, or particulate matter. Discard if expiration date is past, solution is discolored, or particulate matter is present.
  - b. Assemble IV solution and IV tubing using aseptic technique. Flush tubing with 20 to 30 ml of solution following manufacturer's recommendations. Fill drip chamber, remove air bubbles, and hang solution on IV pole.
  - c. Assemble appropriate size and length of catheter for prescribed therapy, antimicrobial skin prep, tourniquet, gauze and bio-occlusive transparent dressing, and tape.
5. Put on gloves and select appropriate site. Clipping hair may be necessary to facilitate IV insertion and securing the IV to the skin.
6. Apply tourniquet above site. Tourniquet should not impede arterial blood flow. To distend vein, apply moist heat, place patient-inmate's arm in a dependent position, and have the patient-inmate periodically clench fist.
7. After checking for allergies to antimicrobial skin prep, scrub site with antimicrobial solution in concentric circles from center circulating outward. Allow to dry. **NOTE:** Do not palpate site after skin has been cleansed with antiseptic.
8. Perform venipuncture using aseptic technique. The following guidelines apply to inserting a safety engineered catheter over needle IV access device.
  - a. Verify that the catheter is fully "seated" on the introducer needle before venipuncture.

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- b. Keep the needle bevel and the push-off tab in the upright position.
  - c. Insert the introducer needle at an appropriate angle. **Rationale:** A lower angle of entry, especially with superficial veins, may prevent puncture through the posterior vein.
  - d. Identify the flash chamber and rely on the flashback of blood into the flash chamber to confirm vein entry. **Rationale:** The sharpness of the needle may diminish the “pop” sensation. A flashback of blood may occur before the catheter tip is fully in the vein.
  - e. Use the push-off tab to thread the cannula into the vein, while keeping the needle guard stationary, or if using a floating technique, attach an administration set primed with prescribed IV solution to the catheter hub and initiate fluid flow. **Raise the catheter hub to the angle of insertion and gently advance.** Remove the tourniquet immediately after successful advancement of the cannula. **Rationale:** If necessary, slightly advance the catheter and needle together to assure full catheter entry into the vein lumen.
  - f. Hold the catheter hub securely while pulling back on needle to separate from catheter, engaging the safety mechanism, and listening for the “click” to confirm needle is locked and safe.
  - g. **CAUTION: Do not reinsert the introducer needle into the cannula at any time.** **Rationale:** the needle could damage or sever the cannula, resulting in cannula embolus, or result in fluid leakage at the insertion site.
9. Perform venipuncture using aseptic technique. The following guidelines apply to inserting a Butterfly IV access device.
    - a. Keep the needle bevel in the upright position.
    - b. Pinch wings of set firmly between thumb and index finger and insert needle at an appropriate angle into vein. **Rationale:** A lower angle of entry, especially with superficial veins, may prevent puncture through the posterior vein.
    - c. Advance needle slowly into vein while lifting slightly on the wings.
    - d. Identify flashback of blood into the butterfly tubing to confirm vein entry.
    - e. Remove the tourniquet immediately after successful advancement of the needle and place wings flat against the skin.
  10. Apply digital pressure to the vessel beyond the tip of the cannula or needle and connect primed IV tubing to the catheter hub.
  11. Properly dispose of needles in sharps container.
  12. Secure needle hub or butterfly wings to skin with tape.
  13. Observe for signs of infiltration or occlusion.
  14. Apply sterile dressing, either gauze and tape, or bio-occlusive transparent dressing.
  15. Adjust rate utilizing an infusion pump for solutions containing additives and/or those ordered at a specified rate.
  16. Dispose of soiled equipment and remove gloves.
  17. Wash hands
  18. Label IV tubing and dressing with date, time and initials.
  19. Document in medical record. (See Documentation section)

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20. Evaluate IV site at least every four (4) hours for signs and symptoms of infection, redness, and/or infiltration and document appropriately in the medical record.
21. Change IV site, IV dressing and IV tubing at least every 72 hours.
22. Notify the provider immediately if infection is suspected.
23. Discontinue IV upon the provider's order or when clinically indicated due to infiltration, thrombophlebitis or infection.
  - a. Verify the provider's order or clinical indication for discontinuation.
  - b. Explain the procedure to the patient-inmate.
  - c. Wash hands and put on gloves
  - d. Assemble equipment: sterile gauze, dry sterile dressing, tape
  - e. Clamp off IV tubing
  - f. Gently loosen the dressing around the IV site
  - g. Place sterile gauze at insertion site and slowly pull catheter or needle out of vein while applying pressure with gauze.
  - h. Properly dispose of needles in sharps container.
  - i. Continue to apply pressure on site for one (1) to two (2) minutes or until bleeding stops.
  - j. Apply dry sterile dressing to site
  - k. Dispose of soiled equipment and remove gloves
  - l. Wash hands

## **D. Documentation**

1. Document on the Nursing Care Record and the IV Profile the initiation of IV therapy:
  - a. Date/time IV initiated
  - b. Size and type of catheter
  - c. Location of site
  - d. Type of IV fluids/additives
  - e. Rate of administration
  - f. Document patency
2. Document intravenous medication on the Medication Administration Record (MAR)
3. Document patient-inmate observations on the Nursing Care Record.
4. Document assessment and evaluation of the IV site at least every four (4) hours on the Nursing Care Record.
  - a. Location and appearance of IV site
  - b. Patency
  - c. Type of IV fluids/additives
  - d. Rate of administration
5. Document whenever the IV site, IV dressing, or IV tubing is changed on the Nursing Care Record and IV Profile.
6. Document on the Nursing Care Record observation of adverse effects such as:
  - a. Infiltration – swelling, blanching, coolness of surrounding skin and tissues, pain, retarded or absent flow of fluid, absence of blood backflow in IV catheter and tubing

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- b. Infection – pain/tenderness, edema, erythema, drainage at the site, fever
  - c. Thrombophlebitis – pain/tenderness, edema, erythema above the site
  - d. Circulatory overload – headache, flushing, rapid pulse, distended neck veins, elevated blood pressure, shortness of breath, syncope, or pulmonary edema with cyanosis
  - e. Date and time of the provider notification and subsequent orders and interventions.
7. Document on the Nursing Care Record and IV Profile the discontinuation of IV therapy:
- a. Appearance of IV site
  - b. Date/time IV discontinued
  - c. Condition of IV catheter – intact, sheared, etc.
  - d. Excessive bleeding or any other abnormalities

## **E. References**

Weinstein, S. (2001). *Plumer's principles and practice of intravenous therapy* (7<sup>th</sup> ed.). Philadelphia, PA: Lippincott, Williams & Wilkins