Insertion of a Peripheral IV (Over the Needle, Peripheral Short) Catheter

Level III

Purpose

The purpose of this procedure is to provide guidelines for the safe and aseptic insertion of a peripheral (over the needle, short peripheral) intravenous catheter for the administration of intravenous fluids and/or medications.

Definition

1. A peripheral short catheter is defined as a catheter that is less than 3 inches (7.5cm) in length. The tip of a peripheral short catheter ends in the peripheral vein.
2. A peripheral catheter can be winged, non-winged, or over the needle.

General Guidelines

Use of Peripheral Catheters:

1. Selection of peripheral short catheters is based on prescribed therapies, duration of treatments (typically less than one week), availability of peripheral access sites, diagnosis, potential complications, and staff experience.
2. Therapies not appropriate for peripheral short catheters include continuous vesicant therapy, parenteral nutrition (usually), pH <5 or >9, or osmolality >600 Osm/L.
3. The size of the cannula should be the smallest gauge and shortest length that will accommodate the therapy. This allows blood to circulate around catheter and helps to prevent phlebitis.

Site Selection:

1. Initiate site selection in the distal areas of the upper extremities. Subsequent cannulation should be made proximal to previous catheter site.
2. Sites that are generally considered for peripheral cannulation are the dorsal and ventral surfaces of the upper extremity (metacarpal, cephalic, basilic, and median cubital).
3. When selecting insertion site avoid areas of flexion around wrist (within 4-5 inches) and antecubital areas. The back of the wrist is not an acceptable site of insertion.
4. Do not use lower extremity routinely in adults due to risk of tissue damage, embolism, ulceration and thrombophlebitis.
5. Avoid inserting the catheter in the right or left arm if that side of the body has been affected by the following:
    a. History of breast surgery (e.g., mastectomy) with axillary node dissection;
    b. Radiation therapy;
    c. Lymphedema;
    d. Flaccidity related to CVA; or
    e. Existing or previous AV dialysis fistula (Consult with nephrologist before inserting catheter in the same arm).
6. Also avoid the following areas:
    a. Previous venipuncture site;
    b. Infiltrated, phlebitis, bruised areas;
    c. Areas of pain on palpation;
    d. Location of valves;
    e. Areas of planned procedures;
    f. Flexion areas; and/or
    g. Bony prominences.

continues on next page

General Guidelines (continued)

Hair Removal:

1. Avoid shaving the site with a razor. Shaving can cause micro-abrasions or cuts in the skin. This can cause an increased risk of infection, bacterial growth, cellulitis, or phlebitis.
2. Hair may be clipped with aseptic safety scissors or electric clippers.
3. Remove hair only with **resident consent** prior to site preparation and catheter insertion.
4. **Do not** use depilatories, which may cause skin irritation.

Catheter Insertion:

1. Catheter insertion is an aseptic procedure.
2. Do not attempt more than two cannulations per nurse.
3. Use one catheter for each cannulation attempt.
4. Methods to enlarge vein for easier visualization:
   a. Place upper extremity below heart level to have more blood flow to area.
   b. Place warm compress to area to dilate vein.
   c. Have resident pump (open and close) the hand to make vein come closer to surface.
   d. Lightly stroke the vein downward.
   e. Do not slap the vein. It will cause venospasms.
5. Apply tourniquet (single-resident use):
   a. Should stay on less than 2 minutes to avoid vascular damage.
   b. Should be snug-fitting, not tight.
   c. Place 4 to 6 inches above insertion site to avoid too much pressure on the vein.

Dressings:

1. Use sterile dressings (transparent or gauze, as appropriate) to cover insertion site.
2. Label on dressing should include date and time of dressing placement, initials, gauge size, and length of catheter.

Flushing:

1. Use a syringe barrel size of 10 mL or larger when assessing patency of a peripheral short catheter.
2. Use normal saline (0.9% preservative-free sodium chloride) for flushing a peripheral short catheter. If medication is incompatible with NS, use 5% dextrose in water and follow with NS.
3. The volume of NS used for catheter flushing should be determined by the size of the catheter and type of infusion. It is recommended that the volume of flushing solution should equal at least twice the volume of the catheter system. For a peripheral short catheter, 2 to 5 mL of NS before and after infusion is generally adequate.
4. Lock (clamp) short peripheral catheters with normal saline, unless otherwise ordered.

Catheter Removal:

1. Do not replace a peripheral catheter more frequently than every 72 to 96 hours to reduce the risk of infection and phlebitis.
2. Remove catheter when there is suspected contamination, complication, or when therapy is discontinued.
3. The decision to remove or replace the catheter should be based on an assessment of the resident and the situation, including:
   a. Site;
   b. Skin and vein integrity;
   c. Length and type of therapy prescribed;
   d. Integrity and patency of device;
   e. Dressing; and
   f. Stabilization device.

continues on next page

General Guidelines (continued)

4. If initial catheter was placed under emergency conditions, replace as soon as possible and not later than 48 hours.
5. If peripheral access is limited, a decision to leave the catheter indwelling beyond 96 hours requires assessment, documentation, and sometimes a physician's order. In this case, assessment for use of midline or central line placement may be appropriate.

Equipment and Supplies

1. **To start IV**:
   a. 1 or 2 peripheral short catheters (gauge and size per assessment);
   b. IV start kit (non-sterile gloves, tourniquet, cleaning solution, tape, sterile gauze, transparent dressing, label);
   c. Extension tubing with needleless access device (primed with saline);
   d. 10 ml syringe with saline; and
   e. Absorbent pad.

2. **If starting infusion**:
   a. Prescribed IV solution/medication, IV pole, tubing, pump (if necessary);
   b. Non-sterile gloves;
   c. Alcohol wipes; and
   d. Tape.

Steps in the Procedure

Note: There are several techniques for starting a catheter. All techniques include aseptic technique; using the best vein, smallest gauge and shortest length of catheter possible; proper securing of catheter; and using a sterile dressing. The steps that are listed below are to be used as a guide only.

1. Verify with state Nurse Practice Act for LPN/RN function and competency requirements.
2. A physician's order is necessary for this procedure.
3. Review the order and type of solution/medication to be infused.
4. Assemble equipment, open packages, prime extension tubing with saline (leave at least 3 ml of saline in syringe), tear tape, open catheter, and open cleaning solution packages.
5. Select venipuncture site:
   a. Apply tourniquet to upper extremity to inspect potential sites of insertion;
   b. Palpate extremity distal to tourniquet to assess vein condition;
   c. Choose the most distal site possible, but proximal to previous insertion sites;
   d. Avoid areas of flexion, bony prominence, existing phlebitis, bruises, or previous sites of infiltration; and
   e. Remove tourniquet.
6. Perform hand antisepsis.
7. Don non-sterile gloves.
8. Prepare insertion site with cleansing agent (e.g., chlorhexidine solution, 70% alcohol, or 1 to 2% tincture of iodine, or approved combination solution) using proper technique per type of cleansing agent. Allow to air dry.
9. Re-apply tourniquet.
10. Stabilize vein below intended venipuncture site with non-dominant hand. Insert catheter (bevel up) at a 10 to 30 degree angle. When blood return is observed in flashback chamber, lower the angle of the catheter to 15 degrees and minimally advance into the center of vein.
11. Remove tourniquet.
12. Place dressing over insertion site and covering about ¾ of the catheter hub.

continues on next page

Steps in the Procedure (continued)

13. Place gloved finger over tip of catheter (which is now under the skin) with slight pressure to prevent retrograde bleeding. Remove stylet.
14. Screw primed extension tubing into open end on hub of catheter.
15. Attach saline-filled syringe to needleless connector on extension tubing.
16. Use push-pause technique to flush catheter with approximately 3 ml of sodium chloride. Leave 0.5 ml in syringe.
17. Monitor insertion site for swelling (infiltration). If site swells, IV is unsuccessful and must be removed.
18. Remove syringe and clamp extension tubing.
19. Stabilize catheter either using adhesive tape or a stabilization device. If using tape, there are two ways of stabilizing:
    a. If catheter has wings, a chevron (v-shaped tape) should be used. Slide a 3" by ½" piece of tape with sticky side up under the wings. Fold tape over wings in a v-shape.
    b. If catheter does not have wings, a cross shape may be used over the hub. Avoid covering the insertion site with tape.
20. Place another 3" piece of tape on extension tubing just behind the hub.
21. Coil the extension tubing on the side of catheter to prevent pulling on the catheter. Tape in place.
22. Place label on one side of catheter (not over insertion site). On the label include the date and time of catheter insertion, initials, length and gauge of catheter.
23. Discard stylet and syringes in sharps container. Discard gloves and other equipment properly. Wash hands.
24. If immediately infusing fluids or medications, place primed IV tubing into the needleless access device on extension tubing. Start flow rate per physician orders. Use pump if stated per facility protocol.
25. Observe for patency of catheter and proper infusion rate.

Documentation

The following information should be recorded in the resident's medical record:

1. The date and time of the procedure.
2. The number of venipuncture attempts (maximum of two).
3. The type, length and gauge of catheter, and type of cleansing agent used.
4. The site of insertion (be specific to name of vein, area of arm).
5. The type of solution or medication infusing (if being used at this time).
6. The amount of solution or medication to be infused (if being used at this time).
7. The rate of infusion (if being used at this time).
8. The condition of the IV site.
9. Notification of the physician (if any complications).
10. Resident's response to procedure.
11. The signature and title of the person recording the data.

continues on next page

Reporting

1. Notify the supervisor if the resident refuses the procedure or if procedure is unsuccessful.
2. Report other information in accordance with facility policy and professional standards of practice.

References	
MDS (CAAs)	Section K; Section O; (CAA 12; CAA 14)
Survey Tag Numbers	F328; See also INS 2011 Standard 33, Practice Criteria IE; Standard 42, Practice Criteria I; Standard 44, Practice Criteria IA; Standard 45, Practice Criteria B and D; Standard 46.3
Related Documents	Complications Associated with IV Therapy (*See CD-ROM*) Guidelines for Preventing Intravenous Catheter-Related Infections (*Infection Control*)
Risk of Exposure	Blood–Body Fluids–Infectious Diseases
Procedure Revised	Date:_____ By:_____ Date:_____ By:_____ Date:_____ By:_____ Date:_____ By:_____