SECTION 9C: CLINICAL PRACTICES AND PROCEDURES	POLICY: 13206
POLICY: NON-DIALYSIS AV FISTULA/GRAFT ACCESS & CARE	PAGE: 1 OF: 5

PURPOSE:

To define and describe infusion therapy procedures and care while utilizing an AV(arterio-venous) fistula or graft in the home setting.

POLICY:

For all vascular accesses, aseptic technique should be used for all cannulation and catheter accession procedures. Using aseptic technique to prevent contamination of the catheter or port catheter system should include the use of surgical masks (staff and patient) and gloves with access, disconnect, and dressing change procedures.

GENERAL INFORMATION:

- An AV Fistula is a direct connection between the artery and one of the nearby veins. This type of access utilizes a patient's own tissue decreasing chances of clotting and infections.
- An AV Graft (sometimes called a bridge graft) is an indirect connection between the artery and vein, most commonly a plastic tube or donated cadaver arteries/veins.

SPECIAL CONSIDERATIONS:

- AV Fistulas/Grafts are most commonly used to perform Dialysis. On rate occasions, they may be utilized to administer infusions in the home setting.
- There must be a physician's order allowing the use of this access device for the purpose of infusion. Any specifics in the order regarding maintenance supersede Agency policy.
- If infusing through an AV Fistula/Graft, a registered nurse shall remain with the patient for the entirety of the infusion.

PROCEDURE:

There are 3 main components to consider when assessing the access device. The nurse should: LOOK, LISTEN, and FEEL.

1. Visually (LOOK) – AVF should have a well-developed main venous outflow, no irregular/dilated areas or aneurysm formations, and should have areas of straight vein that can be used for cannulation. AVG are uniform in size in a loop or straight configuration. There should be no irregular areas or aneurysm formations with organized site rotation used for cannulation. Both should be free of infection, redness, swelling, broken skin, drainage, or induration.

2. Auscultation (LISTEN) – Using a stethoscope, both should have a low pitch, continuous diastolic/systolic rhythm, consistent with a regular heartbeat and swooshing in quality. This sound is referred to as the “bruit’. There should never be a high pitch discontinuous systolic sound only or strong bruit as this signal’s possible stenosis or Steal Syndrome.

3. Feel with your fingertips (FEEL) – A vibration sensation (referred to as a “thrill”) for the AVF will be felt at the arterial anastomosis and throughout the entire outflow vein that is easy to compress. The feeling indicates good flood flow throughout. AVG thrill is strongest at the arterial anastomosis but should be felt over the entire graft and easy to compress. If stenotic, the thrill will be mushy or irregular.

SKIN PREPARATION

1. Locate, inspect, and palpate the needle cannulation sites prior to skin preparation.

2. Clean gloves should be worn by the staff for cannulation. They should be changed if they become contaminated at any time during the cannulation procedure.

3. Wash access site using an antibacterial soap or scrub.

4. Cleanse the skin by applying 2% chlorhexidine gluconate, 70% isopropyl alcohol or 70% alcohol and or 10% povidone iodine as per manufacturer’s instruction for use. Apply solution using a back-and-forth motion for 30 seconds and allow area to dry. Do not blot the solution.

Note: 2% chlorhexidine gluconate and 70% isopropyl alcohol has a rapid 30 second and persistent 48hr antimicrobial activity on the skin. Alcohol alone has a short bacteriostatic action time and should be applied in a rubbing motion for 1 minute immediately prior to needle cannulation. Povidone iodine

needs to be applied for 2-3 minutes for its full bacteriostatic action to take effect and must be allowed to dry prior to cannulation.

CANNULATION PREPARATION

1. Attach a 10ml syringe filled with 8ml NS to the AVF needle but do not prime the needle until immediately before the cannulation.

2. Grasp the fistula needle by the butterfly wings (17g or 20g) and prime the needle with NS until all the air is purged. Clamp the needle closed. Remove the protective cap and immediately proceed with the cannulation technique.

CANNULATION

1. After skin preparation, pull skin taut in the opposite direction of needle insertion. Avoid excessive pressure to the cannulation site to stabilize and prevent flattening of the graft material. Rationale: this technique compresses peripheral nerve endings between the epidermis and dermis, lessoning pain upon insertion, facilitates smoother incision of the skin with less surface area contacting cutting edge of the needle.

2. Use approximately a 25–45-degree angle of insertion. Rationale: Less steep angles increase risk of dragging cutting edge of the needle alongside the surface vessel. Steeper angles increase risk of perforating the underside of the vessel.

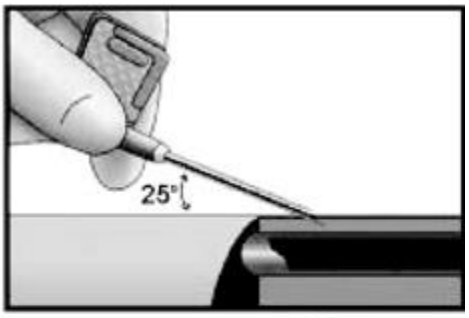
3. Once the vessel has been penetrated, there are basically 2 methods employed in current practice:
   a. Advance the needle slowly with cutting edge facing the top of the vessel and do not rotate axis. Any manipulation may traumatize the intima of the vessel. This is the preferred method for routine AVG cannulation.
   b. For a deep hard to palpate AVG, immediately rotate the axis of the needle 180 degrees and advance slowly with the bevel cutting edge facing bottom of the vessel. Rotating the axis avoids traumatizing the top of the backside of the intima and prevents the tip of the needle from entering the backside of the graft material. This should only be used when the graft backwall location is difficult to determine and the risk of continuing the needle advancement into the backwall is high.

4. When the needle has advanced into the vessel, blood flashback will be visible (the needle may need to be unclamped to see blood flashback) and, if visible, aspirate back 1ml to 5ml with the 10ml syringe. Flush the needle with NSS and clamp. The syringe must aspirate and flush with ease. Monitor for signs and symptoms of infiltration. Patients usually experience immediate sharp pain upon infiltration of saline or blood into the tissues.

5. Tape the needle at the same angle or one similar to the angle insertion. Rationale: pressing the needle shaft flat against the skin moves the needle tip from the desired position within the vessel lumen.

6. Remove the needle at the same or angle similar to the angle of insertion and NEVER APPLY PRESSURE BEFORE THE NEEDLE IS COMPLETELY OUT. Rationale: Avoid trauma by dragging cutting edge along it.

A



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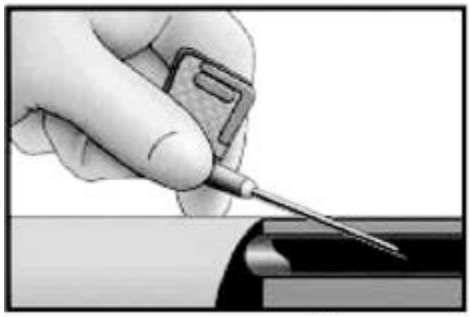

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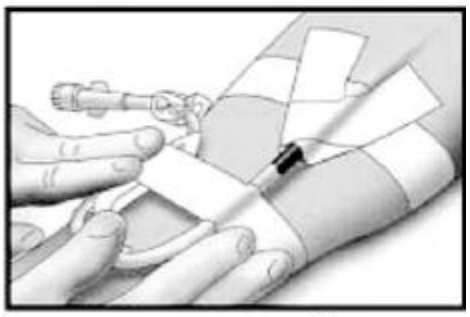

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ACCESS NEEDLE REMOVAL

1. Remove the needle at the same angle as it was inserted. Do not apply pressure while the needle is in the vein.

2. After the needle is out, apply mild, direct pressure to each needle site using a sterile gauze and a two-finger technique for at least 10 minutes (longer if clinically indicated).
   a. One finger at the vein site (internal).
   b. One finger at the sin exit (external).

DOCUMENTATION:

The nurse should note assessment findings including:

- The condition of the site and skin around the site
- Visibility of the AVF
- Any signs of infection (drainage, redness, fever or tenderness at incision site)
- All infusion details including the medication, rate, and volume