GREENVILLE HOSPITAL SYSTEM NURSING STAFF POLICY & PROCEDURE

ARTERIOVENOUS FISTULA / GRAFT:
CANNULATION, MAINTENANCE, and DISCONTINUATION

POLICY:

Cannulation and discontinuation of an AV fistula/graft access may only be performed by a Registered Nurse who has demonstrated competency (e.g., IV Team, Dialysis RN) and only performed with a physician’s order for this procedure. Maintenance of an AV fistula/graft can be done by a Registered Nurse or student nurse under direct supervision of an RN.

Teaching will be initiated early for patients/home care providers and reinforced throughout the hospital stay.

Background:

Placement of an arteriovenous (AV) fistula, a connection between an artery and a vein, is a surgical procedure performed by a physician. The most common complications are access infection and low blood flow due to blood clotting in the access.

PERSONNEL:

Cannulation and Discontinuation – Registered Nurses (i.e., Dialysis RN, IV Team) who have demonstrated competency may insert and discontinue an IV catheter into a fistula or graft for IV therapy.

Maintenance of an arteriovenous fistula/graft is done by a Registered Nurse or student nurse under direct supervision of an RN.

DESIRED OUTCOME:

AV fistula/graft is accessed without complications. Blood is easily aspirated from the access site. Patency of the site is maintained without complications.

SUPPORTIVE DATA:

IVDevice 1 – Intravenous Therapy: Insertion, Administration, Maintenance and Discontinuation of
IVDevice 16 – Withdrawal of Blood from Venous Access Devices
MedProc 1 – Medication Administration

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<td>1. Provide the patient/family with written education material.</td>
<td>1. Teaching should begin early and be reinforced during the patient’s entire hospitalization. The Micromedex Care Notes System for AV fistula or AV graft may be used to supplement the teaching provided by nursing staff.</td>
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2. Place a sign on the patient’s room door: “No BP or venipuncture in (left/right) arm.”

2. The sign is to remain on the patient’s door throughout the hospital stay.

CANNULATION:

Equipment:

- IV catheter
- Central line dressing kit
- Extension set
- IV stabilization device
- Normal saline
- Surgical mask
- Sterile gloves

STEPS

1. Review the physician’s order.

1. AV fistulas are cannulated only after they reach a mature state, usually 4-12 weeks.

2. Gather equipment.

2. To alleviate any patient anxiety.

3. Perform hand hygiene in view of the patient.

3. Assess integrity of the AV fistula/graft by palpation and auscultation.

4. Verify the patient’s identity using two (2) identifiers.

4. Place stethoscope over access site and listen for audible bruit. Place finger over access site and feel for palpable thrill.

5. Explain the procedure to the patient/family.

5. IF no palpable thrill, notify the ordering physician. DO NOT proceed with the procedure.

6. Assess integrity of the AV fistula/graft by palpation and auscultation.

7. Remove excess hair with clipper, if needed.

7. Open the sterile dressing tray and place the sterile IV catheter on the sterile field.

8. Prime the extension tubing with normal saline, being careful to maintain sterility of the luer lock end, and place on sterile field.
### STEPS

10. Using sterile technique, don mask and sterile gloves.

11. In a back-and-forth motion, vigorously scrub the site for venipuncture using chlorhexidine gluconate (CHG) for 30 seconds. Allow to air dry.

11. A tourniquet is not needed for this procedure. If the patient is allergic to CHG, vigorously scrub the insertion site in a circular motion with 3 alcohol swab sticks followed by 3 povidone-iodine swab sticks. Let the area air dry for 2-3 minutes.

If the patient is allergic to povidone-iodine and CHG, cleanse the skin with alcohol and allow to air dry.

12. Insert the IV catheter into the AV fistula.

12. Usually #20 or #22 gauge is sufficient. The IV catheter is to be rotated every 5 days.

13. After venous return is obtained and the catheter is in place, apply pressure above the insertion site and withdraw the catheter needle.

13. To decrease amount of bleeding.

14. Connect the primed extension set to the catheter hub and flush vigorously with normal saline. Clamp the extension set while flushing.

14. To prevent backflow of blood into the catheter and tubing.

15. Place an IV stabilization device on the extension set and dress the insertion site with a sterile occlusive dressing.

16. Dispose of equipment in appropriate containers.

17. Perform hand hygiene.

### MAINTENANCE:

Use a positive pressure electronic infusion control device to administer ALL IV therapy. Do NOT begin any fluid infusion if no thrill is palpated or bruit heard.

Refer to IV Device 1 for IV fluid administration and tubing changes.

### STEPS

1. For the first 24-48 hours after surgery, elevate the affected arm so that the hand is above the elbow.

1. To promote adequate circulation to the hand.
2. Administer pain medication as ordered.

3. Assess the fistula/graft for:
   A. Bleeding
   B. Skin temperature
   C. Thrill
   D. Bruit

4. Following hemodialysis, assess the fistula/graft frequently for evidence of bleeding. If bleeding occurs, apply direct pressure with a sterile dressing over the bleeding site for 3-5 minutes. If bleeding is not controlled, notify the physician.

5. With a physician’s order, lab work may be drawn from the AV fistula/graft once it is cannulated and an extension set is present. Draw only from the extension set with a 5 mL syringe. Immediately after blood is collected, flush the fistula/graft with 5 mL of normal saline. Clamp the extension set while flushing.

**DISCONTINUATION OF CANNULATION:**

**Equipment:**
- Gloves
- Sterile gauze
- Tape
- Surgical mask

1. Review the physician’s order.
2. Gather equipment.

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2. Refer to MedProc 1 – Medication Administration.

3. A. Bleeding from incision or development of hematoma.
   B. Skin temperature over the fistula/graft should feel the same as surrounding skin. If skin temperature is cold, clotting is indicated and the surgeon must be notified.
   C. Confirms adequate blood flow.
   D. Confirms blood flow.

4. Anticoagulants administered during hemodialysis increase the possibility of bleeding from the site.

5. Refer to IVDevice 16 – Withdrawal of Blood from Venous Access Devices.
### STEPS

3. Perform hand hygiene in view of the patient.

4. Verify the patient’s identity using two identifiers.

5. Explain the procedure to the patient/family.
   - 5. To allay anxiety.

6. Don mask and gloves.

7. Remove catheter and quickly apply direct pressure over the site with sterile gauze. Apply pressure for at least 5 minutes.

8. Dispose of equipment in the appropriate receptacles.


### KEY POINTS

### NOTES:

An arteriovenous (AV) fistula or graft is the shunting of arterial blood into the venous system to create a large superficial blood flow access site for hemodialysis or for administration of intravenous therapy. An anastomosis of an artery to a vein is the surgical procedure that is performed by a physician. The most common site for a fistula or graft is the non-dominant arm.

### DOCUMENTATION:

Document the following in the appropriate medical record:

- **Insertion:** Time, date, catheter gauge and length, flushing agent, condition of insertion site, and assessment.

- **Maintenance:** Time, date, condition of insertion site and assessment

- **Discontinuation:** Time, date, catheter integrity, condition of insertion site, and assessment

### REFERENCES:


**DATE:**

December, 2003

**REVISED:**

December, 2008 (replaces GU-Dialy 1)

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**Approval Date:** 2/17/09