

Cannulation of New Fistula Policy and Procedure - Sample

Purpose:

To successfully cannulate new arteriovenous fistulas and to prevent infiltration.

Policy:

Newly created primary AV fistulas shall be allowed to develop for at least 8-12 weeks prior to cannulation. Initial attempts to perform dialysis via new fistulas shall proceed with caution. Without exception, fistulas shall not be progressed faster than these guidelines *without MD order*. All patient care personnel are responsible for implementing this policy.

Procedure:

1. Obtain order from vascular surgeon or nephrologist to begin cannulation of fistula 8 to 12 weeks after creation. **All new fistulas should be examined by surgeon, nephrologist and designated staff member before cannulation is initiated.**
2. Only staff identified as demonstrating best cannulation practice techniques should be assigned to cannulate NEWLY developing fistulas.
3. **ALWAYS USE A TOURNIQUET**, even with well-developed fistulas. **NO EXCEPTIONS!**
4. Explain procedure to patient.
5. Educate patient on:
 - Checking the access daily for a thrill and for signs and symptoms of infection.
 - Performing fistula exercises to promote maturation process.
 - Understanding that hematoma could occur most likely during the first two weeks of using the access.
 - For infiltrations, provide written materials about icing, elevation, and heat application.

It is **IMPORTANT** that prior to any AVF cannulation, everyone knows...

- What **TYPE** of AVF has been placed;
- The **DIRECTION** of blood flow for a specific access site (check with surgeon to confirm direction of flow and obtain a diagram showing direction of flow for patient chart); and
- If a reverse flow AVF [such as a proximal radial artery (PRA) AVF] has been created, blood flow direction dictates **PLACEMENT** of the arterial and venous needles.

Week One

- Check with charge nurse for heparinization changes. Heparin prime and hourly should be decreased by half of the ordered dose for the first week to prevent bleeding into the surrounding tissue. It may be necessary to initiate saline flushes during this week of decreased heparin.
- If no other access present, use two 17-gauge needles. **ALWAYS** stay at least 1.5-2" from the anastomosis.
- If catheter present, use 17-gauge needle as the arterial, and use catheter for venous return.
- Using a 25° angle, cannulate the fistula.
- Stabilize the butterfly with tape. Secure tubing and butterfly with tape using chevron method.
- Instruct patient not to move access extremity, in order to prevent infiltration.
- Remove needles at the same angle as the angle of insertion. Never apply pressure before the needle is completely out. Apply pressure for 10 minutes, without peeking – no exceptions.
- Clamps are **NOT** to be used.

For week one:

Use 17 gauge needles at a blood flow rate (BFR) of 250 ml/min. If BFR not tolerated, reduce to 200 ml/min.

**** Blood flow rates are recommendations and can be modified based on center-specific guidelines.**

ONLY INCREASE BFR RATES IF NO EVIDENCE OF INFILTRATION OR OTHER PROBLEMS NOTED.

Report any cannulation or BFR problems to the charge nurse.

Week Two

- If the first week is successful, cannulate with 16 gauge needles, rotating cannulation sites.
- Blood flow rate recommended: 300 ml/min.

Week Three

- Either repeat procedure for Week 2, or may attempt to progress to prescribed BFR and Needle gauge. When increasing BFR, recommend matching needle gauge to BFR as shown in chart below,
- Regular Blood Flow AVF's: Recommended needle placement: arterial retrograde (toward the arterial anastomosis), venous antegrade (toward the venous anastomosis).
- Reverse Blood Flow AVF's: If both needles are to be placed in the forearm, the venous needle should be placed downstream (i.e., retrograde) toward the hand, because that is the direction of the venous blood flow. If you use the upper arm for venous return, the flow goes toward the heart, so the needle would be upstream (i.e., antegrade) toward the shoulder.
(These policies may vary based on policies and procedures of specific Provider)

Infiltration instructions

If the fistula infiltrates, let it "rest" for one week and then go back to smaller gauge needles. Notify nephrologist.

If the fistula infiltrates a second time, wait another two weeks and then go back to smaller gauge needles. Notify nephrologist.

If the fistula infiltrates a third time, notify surgeon and nephrologist.

Catheter removal instructions

The patient's catheter is **not to be removed** until the patient has had SIX CONSECUTIVE SUCCESSFUL arterial/venous needle cannulations at the prescribed BFR and needle gauge.

RECOMMENDED: It is important to match needle gauge to blood flow rate.

BLOOD FLOW RATE	RECOMMENDED NEEDLE GAUGE
<300 ml/min	17 gauge
300 – 350 ml/min	16 gauge
>350-450 ml/min	15 gauge
> 450 ml/min	14 gauge

Note: These are minimum recommended gauges for the stated BFR settings. Larger needles, when feasible, will reduce (make less negative) pre-pump arterial pressure and increase delivered blood flow .