

AVF Maturation Process - Fistula maturation is defined as the process by which a fistula becomes adequately dilated and thick-walled to make it suitable for cannulation.

- **Maturation Facts:**

- Maturation can be detected by 4 weeks although it can take 8 to 12 weeks
- Daily assessment of development can identify failing AVFs before thrombosis
- Early identification of problems increases AVF salvage chances
- If the AVF is patent but you are unable to cannulate the AVF or adequately dialyze the patient by 12 weeks, refer for exam/fistulogram to determine what intervention is needed

- **Assessment Facts**

- Should be able to feel a strong thrill at the arterial anastomosis
- Bruit is continuous and low-pitched
- Vessel diameter must be 4-6 mm,
- Outflow vein should be firm to touch with no prominent collateral veins

- **Assessment Guidelines**

- Look at the new AVF each dialysis treatment
 - Compare the AVF extremity to the other extremity
 - Check for bruising, redness and drainage
- Listen for the bruit each dialysis treatment
 - At the anastomosis
 - The entire length of the new AVF
- Feel the new AVF each dialysis treatment
 - Thrill should be full and bounding
 - Temperature of the access and extremity
 - Cold with pain or numbness
 - Warmer than other extremity
 - Presence of edema
- **Note** any changes and refer for follow up

- **Cannulation Guidelines**

- Develop unit specific policy that includes:
 - Who orders the cannulation to begin
 - Who is qualified to cannulate new AVFs
 - Use of CVC and new AVF
 - Needle size and specific blood flow rates

- **Monitoring Guidelines**

- **Pre-pump Arterial Pressure**
 - Indicates the ease or difficulty with which the blood pump is able to draw blood from the fistula (inflow)
 - Pre-pump arterial pressure which is valuable in detecting flow problems
 - Pre-pump AP should not be more negative than - 250 mm/Hg
 - Excessively negative pre-pump AP may be the earliest indication of AVF dysfunction
 - AP more negative than -250 mm/Hg causes
 - Decrease in the delivered blood flow
 - Inadequate dialysis
 - Hemolysis

References :

Cannulation of the Arteriovenous Fistula DVD (2007)

Chapter 2: Assessment of the New AVF for Maturity

Chapter 3: Protocol for New AVF Cannulation

National Kidney Foundation K/DOQI Guidelines for Vascular Access 2006