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