# Cannulation of Vascular Access for Hemodialysis

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## Preparing for Cannulation

- Look, listen and feel the access
- Identify access type
- Determine direction of flow
- Hand washing and gloving
- Site preparation

## Assessment of the Access

- LOOK FOR: sign and symptoms of infection, aneurysms, Steal Syndrome, stenosis, surgical incision lines
- LISTEN TO: Bruit
- FEEL FOR: Skin temperature, thrill, stenosis, vein diameter, Steal Syndrome

## Identification of Access Type - Fistula

- Forearm fistula: usually straight, one wrist scar at AV anastomosis
- Upper arm fistula: usually straight, one scar at AV anastomosis, basilic transposed has one long scar that runs the length of upper arm

## Identification of Access Type - Graft

- Forearm graft: usually loop
- Upper arm graft: usually straight, AA and VA scars
- HeRO: usually straight, three surgical scars (one at the AA, one at connector site, one at outflow device insertion site)

## Determination of Direction of Flow

- Occlude access in the middle and palpate and or auscultate; arterial side will have increased bruit and thrill, while venous side will have diminished flow due to occlusion

## Infection Control

- Appropriate PPE should be worn
  Hand washing and clean gloves are critical
  Gloves should be changed if contaminated at any time during the cannulation procedure

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## Site Preparation

- Select sites avoiding aneurysms
- Clean sites using a circular rubbing motion from center out
- Once you have prepared your sites, do not touch
- For fistula use gentle tourniquet

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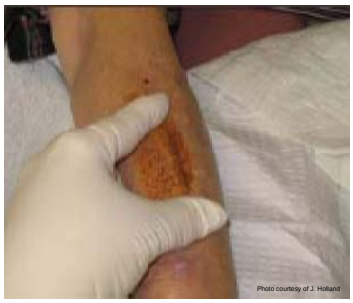
## "L" Technique

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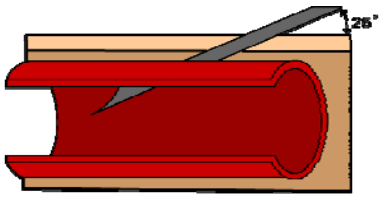
## Angle of Insertion - Fistula

- Insert the needle (bevel up) at a 25º angle until a "flashback" of blood is visible

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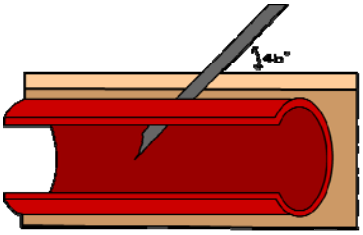
## Angle of Insertion - Graft

- Insert the needle (bevel up) at a 45º angle until a "flashback" of blood is visible

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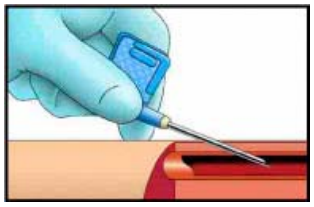
## Needle Insertion

- Reduce angle and advance needle to hub



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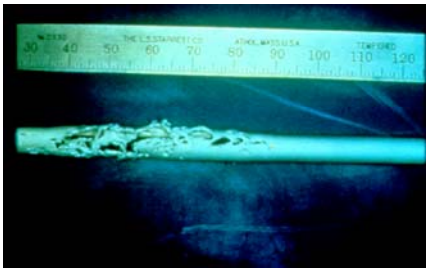
## New Fistula Cannulation

- Ensure that patient has had maturation study completed and follow-up on results
- Expert cannulator
- Careful, complete access assessment prior to attempt to cannulate
- K/DOQI recommends wet stick
- Use of tourniquet when cannulating all fistulas

## Cannulation Rules

- Always place the venous needle WITH the flow of blood
- Always keep the tips of the needles at least 2 inches apart to prevent recirculation
- Always keep the needles at least 1½ inches away from the anastomosis site
- Always rotate the puncture sites allowing 14 days for healing

## Consequence of Improper Cannulation



## Constant Site Cannulation (Buttonhole)

- Requires physician order
- Only for fistulas
- All clinical caregivers must be trained prior to performing this procedure
- Needle placement MUST be by same experienced clinical caregiver during tract formation (few weeks)
- After tract established, switch to blunt needles

## Infiltrations

- During cannulation
  - Remove needle and wait for bleeding to stop
- During dialysis
  - Do not remove old needle unless painful for patient or hematoma continues to enlarge
  - May need to recirculate blood while inserting new needle
  - Apply ice to hematoma

## Needle Removal

- Ensure both needles are clamped
- Remove tape – place gauze over insertion site
- Pull needle back slightly and slide safety device in place
- Remove needle at same angle as inserted while engaging safety device
- Do not apply pressure until needle is completely removed
- Patient should feel no “pinching” or pain

## Hemostasis

- Whenever possible patient should be taught to hold sites
- If using clamps, clamp one site at a time
  Check frequently for bruit and thrill
  Never tape all the way around the arm
  Do not use clamps on the HeRO device
- Most hemostatic sponges should be removed before patient is discharged, per manufacturer

## Patient Education

- Review how to hold pressure in case of breakthrough bleeding after discharge and what to do if bleeding does not stop
- Teach your patients how to assess their own access and who to contact if they detect a change or problem