

Self-Cannulation



Why Offer Self-Cannulation?

- Benefits for patients:
 - Less painful
 - Less likely to promote fear and anxiety
 - Less stressful
 - Greater feeling of control
 - Inspires confidence
 - Access may last longer
 - Alternative hemodialysis options

2

What Are Patients Saying?

- “You never know the qualifications of the person inserting the needles, and you know your own.”
- “You may want to consider learning how to insert your own needles. A bunch of us have, and you can’t imagine the sense of independence and relief that accompanies this self-care task.”

3

Quotes from the Kidney School™. Available at: www.kidney.school.org. Accessed May 1, 2006.

What Are Professionals Saying?

- Centers for Medicare & Medicaid (CMS) Fistula First Change Package #8: Cannulation Training for AVFs
 - Facility offers option of self-cannulation to patients who are interested and able
- American Nephrology Nurses’ Association (ANNA) Position Statement: Vascular Access for Hemodialysis
 - Education in self-cannulation should be offered to patients judged to have the ability and the access placement that enable them to do so

4

What Are Professionals Saying? (cont'd)

- Food and Drug Administration (FDA): Guidance for Nocturnal Home Hemodialysis (NHH) Devices
 - Training in self-cannulation should be considered in NHH
- MEI Kidney School™
 - “Putting in your own needles is the best way to have your dialysis lifeline last as long as possible.”
- Vascular Access Society
 - The buttonhole technique is recommended for self-cannulation

5

Plan Your Training

- Provide a quiet, calm environment
- Allow the patient to ask questions
- Have the patient practice:
 - Getting the “feel of the needles” with a practice arm
 - Determining angle of insertion
 - Assessing their access
 - Putting on and taking off the tourniquet

6

Gather Supplies

- Gloves (2 pairs)
- Tape
- Antimicrobial prep
- Chux pad
- Needles
- Tourniquet
- Scissor clamp
- Gauze
- Adhesive bandages
- Normal saline solution (NSS)
- Two 10-cc syringes
- Sharps container

7

Prepare the Needle

- Wash hands and access with soap and water; dry thoroughly
- Using sterile technique, draw up 5 cc's of NSS into each 10-cc syringe; attach syringe to the end of the needle tubing; fill needle tubing with saline by pressing the plunger until a little saline drips out of the end of the needle cap; close the clamp on the needle tubing

8

Assess the Access and Select the Site

- Complete the physical assessment of the access:
 - Feel for the thrill
 - Listen for a bruit
 - Check for infection, bruising, hematoma, prior needle-insertion sites, curves, flat spots, stenosis, aneurysms, diameter, and depth
- Select sites for cannulation:
 - Site rotation—stay 1.5" away from anastomosis, keep 1–1.5" between needle sites
 - Buttonhole—locate prior scab sites

9

Clean the Site and Apply a Tourniquet

- Cut all the tape you will need before cannulating
- Apply antibacterial cleaning solution to both chosen sites according to the manufacturer's directions; allow to dry before cannulating. (Exception: If using alcohol, apply to one site and cannulate, then apply to second site and cannulate; it has a short-acting time span and needs to be cannulated immediately after cleansing)
- Apply the tourniquet on the upper arm near axilla to 1) stabilize fistula (to keep it from rolling); 2) engorge the fistula (to see it better); 3) feel the fistula better (to determine correct angle of entry)
 - All AVFs must have a tourniquet

10

How to Apply a Tourniquet

- When using a tourniquet with Velcro™: Wrap tourniquet around the upper arm, pull tight, and secure with the Velcro™ tab
- When using a tourniquet without Velcro™: Wrap tourniquet around the upper arm so the tails are even; pull both ends straight up with the nonaccess hand; twist tourniquet ends twice, close to the skin, and apply a scissor clamp close to the skin
- Put on clean gloves

11

Prepare the Arterial Needle

- Pick up the arterial needle:
 - If color-coated, it will have a red clamp; if not, make sure it has a back-eye
- With your thumb and forefinger, grasp the needle wings together so the opening of the needle (bevel) is facing up
- Remove the needle cap, being careful not to touch anything with it (maintain sterility)
 - If the needle becomes contaminated, dispose of it in the sharps container and get a new sterile needle

12

Insert the Arterial Needle

- Using the side of your hand that is holding the needle, pull the skin back toward you; this will:
 - Tighten the skin to allow needle to go in more smoothly
 - Compress nerves, thus blocking your pain response for 20 seconds
- Based on the depth of the access when you completed your assessment, determine the angle of insertion for your needle (typically between 20° and 35°)
- Put the needle directly over the access at your chosen angle, and push the needle into the skin until you see blood entering the needle tubing (flashback)

13

Insert the Arterial Needle (cont'd)

- Lower your angle of insertion and advance the needle into the access until it is completely under the skin
 - Note: If the blood stops moving in the needle tubing or you feel resistance, STOP
- Once the needle is in the access, place a piece of 1" paper tape over the wings
 - This will keep needle from moving around in the access
- Open the clamp on the needle tubing and pull blood into the syringe, then put it back in your arm, being careful not to push any air into the tubing

14

Insert the Venous Needle

- Clamp the line
- Apply a ½" piece of plastic tape, sticky side up, under the needle just below the wings; cross the tape over the wings in a "V" shape (chevron) to prevent the needle from falling out of your arm during dialysis
- Pick up the venous needle and repeat the needle-insertion process
- Once the second chevron is in place, make sure both needle-tubing clamps are closed and remove the arterial needle syringe; attach it to the machine's arterial blood tubing

15

Operate the Blood Pump

- Turn on the blood pump to 150–200 mL/min and allow blood to flow through the extracorporeal circuit until it reaches the venous drip chamber
- Turn the blood pump off and connect the venous blood tubing to the venous needle tubing
- Unclamp the venous blood needle tubing and turn the blood pump to 200 mL/min

16

Remove the Needles

- After the blood is returned, clamp both needles
- Obtain a blood pressure, then place a Chux pad under the access
- Open gauze package
- Carefully remove chevrons from both needles
- Carefully take the tape off the venous needle only

17

Remove the Needles (cont'd)

- Take one piece of the gauze, fold, and place over the needle site without applying any pressure
- Have staff or helper remove the needle, then apply pressure to the needle site until bleeding stops
- Dispose of the needle in a sharps container
- Remove arterial needle as above and apply Band-Aids® to each site; remove after 2–4 hours

18

Helpful Tips

- The sooner self-cannulation starts, the better
- Some patients lay the pinky finger of their needle-inserting hand alongside the fistula to provide leverage for pushing and to keep the access from moving

19