Self-Cannulation of Hemodialysis Vascular Access

Lynda K. Ball, BS, BSN, RN, CNN
Quality Improvement Coordinator

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Why Offer Self-Cannulation?

- Benefits for patients:
  - ~Less painful
  - ~Less fear and anxiety
  - ~Less stress
  - ~Feel in control
  - ~Gives confidence
  - ~Access may last longer
  - ~Alternative hemodialysis options

What Patients Are 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."

Quotes from Kidney School.org

What Patients Are Saying?

- "I feel comfortable saying that it is the best decision I ever made" Phillip
- "I strongly encourage professionals to promote self-cannulation." George
- "Putting in your own needles is the best guarantee for a sure stick and less pain." Peter Lundin (patient & nephrologist)
- "It's about more than being in control – you get to know your fistula intimately and can feel and sense everything inside it." Ann

What Are Professionals Saying?

- **CMS Fistula First Change Package #8: Cannulation training for AVFs**
  - ~Facility offers option of self-cannulation to patients who are interested and able.
- **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.

What Are Professionals Saying?

- **FDA: Guidance for Nocturnal Home Hemodialysis (NHD) Devices**
  - ~Training in self-cannulation should be considered in NHD.
- **Vascular Access Society**
  - ~The buttonhole technique is recommended for self-cannulation.

What Are Professionals Saying?

- **MEI Kidney School™**
  - ~"Putting in your own needles is the best way to have your dialysis lifeline last as long as possible."
- **Medical Education Institute, Inc.**
  - ~Knowledge fights fear
  - ~Sticking yourself puts you in the driver's seat…It distracts you from the pain, so you feel it less, and helps your access last much longer.

Plan Your Training

- Provide a quiet, calm environment
- Allow the patient to ask questions
- Have the patient practice:
  - ~ with a practice arm to get the "feel of the needles"
  - ~determining the angle of insertion
  - ~assessment of their access
  - ~putting on and taking off the tourniquet

Self-Cannulation Procedure

- Gather supplies: gloves (2 pairs), tape, anti-microbial prep, chux pad, needles, tourniquet, scissor clamp, gauze, Band-Aids®, normal saline, 2-10cc syringes, sharps container.
- Wash hands and access with soap & water and dry thoroughly.
- Using sterile technique: draw up 5ccs of NS into each 10cc syringe; attach the syringe to the end of the needle tubing; fill the 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.

Modified from NW 15 procedure

Self-Cannulation Procedure

- 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.

Self-Cannulation Procedure

- Cut all the tape you will need before cannulating.
- Apply anti-bacterial cleaning solution to both chosen sites in a circular, outward motion and 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 in the upper arm near armpit – all AVFs need to have a tourniquet: 1)stabilizes to keep it from rolling; 2)engorges the fistula to see it better; 3)allows you to feel the fistula better to determine correct angle of entry.

Self-Cannulation Procedure

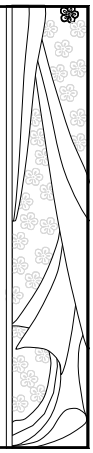
- How to apply a tourniquet:

  When using a Velcro™: wrap the tourniquet around the upper arm, pull tight, and secure with the Velcro™ tab.

  When using a tourniquet without Velcro™: wrap the tourniquet around the upper arm so that the tails are even. Pull both ends straight up with the non-access hand. Twist the tourniquet ends twice, close to the skin and apply a scissor clamp close to the skin.
- Put on clean gloves.

Self-Cannulation Procedure

- Pick up the arterial needle: if color-coated, it will have a red clamp; if not, make sure it has a back-eye (a hole in the back of the needle).
- With your thumb and forefinger, grasp the needle wings together so the opening of the needle (bevel) is facing up to the ceiling.
- 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.

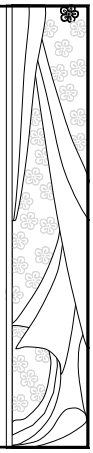


Self-Cannulation Procedure

- Using the side of your hand that is holding the needle, pull the skin back toward you – this will tighten the skin to allow the needle to go in smoother, and will compress nerves which will block 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 20-35 degrees).
- Put the needle directly over the access at your chosen angle and push needle into the skin until you see blood entering the needle tubing (flashback).

Self-Cannulation Procedure

- 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 the 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.

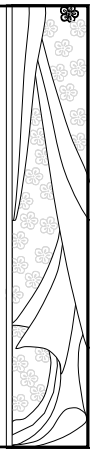


Self-Cannulation Procedure

- Clamp the line.
- Apply a piece of ½" piece of plastic tape, sticky side up, under the needle just below the wings and cross the tape over the wings in a "V" shape (chevron). Chevrons prevent the needles from falling out of your arm during dialysis.
- Now 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 and attach to the machine arterial blood tubing.

Self-Cannulation Procedure

- 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.



Self-Cannulation Procedure

Removal Procedure:

~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 the chevrons from both needles.

~Carefully, take the tape off of the venous needle only.

Self-Cannulation Procedure

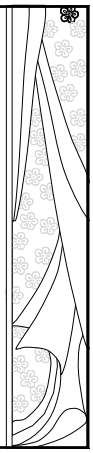
Removal Procedure (cont):

~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^{R} to each site. Remove after 2-4 hours.



Helpful Tips

- The sooner self-cannulation starts, the better.
- Some patients lay the pinky finger of their needle-inserting hand along side the fistula to provide leverage for pushing and to keep the access from moving.
- Don't use the word "stick."

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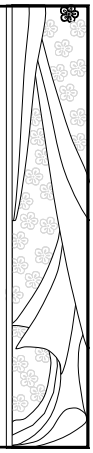

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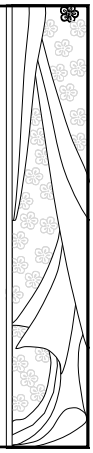

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