

Module 4 – How to Self-Needle

Self-needling your fistula or graft

There are two different techniques to needle (cannulate) your fistula or graft: **rope ladder technique** and **buttonhole technique**. Before you start learning about self-cannulation, discuss with your nurse the best method for you and your vascular access.

Rope ladder technique (for fistulas and grafts)

The rope ladder technique rotates needle sites for each dialysis treatment. The rope ladder technique must **ALWAYS** be used when needling a graft.



Important tips to remember:

- Clean, clean, clean. Protect yourself from infection. Wash your hands and access limb. Use the proper technique every time you insert your needles.
- Choose your sites carefully. Choose the straightest points possible. Remember that needles are not curved, even though your fistula might be. Your training nurse will help you find appropriate sites.
- Bruises and swelling can happen if the needle pierces through the underside of the vessel (fistula/graft). To avoid this, plan ahead. Look, Listen and Feel your fistula/graft every time. Draw a path where the needle is to go if you need to. Fistulas have a tendency to move, so make sure you know where you are going with your needle.
- If the needle has gone through the wall of the fistula/graft and you feel pain, take the needle out and try again in a different spot.
- Report redness, pain, swelling or fever to your nurse.
- If you think your fistula is infected, go to the closest emergency room.

Rope Ladder Technique



Supplies:

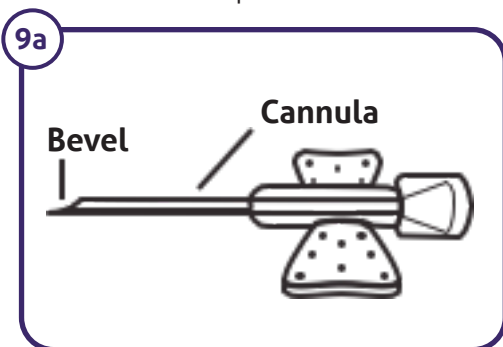
- Clean drape or towel
- Disinfectant wipes
- Gauze, 4x4 inch and 2x2 inch
- 21-gauge needle and 10ml syringe for heparin
- Heparin 1:1000 units
- Tape (1 in and ½ in)
- 2 fistula needles
- Tourniquet
- Gloves (have your helper use them)
- 2 (10 mL) syringes

If instructed by your educator to prime needles:

- 2 pre-filled normal saline syringes

1. Check your access for signs of infection (redness, swelling, tenderness or drainage).
2. Check your access is working by feeling the **thrill** (pulsation or vibration) and listening for a bruit ("whoosing" sound) using a stethoscope.
3. Wash your hands and fistula arm with warm water and anti-bacterial soap for a full minute.
4. Prepare your needling surface and assemble your supplies on your drape or towel.
5. Prepare needles, syringes, **heparin**, and tape.

6. Cleanse each needle site with a disinfectant wipe - using up and down and side-to-side motions (waffle motion). Allow to air dry.
7. Apply **tourniquet** 4 inches higher than your venous (top) needle site.
8. If helper available, ask to put on clean gloves.
9. Insert arterial needle:
 - a) Remove cap and hold needle by the plastic wings with the opening (bevel) facing up.
 - b) Pull back on the skin with light pressure below where you will be placing the needle.
 - c) Insert needle using a 25 degree angle. Flatten angle once you see blood pulsing (flashback). Slowly advance needle almost to the end in the same direction as the fistula. If you have trouble advancing the needle, STOP and call for help.
 - d) Check the flow of blood by pulling up and down on the syringe. Syringe should be in an upright position.
 - e) Place folded gauze under the needle if required.
 - f) Tape needle securely.
 - g) Clamp needle. Remove the old syringe with blood. Loosen tourniquet.



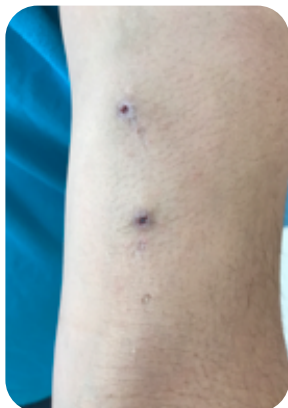
- h) Attach a 10 cc pre-filled syringe and instill saline.
 - i) Clamp needle.
 - j) Tighten tourniquet.
10. Repeat step 9, a to i, to insert the venous (top) needle.
 11. Remove tourniquet.
 12. Give yourself the initial **heparin** dose by replacing the empty syringe with the heparin-filled syringe. Check your flows as you draw up the blood into the syringe and mix it with heparin. Return blood and heparin and close clamp or as instructed by your educator.
 13. Recheck flow in needles using syringe.
 14. Clamp needles and connect to bloodlines (machine).
 15. Open needle clamps and start dialysis.



Buttonhole Technique (fistula only)



Important points to remember:



- Think about a buttonhole track like an earring hole.
 - Your nurse will choose your buttonhole sites carefully.
 - The straightest part of your fistula will be used.
 - The arterial needle needs to be put at least 2 inches above the fistula incision (anastomosis).
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- Needle tips need to be at least 1 inch apart.
 - Use the same hole, the same angle and the same direction each time you needle your fistula.
 - Always use a tourniquet.
 - Clean, clean, clean – make sure you clean your sites before and after removing the scabs.
 - Use sharp needles to form the track. It usually takes 8 to 18 times to form a track.
 - Once the track is formed, needle the track using blunt buttonhole (dull) needles. Never use sharp needles.
 - Report redness, pain, swelling or fever to your nurse.
 - If you think your fistula is infected, go to the nearest emergency department.

Buttonhole Technique



Supplies:

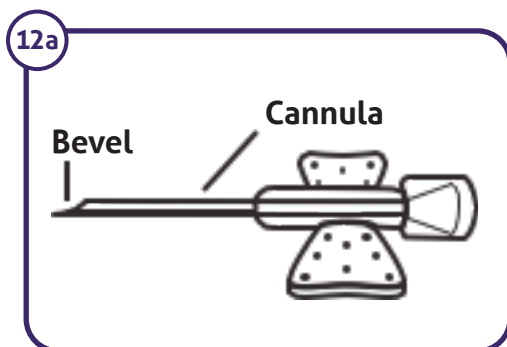
- Clean drape or towel
- Disinfectant wipes
- Gauze, 4x4 inch and 2x2 inch
- 21-gauge needle and
- 10ml syringe for heparin
- Heparin
- Tape (1 in and ½ in)
- 2 blunt buttonhole fistula needles
- Tourniquet
- 2 red blunt fill needles
- Gloves (have your helper use them)

If instructed by your educator to prime needles:

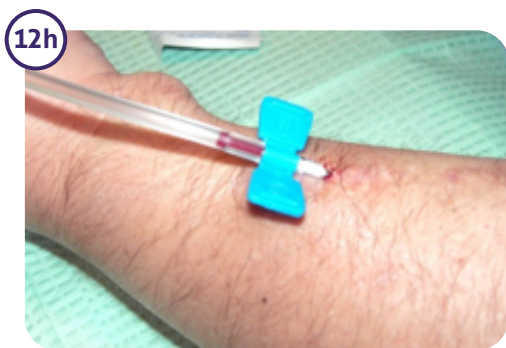
- 2 pre-filled normal saline syringes

1. Check your access for signs of infection (redness, swelling, tenderness or drainage).
2. Check that your access is working by feeling the thrill (pulsation or vibration) and listening for a bruit (whoosing sound) using a stethoscope.
3. Wash your hands and fistula arm with warm water and anti-bacterial soap for a full minute.
4. Prepare your needling surface and assemble your supplies on your drape or towel.
5. Prepare needles, syringes, tape, gauzes, heparin, and anything you may need for needling.

6. Cleanse each needle site with a disinfectant wipe - using up and down and side to side motions (waffle motion). Allow to air dry.
7. Wipe each scab with a disinfectant wipe (one per scab).
8. Gently lift each scab off with a disinfectant wipe or a red blunt fill needle if scab doesn't come off easily (one wipe or needle per scab).
9. Cleanse each needle site again with a disinfectant swab (one per site).
10. Apply tourniquet 4 inches higher than your venous (top) needle site.
11. If helper available, ask to put on clean gloves.
12. Insert arterial needle:
 - a) Remove cap and hold needle by the plastic wings with the opening (bevel) facing up.
 - b) Pull back on the skin with light pressure below where you will be placing the needle.
 - c) Insert needle using a 25 degree angle. Flatten angle once you see blood pulsing (flashback). Slowly advance needle almost to the end in the same direction as the fistula. If you have trouble advancing the needle, STOP and call for help.



- d) Check the flow of blood by pulling up and down on the attached syringe. Your nurse will show you how to do this.
 - e) Place folded gauze under the needle if required.
 - f) Tape needle securely.
 - g) Clamp needle. Remove the old syringe with blood. Loosen tourniquet.
 - h) Attach a 10 cc pre-filled syringe and instill saline.
 - i) Clamp needle.
 - j) Tighten tourniquet.
13. Repeat step 12, a to i to insert the venous (top) needle.
 14. Remove tourniquet.
 15. Give yourself the initial heparin dose by replacing the empty syringe with the heparin-filled syringe. Check your flows as you draw up the blood into the syringe and mix it with heparin. Return blood and heparin and close clamp.
 16. Re-check flow in needles using syringe.
 17. Clamp needles and connect to bloodlines (machine).
 18. Open needle clamps and start dialysis.



Removing Needles- for both rope ladder and buttonhole technique



Supplies:

- Clean drape or towel
- Gauze, 2-4 (2x2 inch and 4x4 inch)
- Sharps bin
- Antimicrobial gauze OR 2 sterile swab tip applicators and mupricin cream (if using buttonhole technique)
- Tape (1 in and ½ in)
- Gloves (have your helper use them)

1. Return blood as per machine manual.
2. Check standing and sitting blood pressure.
3. Wash your hands with anti-bacterial soap or hand sanitizer.
4. Prepare supplies, open gauze, prepare tape and/or band aids.
5. Clamp both needles. Place a drape or pad under arm.
6. If helper available, ask to put on clean gloves.
7. Carefully remove tape or hold needle while helper or staff removes tape. Place gauze over the needle site without applying pressure.
8. Remove needles one at a time by holding the needle tubing with your fistula hand and placing gauze over the puncture site with your other hand. Pull needle out slowly at the same angle as the track.
9. After the needle is out, hold your needle sites using gentle pressure for 10 minutes. Press at the needle site and just

above. If the needle site is still bleeding after 10 minutes, reapply pressure for another 5 minutes.

10. For Buttonhole Cannulation

When the bleeding stops:

- Apply antimicrobial gauze and tape in place; OR
- Use a sterile swab tip applicator and apply Mupirocin cream about the size of a pea to each site (one applicator per site). Make sure the tube of the cream does not contact the skin. Cover the sites with a sterile gauze and tape in place.
- Remove the gauze after 4 - 6 hours. If Mupirocin cream applied, wipe away excess cream.

11. For Rope Ladder Cannulation

When bleeding stops:

- Apply gauze and tape in place.
- Remove gauze after 4-6 hours.



In the event of an emergency, you will need to have your emergency bleeding supplies close and within reach. If in the event your fistula, or graft starts to bleed after you have finished dialysis, please follow the instructions on the following page.

**Did you
KNOW?**

You can download the teaching tool on Page 30 (and many other handouts) at www.bcrenalagency.ca.
Click: Health Info → Managing My Care → Vascular Access → Fistulas & Grafts.

Bleeding Fistula or Graft: What To Do



- It is very rare for your fistula or graft to bleed after you leave the dialysis unit.
- This brochure tells you what to do if it does happen.

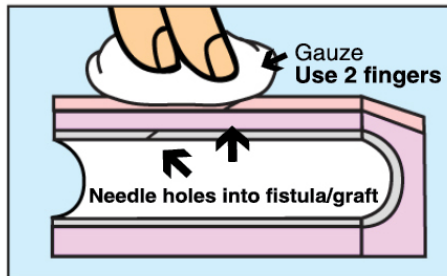
What supplies do I need in case my needle sites bleed at home?

- Gauze pads
- Tape
- Gloves
- Tourniquet (e.g., belt, tie, blood pressure cuff — required only if bleeding profusely or squirting).

Keep these supplies in your emergency kit.

What do I do if my fistula or graft starts to bleed after I leave the dialysis unit?

1. Call for help! Let your family member(s), friend(s) or neighbor(s) know.
2. Get emergency kit, put on gloves and open gauze. If you do not have gauze handy, use an absorbent cloth, tissues or paper towel.
3. Press firmly for 10-15 minutes, and refrain from peeking under your fingers.
4. Make sure you press the bleeding needle hole with two fingers to put pressure on both the site where the needle enters the skin and the site where it enters the fistula/graft.
5. If the bleeding stops, apply a band aid (and let your nurse know on your next run).
6. If the bleeding doesn't stop after 15 minutes, call 911.
7. Elevate the fistula/graft arm.
8. If bleeding a lot or squirting, apply a tourniquet (belt, tie, BP cuff etc) tightly around your upper arm while waiting for the ambulance.



How to hold pressure over the needle hole

The information in this pamphlet is provided for educational/ information purposes, and to support discussion with your health care team about your medical condition and treatment. It does not constitute medical advice and should not substitute for advice given by your physician or other qualified health care professional. This brochure can be downloaded from the BC Renal website: www.bcrenalagency.ca



