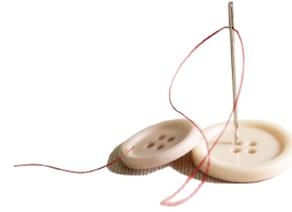


How to do Buttonhole Cannulation

Welcome! In this course you will learn:

1. What Buttonhole (BH) cannulation is and how it works.
2. How BH sites are made.
3. How to prevent BH infections.



For this course, we assume that you have a working and mature fistula.

Words to Know:

Cannulate: Place needles for hemodialysis (HD).

Fistula: A surgeon links an artery to a vein. This is done under the skin of your arm.

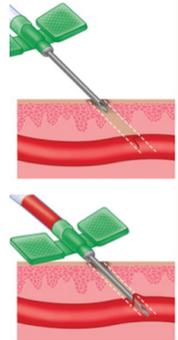
Graft: A piece of man-made tubing links an artery to a vein. This is done under the skin.

Self-cannulate: To place your own needles.

Vascular access: A way to reach your blood so it can be cleaned.

Buttonhole Technique is for Fistulas ONLY. There are two safe ways to place needles in a fistula: **Rope ladder** and **Buttonhole**.

1. **Rope ladder (RL):** At each treatment, sharp needles are placed into two fresh sites. RL scabs form a pattern like knots on a rope. RL is used in most clinics.
2. **Buttonhole (BH):** Sharp needles are placed into the same exact two sites at the same exact angle each time for a few weeks. Scar tissue forms tunnel tracts, like pierced earring holes. Once formed, blunt needles are used.



Worried About Needle Pain?

Ask your doctor if you can try EMLA® cream. It can help with pain and soften BH scabs.

Learn to Look, Listen, and Feel. One of the first things you will learn is how to check your fistula. Your nurse will show you how to:

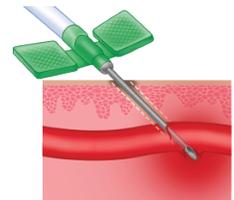
- **Look** for new bumps or bruises. Is your skin color normal? Any signs of infection?
- **Listen** to the *bruit* "BREW-ee" sound. Tell your nurse if you hear changes.
- **Feel** your fistula. The *thrill* (buzz) should feel the same each day. Your skin and hand temperature should be normal, not too hot or cold.

How to Start Buttonholes: The needles need to be placed the exact same way each time. Pick a cannulation position. You will use this each time, so be sure it is comfy. Once a BH forms, do not use sharp needles in that spot.

Choose Buttonhole Sites and Needles:

- The best BH sites are easy to see and reach. Look for parts of your access that are straight.
- Use needles that are as long as your access is deep. A needle that is too long risks *infiltration**. A needle that is too short may not reach the blood vessel.
- Find where your artery and vein connect. The first BH site must be at least 2" away from it.
- Needle tips must be at least 1" apart. More is better.
- It is possible to have more than two BH sites, and rotate between them.

**Infiltration* means a needle goes too deep. It passes all the way through your vessel and out the other side. This causes bleeding under the skin and can be painful.



Buttonhole Users Must Know Rope Ladder, Too.

If a BH site gives you trouble, you still need treatment. Never use a sharp needle in a finished BH tract. Choose a different site! Some people have one BH site and RL the other.

Test for Buttonhole Readiness: It takes weeks to form BH tracts. How will you know when to try a blunt needle?

- The BH sites will look round and well-healed.
- The BH site will form scabs after treatment.
- It is easy to cannulate with a sharp needle.
- When placing a sharp needle, there is less resistance in the track.

Never dig around with a needle—this can hurt *and* harm the tract.

If you can't place a blunt needle, try again with a fresh needle. If the second try does not work, your BH tracts are not ready yet. Disinfect the site and resume forming the track.

How to Soften and Remove Buttonhole Scabs: After each treatment, your needle sites will form scabs. You must fully remove the scabs before your next treatment. Scabs are covered in germs.

1. Wash your access with soap and water.
2. Soak two pieces of gauze in sterile water or saline. Apply antibacterial soap to the gauze and put a fresh piece on each BH site.
3. Let the gauze sit for 15 minutes. Then, the whole scab should wipe away. If not, redo the gauze soak. Be patient. Never pick scabs off—this can cause infection or sepsis.
4. Disinfect your access again before you cannulate.

Missed Treatments and Fluid Buildup: When you miss a treatment, fluid can build up and cause swelling. Your BH tracts may narrow, so it is harder to place needles. The tracts are still there, even if they are harder to find. If you get frustrated, take a short break, and try again with fresh supplies.

Prevent Infection: Clean hands keep you safe. One of the best and easiest way to prevent infection is to remove as many germs from our hands as we can, with soap and water.

Signs of infection:

- Redness
- Pain
- Swelling
- Irritation
- Warmth
- Pus
- Itching
- Fever/ Chills

If you notice any of these, contact your clinic right away. Never place needles into a spot that might be infected!

Access Hygiene Matters: When a needle goes through skin and into a blood vessel, it can pick up and carry germs into your body. Wash and disinfect the skin over your access well to avoid this.

Beware of Sepsis: Sepsis is an immune response to a blood infection that can be deadly. Dialysis patients are more at risk. If you notice new symptoms like fast heart rate, confusion, pain, shivering... Ask yourself, "Could this be sepsis?"

If there is any chance you might have sepsis, go to the ER right away!

"... Everyone who can see and reach their access needs to learn to needle themselves. It's like brushing your teeth: once you learn it, you will never let Mom (or anyone else) do it for you."

– Henning Sondergaard

Conclusion: When you learn how to self-cannulate, you are in the driver's seat of your HD care. You are the only one who can feel both ends of the needles. This means you have the best chance to get them right each time. BHs are a way to make good use of a short or twisty fistula or do HD at home or at night while you sleep. Taking good care of your BH sites can help them last as long as they can.