



Home Care Services

HomeMed ▪ MedEQUIP ▪ Wheelchair Seating Service

1-800-862-2731

PLACEMENT OF YOUR TUNNELED CATHETER

In order to do pheresis, you will need to have a soft, flexible tube inserted called a tunneled catheter (Figure 1). The catheter is called a Neostar[®] and will have three lumens or ports. This will allow the stem cell collection needed for your transplant.

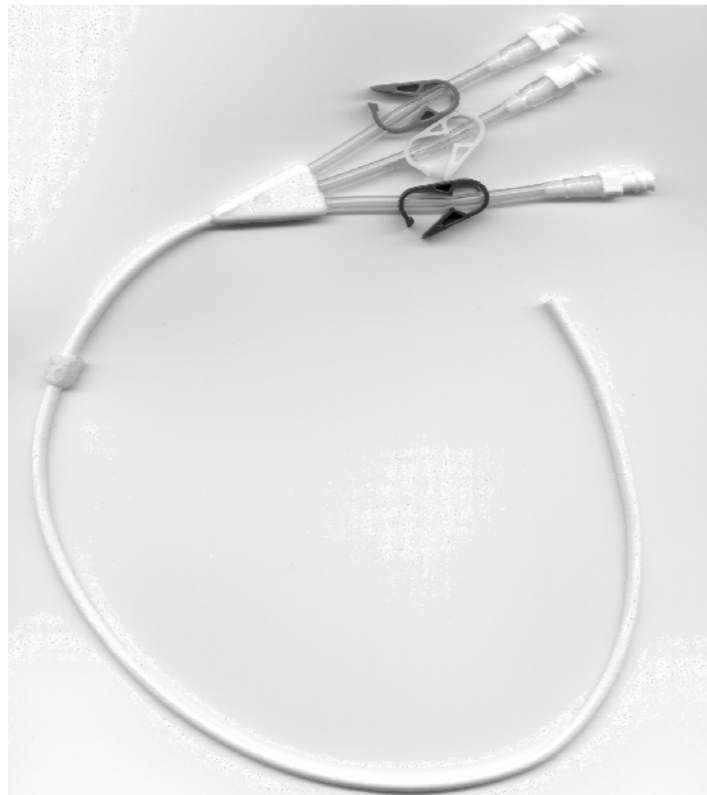


FIGURE 1 - NEOSTAR[®] CATHETER

Usually, the catheter is placed using local anesthesia, and a chest x-ray is taken to check the location of the catheter. The catheters are approximately 20-36 inches long but are cut to your body size. The catheter is placed in a large vein with the tip near the heart (Figure 2).

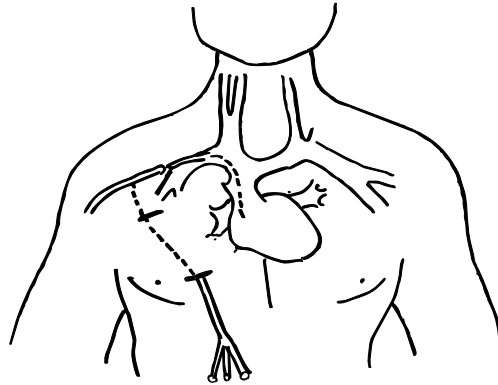


FIGURE 2 -PLACEMENT OF A TUNNELED CATHETER

The exit site is the place on your skin where the catheter comes out of your upper chest. The exit site must always be kept very clean and covered with a sterile (germ-free) dressing. About 4 inches from the exit site underneath the skin is a small, fuzzy dacron cuff. This cuff has 2 important functions: to help hold the catheter in place and to help block bacteria from going up the catheter into your bloodstream.

HEPARIN FLUSH

Heparin is injected into the catheter lumens to prevent blood clots from forming when the catheter is not in use. If this procedure is not done as directed by your physician, blood may enter and clot off the catheter.

During your stem cell collection, you will be using a higher concentration of heparin than you will be using after your transplant. *The heparin dose and concentration for flushing your catheter will be taught to you during your training.* Before your transplant, you will need to flush each lumen of your catheter every **Monday, Wednesday and Friday** with **2.5 mLs of 1000 unit per mL of heparin.** **If you still need your catheter after your transplant, you will flush each lumen with 5 mLs of 10 units/mL once a day.**

CATHETER CARE TIPS

Your catheter is made of a very soft, flexible material called silicone which can easily be damaged. It is important that you follow a few special guidelines to prolong its life.

1. Whenever you need to handle the catheter, make sure you hold the hub or the white plastic ring with an alcohol wipe (refer to Figure 1). Extreme care must be taken not to touch the hub with your fingers or drop the catheter onto your skin.
2. When away from home, take heparin solution, vial adapter, blunt needle, catheter cap, syringes and alcohol wipes in case of an emergency.
3. When you are not infusing medication, keep the capped end of the catheter taped to your chest in such a way that there is no tension on the catheter. This will prevent tugging and accidentally pulling out the catheter.
4. DO NOT use sharp objects such as pins or scissors near the catheter.
5. Always use a catheter clamp for clamping. Never clamp the catheter with something that has rough edges or teeth that could easily puncture the catheter.
6. Care should be taken to prevent kinking or pinching of the catheter.

CATHETER EMERGENCY SITUATIONS

Emergencies may occur with the catheter. These include:

- blood backing up in the tubing
- a leaking catheter

YOUR FIRST REACTION MUST BE TO CLAMP THE CATHETER. This stops blood or air from entering the catheter. If blood is already backed up in the catheter, clamping will prevent further back up. Your next step should be to wash your hands, then check for loose caps, flush the catheter with heparin solution and apply a sterile catheter cap.

STEPS TO MINIMIZE CONTAMINATION

The term "sterile" will be used frequently. A product is sterile after undergoing a special process that eliminates germs. Steps that you can take to minimize contamination are as follows:

1. Before starting any procedure, **ALWAYS** wash your hands thoroughly with an antibacterial soap such as Dial®. This will decrease the chance of contamination.
2. Select a work area free of dust and drafts and away from household traffic such as a spare bedroom. Keep this area free of dust, lint, and clutter. Pets should not be allowed in these areas. Adequate light should be provided. **Do not use a bathroom counter**, as they are likely to be places that have a large number of germs.
3. A stable tray, Formica or similar products (e.g., metal, glass or plexiglass) placed over a dresser or end table can be used. Clean work surface with a household cleaner such as bleach, alcohol or dish soap or you may place a clean paper towel on work surface. Nothing should be stored on the table surface.
4. Work at a comfortable pace. *The risk of contamination increases if you rush through the procedures.*
5. Store all your medication solutions and supplies away from other household items. Do not store urine test kits, ostomy supplies or similar items with any medication or supplies.
6. Keep all supplies, especially medication, needles and syringes, out of the reach of children and pets.
7. Make sure each item is sterile by checking for visible signs of contamination such as an opened package or cloudy fluid. A good rule of thumb to follow is: **when in doubt - throw it out**. Call *HomeMed* as to whether to throw the item away or return it to us.
8. When piercing, opening, or connecting sterile items, allow only sterile surfaces to touch other sterile surfaces. Never touch sterile parts with your hands or allow a sterile item to contact a non-sterile surface. Parts of supplies that must be kept sterile are protected with a cover.
9. If you are inserting a sterile needle through a non-sterile surface, always use an alcohol wipe to clean the surface. Never retouch this area after cleaning it.
10. Contaminated or damaged supplies should **NEVER** be used (for example: if protective coverings have fallen off medication vials).
11. Some drugs may be used to withdraw more than dose. More than one dose can be withdrawn from these containers (multidose vial). Other drugs must be thrown away after the correct dose has been withdrawn (single dose vial). We will let you know which

drug containers you may use more than once. Whenever reusing a medication vial, always clean the top with an alcohol wipe. Most multidose vials will need to be refrigerated after using unless the label tells you to do otherwise.

HANDWASHING

Thorough handwashing is a very important step before any catheter care procedure because it decreases the risk of infection. Washing will clean hands, but not sterilize them, so care must still be taken when handling your catheter or supplies. An antibacterial soap (Dial®) will be ordered for you.

Wound, ostomy, or fistula care **MUST** be done separately from catheter care procedures. Germs normally live in your intestinal tract and in ostomy or fistula fluids. If these germs or germs from improperly washed hands enter your bloodstream through the catheter or medication solution, they could cause a severe blood infection (septicemia).

Procedure:

1. Turn on water and adjust to warm. Leave water running throughout the entire procedure.
2. Wet your hands and wrists under the running water.
3. Apply antibacterial soap and scrub **VIGOROUSLY** for 15 seconds. Work lather between fingers and under nails, over palms and back of hands.
4. Rinse hands and wrists under running water with your fingers pointing up towards the ceiling.
5. Dry hands with paper towel. Turn off the water with a paper towel.

If you wish, you may also use a waterless soap to wash your hands. You may not be able to use waterless soap if you have a rash or cuts on your hands. This is because waterless soap contains ethyl alcohol that may cause stinging or burning feeling. If this occurs, use an antibacterial soap. Also, do not use waterless soap if your hands become soiled with body fluids.

Procedure Using Waterless Soap:

1. Place a dime size amount of gel in one hand.
2. Rub into palms and backsides of hands and between fingers.
3. Rub gently for about 10 seconds and let air dry.

DRESSING CHANGE PROCEDURE USING A TRANSPARENT DRESSING

Key Points:

1. Clean the skin and change the dressing every 3 days or more frequently if using a dressing with a pad (Airstrip®, Tegaderm®+ pad or Medipore®). If you use a clear dressing (Tegaderm HP®), you will need to change it every 7 days.
2. Change the dressing more frequently if it becomes soiled, loose, or wet.
3. Avoid pulling, bending, or kinking the catheter unnecessarily to prevent the catheter from cracking and leaking.

Supplies:

- (1) PICC/Central Line Dressing Change Kit which contains the following:
 - (1) pair of sterile gloves
 - (1) ChloroPrep® swabstick packet (3 per package)
 - (1) gauze sponge
 - (1) skin prep pad
 - (1) Transparent dressing
 - (1) sterile drape
- Paper towels

Procedure:

1. Wash your hands.
2. Gather supplies and place them in a corner of the work area.
3. Clean your work area.
4. Open the dressing kit. Remove the sterile drape. Open the drape and place on your work surface. Place contents of the kit on the sterile drape.
5. Remove the old transparent dressing. Do this by pulling the dressing one corner at a time toward the catheter exit site. After all the corners are loosened, hold the catheter down and pull the dressing up and off. **DO NOT TOUCH** the skin or catheter that was under the dressing.
6. Carefully inspect the exit site for any sign of infection (*swelling, redness, drainage, or tenderness*). If any of these signs are present, notify your physician or *HomeMed* after finishing the dressing change procedure.



7. Remove the ChloroPrep® swabsticks from the package one at a time.
8. Gently press the swabstick against the catheter exit site. Carefully clean the area around the catheter by using a back and forth motion for 30 seconds. Completely clean an area 2 inches around the catheter exit site. Repeat with each swabstick. (Figure 1)

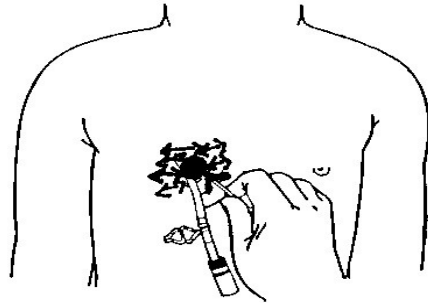


Figure 1 – Cleaning the Skin Around the Catheter

9. Allow the ChloroPrep® to **air dry** for approximately 30 seconds. Do not blot or wipe away. Do not fan or blow on area. Discard the swabstick after a single use.
10. Apply skin prep to the area around the catheter exit site, starting 1 inch away from the catheter and working outward. Let dry until smooth and shiny.
11. It is not necessary to clean the catheter. If you have dried blood or drainage on it, wipe the catheter with an alcohol pad starting from the exit site to approximately 2 inches down the catheter.
12. Remove the paper cover from the dressing. Apply the dressing over the catheter exit site so that the dressing is directly over the exit site. Smooth down the dressing edges. Pinch the cloth dressing around the catheter.
13. Remove the window around the dressing.

CHANGING THE CAPS ON YOUR CATHETER

Key Points:

1. Change the caps on the end of each lumen of your catheter every week.
2. Rewash your hands if they become soiled or if you need to interrupt the procedure for any reason.
3. Before removing caps from the lumens of your catheter, make sure the lumens are **CLAMPED** to prevent air from entering your bloodstream.

Supplies:

- (2) alcohol wipes for each catheter lumen
- Caps for each catheter lumen

Procedure:

1. Wash your hands.
2. Gather supplies and place in a corner of the work area.
3. Clean work area.
4. Peel back wrapper on new cap(s).
5. **CLAMP** the catheter lumens you will be placing new caps on.
6. Open alcohol wipes and hold the end of the catheter hub with the alcohol wipe.
7. While holding an alcohol wipe around the catheter hub, wipe the catheter-cap junction with the second wipe. Place this second alcohol wipe on the catheter cap. Remove the catheter cap by twisting counter-clockwise. Place the old catheter cap and alcohol wipe on your work surface. Keep holding the catheter hub with the alcohol wipe—**DO NOT** drop the catheter hub.
8. Pick up the new cap out of wrapper. Remove the clear protective tip off the end of the cap.
9. Place the new cap on the catheter. Twist the new cap on clock-wise to tighten.
10. Repeat steps with the other catheter lumens, using new alcohol wipes and cap.
11. When the caps are changed, loop the catheter onto the dressing and tape. The cap and catheter end should point upward.

PREPARING YOUR HEPARIN FLUSH (PRE TRANSPLANT)

MATERIALS:

- (1) vial adapter (Remove the protective cover and leave in plastic package)
- (1) vial 1000 units/mL of heparin (Check expiration date)
- (3) 3mL syringe for each lumen of catheter (remove from wrapper)
- (3) blunt needles
- Alcohol wipes
- Antibacterial soap
- Paper towels

PROCEDURE

1. Place a trash can next to your work area.
3. Wet your hands and wrists under running water. Scrub **vigorously** with antibacterial soap for 15 seconds. Work lather between fingers, under nails, over palms and back of hands. Rinse hands well. Keep hands up with fingers pointing up towards the ceiling so the dirty water runs towards your elbows. Dry your hands with a paper towel. Turn off the faucet with the paper towel. Do not touch anything dirty (e.g. skin, clothes, eyeglasses) after washing your hands. If you do, wash them again.
4. Place a clean paper towel on your work surface or clean it with a household cleaner, (bleach, alcohol or dish soap). Let the area air dry.
5. With your clean hands, place the materials that you will need on the clean work area.
6. Remove the protective cap from the vial so you can see the rubber stopper.
7. **Vigorously** scrub the top of the vial with an alcohol wipe.
8. Grasp the round green portion of the vial adapter while still in the clear package. Insert the vial into the spike of the vial adapter with a pushing-twisting motion. Throw away the clear package.
9. Attach a blunt needle to the 3 mL syringe:
 - Open the syringe package. Leave the syringe inside the package until ready to attach the needle.
 - Remove the green cap from the blunt needle.
 - Connect the needle to the syringe by turning the needle clockwise. **Do not remove protective cap from blunt needle.**

10. Hold the syringe upright. Pull the syringe plunger back to the 2.5 mL mark, to fill it with air.
11. **Vigorously** scrub the top of the vial adapter with an alcohol wipe.
12. Remove protective cap from the end of the blunt needle. Place the cap in the clean work area. Do not throw it away.
13. Insert the blunt needle into the vial adapter.
14. Hold the vial and syringe upright. Push the air into the vial.
15. Pull the plunger down past the 2.5 mL mark to fill it with fluid.
16. If bubbles appear, gently tap the sides of the syringe. The bubbles will rise to the top of the syringe.
17. Push the plunger back to the 2.5 mL mark to push the air back into the vial.
18. Remove the syringe from the vial adapter and replace the gray cap on the blunt needle before placing it on the clean work surface.
19. Repeat with remaining flushes.

PRE TRANSPLANT FLUSHING OF YOUR CATHETER-MONDAY, WEDNESDAY, FRIDAY

1. **Vigorously** scrub the end of the cap on your catheter with a new alcohol wipe.
2. Inject heparin flush by:
 - Removing the protective cap from the blunt needle of your heparin flush syringe.
 - Insert blunt needle into the cap of your catheter and inject heparin flush solution with a pumping action. **DO NOT FLUSH IF YOU MEET RESISTANCE—CALL YOUR PHYSICIAN FOR FURTHER INSTRUCTIONS.**
 - When 0.5 mL remains in the syringe gently push forward on the syringe plunger and clamp the catheter. (“Pump-pump-push and clamp”). Pull the syringe needle out of the catheter cap.
3. Throw away the syringe(s) and blunt needle(s) into the sharps container.

PREPARING YOUR HEPARIN FLUSH 10 units/mL (POST TRANSPLANT)

MATERIALS:

- (1) prefilled heparin flush syringe for each lumen of catheter
- (1) blunt needle for each prefilled syringe
- Alcohol wipes (1 for each lumen)
- Antibacterial soap
- Paper towels

Procedure:

1. Place a trash can next to your work area.
2. Wash your hands by first wetting your hands and wrists under running water. Scrub vigorously with antibacterial soap for 15 seconds. Work lather between fingers, under nails, over the palms and back of hands. Rinse hands well by keeping your hands up with fingers pointing up towards the ceiling so that the dirty water runs toward your elbows. Dry your hands with a clean paper towel from the tips of fingers down. Turn off the faucet with the paper towel.
3. Gather your supplies and place in a corner of your work area.
4. Place a clean paper towel on your work surface or clean it with a household cleaner. Let the area air dry.
5. Place the supplies on your clean work area.

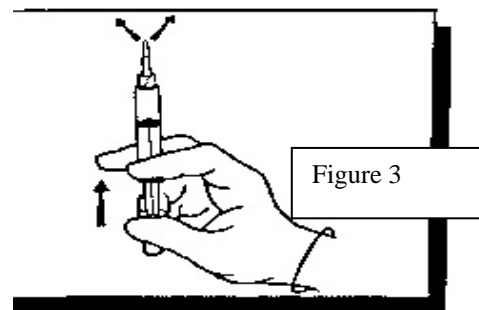
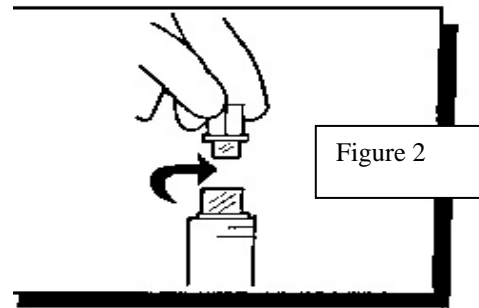
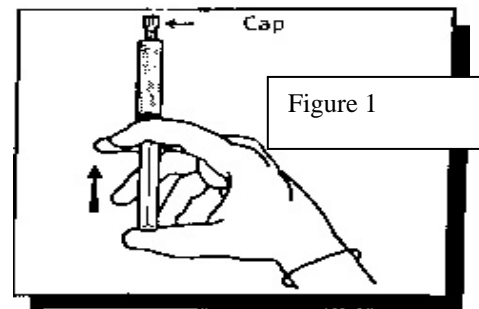


PREPARING YOUR HEPARIN FLUSH

1. Remove the syringe from the package.
2. Hold the prefilled heparin syringe upward (figure 1).
3. **Do not remove the cap.** Push on the plunger (figure 1). **DO NOT** pull back on the plunger.
4. Remove the protective cap from the end of the prefilled syringe (figure 2).
5. Attach a blunt needle to the syringe by:

Twisting the green cap off the blunt needle. Attach the needle to the syringe by turning the needle clockwise. Do not remove the gray cap that protects the blunt needle.

6. Hold the syringe with the needle pointing upward. If bubbles appear, gently tap the sides of the syringe. The bubbles will rise to the top of the syringe.
7. Push the plunger to the 5 mL mark to push all the air out of the syringe (figure 3).



POST TRANSPLANT DAILY FLUSHING OF YOUR CATHETER

1. **Vigorously** scrub the end of the cap on your catheter with an alcohol wipe.
2. Remove the protective covering from the blunt needle of your heparin lock syringe.
3. Insert the blunt needle of the heparin syringe into the catheter cap and inject the heparin solution with a pumping action. When 0.5mL remains in the syringe, gently push forward on the syringe catheter while clamping the catheter. (“Pump-pump-push and clamp”)
4. Dispose of the syringe in your sharps container.
5. The cap on your catheter does not need to be covered. You will need to clean the cap when you give your next dose of medication or flush the catheter.



CATHETER PROBLEMS:

Catheter problems may occur but may be prevented by carefully following the instructions given to you. Below are a list of the signs and symptoms, what to do should they occur, and how to avoid them.

INFECTION:	WHAT TO DO	HOW TO AVOID IT?
BLOOD INFECTION Fever, chills, swelling. EXIT SITE INFECTION Foul odor, oozing discharge, pain or heat from the exit site. (see figure 1).	Call your physician, you will need treatment.	Follow instructions at all times to avoid contaminating the catheter. Wash your hands with antibacterial soap. Change dressing if loose or wet. Do not use contaminated supplies.

OCCLUSION:	WHAT TO DO	HOW TO AVOID IT?
There is a blockage that prevents the infusion to continue and you are unable to flush the catheter using normal, gentle pressure.	Do not use extra pressure. Check for closed clamps, kinks in the tubing or catheter. Open clamps. If these are not the cause there may be a clot in the catheter. Call your physician or HomeMed.	Flush the catheter as instructed. DO NOT FLUSH IF YOU MEET RESISTANCE—CALL PHYSICIAN FOR FURTHER INSTRUCTIONS.

BREAK or ACCIDENTAL CUT IN CATHETER	WHAT TO DO	HOW TO AVOID IT
Leaking of fluid from the break or cut area. An internal leak could cause swelling in the neck which will be cool to touch and painful.	Clamp the catheter between the break and the skin (exit site). Call your physician, the catheter will need to be repaired or replaced.	Do NOT use scissors near the catheter. Never use excessive force to flush the catheter.

THROMBOSIS	WHAT TO DO	HOW TO AVOID IT
Arm, neck or chest (on same side as your catheter) becomes swollen & cool to touch.	Call your physician immediately.	None