

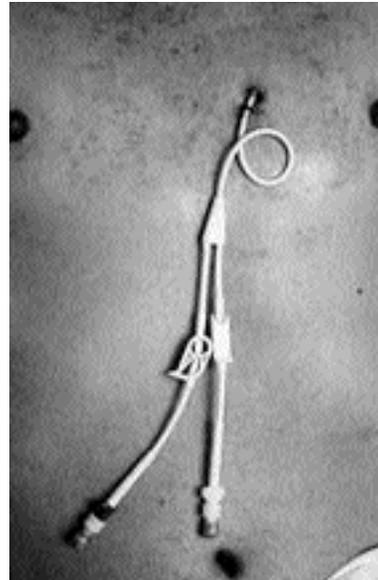
Managing Your Tunneled Catheter: Hickman, Neostar, Broviac, Leonard

This information was prepared by the staff of the Procedures, Vascular Access, Conscious sedation Service (PVCS) to familiarize you with your new tunneled catheter. By providing this information, we hope to make you more comfortable with your catheter and teach you to take care of it. Soon, you, perhaps with a family member, will be caring for your catheter with confidence.

While your doctor and nurse have discussed the need for a tunneled catheter with you, you may still have questions and concerns.

To help you understand what you need to do, your nurse will review this information with you or with someone who will be caring for you. You will learn how the catheter is inserted, how to change the dressing and catheter cap, and how to flush the catheter. Your nurse will also discuss safety and hygienic precautions you may need to take, and what to do when problems arise.

Many people have had tunneled catheters, and most have managed well with these devices. We encourage you to learn and master the care of your tunneled catheter. Once you are confident with your catheter, daily care will be simple.



What is a tunneled catheter?

The tunneled catheter is a thin, long tube made of flexible, silicone rubber. It is surgically inserted into one of the main blood vessels leading to your heart. It is a short, hollow tube. Depending on your therapy needs, the catheter may have either a single (1), double (2), or triple (3) lumen (channel) at the tip.

Single-, double-, and triple-lumen catheters can be used for drawing blood samples and for giving intravenous fluids, blood, medication, or nutrition. With a tunneled catheter, you will not need to have as many needlesticks during your care.

How will the catheter be inserted and anchored?

The doctor will talk to you before the procedure. Please be sure to talk to your doctor or medical team if you have any questions or concerns.

The catheter will be inserted under local anesthesia. You may receive medications that make you sleepy during the procedure. However, during catheter placement, you will be able to talk to the team and you may feel pressure, but no pain.

First, a small incision will be made near your collarbone or shoulder. This area will be numbed by a medicine like novocaine. This incision will be the “insertion site.” A second incision called the “exit site” will be made between your nipple and midchest.

A tunnel will then be made under your skin between these two incisions. The tunneled catheter will then be pulled through this tunnel from the exit site to the insertion site, and threaded into a large vein leading to your heart.

Because this procedure may be uncomfortable, you will receive medication to help you relax. This medication will most likely make you drowsy, and you should not drive for 24 hours after receiving it. If you are having this procedure as an outpatient, you must have someone take you home and stay with you for 24 hours.

How will the catheter feel when it is in place?

There will be a small Dacron cuff on the catheter between the insertion and exit sites. You may feel it or see it under your skin.

The cuff serves two purposes:

- ▶ to help hold the catheter in place as your skin heals around it.
- ▶ to help prevent infections by stopping bacteria from entering the tunnel and traveling up to the vein.

After the procedure

The procedure usually takes about 1 hour. After the procedure, you may feel some discomfort. Please let your nurse know when you are uncomfortable. You should be able to receive medication to make you feel better.

You will notice a dressing over the catheter exit site. This dressing should be changed in 24 hours. If you see a lot of bleeding on the dressing during this time, call your nurse (if you are in the hospital) or call the Clinical Center (if you are at home).

There will also be a dressing over the insertion site near your collarbone or on your neck. Usually, this dressing is removed after 24 hours. Sutures (stitches) may be present, so check with your doctor or nurse for specific instructions on dressing changes and suture removal. You should also watch this site for any bleeding.

Dressing Change

While you are in the hospital, your nurse will use sterile technique to change your dressing once a week. Sterile technique means that the nurse will follow special procedures to reduce your risk of infection.

When you are at home, you or the person caring for you will change the dressing using clean technique. (Clean technique will be explained on the following pages.)

Clean technique is okay to use in your home because there are fewer bacteria in your home than in the hospital.

Dressing change and site care at home

Site care means cleaning and inspecting the place where the catheter leaves your body. By keeping this area clean, you will help prevent infections at the exit site. *It is very important to look carefully at this site and along the tunnel each time you change the dressing.* You need to check for redness, tenderness, swelling, and drainage from the site. Notify your doctor or nurse if any of these signs are present. The following section describes how to do the dressing change and site care at home.

Schedule

Change your dressing and perform site care according to the following guidelines:

- ▶ clear dressing: once per week (e.g., every Friday)

Your line and site should not get wet when showering. You will be with a special waterproof cover for this.

If the dressing becomes soiled, loose, or moist, it should be changed immediately.

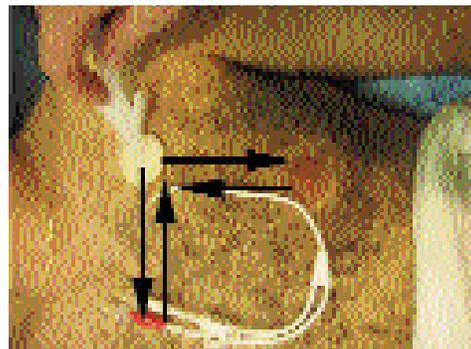
Supplies

- ▶ 1 chlorhexidine gluconate applicator
- ▶ 2 alcohol prep pads
- ▶ 1 skin prep swab stick (optional)

Procedure

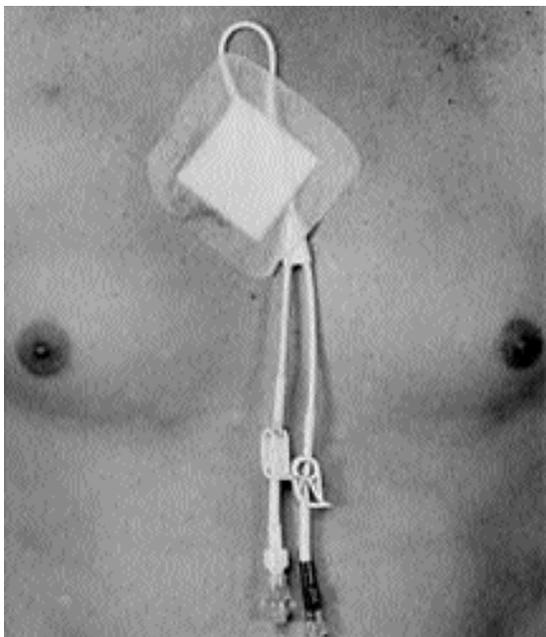
- I. Prepare a clean work area. Gather the supplies listed above.

2. Wash your hands thoroughly with soap and water.
3. Open the chlorhexidine gluconate applicator.
4. Remove the old dressing. Be careful not to tug on the catheter or touch the exit site.
5. Check the site and tunnel carefully for redness, tenderness, swelling, or drainage.
6. Rewash your hands.
7. Grab chlorhexidine gluconate and alcohol applicator by the handle and squeeze the two wings on either side of the handle until you hear a “snap.” Hold the applicator with the pad facing down until you see the pad become wet. Then, clean the catheter exit site and skin and surrounding skin using an up- and-down and side-to-side motion. (two directions).



Step 7: Cleansing the catheter site.

8. With your nondominant hand, grip the catheter at the exit site with the inside of an alcohol prep pad. Then, with your dominant hand, gently clean the outside of the catheter with the inside surface of another alcohol prep pad. Start from the exit site and move to the cap. If you have a double-lumen catheter, return to where the catheter splits, and clean the other lumen down to the cap.
9. (Optional) Apply skin prep to your skin where the tape part of the dressing will be placed.
10. Apply the dressing. Be careful not to touch the piece that will cover your exit site.
11. Loop a piece of catheter under the dressing and secure it with tape.
12. You may also tape the ends of the catheter in a comfortable position.



Step 12: Looping and securing the catheter.

Catheter care

Flushing the catheter with heparin

Heparin stops blood from clotting in your catheter. To keep your catheter working, you must flush it daily with heparin. Note: If you have a double- or triple-lumen catheter, you must flush each lumen once a day.

Schedule

Flush the catheter with heparin once a day or after using the catheter.

Supplies (per lumen)

- ▶ alcohol prep pads
- ▶ 10 mL syringe pre-filled with 2 mL (100 units/ml) heparin
- ▶ blunt plastic cannula

Procedure

1. Prepare a clean work area. Gather the supplies listed above.
2. Wash your hands thoroughly with soap and water.
3. Remove the pre-filled heparin syringe and blunt plastic cannula from the plastic bag. Peel open the blunt plastic cannula wrapper and set the cannula aside. Remove the cap from the syringe. Screw the blunt plastic cannula onto the syringe. Be careful not to touch the tip of the syringe or the end of the cannula that connects to the syringe.



Step 3: Remove the pre-filled heparin syringe and blunt plastic cannula from the plastic bag.

4. Remove the cap on the cannula tip. Be careful not to touch the tip.
5. Check for air bubbles in the syringe. *Note: if there are air bubbles, flick the syringe with your finger to make the bubbles rise to the top. Then, gently push the plunger forward to force the air out. Stop at the 2 mL mark on the syringe.*
6. Carefully replace the cover loosely over the syringe tip.
7. Hold the catheter in your nondominant hand and scrub the catheter cap with an alcohol swab. Allow the cap to dry.
8. Continue to hold the catheter in your nondominant hand. Remove the tip cover and insert the cannula tip of the syringe into the center of the catheter cap.



Step 8: Holding the catheter

9. Unclamp the catheter.
10. Briskly inject 2 mL of heparin into your catheter.
11. Reclamp your catheter.
12. Remove the syringe from the catheter. Discard the used syringe.
13. Repeat for each lumen.

Changing the catheter cap

When you are home, you should change the cap to prevent infection and overuse.

Schedule

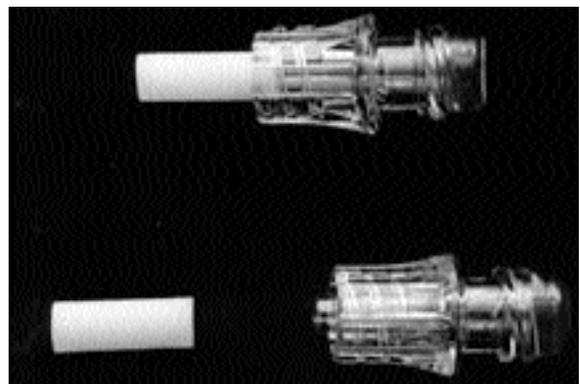
Change the cap once a week or as needed.

Supplies (per lumen)

- ▶ 1 alcohol prep pad
- ▶ 1 new sterile luer-lock interlink intermittent infusion cap

Procedure

1. Prepare a clean work area. Gather the supplies listed above.
2. Wash your hands thoroughly with soap and water.
3. Open the supplies and place them on the work area. **DO NOT** remove the protective tip covering the luer-lock cap. This tip keeps the luer-lock sterile until you place it on your catheter.



Step 3: Open the supplies and place them on the work area.

4. Check to be sure the catheter is clamped.
5. Hold the catheter in your nondominant hand and scrub the cap-catheter connection with an alcohol swab. Let the cap-catheter connection dry.
6. While continuing to hold the catheter in your nondominant hand, remove the old cap from the catheter.
7. Remove the protective tip from the new cap and screw the new cap on the catheter. After the protective tip has been removed, remember not to touch the sterile tip with your fingers.
8. Repeat for each lumen.

Precautions to observe with your catheter

After your catheter is in place, there are a few key things you will need to remember.

- ▶ **Never use scissors near your catheter.**
- ▶ In case the catheter breaks, always carry the smooth-edged clamp your nurse gave you.
- ▶ After your catheter is implanted, we recommend that you use a gauze-and-tape dressing for the first week. After the first week, you may choose either a gauze or clear dressing for your site. The frequency of care can be reviewed on page 3 under “Schedule.”
- ▶ You may shower or bathe with either dressing, but the dressing and catheter must be covered with plastic. If the dressing or catheter gets wet, change the dressing immediately. Never let the catheter dangle in the water.

Take-Home Supplies

When you are low on your take-home supplies, inform your nurse. You may pick up your supplies from central hospital supply. The supply kit will contain 5 chlorhexidine gluconate applicators, 5 alcohol pads, 5 skin prep swabs, and 5 to 15 injection caps and 5 dressings you and your nurse have chosen. Heparin syringes may be picked up from the pharmacy.

If you had the catheter placed when you were an outpatient, you may obtain your supplies upon discharge the day of the procedure. You may also receive supplies during your return visit to the clinic the next day.

- ▶ One month after catheter insertion, you may be able to swim in a chlorinated pool. Check with your health care team if you can go swimming. If you can, make sure that the pool has a regularly monitored chlorine content. You must also protect the exit site with a water-tight dressing and change it after swimming if the dressing becomes wet. Do not swim in lakes, rivers, oceans, or use hot tubs.
- ▶ You may continue your normal activities including work, school, exercise, and sexual activity. Contact sports are not recommended.

What to do when problems occur

While most patients continue their daily activities unhindered by their catheters, problems may develop.

Air embolism

This may occur if air enters your vein through the catheter. If the clamp on the catheter is not secure or if the infusion cap is removed before the clamp is in place, air can enter the catheter. You may feel short of breath or develop a cough. If this occurs, call your doctor or nurse immediately.

Catheter breakage

While it is rare, the catheter can break. This is why you must carry a clamp at all times. If the catheter breaks, immediately place your clamp above the break closest to your skin. Call your doctor or nurse. Hickman catheters can be repaired.

Clotting

A clot may block the flow of fluid through the catheter if the catheter is not flushed promptly after blood drawing or if blood backing up in the catheter is not cleared. To prevent clotting, flushing the catheter with heparin is a must. If you meet resistance when attempting to flush the catheter, stop. Do not force the syringe. Call your doctor or nurse.

Infection

Infection may occur if the exit site is not kept clean and dry. Every time the infusion cap is removed, bacteria may enter the catheter and travel to your blood stream. If you feel chills after flushing, call your doctor or nurse immediately. Closely monitor your catheter exit site for signs of infection: redness, tenderness, or drainage. If your white blood cell

count is low, you will not see drainage or pus. You may also have fever and chills. Call your doctor or nurse immediately if you notice these signs and symptoms of infection.

Thrombosis

Thrombosis may occur if a blood clot forms and blocks the flow of blood through the vein in which your catheter is placed. Signs of thrombosis are pain and/or swelling in your neck, face, chest, or arm. You may also have a feeling of fullness in your face. If you notice these signs, call your doctor or nurse immediately.

Handy Telephone Numbers

Your Doctor _____ 301-496-_____

Your Nurse _____ 301-496-_____

NIH Information Available 24 hours a day at 301-496-4000. Ask for the PCVS (Procedures, Vascular access, Conscious Sedation) nurse on call.

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Questions about the Clinical Center?
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