Caring for Your Central Venous Catheter

This information will teach you about the placement and care of your central venous catheter (CVC).

There are many different types of catheters (thin, flexible tubes) and your doctor will decide which kind is best for you.

All devices have 1 central catheter that enters your body. On the outside, the catheter may divide into 1, 2, or 3 lumens (see Figure 1). Each lumen has a clamp, a needleless connector, and a disinfection cap on the end.

A CVC can be used to take blood samples, as well as give:

- Fluids
- Chemotherapy and other medications
- Blood transfusions
- Intravenous (IV) nutrition

The advantages of having a catheter are:

- You won’t need as many needle sticks.
- It can stay in your body for as long as a few years and be removed when it is no longer needed.

Your nurse will teach you how to care for your catheter. You can have a caregiver, family member, or friend learn with you. You will learn how to use sterile technique to change your dressing. This will minimize your risk for infection. You will also learn how to change your needleless connectors and disinfection caps (SwabCaps®), as well as flush your catheter using a syringe with normal saline solution. You must flush your catheter to keep blood clots from forming inside of it. Once a week, you will change the needleless connectors, disinfection caps, and your dressing, as well as flush your catheter. You may want to mark your calendar to help you remember to do so. After you go home, use this information to help you remember the steps to care for your catheter.
Before Your Procedure

Ask about your medications

You may need to stop taking some of your medications before your procedure. Talk with your doctor about which medications are safe for you. We have included some common examples below.

- If you take medication to thin your blood, ask your doctor what to do. Some examples are aspirin, warfarin (Coumadin®), dalteparin (Fragmin®), heparin, tinzaparin (Innohep®), enoxaparin (Lovenox®), clopidogrel (Plavix®), cilostazol (Pletal®), prasugrel (Effient®), dabigatran (Pradaxa®), rivaroxaban (Xarelto®), apixaban (Eliquis®), and ticlopidine (Ticlid®). These medications can be used to treat blood clots or to prevent a heart attack or stroke.

- If you take insulin or other medications for diabetes, you may need to change the dose before your procedure. Ask the doctor who prescribes your diabetes medication what you should do the morning of your procedure.

- Please review the information in Common Medications Containing Aspirin and Other Nonsteroidal Anti-Inflammatory Drugs for examples of what not to take and what to take instead.

- Do not take vitamin E for 10 days before your procedure, or as directed by your doctor.

Arrange for someone to take you home

You must have someone 18 years or older take you home after your procedure. If you don’t have anyone, call one of the agencies below. They will provide someone to accompany you home, however there is usually a charge for this service and you will also need to provide transportation.

In New York:
   Partners in Care 888-735-8913
   Prime Care 212-944-0244

In New Jersey:
   Caring People 877-227-4649

Tell us if you're sick

If you develop any illness (e.g., fever, cold, sore throat, or flu) before your procedure, please call a nurse in Interventional Radiology at 212-639-2236. A nurse is available Monday through Friday, 9:00 AM to 5:00 PM. After hours, during the weekend, and on holidays, call 212-639-2000 and ask for the Interventional Radiology fellow on call.

Note the time of your appointment

A staff member from the Interventional Radiology office will call you 2 business days before your procedure. He or she will tell you what time you should arrive at the hospital for your procedure. If you are scheduled for your procedure on a Monday, you will be called on the Thursday before. If you don’t receive a call by noon the business day before your procedure, please call 212-639-5051.

If you need to cancel your procedure for any reason, please call the doctor who scheduled it for you.
The Day of Your Procedure

Things to remember

• Do not eat or drink anything after midnight the night before your procedure. This includes water, gum, and hard candy.

• Take your medications the morning of your procedure as instructed by your doctor. Take them with a few sips of water.

• Do not apply cream or petroleum jelly (Vaseline®). You can use deodorant and light moisturizers.

• Do not wear eye makeup.

• Remove any jewelry, including body piercings.

• Leave all valuables, such as credit cards and jewelry, at home.

• If you wear contact lenses, if possible, wear your glasses instead. If you don’t have glasses, please bring a case for your contacts.

What to bring with you

□ A list of the medications you take at home.

□ Medications for breathing problems (such as inhalers), medications for chest pain, or both.

□ A case for your glasses or contacts.

□ Your Health Care Proxy form, if you have completed one.

□ If you use a CPAP or BiPAP machine to sleep at night, please bring your machine with you, if possible. If you can’t bring your machine with you, we will give you one to use while you are in the hospital.

Where to go

□ Memorial Hospital
  1275 York Avenue, New York, NY 10065

Parking at MSK is available in the garage on East 66th Street between York and First Avenues. To reach the garage, enter East 66th Street from York Avenue. The garage is located about a quarter of a block in from York Avenue, on the right-hand (north) side of the street. There is a pedestrian tunnel that you can walk through that connects the garage to the hospital. If you have questions about prices, call 212-639-2338.

There are also other garages located on East 69th Street between First and Second Avenues, East 67th Street between York and First Avenues, and East 65th Street between First and Second Avenues.

When you arrive at Memorial Hospital, take the M elevator to the 2nd floor. Enter through the glass doors and check in at the desk.
When you enter the building, check in at the reception desk and they will direct you to Interventional Radiology.

**What to expect**

Once you arrive at the hospital, doctors, nurses, and other staff members will ask you to state and spell your name and date of birth many times. This is for your safety. People with the same or similar names may be having procedures on the same day.

**During Your Procedure**

Two areas of your body will be numbed. A small incision (surgical cut) will be made at the base of your neck. A second small incision will be made on your chest, under your collarbone. The catheter will be inserted through the second incision, tunneled under your skin to the first incision, and threaded into your vein.

The incision at the base of your neck will be stitched closed. The stitches will be absorbed and will not need to be removed. Your catheter will be stitched to your skin at the point where it exits your body (exit site) so that it will stay in place (see Figure 1).

**After Your Procedure**

You may have some discomfort at your incision sites and along the CVC tunnel. Ask your nurse for medication to relieve your pain.

Your dressings need to be kept dry following your procedure. Your nurse will change your dressings 24 to 48 hours after your procedure. He or she will teach you how to do this.

Two days after your procedure, you can remove the dressing that covers the small incision at the base of your neck. You do not need to put a new dressing on this site. The strips of adhesive tape that cover this incision should be left in place until they start to peel off. This should happen about 3 to 5 days after your procedure.

Your catheter exit site will still need to be covered with a special dressing. This dressing prevents infection at this site. You will have stitches under your dressing. These stitches keep your catheter in place until the cuff on the catheter becomes anchored in the tunnel under your skin.

Your catheter will not interfere with your usual activities, such as household tasks, job responsibilities, and exercise. However, we suggest that you avoid contact sports, such as football and soccer, while your catheter is in place.

Prepare the following emergency kit and keep it with you at all times:

- 1 toothless clamp
- 1 dressing change kit
- Your doctor’s office and emergency telephone numbers

**Changing Your Dressing, Needleless Connectors, and Disinfection Caps**

- Do not change your dressing, needleless connectors, or disinfection caps in the bathroom after a shower. The steam from a shower can create a moist environment under your dressing and affect the adhesive. Make sure you change your dressing, needleless connectors, and disinfection caps on a clean, flat surface.
• You will see the folded *Map for Dressing Change: CVC* at the end of this resource. Use it to follow the step-by-step instructions for changing your dressing. This is when you will use sterile technique. You will not be able to touch the booklet then because that would break sterile technique. Open the map and spread it out where you can see it.

• You will use a Tegaderm CHG dressing to cover your exit site unless your doctor or nurse gives you another dressing to use. Change your dressing once a week, as long as it stays dry, intact, and clean. Change it on the day you change your needleless connectors and disinfection caps and flush your catheter. You may need to change it more often if it becomes moist, soiled, or peels away from the skin.

• If the gel pad on your Tegaderm CHG dressing becomes swollen, change your dressing. You can test the gel pad by applying pressure to it with your index (pointer) finger. If you see an indent, the gel pad is swollen and your dressing should be changed. This can happen if there is a lot of sweat under your dressing.

• If you have problems with your skin, such as irritability or sensitivity, your nurse may suggest a different type of dressing. In that case, you may need to change it more often than once a week. No matter which dressing you are using, always change it right away if it starts to come off or gets wet. Do not just put another dressing or more tape over it.

• For more information, you can watch *How to Change the Dressing, Needleless Connectors and Disinfection Caps on your Central Venous Catheter.*

### Changing Your Dressing

#### Supplies

- 1 dressing change kit
- An alternative dressing, if supplied by your nurse
- 1 needleless connector for each catheter lumen
- 1 disinfection cap for each lumen
- Extra alcohol pads
- Nonsterile gloves
- Paper tape
- A mirror that can stand up on a table (a makeup mirror works well)

#### Sterile procedure for changing your dressing

1. Prepare a clean area in which to work. **Remember not to change your dressing in the bathroom after a shower.**

2. Gather your supplies. **Wash your hands thoroughly with warm water and antibacterial soap or use hand sanitizer.**

3. Get into a comfortable position. Unpin the catheter from your clothing, if necessary. Open or remove your clothing to expose the catheter.

4. Check to make sure the catheter clamp(s) is (are) closed.

5. **Open the *Map for Dressing Change: CVC* instructions at the end of this resource and spread it out where you can see it.**
6. Open and remove the outer plastic packaging of the dressing change kit. Two masks will be right on top (see Figure 2). Put the mask on. If someone is helping you with your dressing, they will also need to wear a mask. **Do not touch anything else inside the kit.**

7. Put on the nonsterile gloves. Remove the old dressing by gently grasping an edge of the dressing and slowly peeling it off your skin toward the exit site of the catheter. As you peel the dressing back, place your thumb or forefinger on top of the dressing over the catheter to prevent tugging on the catheter. To make it easier to remove, wipe the area underneath the dressing with an alcohol pad as you pull the dressing away from your skin. Make sure the entire gel pad comes off with the dressing. Throw away the gloves and old dressing.

8. Without touching the area, inspect the exit site and the skin around it. It is easier to do this by looking in the mirror. Call your doctor or nurse after you complete the dressing change if you notice any signs of infection or irritation, such as:
   - Red or raw skin
   - Swelling
   - Any drainage from the exit site
   - Leakage around your catheter

9. Unwrap your dressing change kit by pulling back on the corners of the outer wrapping in the following manner:
   - Place the kit in front of you so that the top flap is facing you. Open the top flap away from you.
   - Open the first side flap.
   - Open the other side flap.
   - Open the bottom flap towards you.

   Make sure you don’t touch the inside of the outer wrapping. Take the paper drape out of the kit, touching only the edges. Unfold it and place it on your work area. This is called your sterile field.

   Open the package with the needleless connectors and drop them on your sterile field. If your nurse gave you an alternative dressing to use, drop them on the sterile field.

   **Follow steps 10-21 on the Map for Dressing Change: CVC instructions at the end of this resource to complete the dressing change.**

   You are now done with the sterile part of the dressing change. Keep your gloves and mask on to change the needleless connectors and disinfection caps.
Changing the Needleless Connectors and Disinfection Caps

21. You will change the needleless connector and disinfection cap on each lumen of your catheter. Make sure you have 3 alcohol pads for each lumen.

22. Check to make sure that the clamps on your lumens are closed before you change the needleless connectors and disinfection caps.

23. Even though your gloves are on, they will no longer be sterile if you touched your skin when you put on your dressing, so do not touch the inner part of the catheter tip or needleless connector. Using an alcohol pad, hold your catheter with your nondominant hand close to, but not touching, the needleless connector (see Figure 3).

24. Using your dominant hand, scrub the connection site for 15 seconds with another alcohol pad and allow it to dry for 15 seconds. Twist off the old needleless connector. Throw away the old needleless connector and alcohol pad.

25. Scrub the end of your catheter with a new alcohol pad for 15 seconds and allow it to dry for 15 seconds.

26. Pick up the new needleless connector with your dominant hand. If there is a cover in place over the new needleless connector, remove it and then twist the new needleless connector onto your catheter (see Figure 4).

27. If you won’t be flushing your catheter immediately, apply the disinfection cap to the end of the needleless connector.

28. Repeat steps 22-27 for the second and third lumens.

29. Remove your mask and sterile gloves. Throw them away.

Flushing Your Catheter

Flush the lumens with normal saline solution once a week, when your catheter is not in use. This is to keep the lines from becoming clogged. For more information, you can watch How to Flush Your Central Venous Catheter.

Supplies

- 1 prefilled, 10 mL syringe containing normal saline solution. You will need 1 syringe for each lumen
- Nonsterile gloves
- Alcohol pads
- 1 disinfection cap for each lumen
**Steps to flushing your catheter**

1. Gather your supplies.

2. Wash your hands thoroughly with warm water and antibacterial soap. Dry them with a clean towel or a paper towel. Put on a pair of nonsterile gloves.

3. To release the air bubbles in the syringe, gently tap the side of the syringe. Point the syringe up as you do this. Loosen but do not remove the cap on the syringe. Press the plunger on the syringe until the air is pushed out. Retighten the cap.

4. Pick up 1 lumen and unclamp it.

5. If you have a disinfection cap, remove it.

6. If you don’t have a disinfection cap, scrub the end of the needleless connector with an alcohol pad for 15 seconds and allow it to dry for 15 seconds.

7. Remove the cap from the syringe. Throw away the cap. Make sure that nothing touches the clean end of the needleless connector while you are doing this.

8. Carefully push the syringe into the needleless connector and twist it in a clockwise (to the right) direction until the connection feels secure. Try to inject the saline. If you can’t inject the saline, stop and check to be sure there are no twists or other blockages in the tubing. Try to inject the saline again. **If you still can’t inject the saline, do not use extra pressure to flush the line.** Remove the syringe, reclamp your catheter, and call your doctor or nurse.

9. Use the following push/pause method to flush your catheter:
   - Quickly inject ⅓ of the saline.
   - Pause.
   - Repeat.
   - Inject the last ⅓ of the saline. After the injection, clamp your catheter.

10. Untwist the syringe from the lumen and throw it away.

11. Attach a disinfection cap to the end of the needleless connector.

12. Repeat steps 3-11 for each lumen.

13. Reclamp the lumens.

14. Secure your catheter in a way that makes you feel comfortable. If you will pin your catheter to your clothing, prepare one 5-inch piece of paper tape. Fold down the edges of the tape (see Figure 5). Leave enough sticky tape so you can wrap it around all of the lumens. Avoid placing tape over the connection site. **Leave the catheter hanging loose only if you are sure it will not be pulled.**

15. Throw away your mask and gloves and wash your hands thoroughly.
Caring for Your CVC

- Do not submerge your catheter in water (e.g., a bathtub or swimming pool).
- Clamp the lumens when your catheter is not in use.
- Keep your catheter secure at all times to avoid pulling it. You can tape the lumens of your catheter to your skin, tuck them into a bra if you wear one, or pin them to your clothing. Ask your nurse about the best way to secure your catheter. Avoid placing tape over the connection site.
- If your catheter is leaking at any time, clamp it above the leak. Use the white catheter clamp on the catheter, if possible. If the white clamp is not available, use the clamp found in the emergency kit. Wipe the area that is leaking with an alcohol pad. Cover the site with tape. Call your doctor or nurse immediately. Catheters can often be repaired.

Guidelines for showering

While your catheter is in place, it is especially important to take good care of your skin to reduce your risk of infection. We recommend that you wash with Hibiclens® every day while your catheter is in place. It contains a fast-acting antiseptic called chlorhexidine gluconate (CHG) that kills germs that live on your skin and will reduce your risk of infection. Hibiclens can work for up to 6 hours after using it. You can purchase it from any local pharmacy or online. You will be sent home with a small bottle when you are discharged from the hospital. For more information, you can watch Showering While You Have a Central Venous Catheter.

Instructions for using Hibiclens

- If you are washing your hair, shampoo and rinse thoroughly.
- Wash your face with regular soap.
- Rinse your body with warm water from the neck down.
- Apply Hibiclens to a washcloth or directly to the skin being cleansed. Wash gently. Do not dilute the Hibiclens.
- Rinse thoroughly with warm water and pat yourself dry.

Important points to remember when using Hibiclens

- Do not use Hibiclens if you are allergic to chlorhexidine.
- Do not use Hibiclens on your face, ears, genital region, or on deep wounds.
- Do not use regular soap, lotion, powder, or deodorant after washing with Hibiclens.

You can shower with your catheter in place using a one-time-use waterproof cover that goes over your dressing. Each time you shower, cover the Tegaderm CHG dressing completely with a new waterproof cover to protect it from getting wet.

- To put on the waterproof cover, peel off the top and side strips. Place the top edge above your dressing. Smooth it down over your dressing. Do the same for the bottom part of your dressing, making sure that the bottom edge of the waterproof cover is below your dressing. Make sure the lumens of your catheter are tucked into the waterproof cover and completely covered.
- Do not let the tape on the waterproof cover touch the Tegaderm CHG dressing. It can lift your dressing when you remove the waterproof cover after showering.
- Dry the waterproof cover before removing it.
• Do not shower for longer than 15 minutes. Use warm water, not hot water. This will help prevent the waterproof cover from coming off.

• If your dressing gets wet, change it.

**Call Your Doctor or Nurse Immediately if You:**

- Have redness, swelling, or drainage around the area where the catheter exits your body
- Are unable to flush your catheter or if your needleless connector falls off
- Have a temperature of 100.4° F (38° C) or higher or chills
- Have a break or leak in your catheter
- Have an unexplained problem with your catheter

If you have any questions or concerns, please call Interventional Radiology at 212-639-2236. You can reach a staff member Monday through Friday from 9:00 AM to 5:00 PM. After 5:00 PM, during the weekend, and on holidays, please call 212-639-2000 and ask for the fellow on call for Interventional Radiology.
How to Put on Your Sterile Gloves

1. Open the package that contains the sterile gloves. Pull the edges of the package down to keep them flat.
2. Pick up 1 glove by the folded cuff.
3. Still holding just the cuff with 1 hand, slide your other hand into the glove, making sure the outside of the glove does not touch anything.
4. Slip the fingers on your gloved hand under the cuff of the other glove. Hold the glove up and do not let it touch anything.
5. Keep the thumb on your gloved hand pointing up so it is out of the way. Slide your other hand into the glove.
6. Pull the glove all the way up. Be careful not to touch anything, including your wrist.
14. Using an alcohol pad, grasp the catheter with your nondominant hand, just above where it separates into lumens. (see Figure 7). Do not touch the catheter itself. Touch only the alcohol pad. Hold the catheter away from your chest.

15. Use your dominant hand to pick up the Chloraprep. Beginning at the exit site, scrub up and down and side to side with the Chloraprep to make a 2-inch box (see Figure 8). Discard the Chloraprep.

16. Allow the site to dry completely. This may take at least 30 seconds. Do not fan or blow on the site to speed up the drying. Hold the catheter away while it dries.

17. While holding the catheter with your nondominant hand, take another alcohol pad in your dominant hand. Place it around the catheter at the incision site and gently, without tugging, clean down the catheter toward the area where it separates into lumens. Discard the alcohol swab in your dominant hand. Continue holding the catheter in your nondominant hand.

18. Pick up a new alcohol pad with your dominant hand. Without tugging, clean down the lumen of the catheter (see Figure 9). Discard the alcohol pad. Repeat this step to clean each lumen.

If the exit site is red, raw, swollen, or has drainage, notify your doctor after you finish the dressing change.

19. Apply the No Sting Barrier Film to your skin in the shape of an open rectangle about the size of the Tegaderm CHG dressing. **Allow it to dry completely.** The No Sting Barrier Film will help the dressing stick to your skin. Discard the alcohol pad in your nondominant hand.

20. Peel the backing off the Tegaderm CHG (see Figure 10). Center the gel pad over the exit site and smooth down the dressing edge. Do not stretch the dressing when applying.

21. Grasp the round paper tab on the outside and peel the plastic off all the way around the dressing (see Figure 11). Peel the notched tape off of the paper tab. Apply the tape under the tubing and over the dressing edge to secure the catheter. You may press the outside of the dressing to make sure it is intact.

Continue the instructions in the booklet.