Caring for Your Central Venous Catheter

For adult patients

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What is a central venous catheter?

A central venous catheter is a small flexible tube inserted into a large vein in your chest. It is used to give you fluid, nutrients, medicine and blood products. It is also used to get blood samples without having to draw blood from your arm. There are many types of central venous catheters available; they may be referred to as tunneled catheters, central venous lines and Hickman lines.

A central venous catheter in place

Central Venous Catheter Placement: What to Expect

The insertion of the central line is a minor surgical procedure. It is done in a procedure suite or an operating room, and takes about one hour. Your doctor will decide whether to use local or general anesthesia (full sleep). The catheter is threaded through a “tunnel” under your skin, then placed into a large vein in your chest near your neck that returns blood to your heart. A small cuff on the catheter helps hold the catheter in place in the tunnel, underneath the skin. This cuff also acts as a barrier to help prevent bacteria on your skin from traveling up the catheter tunnel and into your bloodstream. Your shoulder and chest area may be sore for a few days after insertion, for which a mild pain reliever will be prescribed. It is helpful to move your shoulder and neck right after surgery to help keep the area from getting stiff.

How is the procedure done?

1. Your doctor will numb the chest and neck area with a local anesthetic.
2. Your doctor will make two small incisions – one in the upper chest near the neck, and another on the lower chest.
3. Between these incisions, your doctor will make a tunnel under your skin.
4. The catheter will be inserted in the lower incision on your chest and pulled through the tunnel.
5. The catheter is inserted into the large chest vein located near the neck (this vein returns blood to the heart).

Things to Remember

- Securing the line by wearing a tight-fitting tank top or sports bra for at least one night after placement is recommended.
- Do not take aspirin, ibuprofen or other over-the-counter pain medications without first checking with your nurse or doctor.
- Routine exercise, housework, sexual activity, sleep and travel are not limited by having a central venous catheter. Please discuss heavy lifting or physical work with your doctor or nurse.

Catheter Care at a Glance

Dressing Type	Dressing Change	Flushing	Tape Tabs	Alcohol Wipe	Parafilm	Aqua Guard
Standard Dressing	every 7 days	daily or with each use	daily	daily	with bathing	with bathing
Gauze and Tape	daily	daily or with each use	daily	daily	with bathing	with bathing

Fast Facts on Central Line Care: How to Protect Your Catheter

DO

- Keep your dressing supplies dry.
- Place plastic tape tabs between clamp and cap on the catheter and change daily.
- Use the plastic tape tabs and bulldog clamp to secure the catheter to clothing or a necklace.
- Catheter clamps should always be on the thick, reinforced area of the line, not too close to the hard plastic portion of the line.
- Change the dressing if it is wet, if it starts to come off, or if there is moisture underneath the dressing.
- Clean your line once a day with alcohol swabs and replace plastic tape tabs.
- When bathing or showering, you should always cover the exit site of your catheter with a plastic covering such as Aqua Guard or plastic wrap to prevent tap water from entering the catheter tunnel. The uncovered exit site should not come in contact with tap or bath water.
- Always securely wrap your Clave end caps with Parafilm to prevent water from entering the Clave top or the connection to the catheter.
- When you remove the plastic covering and Parafilm, if you notice moisture under the dressing, you should change the dressing. If you notice moisture under the Parafilm, ask to have your Clave caps changed in the clinic.
- When changing your dressing, cleanse skin around the exit site with a sterile saline-soaked gauze pad to remove ChloraPrep One Step (chlorhexidine) and the no-sting barrier.
- Keep your bulldog clamp with you at all times. The bulldog clamp is a safety clamp.
- Clamp the catheter close to your chest and call the clinic RIGHT AWAY if the catheter leaks, gets cut or breaks.

DO NOT

- Do not take the Clave cap connectors off your catheter.
- Do not tape over the connection between Clave caps and catheter.
- Avoid swimming pools and hot tubs. If this is a problem for you, talk with your nurse.
- Do not allow Clave caps, central catheter or exit site to be submerged in bath water.
- Do not store catheter supplies in the bathroom or kitchen.
- Do not use scissors near your catheter.

Daily Care: How to Flush

When to Flush and What Solution to Use

1. Flush each line of the catheter with normal saline followed by heparin solution at least once each day and after each use.
2. If you are having a blood draw, both lines of the catheter will be flushed at that time unless the side not used for blood draw is connected to IV tubing.
3. Flush the catheter at the **beginning** of an infusion with normal saline only.
4. Flush the catheter at the **end** of an infusion with normal saline followed by heparin solution.

Antibiotic Infusions

- **Transplant patients:** If you are receiving antibiotics, your doctor will recommend that you alternate infusing your antibiotic doses between all lines of your catheter.
- **General oncology patients:** If you are receiving antibiotics, check with your doctor or nurse to see if they recommend alternating infusing your antibiotic doses between all lines of your catheter.

Anti-Coagulation Therapy for Your Catheter

Heparin is used to flush your catheter to prevent clot growth within the central line. You will flush your line with normal saline and heparin lock flush solution at least once a day and after a blood draw or at the end of an infusion. The daily heparin catheter flush is still required even if you are on any of the oral or injectable blood thinners listed below to prevent or treat a blood clot.

In addition to heparin flushes you **may** also be required to take **other medications to prevent clotting (for example warfarin, or a low-molecular weight heparin).**

Warfarin (Coumadin) is given orally to prevent or treat clotting within or around your central line or to treat blood clots that have formed in other blood vessels. You will have your Protime (PT) and International Normalized Ratio (INR) blood levels taken to make sure that you are treated appropriately.

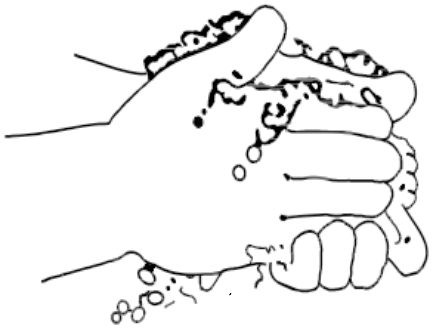
Low-molecular weight heparin, such as **enoxaparin (Lovenox), tinzaparin (Innohep), and dalteparin (Fragmin),** or **fondaparinux (Arixtra; which is not a heparin or low-molecular weight heparin)** may be given to prevent or treat clot growth within or around your central line or to treat blood clots that have formed in other blood vessels.You will be prescribed only one of the low-molecular weight

heparin medications or Arixtra at any given time. You will receive a shot/injection under the skin 1 to 2 times each day. You will have heparin-activity levels taken to make sure that you are treated appropriately.

Heparin "allergy" or history of heparin-induced thrombocytopenia (HIT): If you have ever been told you have an allergy to heparin, you should not use heparin or low-molecular weight heparin to prevent clots. This includes using heparin to flush your catheter. If you do have a heparin allergy, please ask about other flushing options. Please discuss with your doctor or nurse if you are unsure if you have a heparin allergy.

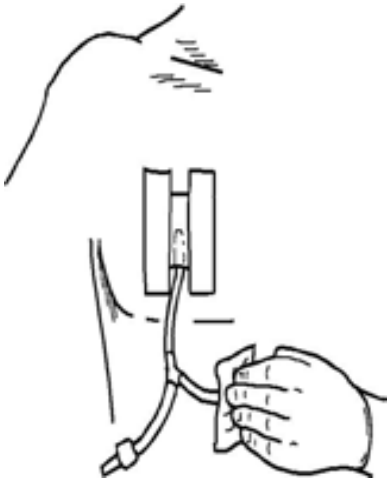
Flushing the Catheter

Follow these steps to flush both sides of the line, first with saline, then with heparin.



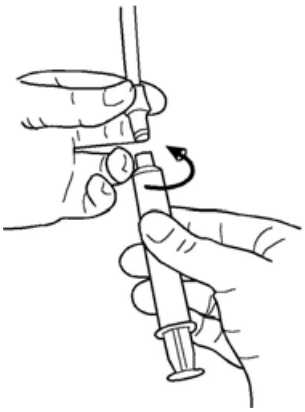
1. Wash your hands.

2. Remove the syringe(s) from their package(s) by peeling the plastic downward.

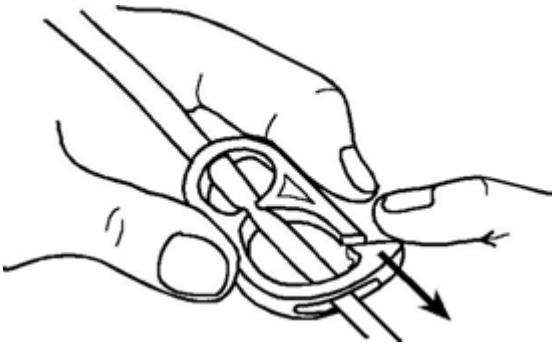


3. Vigorously scrub the top of the Clave cap with an alcohol wipe for 15 seconds using a twisting motion as if you were juicing an orange. Allow the Clave to dry completely, for at least 5 seconds.

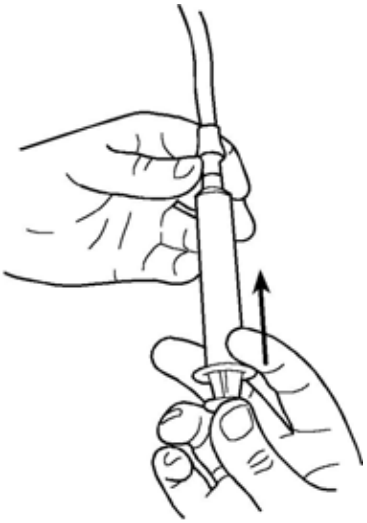
4. Hold the syringe with the cap on, pointed towards the ceiling, and remove the cap of the syringe. Carefully remove the air bubble by gently pushing on the plunger slightly. Be sure not to touch the end of the Clave cap or end of the syringe with your hand.



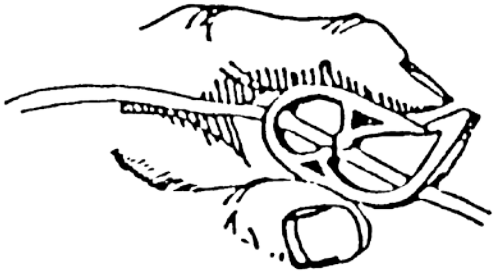
5. Carefully attach the syringe to the Clave cap, as shown.



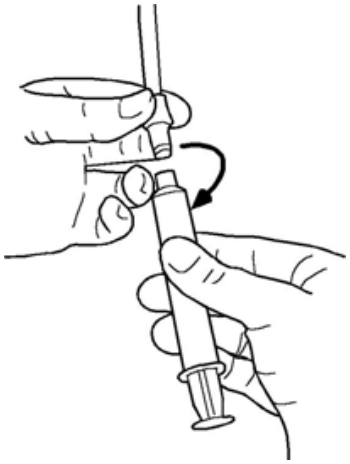
6. Unclamp the catheter.



7. Push the plunger on the syringe with alternating pressure and release (starting and stopping to create turbulence) to inject the fluid into the catheter. This keeps the catheter clean. **Do NOT empty the flush syringe. Always leave ½ ml in the syringe of normal saline. Leave 2 ml of heparin lock solution in the syringe.**



8. Clamp catheter while keeping thumb on end of plunger of the syringe.



9. Remove the syringe. Discard in regular garbage can.
10. Repeat steps 2 through 9 on the other line.

Daily Care: Cleaning the Catheter

Remember to clean your catheter every day.

1. Remove plastic tape tabs near Clave caps.
2. Using two alcohol wipes for each line (one wipe to hold the line and one wipe to clean it), start where line exits the dressing and wipe towards the end of the line. Take special care to thoroughly scrub around the connection between the line and the Clave caps.
3. Replace plastic tape tabs near Clave caps.

Standard Dressing – Option 1: Tegaderm CHG

Changing the Dressing

- Dressing should be changed every 7 days.
- Both dressing and exit site should be looked at each day.
- Talk to your nurse if your skin is sensitive to the transparent dressing.
- The dressing should also be changed if:
  - The exit site cannot be seen because of drainage or moisture
  - The gel pad stays depressed when pressed with finger
  - The dressing starts to come off

Daily Care: Cleaning the Catheter

This section is repeated because of the importance of keeping your catheter clean on a daily basis. This helps to prevent infections.

1. Remove plastic tape tabs near Clave caps.
2. Using two alcohol wipes for each line (one wipe to hold the line and one wipe to clean it), start where line exits and wipe towards the end of the line. Take special care to thoroughly scrub around the connection between the line and the Clave caps.
3. Replace plastic tape tabs near Clave caps.

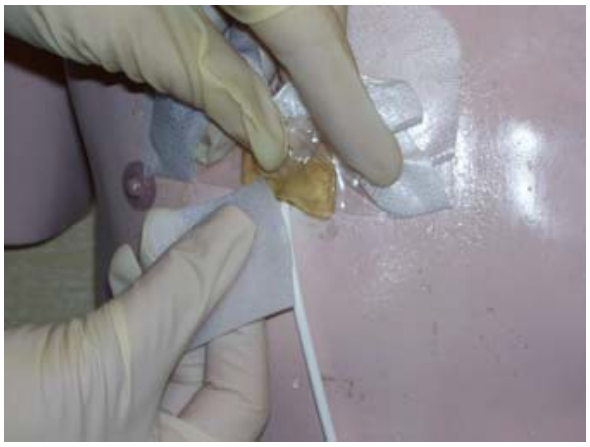
Remember to clean your catheter every day.

Dressing Change Steps

1. Wash your hands.
2. Assemble your supplies on a **clean** work surface:
   - 1 ChloraPrep One-Step application, also called chlorhexidine
   - 5 alcohol pads (2 pads for cleaning the line, 3 pads for removing the dressing)
   - 2 pairs clean gloves
   - 2 Cavilon No-Sting Barrier Film foam pads
   - 1 transparent dressing (Tegaderm CHG)
   - 10-ml syringe with saline
   - Sterile gauze pad
   - Plastic tape

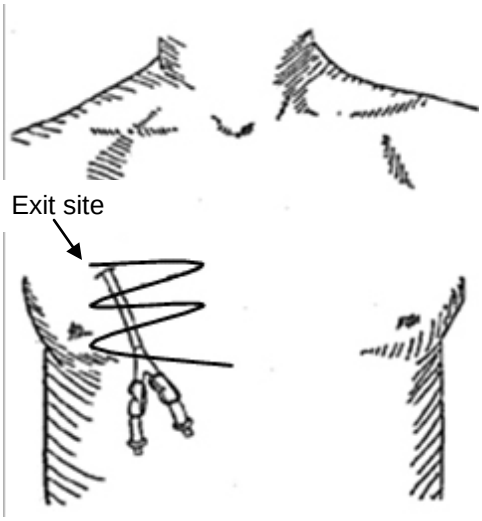
Supplies for changing your catheter dressing

3. **Wash your hands again with soap and water.**
4. Put on clean gloves.
5. Remove plastic tape near Clave caps.



Using an alcohol pad to loosen the gel pad

6. Remove the old dressing by starting at bottom corner lifting up and folding back upon itself, pulling "low and slow" or rolling with fingers. When gel pad is reached, use an alcohol pad if needed to loosen gel pad from catheter and skin while continuing to slowly pull back on dressing, grasping both the gel pad and dressing. **Do NOT use scissors. Remove dressing and throw away.**
7. Open gauze pad and wet the pad with saline from the syringe. Do not set a wet gauze pad on any surface or it will become dirty.
8. Gently wipe skin in all directions around the exit site with the saline-soaked gauze. This will remove any buildup of ChloraPrep and No-Sting Barrier film which will also decrease skin irritation.
9. Remove gloves and throw away.
10. Wash your hands again.
11. Check the exit site for signs of:
    - Bleeding and drainage at the catheter site.
    - Redness or swelling at the catheter site.
    - Pain or discomfort at the catheter site.
12. Put on a second pair of clean gloves.
13. If a crust is present, clean it from the catheter exit site, using an alcohol wipe if needed. If this is a scab, you do not need to remove it.

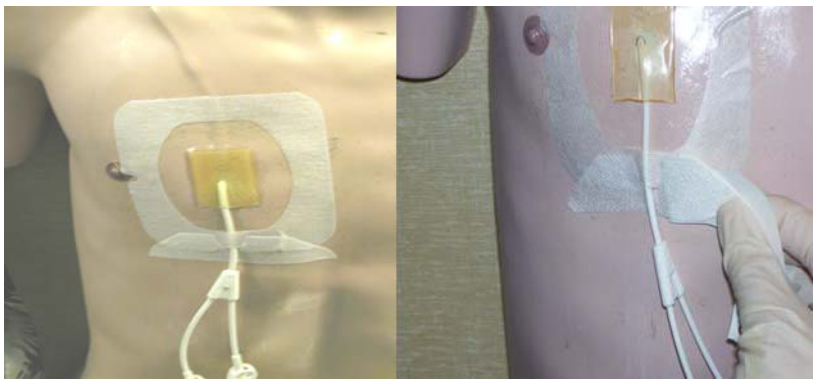


14. Scrub around the catheter exit site with ChloraPrep-One Step swab using a back-and-forth motion across the exit site for 30 seconds. Allow to dry completely, for 1 to 2 minutes.

    The chlorhexidine used while cleaning the catheter exit site (in the ChloraPrep One-Step Swab) should be completely dry before applying the Cavilon No-Sting Barrier Film.

15. Clean the length of the line with an alcohol wipe.
16. Apply skin prep (Cavilon No-Sting Barrier Film) to the area that will be under the transparent dressing. Avoid the exit site and the area that will be under the chlorhexidine gel pad, as it will not be able to penetrate the skin and work against infection. **Allow to dry completely, for 1 to 2 minutes.**
17. Apply Tegaderm CHG transparent dressing by peeling the liner from the dressing, exposing the adhesive surface.
    - Center the dressing and gel pad over the catheter exit site and **press** gently to make it adhere.
    - Make sure the catheter comes out of the dressing edge at a notch.
    - Slowly remove the paper frame from the dressing while smoothing down the dressing edge.
    - Smooth the entire dressing from the center towards the edge using firm pressure to enhance adhesion. You may remove your gloves when applying the transparent dressing if your gloves stick to the dressing.

18. Remove tape “wings” from frame, lift catheter and apply wings across opening of dressing underneath the catheter, creating a little hole where the catheter comes through. This helps keep the catheter secure.



Using wings to keep the catheter secure

19. Paint border (outside edges) of transparent dressing with Cavilon No-Sting Barrier Film to create a seal between the transparent dressing and the skin.
20. Secure the catheter either by coiling it over the exit site and taping it to the skin, or by using a bulldog clamp to attach the tape tab to your clothing or necklace.
21. Write the date and time on the dressing.

Talk with your nurse if your skin is sensitive or irritated. An alternative dressing may be suggested.

Standard Dressing – Option 2: Gauze and Tape

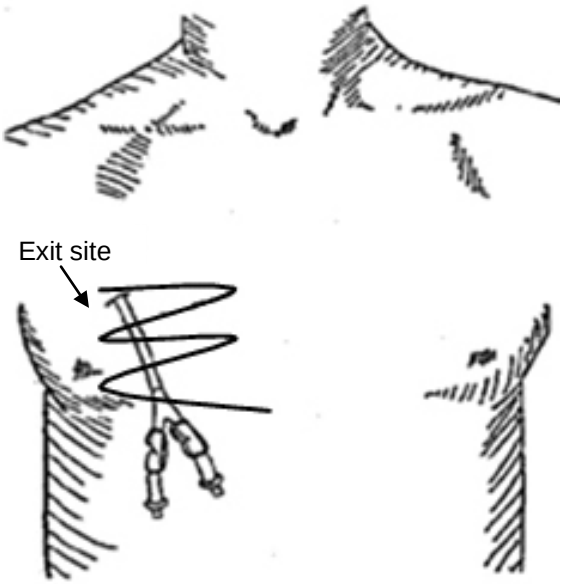
Changing the Dressing

- Dressing should be changed each day.
- Both the dressing and the exit site should be looked at each day.

Dressing Change Steps

1. Wash your hands.
2. Assemble your supplies on a clean workspace:
   - 2 packages 2x2 gauze or 2 packages 2x2 split gauze
   - 5 alcohol pads (2 pads for cleaning line, 3 pads for removing dressing)
   - Sterile saline syringe
   - Skin prep
   - Paper tape
   - 1 ChloraPrep One-Step application
   - 2 pairs of clean gloves
   - Plastic tape (for tape tabs)
3. Wash your hands again.
4. Put on a clean pair of gloves.
5. Remove plastic tape tabs near Clave caps.
6. Remove the old gauze and tape dressing. **Do not use scissors.**
7. Open gauze pad and wet the pad with saline from the syringe. **Do not set a wet gauze pad on any surface or it will become dirty.**
8. Clean skin in all directions around the exit site with the saline-soaked gauze. This will remove any buildup of ChloraPrep and No-Sting Barrier film which will also decrease skin irritation.
9. Throw the old dressing and the gloves away.
10. Open and prepare your supplies.
11. Wash your hands again.

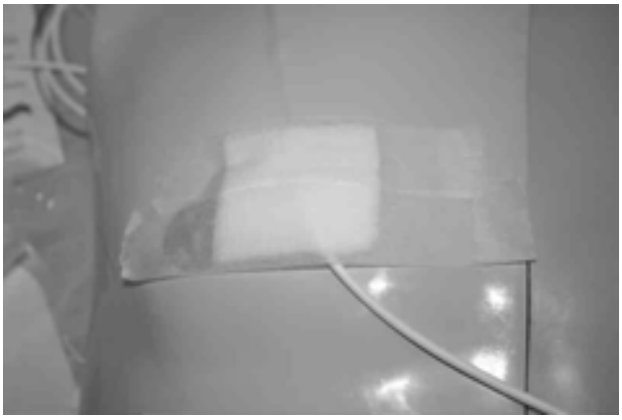
12. Put on second pair of clean gloves.
13. Check the exit site for signs of:
    - Bleeding and drainage at the catheter site
    - Redness or swelling at the catheter site
    - Pain or discomfort at the catheter site
14. If crust is present, clean it from catheter exit site, using an alcohol wipe if needed. If there is a scab, you do not need to remove it.
15. Using two alcohol wipes for each line (one wipe to hold the line and one wipe to clean it), start where line exits and wipe towards the end of the line. Take special care to thoroughly scrub around the connection between the line and the Clave caps.



16. Replace plastic tape tabs near Clave caps.
17. Clean around catheter exit site with ChloraPrep One-Step swab using a back-and-forth motion across the exit site for 30 seconds. **Allow ChloraPrep One-Step to dry for 1 to 2 minutes before applying dressing.**
18. Apply skin prep – allow to dry completely.

One gauze pad goes under the catheter.

19. **Touching only the corner,** remove one of the 2x2 gauze pieces, fold in half and place under the catheter.
20. Place the second 2x2 over the line and folded gauze.



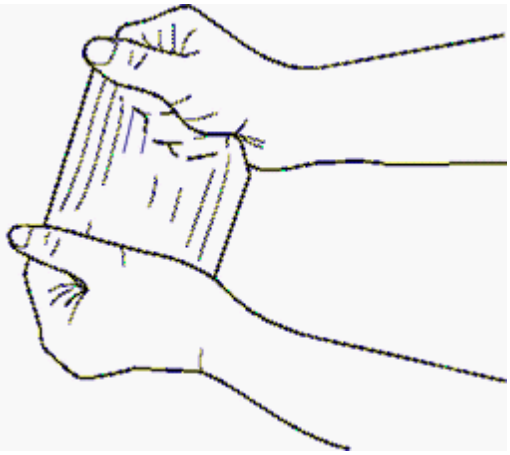
Another gauze pad goes over the catheter, then it is secured with paper tape.

21. Secure gauze to skin with paper tape.

Talk with your nurse if your skin is sensitive to paper tape. An alternative tape may be suggested.

Protecting Your Central Line When Bathing or Showering

1. Wash your hands.
2. Place Parafilm on Clave caps and tubing connections:
   - First stretch the Parafilm.



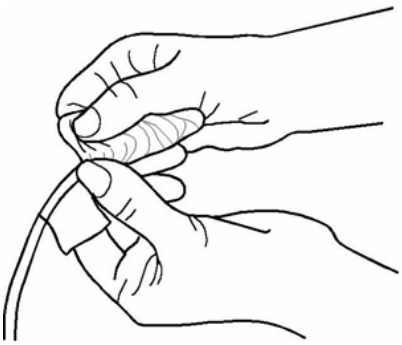
   - Then wrap it around the Clave cap connection on each side of the catheter (stretching it makes it stick to itself).

   - Then flip it over the end of the catheter to cover the Clave cap, using your fingers to twist and mold it around the catheter, with a spiraling-down technique.

PARAFILM "M" Laboratory Film ***American National Can***	**PARAFILM "M"** Laboratory Film ***American National Can***
PARAFILM "M" Laboratory Film ***American National Can***	**PARAFILM "M"** Laboratory Film ***American National Can***

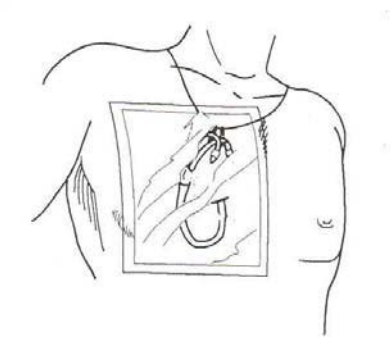
The Parafilm will be pre-cut to the correct size. About 2 rows of 2 squares side-by-side will be needed for each side of your catheter.

- Wrap only around the thicker part of the end of the catheter. The Parafilm will fit closely around the connector and will stick to itself. Make a tab on the end so it will be easier to remove.



3. Cover the entire dressing with a square of Aqua Guard* (about 9x9) and tape with paper tape on all sides. You may place the entire catheter under the Aqua Guard. If you do, the catheter tips must still be covered with Parafilm.

   ***Or, plastic wrap may be used in place of Aqua Guard.**



4. If you take a bath, the catheter should be kept above the water level at all times. If you shower, the dressing should be kept out of the direct stream of water.
5. When you finish bathing, dry off the plastic wrap or AquaGuard with a towel, then remove the covering and throw it out.
6. Remove Parafilm from Clave caps. **DO NOT USE SCISSORS.**
7. Replace the dressing if there is moisture underneath it or it is loose.

Troubleshooting Problems for the Central Venous Catheter

Problem	Solution
Line does not flush.	1. Check to see if catheter is clamped or kinked. 2. Contact the SCCA Clinic or After Hours Clinic for instructions.
Fluid is leaking from the catheter. Catheter may be cut accidentally if dressing is removed with scissors.	1. Immediately place a bulldog clamp on the catheter as close to the chest as possible. 2. Check the catheter to find the break. It can be as small as a pinhole. 3. Clean the break with an alcohol wipe. 4. Wrap a sterile 2x2 gauze or an alcohol wipe around the break in the catheter and tape it in place. 5. Notify the SCCA Clinic or After Hours Clinic immediately to get instructions.
Clave cap comes off catheter.	1. Immediately clamp catheter **– DO NOT REPLACE CAP.** 2. Scrub catheter end with alcohol for 15 seconds and let dry 5 seconds. 3. Place sterile saline syringe on end of catheter – **DO NOT FLUSH.** 4. Notify the SCCA Clinic or the After Hours Clinic immediately to get further instructions.
Swelling around the exit site or fluid leaking from exit site. Swelling of the exit site, or bloody drainage or fluid leaking from the exit site can be a sign that the catheter is out of place.	1. Stop any fluids running into the catheter. 2. Place an ice pack on the swollen area, do not apply directly to bare skin. 3. Notify the SCCA Clinic or the After Hours Clinic immediately to get instructions.
Swelling of the neck and face. Swelling of the neck and face can be a symptom of the catheter being out of place or that the vein is obstructed.	1. Stop any fluids running into the catheter. 2. Notify the SCCA Clinic or the After Hours Clinic immediately to get instructions.
Air in the catheter, you ARE NOT short of breath. This could be caused by air being accidentally injected into the catheter or the Clave cap falling off when the line is not clamped.	1. Check the clamp to make sure that it is closed and then wash hands. 2. Open two pre-filled saline syringes and one pre-filled heparin lock flush syringe. 3. Scrub the end of the catheter cap with alcohol for 15 seconds and let dry for 5 seconds. 4. Attach one of the pre-filled saline syringes. 5. Unclamp the line. 6. **Pull back** on the syringe until blood appears. 7. Clamp the line and discard the syringe. 8. Scrub the end of the catheter cap with alcohol for 15 seconds and let dry for 5 seconds. 9. Flush the catheter as usual, making sure to close the clamp at the end of the flush. 10. If you become short of breath, call 911. Call Clinic if Clave Cap is off.
Air in the catheter, and you SUDDENLY become SHORT OF BREATH, DIZZY OR CONFUSED.	1. Lie down on your left side so that your right hip is lifted above the level of your heart while checking the clamps on the catheter to be sure they are closed. 2. Call 911 for emergency assistance. 3. Tell the medics to take you to UWMC's emergency room (or Seattle Children's if pediatrics).

Questions?

Your questions are important. Call your doctor or health care provider if you have questions or concerns. Clinic staff are also available to help.

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Who to Call

Call one of these numbers if you have problems with your central venous catheter:

Time of Day	Transplant Patients	General Oncology 4th Floor Patients	Women's Center 3rd Floor Patients
Weekdays, 8 a.m. to 10 p.m. Weekends, 8 a.m. to 6 p.m. Holidays, 8 a.m. to 5 p.m.	**206-288-7600** *Adult & Pediatric*	**206-288-7400**	**206-288-7300**
Weekdays, 10 p.m. to 8 a.m. Weekends, 6 p.m. to 8 a.m. Holidays, 5 p.m. to 8 a.m.	**206-598-8902** *Adult* **206-987-2032** *Pediatrics*	**206-598-6190:** Ask for the Oncology Fellow on call	**206-598-6190:** Ask for the Fellow on call

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SEATTLE CANCER CARE ALLIANCE

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