

UW Medicine



# 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 thin, flexible tube inserted into a large vein in your chest (see photo with mannequin below). The catheter is used to give you fluid, nutrients, medicine and blood products. We also use it for taking blood samples, so that we do not have to draw blood from your arm.

There are many types of central venous catheters. They may be called tunneled catheters, central venous lines, or Hickman lines.



*A central venous catheter in place on a mannequin.*

## **What can I expect when the catheter is placed?**

The insertion of the central line is minor surgery. The procedure is done in a procedure suite or an operating room, and takes about 1 hour. Your doctor will decide whether to use *local anesthesia* (numbing medicine) or *general anesthesia* (medicine that will make you sleep).

The catheter is threaded through a “tunnel” under your skin until it reaches the 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 your skin. This cuff also helps keep 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 the catheter is placed. Your doctor will prescribe a mild pain reliever. Gently move your shoulder and neck right after surgery to help keep the area from getting stiff.

## How is the procedure done?

- Your doctor will numb your chest and neck area with a local anesthetic.
- Your doctor will make 2 small incisions. One will be in your upper chest near your neck, and the other on your lower chest.
- Between these incisions, your doctor will make a tunnel under your skin.
- The catheter will be inserted in the lower incision on your chest and pulled through the tunnel.
- The catheter will be inserted into the large chest vein near your neck. This is the vein that returns blood to your heart.

## Things to Remember

- We advise you to wear a tight-fitting tank top or sports bra for at least 1 night after the catheter is placed. This will help keep it secure.
- Check with your nurse or doctor before taking aspirin, ibuprofen (Advil, Motrin) or other non-prescription pain medicines.
- You should be able to do your regular exercise, light housework, sexual activity, sleep, and travel after your central venous catheter is placed. Please talk with your doctor or nurse before doing heavy lifting or physical work.

## Catheter Care at a Glance

Dressing Type	Dressing Change	Flushing	Tape Tabs	Alcohol Wipe	Parafilm	Aqua Guard
Standard	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

## How to Protect Your Catheter

### What to Do

- Keep your dressing supplies dry.
- Place plastic tape tabs between clamp and cap on the catheter.
- Use the plastic tape tabs and bulldog clamp to secure the catheter to your clothing or a necklace. Use new plastic tape tabs every day.
- Always place catheter clamps on the thick, reinforced area of the line. Do not put them 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 under the dressing.
- Clean your line once a day with alcohol swabs. Replace the plastic tape tabs after cleaning.
- When you bathe or shower, always cover the exit site of your catheter with a plastic covering such as Aqua Guard or plastic wrap. This keeps water from entering the catheter tunnel. Do **not** let the uncovered exit site get wet.
- Always securely wrap your clave end caps with Parafilm to keep water from entering the clave top or the connection to the catheter.
- If there is moisture under the dressing when you remove the plastic covering and Parafilm, change the dressing. If there is moisture under the Parafilm, ask to have your clave caps changed in the clinic. Call us if you have any questions or need to set up a clinic visit.
- When changing your dressing, use a sterile saline-soaked gauze pad to remove ChlorPrep One Step (chlorhexidine) and the no-sting barrier from around the exit site.
- Keep your bulldog clamp with you at all times. The bulldog clamp is a safety clamp.
- Clamp the catheter close to your chest. **Call the clinic right away if the catheter leaks, gets cut, or breaks.**

### What NOT to Do

- 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** submerge clave caps, central catheter, or exit site in 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

- Flush each line of the catheter with normal saline followed by heparin solution. Do this at least once each day and after each use.
- If you are having a blood draw, both lines of the catheter will be flushed at that time unless one side is connected to IV tubing.
- At the **start** of an infusion, flush the catheter with normal saline **only**.
- At the **end** of an infusion, first flush the catheter with normal saline and then flush with heparin solution.

### Antibiotic Infusions

- **Transplant patients:** If you are receiving antibiotics, your doctor will suggest 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 suggest alternating infusing your antibiotic doses between all lines of your catheter.

## Anticoagulation Therapy for Your Catheter

### Heparin

Heparin is used to flush your catheter to keep clots from forming inside the central line. You will flush your line with normal saline and the heparin solution at least once a day and after a blood draw or at the end of an infusion. The daily heparin catheter flush is needed even if you are on any of the oral or injectable blood-thinning medicines listed below.

In addition to heparin flushes, you might also need to take other medicines to prevent clotting. One of these might be warfarin, or a low-molecular weight heparin.

### Warfarin (Coumadin)

Warfarin (Coumadin) is given by mouth to prevent or treat clotting within or around your central line, or to treat blood clots that have formed in other blood vessels. We will check your Protime (PT) and International Normalized Ratio (INR) blood levels often to make sure your treatment is working well.

### Other Medicines

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 may receive fondaparinux (Arixtra) or a low-molecular weight heparin such as enoxaparin (Lovenox), tinzaparin (Innohep), or dalteparin (Fragmin).

Your doctor will prescribe only one of the low-molecular weight heparin medicines or Arixtra at a time. You will receive a shot (injection) under your skin 1 to 2 times a day while you have your central venous catheter. We will check your heparin-activity levels often to make sure your treatment is working well.

### **Heparin Allergy**

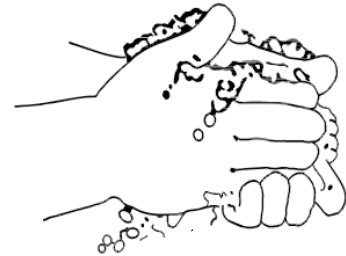
If you have ever been told you have an allergy to heparin, or if you have had *heparin-induced thrombocytopenia* (HIT) in the past, you should not use heparin or low-molecular weight heparin to prevent clots. This includes using heparin to flush your catheter.

If you do have a heparin allergy, please ask about other flushing options. Please talk with your doctor or nurse if you are unsure if you have a heparin allergy.

### **Flushing the Catheter**

Follow these steps to flush both lines. Flush 2 times, first with saline, then with heparin.

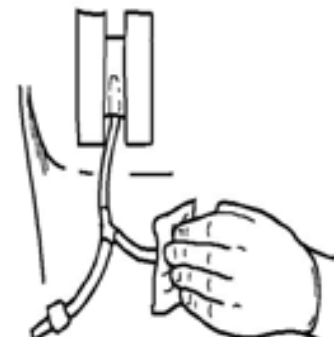
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1. Wash your hands.



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



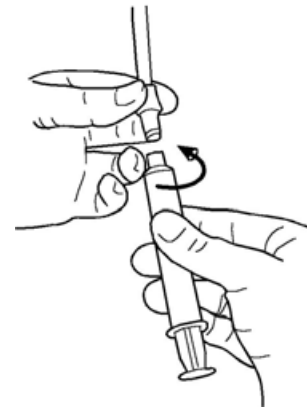
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3. Use an alcohol wipe to vigorously scrub the top of the clamp cap for 15 seconds. Use a twisting motion as if you were juicing an orange. Allow the clamp to dry all the way, for at least 5 seconds.



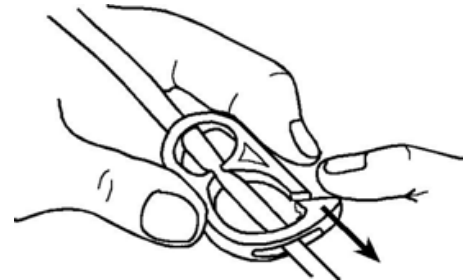
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4. Hold the syringe with the cap on, pointed towards the ceiling, and remove the cap of the syringe. Carefully remove the air bubble by gently pushing on the plunger slightly. Be sure not to touch the end of the clave cap or end of the syringe with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



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

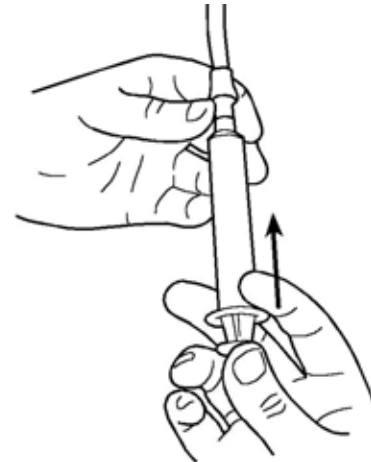


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6. Unclamp the catheter.

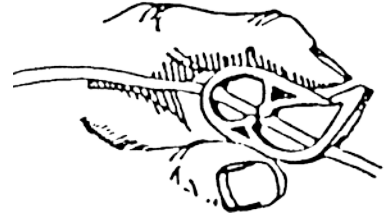


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7. Push the plunger on the syringe, alternating pressure and release (starting and stopping) to inject the fluid into the catheter. This motion helps keep the catheter clean.

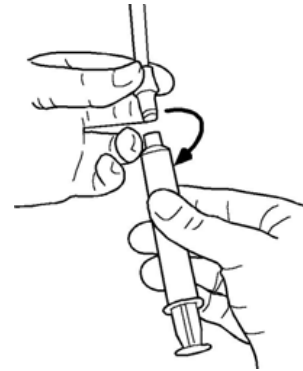
Do **not** empty the flush syringe. Always leave  $\frac{1}{2}$  ml of normal saline in the syringe. Leave 2 ml of heparin lock solution in the syringe.



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



- 
9. Remove the syringe. Discard in your regular trash.



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10. Repeat steps 2 through 9 on the other line.
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## **Daily Care: Cleaning the Catheter**

**Clean your catheter every day.**

1. Remove the plastic tape tabs near the clamp caps.
2. Using 2 alcohol wipes for each line (1 wipe to hold the line and 1 wipe to clean it), start where the line comes out of the dressing and wipe toward the end of the line. Make sure to scrub well around the connection between the line and the clamp caps.
3. Replace the plastic tape tabs near clamp caps.

## **Standard Dressing Change, Option 1: Tegaderm CHG**

- Change the dressing every 7 days.
- Also change the dressing if:
  - You cannot see the exit because of drainage or moisture
  - The gel pad stays depressed when you press it with your finger
  - The dressing starts to come off
- Check both the dressing and exit site each day.
- Talk with your nurse if your skin is sensitive to the transparent dressing. We may be able to suggest a different dressing.



## Daily Care: Cleaning the Catheter

**This section is repeated because it is very important to clean your catheter every day. Daily cleaning helps prevent infections.**

1. Remove the plastic tape tabs near clave caps.
2. Use 2 alcohol wipes for each line: 1 wipe to hold the line and 1 wipe to clean it. Start where the line comes out of the dressing and wipe towards the end of the line. Take special care to scrub well around the connection between the line and the clave caps.
3. Replace the plastic tape tabs near clave caps.

## Dressing Change Steps

1. **Wash your hands.**
2. Gather your supplies and place them on a **clean** work surface:
  - 1 ChloroPrep One-Step application (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.**

3. Put on clean gloves.
4. Remove the plastic tape near the clave caps.

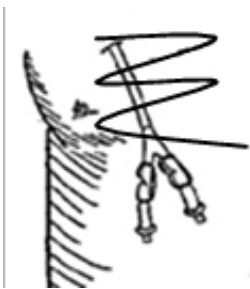
5. Remove the old dressing. Starting at the bottom corner, lift the dressing up and fold it back upon itself, pulling “low and slow” or rolling it with your fingers.

When you reach the gel pad, use an alcohol pad as 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 the dressing and throw it away.



*Using an alcohol pad to loosen the gel pad*

6. Open a gauze pad and wet the pad with saline from the syringe. Do not set a wet gauze pad on any surface because it will get dirty.
7. 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 and lessen skin irritation.
8. Remove the gloves and throw them away.
9. **Wash your hands again.**
10. Check the catheter exit site for signs of:
  - Bleeding and drainage
  - Redness or swelling
  - Pain or discomfort

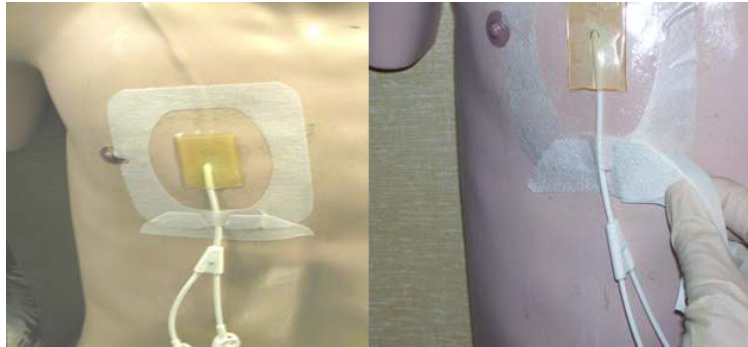


*Use a back-and-forth motion across the exit site when cleaning with Chloraprep.*

9. Put on a second pair of clean gloves.
10. If a crust is present, clean it from the catheter exit site. Use an alcohol wipe if needed. If there is a scab, leave it on.
11. Scrub around the catheter exit site with the Chloraprep-One Step swab. Use a back-and-forth motion across the exit site for 30 seconds (see drawing at left). Allow it to dry well, for 1 to 2 minutes.

**After scrubbing with the Chloraprep, make sure the catheter exit site is fully dry before you apply the Cavilon No-Sting Barrier Film.**

12. Clean the length of the line with an alcohol wipe.
13. Apply skin prep (Cavilon No-Sting Barrier Film) to the area that will be under the transparent dressing. Do **not** apply the skin prep to the exit site and the area that will be under the chlorhexidine gel pad, since the skin prep will block the chlorhexidine and keep it from fighting infection. **Let it dry fully, for 1 to 2 minutes.**
14. Apply the Tegaderm CHG transparent dressing:
  - Peel the liner from the dressing, exposing the sticky surface.
  - Center the dressing and gel pad over the catheter exit site. **Press gently** to make them stick.
  - 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. Use firm pressure to help it stick well. If your gloves stick to the dressing, you may remove them while applying the dressing.
15. Remove the tape “wings” from the frame. Lift the catheter and apply the wings across the opening of the dressing beneath the catheter, creating a little hole where the catheter comes through. This helps keep the catheter secure.



*Using wings to keep the catheter secure*

16. Paint the border (outside edges) of the transparent dressing with Cavilon No-Sting Barrier Film. This creates a seal between the dressing and your skin.
17. Secure the catheter. You can either coil it over the exit site and tape it to your skin, or use a bulldog clamp to attach the tape tab to your clothing or necklace.
18. Write the date and time on the dressing.

Talk with your nurse if your skin is sensitive or irritated. We may suggest a different dressing.

## **Standard Dressing Change, Option 2: Gauze and Tape**

- Change the dressing every day.
- Check both the dressing and the exit site every day.

### **Dressing Change Steps**

- 1. Wash your hands.**
- Gather 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 ChloroPrep One-Step application
  - 2 pairs of clean gloves
  - Plastic tape (for tape tabs)
- 3. Wash your hands again.**
- Put on a clean pair of gloves.
- Remove the plastic tape tabs near the clave caps.
- Remove the old gauze and tape dressing. **Do not use scissors.**
- Open gauze pad and wet the pad with saline from the syringe. **Do not set a wet gauze pad on any surface since it will get dirty.**
- Clean your skin in all directions around the exit site with the saline-soaked gauze. This will remove any buildup of ChloroPrep and No-Sting Barrier film which will also decrease skin irritation.
- Throw the old dressing and the gloves away.
- Open and prepare your supplies.
- 11. Wash your hands again.**
- Put on a second pair of clean gloves.
- 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
- If a crust is present, clean it from the catheter exit site, using an alcohol wipe as needed. If there is a scab, leave it in place.



Use a back-and-forth motion across the exit site when cleaning with Chloraprep.

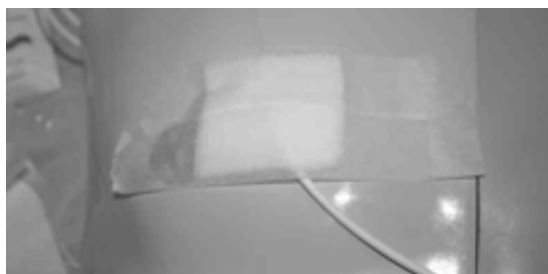
Using 2 alcohol wipes for each line: 1 wipe to hold the line and 1 wipe to clean it. Start where the line exits and wipe toward the end of the line. Make sure to scrub well around the connection between the line and the clamp caps.

15. Replace the plastic tape tabs near the clamp caps.
16. Clean around the catheter exit site with the Chloraprep One-Step swab. Use a back-and-forth motion across the exit site for 30 seconds (see drawing at left). **Allow the Chloraprep One-Step to dry for 1 to 2 minutes before applying dressing.**
17. Apply skin prep. Let it dry fully.
18. **Touching only the corner of the gauze**, remove one 2 x 2 gauze piece. Fold it in half and place it under the catheter.



One gauze pad goes under the catheter.

19. Place the second 2 x 2 gauze piece over the line and folded gauze.



Another gauze pad goes over the catheter and is secured with paper tape.

20. Secure the gauze to your skin with paper tape.

Talk with your nurse if your skin is sensitive to paper tape. We may be able to suggest a different tape for you to use.

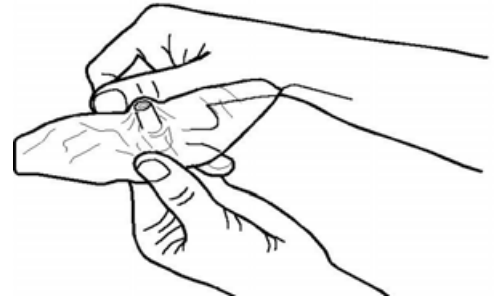
## Protecting Your Central Line When Bathing or Showering

1. Wash your hands.
2. Place Parafilm on clave caps and tubing connections:

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- First, stretch the Parafilm. Stretching it makes it stick to itself.



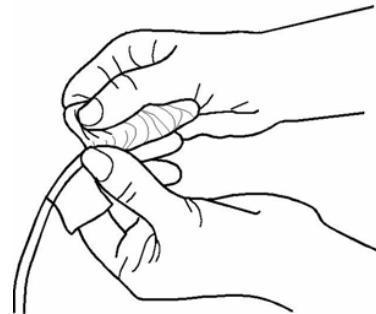
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- Wrap the Parafilm around the clave cap connection on each side of the catheter.



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- Flip the Parafilm 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 motion.

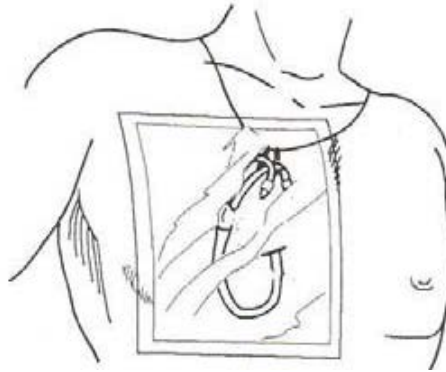


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- Wrap only around the thicker part of the end of the catheter. The Parafilm will fit closely around the connector and will stick to itself. Make a tab on the end so it will be easier to remove.



- Cover the entire dressing with a square of Aqua Guard\* (about 9 inches by 9 inches). 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.

\*You may use plastic wrap instead of Aqua Guard.



- If you take a bath, keep the catheter above the water level at all times. If you shower, keep the dressing out of the direct stream of water.
- When you finish bathing, dry off the plastic wrap or AquaGuard with a towel, then remove the covering and throw it out.
- Remove Parafilm from the clavicle caps. **Do NOT use scissors.**
- Replace the dressing if there is moisture underneath it or it is loose.

## Troubleshooting Problems

Problem	Solution
<b>Line does not flush.</b>	<ol style="list-style-type: none"> <li>Check to see if the catheter is clamped or kinked.</li> <li>Call the SCCA Clinic or After Hours Clinic to find out what to do next.</li> </ol>
<b>Fluid is leaking from the catheter.</b> The catheter may have been cut accidentally if the dressing was removed with scissors.	<ol style="list-style-type: none"> <li>Place a bulldog clamp on the catheter right away, as close to your chest as possible.</li> <li>Check the catheter to find the break. It can be as small as a pinhole.</li> <li>Clean the break with an alcohol wipe.</li> <li>Wrap a sterile 2 x 2 gauze or an alcohol wipe around the break in the catheter and tape it in place.</li> <li>Call the SCCA Clinic or the After Hours Clinic right away to find out what to do next.</li> </ol>

<b>Problem</b>	<b>Solution</b>
<p><b>The clave cap comes off the catheter.</b></p>	<ol style="list-style-type: none"> <li>1. Clamp the catheter right away. <b>DO NOT REPLACE THE CAP.</b></li> <li>2. Using alcohol, scrub the catheter end for 15 seconds. Let it dry 5 seconds.</li> <li>3. Place sterile saline syringe on the end of the catheter. <b>DO NOT FLUSH.</b></li> <li>4. Call the SCCA Clinic or the After Hours Clinic right away to find out what to do next.</li> </ol>
<p><b>Swelling around the exit site or fluid leaking from exit site.</b> Swelling of the exit site, or bloody drainage or fluid leaking from the exit site can occur if the catheter is out of place.</p>	<ol style="list-style-type: none"> <li>1. Stop any fluids running into the catheter.</li> <li>2. Place an ice pack on the swollen area. Do <b>not</b> apply directly to bare skin.</li> <li>3. Call the SCCA Clinic or the After Hours Clinic right away to find out what to do next.</li> </ol>
<p><b>Swelling of the neck and face.</b> Swelling of the neck and face can mean that the catheter is out of place or the vein is obstructed.</p>	<ol style="list-style-type: none"> <li>1. Stop any fluids running into the catheter.</li> <li>2. Call the SCCA Clinic or the After Hours Clinic right away to find out what to do next.</li> </ol>
<p><b>Air in the catheter, and you SUDDENLY are SHORT OF BREATH, DIZZY, OR CONFUSED.</b></p>	<ol style="list-style-type: none"> <li>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.</li> <li>2. <b>Call 911.</b> Tell the medics to take you to UWMC's emergency room (or Seattle Children's if the patient is a child).</li> </ol>



Problem	Solution
<p><b>Air in the catheter, and you are NOT short of breath.</b> This could be caused by air being accidentally injected into the catheter or the clave cap falling off when the line is not clamped.</p>	<ol style="list-style-type: none"> <li>1. Check the clamp to make sure that it is closed. Then wash your hands.</li> <li>2. Open 2 pre-filled saline syringes and 1 pre-filled heparin lock flush syringe.</li> <li>3. Using alcohol, scrub the end of the catheter cap for 15 seconds. Let it dry for 5 seconds.</li> <li>4. Attach one of the pre-filled saline syringes.</li> <li>5. Unclamp the line.</li> <li>6. <b>Pull back</b> on the syringe until blood appears.</li> <li>7. Clamp the line and discard the syringe.</li> <li>8. Using alcohol, scrub the end of the catheter cap for 15 seconds. Let it dry for 5 seconds.</li> <li>9. Flush the catheter as usual, making sure to close the clamp at the end of the flush.</li> <li>10. If you feel short of breath, <b>call 911</b>. Call the SCCA Clinic if the clave cap is off.</li> </ol>

## Who to Call

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

<b>Time of Day</b>	<b>Transplant Patients</b>	<b>General Oncology 4th Floor Patients</b>	<b>Women's Center 3rd Floor Patients</b>
Weekdays: 8 a.m. to 10 p.m. Weekends: 8 a.m. to 6 p.m. Holidays: 8 a.m. to 5 p.m.	<b>206.608.7600</b> <i>Adult and pediatric</i>	<b>206.608.7400</b>	<b>206.608.7300</b>
Weekdays: 10 p.m. to 8 a.m. Weekends: 6 p.m. to 8 a.m. Holidays: 5 p.m. to 8 a.m.	<b>206.598.8902</b> <i>Adult</i> <b>206.987.2032</b> <i>Pediatric</i>	<b>206.598.6190</b> Ask for the Oncology Fellow on call	<b>206.598.6190</b> Ask for the Fellow on call

### Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.