Caring for Your Central Venous Catheter

A central venous catheter is a soft, flexible tube that is placed into one of the main vessels leading toward your heart. The words “Hickman,” “Broviac” or “Leonard” are trade names for the device your physicians have inserted for your continued medical care. It is also referred to as a long-term central venous access device.

The catheter can be used to give blood, medication or other fluids. It also may be used to draw samples of your blood. The following pages will help guide you in becoming a “master” at caring for your catheter. There are activities you will need to learn to care for your catheter. Your health care professionals may give further suggestions to continued maintenance of your catheter.

Site care
A gauze dressing should be changed every other day. A Tegaderm dressing can be changed once a week, or any time the dressing becomes soiled, dampened or loses its occlusiveness.

Once sutures are out, a bandage can be used over the small area in your upper chest, near your neck, after the area is washed with soap and water. If the covering becomes wet or soiled before the sutures are removed, follow these steps for both dressing sites.

Note: When showering or bathing, cover the gauze dressing with a plastic cover to keep it dry.

Supplies needed:
• Betadine swab sticks
• Gauze dressing
• Tegaderm dressing (or other type)
• Tape

I. Before you begin
   a. Gather all supplies needed.
   b. Wash hands.
   c. Remove old dressing and discard.
   d. Check for signs of infection (redness, swelling or drainage). Notify your physician if any of these signs of infection are present.
   e. Cleanse skin around the catheter using a Betadine swab. Start at site where catheter and skin meet and use a circular motion outward from the exit site. Do not return to center. Discard the swab.

Continued
II. Applying the dressing
   a. Gauze dressing
      1. Open sterile gauze package without touching inside of the package or gauze pad.
      2. Tear strips of tape that are a little bit longer than the length of the dressing.
      3. Place the sterile gauze dressing at the exit site and tape securely.
         Various ways to tape a dressing are shown below.

e1.
e2.
e3.
e4.

b. Tegaderm dressing
   1. Remove and discard center-cut window.
   2. Peel paper liner from paper-framed dressing, exposing adhesive surface.
   3. Position over site. Smooth dressing from center toward edges.

c. Other occlusive dressings
   Your physician or nurse will assist you with further instructions.

   • If the catheter tubing is long, loop and tape it to the outside of the dressing to prevent accidental tugging.
   • Check that the injection cap is securely attached to the catheter.

III. Changing the injection cap
   This change should be done once a week, just before a heparin flush or when the cap is removed.

   a. Supplies needed
      • Equipment to flush catheter
      • Alcohol wipes
      • Sterile injection cap
b. Procedure
   1. Gather equipment.
   2. Wash hands.
   3. Open the sterile injection cap package.
   4. Check to be sure clamp is closed securely.
   5. Swab junction with an alcohol wipe and let dry.
   6. Unscrew injection cap from catheter; discard.
   7. Twist new sterile cap securely onto catheter.
   8. Swab end of cap with an alcohol wipe.
   9. Insert syringe with heparin into the injection cap and unclamp.
  10. Continue with **heparin flushing** procedure.

IV. Heparin flushing procedure – Flushing your catheter should be done 3 times weekly.
If your catheter has two ports, flush each one separately. If resistance is met when injecting the flushing solution, a blood clot may be blocking the tip. **Contact your physician immediately.** Prefilled syringe administration systems are available, and you may opt for this method. Instructions for their use are available on packaging or from the health professional referring you to that system.

a. Supplies needed
   - 25 gauge 3cc disposable syringe
   - Vial heparin flushing solution (multidose vial of 10 units per ml)
   - Alcohol wipes

b. Procedure
   1. Gather equipment.
   2. Wash hands.
   3. Clean the rubber center of the heparin solution vial with an alcohol wipe.
   4. Remove needle cover. Fill the syringe with air equal to the amount of flushing solution your doctor has ordered for you. The amount generally used is 5 cc.
   5. Without moving plunger, insert the needle through the center of rubber. Then push the plunger all the way in. This injects a measured amount of air into the bottle.
   6. Turn the bottle and syringe upside down. Keeping the point of the needle in the liquid, slowly pull back on the plunger to 5 cc (or amount prescribed by your doctor). Check for any air bubbles inside the syringe.
   7. If there are any air bubbles, tap gently with your fingers on the syringe so that they rise toward the needle. Then remove those bubbles by pushing the plunger up slightly.
   8. When the dose is correct (e.g., 5 cc) and there are no air bubbles in the syringe, remove needle from bottle. Take care not to change the position of the plunger in the syringe.
   9. Replace needle cap.
  10. Swab end of central venous catheter injection cap with alcohol wipe.
  11. Allow alcohol to dry. Do not touch the end of the cap.
  12. Remove needle cap from the syringe and carefully insert needle into middle of catheter injection cap.
  13. Unclamp the catheter and inject the heparin solution slowly.
  14. Reclamp the catheter as the last of the solution is injected.
  15. Withdraw needle.

Continued
Complications of central venous catheters
There are some complications associated with the central venous catheters. The best defense against any complication is prevention. However, complications may still occur. You must be aware of the signs and symptoms of these so that you will know what to do.

Clotting – The catheter may clot off for any one of several reasons. Clotting occurs when blood backs up in the catheter and is not cleared. The blood may then coagulate or block off the catheter. Therefore, it is important to follow the heparin flush procedure as instructed by your caregiver and after the catheter is used. If you should meet resistance with your heparin flush procedure (i.e., you are unable to inject the solution), contact your physician immediately.

Infection – Signs and symptoms of infection are fever, chills and redness, or swelling or drainage at the site of the catheter. Look for infection during each dressing change. Contact your physician immediately if you experience any of the symptoms.

Catheter displacement – The catheter is very flexible and may, under unusual circumstances, turn into the vein in the neck. If this happens, you may feel pain in the neck or shoulder when a solution is infused. If this happens, notify your physician and ask him what action to take. He may wish to check for the placement of the catheter with an X-ray.

Air embolism – This is unwanted air in the blood vessel. It occurs when the clamp is not tightly placed in the catheter prior to disconnection of the plug or syringe. You may experience shortness of breath or a cough. Apply the clamp securely between you and the open section of the catheter, then contact your physician immediately.

Catheter breakage – Although very rarely, catheters can break or crack. You must carry a catheter clamp with you at all times. If a problem occurs, apply the clamp immediately on the catheter portion closest to your skin. Call your physician immediately if this does happen. Some catheters can be repaired by a physician or trained nurse.

### Possible problem | Signs or symptoms | What to do
---|---|---
Catheter migration | The stitches come out. The catheter is farther out than before. | Tape the catheter in place. Call your oncology or home health nurse. Do not try to push it back in.
Occluded catheter | Difficulty flushing fluids into the catheter. | Do not force. A blood clot may have formed inside the catheter or at the tip. Call your oncology or home health nurse.
Injection cap is loose | Blood leaking from injection cap or in the hub of the cap. | Clamp the catheter. Replace the injection cap with a new injection cap. Flush the catheter with saline and heparin if you have been taught how to do this or call your oncology or home health nurse immediately.
Infection | Fever Chills Sweating Flu-like symptoms Pain, redness, swelling or drainage at the exit site | Call your oncology or home health nurse immediately. Always wash your hands before handling the catheter or your supplies. Never use supplies which have fallen on the floor or have damaged packaging. Only use supplies which are sterile.
Central vein thrombosis | Swelling around your hand, arm or neck. | Call your oncology or home health nurse.
Catheter breaks or is accidentally cut | You can see signs of damage or blood leaking from catheter. | Fold and tape the catheter above the breakage. Call your oncology or home health nurse.
<table>
<thead>
<tr>
<th>Date</th>
<th>Heparin flush</th>
<th>Injection cap change</th>
<th>Site care</th>
<th>Comments</th>
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The information presented is intended for general information and educational purposes. It is not intended to replace the advice of your health care provider. Contact your health care provider if you believe you have a health problem.
## Standard Care Plan for Central Venous Catheter Teaching

**Nursing Diagnosis:** Knowledge Deficit R/T Central Venous Catheter Insertion

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Patient and/or family instructed Nurse initials and date</th>
<th>Patient and/or family able to demonstrate or verbalize Nurse initials and date</th>
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<tbody>
<tr>
<td>1. Demonstrate proper technique in doing a dressing change.</td>
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<td>2. Identify how often a dressing should be changed.</td>
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<td>3. Demonstrate the flushing procedure.</td>
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<td>a.) Demonstrate how to draw up flushing solution from a vial.</td>
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<td>b.) Demonstrate injection of solution through cap.</td>
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<td>4. Identify how often a flushing is needed.</td>
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<td>5. Explain what to do if resistance is met during the flushing procedure.</td>
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<td>6. Explain the importance of the clamp on the catheter during procedures.</td>
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<td>7. Demonstrate proper technique while changing the IV injection cap.</td>
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<td>8. Identify how often the IV injection cap needs to be changed.</td>
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<td>9. Identify occlusive dressing such as Tegaderm as option for use.</td>
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<td>10. Identify the signs and symptoms of the following and explain what to do if they occur:</td>
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<tr>
<td>a.) Infection at entrance or exit site</td>
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<td>b.) Clotting</td>
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<td>c.) Catheter displacement</td>
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<td>d.) Air embolism</td>
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<td>e.) Catheter breakage</td>
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**Goal:** Patient and/or family member will be able to demonstrate proper knowledge of central venous catheter by the time of discharge.