

## Central venous catheter: Care at home

### What is a central venous catheter?

A central venous catheter is a thin tube inserted into a large vein that goes to the heart. The type your child has is a:

- Broviac catheter
- Hickman catheter
- MEDCOMP catheter
- other \_\_\_\_\_

The catheter will be used to give your child IV medicines or fluids and take blood samples. This means fewer needle pokes and less pain.

### How should I prepare my child?

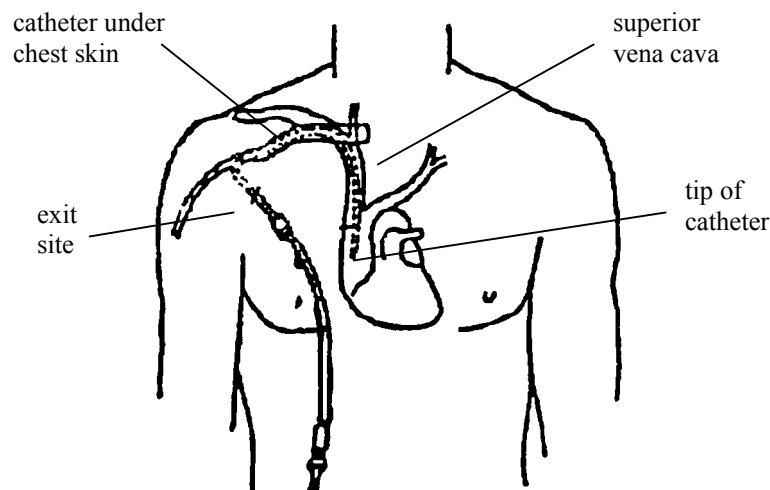
Use simple words to explain why the catheter is needed and what to expect. Remind your child that the tube means less pain. How much detail you give will depend on the age of your child, and the degree of anxiety about the procedure. If you need help, ask a nurse or Child Life staff member.

Explain procedures before they are done, especially what your child will see, hear, and feel. Tell your child what is expected ahead of time, such as, “Your job is to hold still while I change the dressing.” This will help make care at home easier for both of you.

### How is the catheter put in?

During surgery, the surgeon inserts the tip of the catheter under the chest skin and tunnels it into the superior vena cava, a large vein that goes to the heart. The catheter comes out at the nipple line or slightly below.

There will be two small incisions on the chest after surgery, one where the catheter was inserted into the vein, and one where it comes out of the chest skin (the “exit site”). Your child may have soreness or discomfort at the incision sites. Pain medicine will be given as needed.



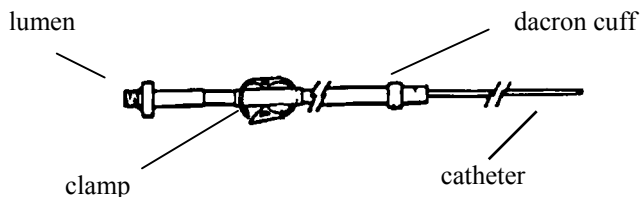
### What is the catheter like?

The part of the catheter under the skin has a small dacron cuff. Tissue grows into this cuff area. The cuff acts as an anchor to help prevent movement of the catheter. This process takes at least two weeks or more. There is no dacron cuff in the MEDCOMP catheter.

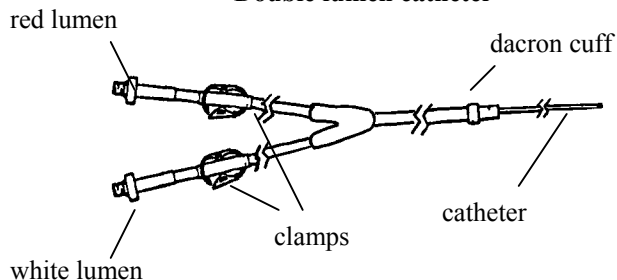
The part of the catheter outside the skin has a plastic end with screw-like threads. An injection cap is on the end of the catheter so that it does not leak or allow air or bacteria in. It also allows you to inject medicines or flush solution into the catheter without removing the cap.

There are different kinds of catheters. Some have just one tube (single lumen), while others have two separate tubes within the same catheter (double lumen). If your child has a double lumen catheter, each tube must be treated separately.

**Single lumen catheter**



**Double lumen catheter**



## How should I care for my child?

Caring for a child with a central venous catheter may be a little scary at first. The nurses will take care of the catheter and give the medicines while your child is in the hospital. As your child improves and is able to be at home, you may be taught how to give medicine through the catheter. Home care nurses will teach you and help you become comfortable with the procedures before you do them yourself. These are the special things that need to be done:

- preventing infection
- changing the dressing
- flushing the catheter
- giving the medicine
- changing the injection cap
- solving problems
- knowing when and who to call for help

## Preventing infection

It is very important to prevent infection, which might require removal of the catheter. The nurse will show you how to keep your supplies sterile, so no germs will enter the catheter and cause an infection.

**Cleanliness is a must!** Each time you do a procedure with the catheter, follow these steps:

1. Prepare a clean work area by cleaning a solid surface with household cleanser (such as Lysol® or another brand) and lay a clean towel on it.
2. Clean your hands well, using one of the following methods:
  - Use an alcohol hand sanitizer (Purell® or another brand) according to directions.
  - If hands are dirty or sanitizer is not available, wash your hands with antibacterial soap for **at least 15 seconds**, rubbing all surfaces briskly, including under fingernails. Use a paper towel or clean hand towel to dry your hands, and then use the towel to turn off the faucet.
3. Before **each time** you flush or put any medicine into the IV tubing, scrub the injection cap for 30 seconds with a fresh chlorhexidine wipe, using friction. Let it dry. Do not fan or blow on it.

**Note:** Multiple-dose vials of normal saline and heparin solution can be used until the expiration date. Throw a bottle away sooner if you see sediment in it. If you do throw a medicine away, be sure to call the home care pharmacy for a replacement dose.

## How do I order supplies?

Your supplies will be ordered from a medical equipment supply company or home care pharmacy. The first order will be

delivered to the hospital or your home. Check with your nurse to be sure you have everything you need. You will receive the number to call when you need to order supplies in the future.

## Changing the dressing

### How often should the dressing be changed?

The dressing over the exit site should be changed once a week, or any time it becomes loose, soiled, or wet.

### Should I wear gloves when I change the dressing?

You should wear non-sterile gloves if you have cuts, scratches, or breaks in the skin, or if the dressing is saturated with blood or drainage.

### How do I change the dressing?

1. Prepare the work area (see page 2).
2. Clean your hands well (see page 2).
3. Gather supplies:
  - BioPatch® antimicrobial dressing
  - chlorhexidine sepps or applicator (1)
  - chlorhexidine wipes (2)
  - cotton swabs (sterile), if needed
  - gloves (not sterile)
  - skin prep
  - tape, 1-inch wide
  - transparent dressing You may have a dressing kit with the above supplies in it.
4. Put packages in order of use on the work surface. Tear tape into 3 pieces, each 3 to 4 inches long. Tear one piece in half lengthwise (½-inch wide pieces). Open packages without touching anything

inside.

5. If gloves are needed, loosen the edges of the old dressing, and then put on the gloves.
6. Remove the old dressing without pulling on or touching the catheter near the exit site. The BioPatch will stick to the transparent dressing.
7. After removing the old dressing, clean your hands again.
  - If you are using gloves, remove them, clean your hands, and put on clean gloves.
8. Check the skin around the exit site for redness, swelling, or drainage.
  - If there is drainage at the exit site, clean it off with an extra sepps, swab, or applicator.
9. Prepare the sepps or applicator:
  - If you are using a sepps, hold it between your thumb and fingers. Firmly squeeze the sepps until it cracks and solution flows into cotton applicator. Do not touch the cotton.
  - If you are using an applicator, pinch the wings on the applicator. The ampule inside will break and release the solution. Wet the sponge by pressing it on the inside of the package several times.

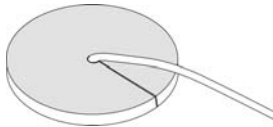
9. Scrub the site with one chlorhexidine sepps or applicator for 30 seconds, using friction in a back and forth pattern: up and down, sideways, and diagonally.

10. Clean the catheter:

- Hold a chlorhexidine wipe around the catheter at the exit site to prevent pulling.
- Use another chlorhexidine wipe to clean the catheter. Put it around the catheter at the exit site and work it toward the injection cap.

11. Let the chlorhexidine dry completely (about 30 seconds). Do not blow on or fan the area.

12. Place the BioPatch around the catheter with the white side in contact with the skin. Put the slit near where the catheter will lie, once it is secured.



13. If needed, apply skin prep where the edges of the dressing will be. This protects the skin.

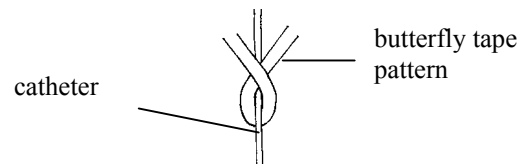
14. Coil the catheter if possible. Double lumen catheters are shorter and sometimes cannot be coiled.



15. Apply transparent dressing over the catheter.

16. Apply tape:

- Place a 1-inch-wide piece of tape over the catheter at the edge of the transparent dressing.
- Apply a ½-inch wide piece of tape in a butterfly pattern.



- Place a 1-inch-wide piece of tape over the butterfly.

### What else do I need to know?

**Do not** let the dressing get wet until the stitches are out and the exit site is healed. Your child can shower or bathe in shallow water, if you cover the dressing with plastic and tape all the edges down with waterproof tape. If the tape or transparent dressing becomes wet, replace it right away.

**Do not let the catheter drop down into the bath water**, as germs from the water may enter the end of the catheter.

After the exit site is healed, your child may swim in a pool or bathe, but change the dressing immediately afterward and clean the outside of the catheter. Before swimming in lakes or rivers, check with your child's doctor.

# Flushing the catheter with heparin

## When should I flush the catheter?

The catheter must be flushed to help prevent blood from clotting and blocking it. If the catheter becomes blocked, it may have to be removed.

When IV fluids are running through the catheter, it is being flushed continuously. When the catheter is capped off between uses, it must be flushed with heparin, a medicine that prevents clotting. Flush it at these times:

- after infusing medicines or fluids.
- after drawing blood.
- at least every 24 hours.

## How do I flush the catheter?

**You must use 10-ml or larger syringes.** A smaller syringe may push too much pressure into the catheter and cause it to burst.

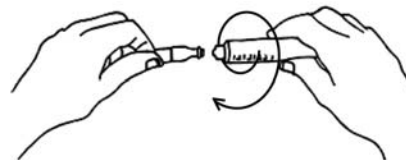
Filled syringes have an air bubble in them. Before using, squirt the air bubble out.

Every time you flush the port with normal saline or heparin, use the “push-and-pause” method: push a little solution, then pause for 1 to 2 seconds, then push a little more, pause, and so on. This method cleans the inside of the catheter. Your home care nurse will show you how to do it.

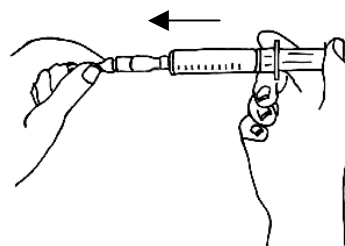
1. Prepare the work area (see page 2).
2. Clean your hands well (see page 2).
3. Gather equipment:
  - chlorhexidine wipes
  - heparin syringe, 1 for each lumen
4. Check the heparin syringe label to make sure you have the correct strength. The heparin is good until the expiration date.

Throw it away sooner if you see sediment in it or if you question its cleanliness.

- If you don't have pre-filled syringes, draw up the correct amount into a syringe. See the education sheet “IV medicines: Preparing at home”.
5. Scrub the injection cap with a chlorhexidine wipe and let it dry.
  6. Remove the tip cover from the heparin syringe.
  7. Twist the syringe tip into the injection cap.



8. Unclamp the catheter.
9. Flush with heparin using the push-and-pause method.



10. When the syringe is empty, remove it from the injection cap.
11. Clamp the catheter.
12. If the catheter is a double lumen, repeat this procedure for the second lumen. Use separate sterile syringes for each lumen.

13. Put the syringe into your regular trash, unless blood is in it. If soiled with blood, use a sharps container for needles:
- a special container for this purpose
  - a hard plastic bottle (such as bleach or detergent) with a screw-on lid. Label it, "Do Not Recycle - Household Sharps."

Do not overfill the sharps container. Disposal varies depending on the area you live in. Some communities have a household sharps collection program. To find out what you should do, check with your garbage collection company, pharmacy, or clinic.

## Changing the injection cap

### When do I need to change the injection cap?

To prevent infections, change the injection cap as recommended:

- every 3 days if your child is receiving infusions
- after 7 days without infusions

### How do I change the injection cap?

1. Plan to change the cap at a time when you will be flushing the catheter with heparin.
2. Prepare the work area (see page 2).
3. Clean your hands well (see page 2).
4. Gather the equipment:
  - chlorhexidine wipes
  - heparin flush supplies (see page 5)
  - injection cap
5. Put packages in order of use on the work surface. Open packages without touching anything inside.

6. Scrub the connection site (where the old cap joins the catheter) with a chlorhexidine wipe for 30 seconds, using friction. Let it dry.
7. Clamp the catheter.
8. Unscrew the old cap and remove.
9. Scrub the catheter hub threads (grooves) with a new chlorhexidine wipe for 30 seconds, using friction. Let it dry. **Do not** touch the end of the hub with your fingers.
10. Flush the injection cap with heparin if you have been taught to do so.
11. Screw on the new cap. **Do not** touch the end that screws into the catheter. If you do, throw the cap away and use a new one.
12. Unclamp the catheter.
13. Flush the catheter with heparin and remove the syringe. (See "Flushing the catheter with heparin", page 5.)
14. Clamp the catheter.

## Solving problems

Problem	Possible cause	What to do
<ul style="list-style-type: none"> <li>Fever, chills</li> <li>Tenderness, redness, or pus at the catheter site</li> </ul>	<ul style="list-style-type: none"> <li>Infection</li> </ul>	<ul style="list-style-type: none"> <li>Check your child's temperature.</li> <li>Call the doctor <b>right away</b>.</li> </ul>
<ul style="list-style-type: none"> <li>Trouble flushing the catheter</li> <li>Unable to give medicine or fluid into catheter</li> </ul>	<ul style="list-style-type: none"> <li>Catheter may be clamped.</li> <li>Catheter or tubing may be kinked.</li> </ul>	<ul style="list-style-type: none"> <li>Unclamp it.</li> <li>Remove the kink.</li> <li>If the catheter is not kinked or clamped, <b>do not</b> force the solution into the tube. Call the home care nurse to report the problem.</li> </ul>
<ul style="list-style-type: none"> <li>Fluid leaking from the catheter</li> </ul>	<ul style="list-style-type: none"> <li>Injection cap is not screwed on securely.</li> <li>A hole in the catheter</li> </ul>	<ul style="list-style-type: none"> <li>Tighten the injection cap.</li> <li>If you see a leak in the catheter, clamp it (or fold it over and pinch it) between the damaged area and the skin and call your home care nurse, clinic, or emergency room right away.</li> </ul>
<ul style="list-style-type: none"> <li>Skin redness where the tape was</li> </ul>	<ul style="list-style-type: none"> <li>Sensitivity to tape</li> </ul>	<ul style="list-style-type: none"> <li>You may need to change the dressing size or the type of tape used.</li> </ul>
<ul style="list-style-type: none"> <li>Catheter accidentally comes out</li> </ul>		<ul style="list-style-type: none"> <li>Hold firm pressure over the site for at least 5 minutes.</li> <li>Apply antibacterial ointment and cover it with gauze and tape.</li> <li>Call your doctor or home care nurse.</li> </ul>

### Emergency kit

Take an emergency kit with you everywhere you take your child. Be sure to check the kit before you leave home and replace any used supplies when you return home so it is always ready to go. Supplies include:

- chlorhexidine wipes
- injection cap
- heparin flushing supplies (see page 5)
- dressing change supplies (see page 3)
- extra clamp

### Questions?

If you have any questions, please call:

Home care nurse \_\_\_\_\_

Supply company \_\_\_\_\_

Home care pharmacy \_\_\_\_\_

Doctor \_\_\_\_\_

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