



An Introduction to Your Child's  
**Central Venous Catheter**  
**(Broviac®)**

**UCDAVIS**  
**CHILDREN'S HOSPITAL**

Children's Miracle Network Hospitals partner 

# An Introduction to Your Child's Central Venous Catheter (Broviac®)

This book will teach you about your child's central venous catheter, how to care for it at home, and what to do if there is a problem. The catheter may also be called a tunneled central line or sometimes a Broviac®.

The goals of catheter care are to keep the catheter working properly and to avoid infections. To properly care for the catheter, you must learn to do daily flushes and weekly dressing and cap changes.

## Why does my child need a Central Venous Catheter (Broviac®)?

- To decrease the number of times your child is poked with a needle.
- To administer medications and fluids into a large vein.
- To draw most blood samples.

## What is a Central Venous Catheter (Broviac®)?

- A surgically placed line put into a vein in your child's chest
- A catheter that can stay in place until your child's medical treatment is finished
- Typically made of soft, flexible plastic with a removable hard plastic cap on the end

## After the catheter is placed:

- After surgery, your child may feel sore for a day or two and the area may be swollen.
- The skin above the catheter will have small incisions covered with small sterile tape (Steri-strips®).

## Things to know before you go home:

- How to flush the line every day and after each use
- How to change the dressing every 7 days (or when needed)
- How to change the injection cap every 7 days
- When to call the doctor
- What to do in case of an emergency





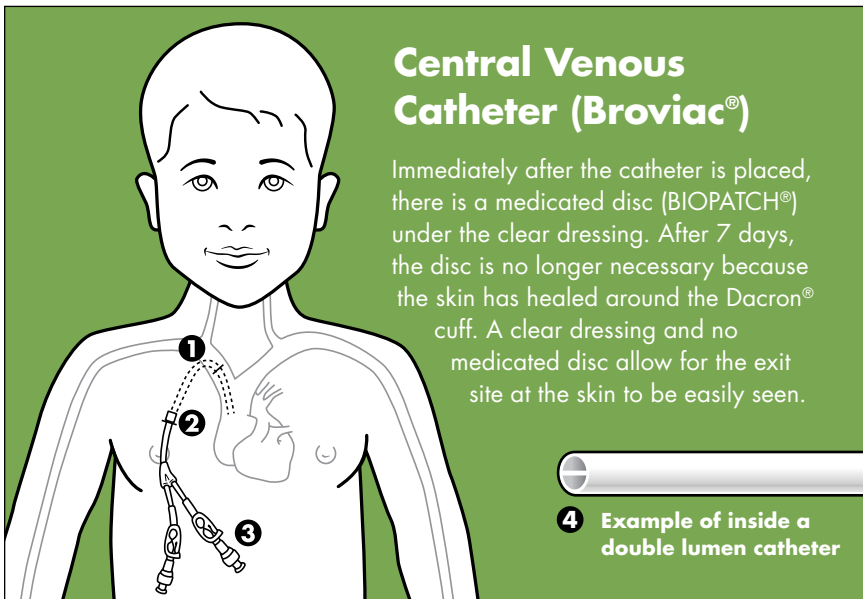
## Parts of a Central Venous Catheter (Broviac®)

### Inside of the Body:

- The **1 catheter** leads to a vein above the heart.
- The **2 Dacron® cuff** is directly under the skin at the exit site. The skin grows around the cuff. The cuff prevents the catheter from being pulled out and also helps keep bacteria from entering the body.

### Outside of the body: *This is the part that you will be touching and cleaning.*

- The part that sits outside of the body may have one or two smaller tubes (called **3 lumens**). Each lumen has a removable cap and a plastic clamp. Medications are injected through the cap into the catheter and travel directly into the vein.
- If your child has a **4 double lumen** catheter, different medications, fluids, or blood products can be infused at the same time. Outside of the body it looks like two lumens that connect into one before entering the body. However, it is two separate tubes and there is no connection between the two lumens



# Dressing Change

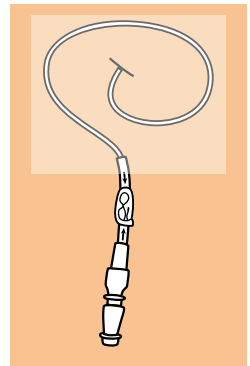
## Supplies

- Gloves, if provided
- Chlorhexidine swabstick
- Skin protectant swabstick (optional)
- Clear (transparent) dressing
- Mask, if provided

## Procedure

1. Gather equipment and prepare clean work area
2. Wash hands thoroughly with soap and water
3. Open packages
4. Put on gloves
5. Remove the old dressing
6. Check site for infection (i.e. redness, swelling or drainage)
7. Remove dirty gloves
8. Wash hands again. Put on new, clean gloves.
9. Clean the exit site with chlorhexidine swabstick using a repeated back and forth motion for 30 seconds. Make sure to clean all parts of the catheter that will be under the dressing.
10. Allow to air dry for 15-30 seconds. Do not blow or fan the skin.
11. If desired, apply skin protectant to the outer edge of skin. Do not apply directly on the catheter.
12. Loop the catheter and apply the clear dressing
13. Secure tubing

- If a dressing becomes loose, dirty or wet, it must be changed immediately
- After the site is healed, the clear dressing is changed weekly
- If gauze dressing is used it is changed every other day



It is very important that the catheter be looped and secured at all times. For smaller Broviacs® all of the thinner tubing should be secured completely under the dressing.



## Notes:

- If you notice signs of infection, see “troubleshooting” on pages 8 and 9 of this booklet.
- It is normal for the skin to turn red when removing the clear dressing. This does not necessarily mean your child is allergic to the dressing.

# Daily Flushes

- Heparin is a medicine used to prevent blood from clotting in the catheter.
- The catheter must be flushed with heparin once a day and after each use.
- If the catheter has two lumens, each lumen needs to be flushed.

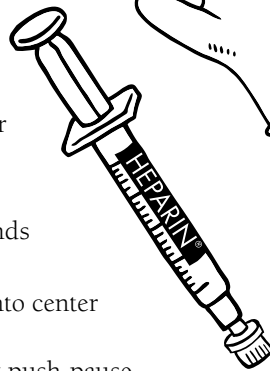
## Supplies

- Gloves, if provided
- Alcohol swabs
- Syringe pre-filled heparin



## Procedure

1. Gather equipment and prepare clean work area
2. Wash hands thoroughly with soap and water
3. Open packages
4. Put on gloves
5. Scrub cap with alcohol swab for 15-30 seconds
6. Allow alcohol to air dry for 15-30 seconds
7. With catheter still clamped, twist syringe onto center of cap
8. Release clamp and inject with heparin using push-pause method
9. Reclamp catheter, remove the syringe, and dispose of the syringe in an appropriate container
10. Repeat steps 5-9 with new supplies for the second lumen
11. Secure catheter



Do not force the syringe when flushing. If you can't flush easily, see "troubleshooting" section, pages 8-9

# Injection Cap Change With Flush

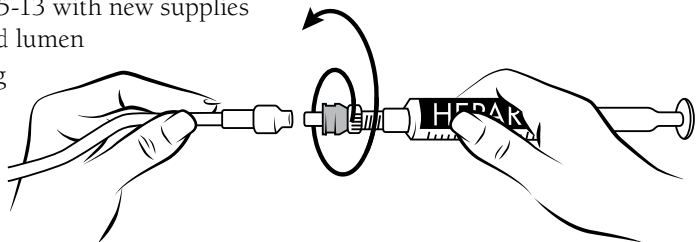
The cap should remain in place at all times. Cap changes should be done once a week.

## Supplies

- Gloves, if provided
- Pre-filled heparin syringe
- Sterile injection cap
- Alcohol swabs
- Mask, if provided

## Procedure

1. Gather equipment and prepare a clean work area
2. Wash your hands thoroughly with soap and water
3. Open packages
4. Put on gloves and mask if provided
5. Take the protective cover off of the pre-filled heparin syringe. Do not let the tip of the syringe touch anything that is not sterile. Twist the pre-filled heparin syringe onto the sterile injection cap.
6. Hold the syringe with the cap towards the ceiling. To remove air from the cap, gently push the plunger and fill the cap with heparin. Set aside syringe and cap, keeping the end of the cap sterile.
7. Scrub junction between the old cap and catheter with one alcohol swab for 15-30 seconds
8. Allow alcohol to air dry for 15-30 seconds
9. Make sure catheter is clamped
10. Remove the old cap. Be careful not to touch end of lumen with fingers. Continue to hold lumen without letting clean end touch anything. If the lumen is dirty, clean with another alcohol.
11. Remove the protective cover from the other end of the injection cap (the part that is not attached to the syringe). Twist the new injection cap (with syringe attached) onto the clean lumen.
12. Release clamp and flush heparin through new cap into catheter
13. Clamp catheter and remove syringe. Dispose of the syringe in an appropriate container.
14. Repeat steps 5-13 with new supplies for the second lumen
15. Secure tubing



# General Care



## Activity

- Keep tubing off floor.
- Keep tubing out of diaper area. If possible loop the tubing towards the child's head and have the tubing come up over his or her shoulder.
- Do not allow children to chew on the tubing.
- Children may resume most usual activities. No roughhousing or contact sports. Talk with your doctor for more specific instructions.



**Never use scissors or sharp objects on or near the catheter!**

## Baths and showers

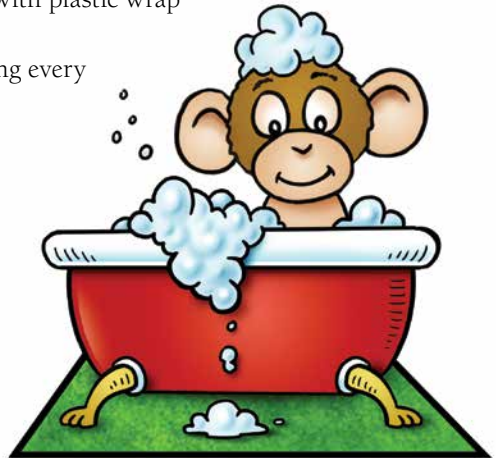
- Do not soak the catheter site under the water.
- Baths and showers may be resumed after the catheter site is healed.
- While bathing, cover the dressing with plastic wrap taped to the chest.
- It is necessary to change the dressing every time it becomes wet.

## Swimming

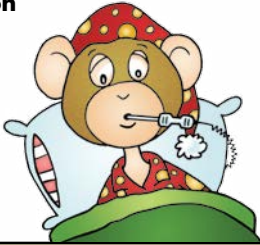
- Only swim if OK'd by your doctor.
- Never swim in non-chlorinated water such as ponds, lakes or rivers.

## Clothing

- Your child should wear snug clothing. Tighter clothing such as onesies, T-shirts or sports bras can help to protect the catheter from coming out accidentally.



# Troubleshooting

| Signs and Symptoms   | Possible Problem  | What to Do   | How to Avoid   |
|--|---|--|--|
| Leaking of fluids, hole or break in catheter   | <b>Break or cut in catheter</b>   | <ol style="list-style-type: none"> <li>1. Clamp the catheter (with smooth clamps) between the child and the break</li> <li>2. Cover the break with sterile gauze and tape to chest</li> <li><b>3. Notify your home health nurse or doctor immediately and bring your child to the hospital</b></li> </ol>  | <ul style="list-style-type: none"> <li>■ Make sure catheter is looped and secured at all times</li> <li>■ Avoid pulling or tugging on the catheter</li> <li>■ Remember to clamp tubing in the area that states "clamp here"</li> <li>■ Never use scissors or sharp objects near the catheter</li> <li>■ Never use excessive force to flush the catheter</li> </ul>                       |
| Unable to flush catheter with normal pressure  | <b>Clot or kink in the catheter</b>   | <ol style="list-style-type: none"> <li>1. Do not force fluid into the catheter</li> <li>2. Make sure there are no kinks or twists along the catheter or under the dressing</li> <li>3. Make sure the catheter is unclamped</li> <li>4. Pull back on the syringe gently to draw back blood. If blood is visible, attempt to flush again</li> <li>5. If unable to flush the catheter, clamp the catheter and <b>call your nurse or doctor immediately</b></li> </ol> | <ul style="list-style-type: none"> <li>■ Make sure to flush with heparin at least once a day</li> <li>■ Flush with heparin after each use</li> <li>■ Use push-pause method to flush</li> </ul>   |
| <p>Temperature greater than 100.4° F or as instructed by your doctor</p> <p>Chills, fatigue or a decrease in activity</p> <p>Swelling, warmth, tenderness, redness, oozing, odor or drainage at the exit site</p> <p>Pain or swelling along catheter tract or pain while flushing the catheter</p> | <p><b>Infection</b></p>  | <p><b>1. Call your doctor or nurse immediately</b></p>   | <ul style="list-style-type: none"> <li>■ Wash hands before beginning any care with catheter</li> <li>■ Inspect catheter site with each dressing change</li> <li>■ Avoid contact with people who are ill</li> <li>■ After first week exit site needs to be visible at all times. Use a clear dressing to see problems at the site</li> <li>■ Keep tubing away from diaper area</li> </ul> |
| Swelling under the skin of neck and face and/or shoulder   | <b>Internal problem with catheter</b>   | <ol style="list-style-type: none"> <li>1. Stop infusion into the catheter</li> <li><b>2. Call your doctor or nurse immediately</b></li> </ol>  | <ul style="list-style-type: none"> <li>■ Inspect catheter and skin during flushes, dressing changes and cap changes</li> </ul>   |
| Catheter not in chest or blood on the dressing or clothing   | <b>Accidental removal of catheter</b>   | <ol style="list-style-type: none"> <li>1. Don't panic</li> <li>2. Apply pressure to site with a sterile gauze</li> <li>3. Place the child in a sitting position</li> <li><b>4. Notify your doctor immediately and come to the hospital</b></li> <li>5. Save all the parts for examination</li> </ol>   | <ul style="list-style-type: none"> <li>■ Make sure the catheter is looped and secured at all times</li> </ul>  |
| Shortness of breath or complains of chest pain   | <b>Air in the catheter</b>  | <ol style="list-style-type: none"> <li><b>1. This is an EMERGENCY!</b></li> <li>2. Clamp the catheter immediately, lay the child down on their left side and keep calm</li> <li>3. CALL 9-1-1</li> </ol>   | <ul style="list-style-type: none"> <li>■ Always clamp catheter before removing cap</li> <li>■ Keep catheter clamped when not in use</li> <li>■ Make sure cap is always screwed securely onto catheter</li> </ul>   |



# Important Points

- Be sure your child's teachers, school nurse, and PE teacher know about the central venous catheter.
- Periodically check the catheter for any cracks or signs of damage.
- Always carry extra caps, clamps and dressing supplies.
- Do not use supplies if they fall on the floor.
- Do not use sterile parts if they have been accidentally touched.
- Do not use medications if they are out of date or if seals are not intact.
- Do not give Tylenol® or Motrin® unless instructed by your doctor.



It is important that any doctors or nurses taking care of your child know that your child has a catheter. This is especially important if your child is being seen in another clinic or emergency department.

## Who to call for help:

Clinic: \_\_\_\_\_

Home Health Nurse: \_\_\_\_\_

Advice Nurse: \_\_\_\_\_

Hospital: \_\_\_\_\_

Doctor: \_\_\_\_\_

Doctor/Nurse who is responsible to order line supplies to be used at home and to manage routine flushing:

\_\_\_\_\_

## Supplies come from:

\_\_\_\_\_

## Catheter information:

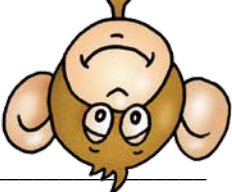
Company: \_\_\_\_\_

Model number: \_\_\_\_\_

Size \_\_\_\_\_ French

For additional copies of this book, please visit Patient and Family Education A-Z at: **children.ucdavis.edu**

Notes



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# UCDAVIS

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## CHILDREN'S HOSPITAL

2315 Stockton Blvd.  
Sacramento, CA 95817

800-UCD-4-KIDS (800-823-4543)  
[children.ucdavis.edu](http://children.ucdavis.edu)

