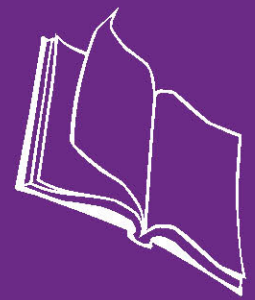


**The
Emily
Center**



How to Care for Your Child's Central Venous Catheter (CVC)

Broviac, Ash-Split, or Hickman Catheters

How to Care for Your Child's Central Catheter (CVC) Broviac, Ash-Split or Hickman-Type Catheters

Introduction	4
The Catheter	5
Catheter Care	7
Dressing Changes	8
Transparent Dressing	8
Gauze and Transparent Dressing	11
Gauze Dressing	12
Care of the Skin Around the Catheter	15
Prevention	15
Find Problems Early	15
Irritation	16
Infection	16
Flushing Catheters	17
Changing the Catheter Injection Cap	21
What you need	21
What to do	21
Home Supplies for CVC Care	23
Living With a CVC	24
Safety	24
Activities	25
Supplies	25
Coping	25
Dealing With Problems	27
Out-of-Place Catheter	27
A Plugged Catheter	27
Damage to the Catheter	28
Infection	28
Catheter-Related Emergencies	29
Words to Know	30

Name of Child: _____ Date: _____

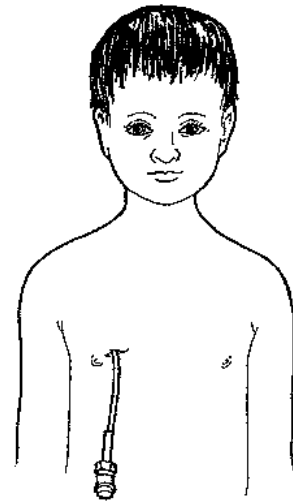
Introduction

When a child is diagnosed with a serious condition, parents often feel out of control because they don't understand everything that is happening. However, once they learn about the illness and master home care skills, parents get their sense of control back.

Perhaps you, too, are feeling out of control and overwhelmed because you need to learn about central venous catheter care. This information may seem like too much to handle right now, but don't give up. Like other families, you will also be able to take care of your child's central venous catheter.

Why are central venous catheters necessary? Some children with medical problems need frequent IV (**intravenous**) treatments. To avoid all those needle sticks, the doctor may decide to insert a central venous catheter (CVC).

Central venous catheters may be used to give IV medications, blood transfusions, fluids, nourishment or possibly draw blood samples. A central venous catheter may also make it possible to do some of these things at home.



A CVC

This booklet describes the Hickman, Ash-Split, and Broviac catheters used with children and the care they need at home. Many families find that the catheter helps make their child's medical treatment a little easier. Your child's nurses will review this home care with you. They will answer your questions and watch you do the skills you need.

This manual is only an introduction to central venous catheter care. Your health care team will teach you the details. They will watch you practice. Don't try any skill alone until you are sure you can do all the steps. If you have any questions, ask the members of your child's health care team.

Medical care is always improving. As health care professionals learn more, they change how they do things. Your child's team may not follow this booklet exactly, depending on the reason for your child's central venous catheter, supplies available, the most recent research and practices within your community. Over time, your child's catheter care may change.

Your child will not be sent home with a CVC until it can be safely cared for.

The Catheter

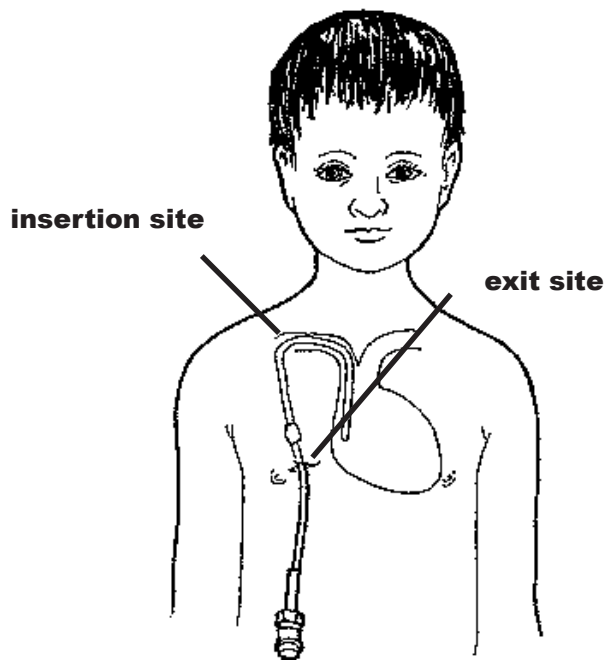
A child with a central venous catheter avoids some painful IV pokes. Fewer pokes can mean fewer breaks in the skin for germs to enter, so less chance of infection.

The central venous catheter is a thin tube made of soft, flexible rubber-like material called **silicone**. The catheter is placed in the child under general or local anesthesia in the operating room by the surgeon. The catheter is not painful to the child when it is in place.

A surgeon threads the CVC into a large vein. Medicines and fluids which can bother a small vein can be handled by a large vein without problem.

The CVC goes directly into the blood. **Do not put anything in the CVC that does not belong in your child's blood.** Stop and think before you inject anything into the CVC. If you put the wrong thing in (like food, or medicine meant for the mouth), it could hurt or even kill your child.

There are many different types of central venous catheters. The difference between a Hickman and a Broviac catheter is the size. The Broviac is smaller and is generally used in smaller children or in smaller veins.



Central venous catheters can have either one or two openings (**lumen or lumens**). The doctor will decide which to put in, based on the kind of IV treatment your child will receive. A double lumen catheter can deliver two IV treatments at the same time.

Your child's doctor and surgeon decide if a central venous catheter is right for your child. They will discuss their thoughts with you and your child. Before the surgery, they can tell you the type of catheter they have chosen and why.

The surgeon works from the middle of the catheter, and threads one end into the vein and the other end out through the skin.

First, the surgeon makes a cut (an **incision**) near the child's collarbone. This is called the **insertion site**.

The other end of the catheter is tunneled just under the skin to another incision called the **exit site**. The catheter comes out of the child's body at the exit site.

The insertion end of the catheter is threaded into a vein until the tip of the catheter lies at the entrance to the right atrium of the heart.

Just above the exit site, under the skin, is the CVC's catheter cuff. It looks soft and fuzzy like cotton, and is made of Dacron. Within three to four weeks after the catheter is put in, the fat tissue under the skin grows onto the cuff. The seal that is formed helps to hold the catheter in place. It also acts as a barrier to stop germs on the skin from traveling to the bloodstream.

When the catheter is placed, the surgeon may put a stitch (**suture**) around the catheter and through the skin. This will hold the catheter in place until the seal is formed on the cuff. The doctor will remove this stitch about four weeks later.

An x-ray is taken after the surgery to make sure that the catheter is in the right position.

The end of the catheter that is outside the child's body is capped at all times, except when the cap is being changed.

The catheter is designed to stay in place a long time. However, each child is

different. The doctor will decide how long the catheter must stay in place.

Until you, your family, and your child get used to the catheter, talk about it. Talk about how it looks and how you feel about it.

Catheter Care

Once the catheter is placed, it needs to be cared for at home. Your child's health care team will teach you how to care for the CVC. When they tell you how often to do each of the steps, fill in the blanks on your own copy of the checklist below.

To keep the CVC working well, and to find problems early:

- look at the skin around the exit site every time you do a dressing change
- change the exit site dressing every _____
 - yes no transparent dressing (page 8)
 - yes no gauze and transparent dressing (page 11)
 - yes no gauze dressing (page 12)
- flush the catheter (page 17)
 - after blood is drawn
 - after any fluid is put through the tube
 - anytime you see blood in the catheter cap
 - and flush each port of the catheter
every _____ hours or _____ times a day
- change the catheter injection cap every _____ days (page 21)

Be sure someone from your health care team watches you care for the catheter before you go home with the CVC. This will help you be comfortable and gives you a chance to ask questions. Ask all those “what if?” questions until you're comfortable with the answers.

Dressing Changes

The **dressing** is a covering placed over the site where the catheter exits the child's body. It helps to keep germs from getting under the skin.

There are several different types of dressings which can be used to protect an exit site. The doctor may want you to use a transparent dressing, a gauze dressing or some combination of the two.

The dressing over the exit site must be changed on a regular basis. It may be changed daily, every three days, or once a week. Your child's health care team will tell you how often to change the dressing. As your child's condition changes, the schedule may too.

However, if the dressing ever becomes wet, dirty or loose, it should be changed right away. If the dressing is not clean and well-attached, germs may be able to grow. They can enter the skin through the exit site and cause an infection.

Transparent Dressing

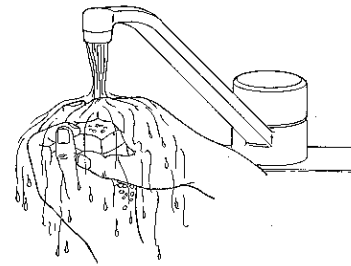
What you need

- dressing change kit or
- antimicrobial scrub (a soap that kills germs)
- ChloroPrep applicator stick
- 1 package of 2x2 or 3x3 pre-slit gauze (2 pieces of gauze per package)
or alcohol pad
- tape
- transparent dressing
- mask

What to do

1. Find a quiet place to do catheter care, where you will not be disturbed.
2. If the child is active, you will need another person to help keep the child still while you do the catheter care.

3. Wash your hands with the antimicrobial scrub for 30 to 45 seconds. Wash every surface of your hands. Wash under your fingernails, the backs of your hands, your wrists and between your fingers. Rinse completely and dry your hands with a clean towel.



**Wash your hands
for 30 to 45 seconds.**

4. Clean your work area. As you open the supplies, do not touch the parts of the equipment that come in direct contact with the catheter. Keep everything sterile. **Sterile** means there are no germs at all. Even though you washed your hands, they are not sterile.

5. Get your child ready for the dressing change. Remove the old dressing without touching the exit site with your fingers. Keep the exit site as clean as possible. You can keep some germs off by wearing a mask or not talking over the site when the dressing is off.

6. Look for signs of possible problems.

Signs of infection can be:

- drainage or oozing, such as pus
- swelling
- tenderness, soreness
- warmth
- pain
- redness at the exit site
- redness along the catheter path beneath the skin
- a temperature above 101° F orally
(check with your health care provider)
- odor from the exit site
- chills

Other problems to look for:

- is the cuff coming out?
- is the catheter cracked or leaking?



If you notice any of these signs, finish the dressing change, then call your child's health care team.

7. yes no To clean the exit site and catheter:
Take the ChloroPrep stick from the package.
Keep the applicator from touching anything, so it stays sterile.
8. Hold the ChloroPrep so it faces down.
Gently squeeze the wings until the liquid flows out.
With your other hand, pick up an alcohol pad or the gauze.
Using the alcohol pad or gauze, pick up the end of the catheter.
Hold it up, but do not pull on it.
9. Scrub the site with the ChloroPrep stick for 30 seconds.
Scrub back and forth.
Clean up the catheter from the insertion site.
Let the ChloroPrep liquid dry on the skin. This takes another 30 seconds.

Gauze and Transparent Dressing:

- To put on the dressing if using slit gauze:

- Make sure the catheter clamp or catheter's clamping area (**clamping sheath**) will not be under the dressing.

- Place the slit of the gauze around the base of the catheter.

- To put on the dressing if using gauze that is not slit:

- Make sure the catheter clamp or catheter's clamping area (**clamping sheath**) will not be under the dressing.

- Place the two pieces of gauze over catheter at the exit site.

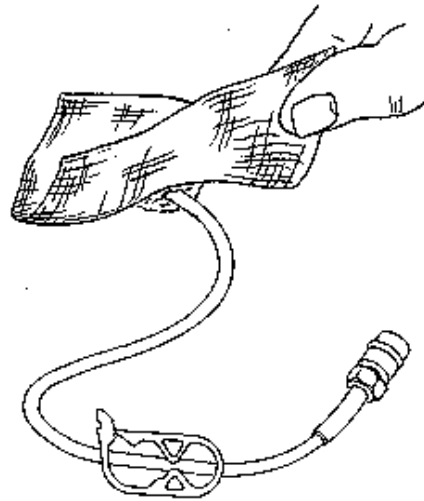
- Coil the catheter over the gauze, cover it with the second piece of gauze and tape it in place. The tape should be outside of, and not under the transparent dressing.

- If the catheter is not long enough to coil, put the second slit gauze over the first.

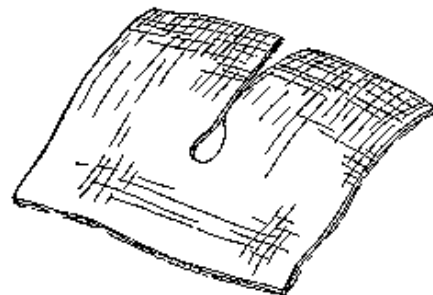
- Then, whether you are using slit or non-slit gauze:

- Center the transparent dressing over the gauze.

- Smooth it down and out, to remove air bubbles.



Make sure the clamp is not under the dressing.



pre-slit gauze

11. Tape the catheter securely to the child's chest.
12. Thank the child for helping with the dressing change.

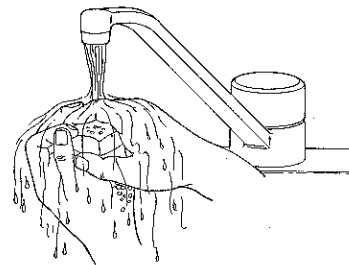
Gauze Dressing

What you need

- dressing change kit or
- antimicrobial scrub
- ChloroPrep applicator stick
- 1 package of 2x2 or 3x3 pre-slit gauze (2 pieces of gauze per package)
or alcohol pad
- tape

What to do

1. Find a quiet place to do catheter care, where you will not be disturbed.
2. If the child is active, you will need another person to help keep the child still while you do the catheter care.
3. Wash your hands with the antimicrobial scrub for 30 to 45 seconds. Wash the entire surface of your hands. Wash under your fingernails, the backs of your hands, your wrists and between your fingers. Rinse completely and dry your hands with a clean towel.
4. Clean your work area. As you open the supplies, do not touch the parts of the equipment that come in direct contact with the catheter. Keep everything sterile. Sterile means there are no germs at all. Even though you washed your hands, they are not sterile.



**Wash your hands
for 30 to 45 seconds.**

5. Get your child ready for the dressing change. Remove the old dressing without touching the exit site with your fingers. Keep the exit site as clean as possible.
 6. Look for signs of possible problems. Signs of infection can be:
 - drainage or oozing, such as pus
 - swelling
 - tenderness, soreness
 - warmth
 - pain
 - redness at the exit site
 - redness along the catheter path beneath the skin
 - a temperature above 101° F orally
(check with your health care provider)
 - odor from the exit site
- Other problems to look for:
- is the cuff coming out?
 - is the catheter cracked or leaking?



If you notice any of these signs, finish the dressing change, then call your child's health care team.

7. To clean the exit site and catheter:

To clean the exit site and catheter:

Take the ChloroPrep stick from the package.

Keep the applicator from touching anything, so it stays sterile.

8. Hold the ChloroPrep so it faces down.

Gently squeeze the wings until the liquid flows out.

With your other hand, pick up an alcohol pad or the gauze.

Using the alcohol pad or gauze, pick up the end of the catheter.

Hold it up, but do not pull on it.

9. Scrub the site with the ChloroPrep stick for 30 seconds.

Scrub back and forth.

Clean up the catheter from the insertion site.

Let the ChloroPrep liquid dry on the skin. This takes another 30 seconds.

10. To put on the dressing if using **slit gauze**:

— Make sure the catheter clamp or clamping area is not under the dressing.

— Place the slit of the gauze around the base of the catheter.

• To put on the dressing if using gauze that is not slit:

— Make sure the catheter clamp or catheter's clamping area will not be under the dressing.

— Place the two pieces of gauze over the catheter at the exit site, and tape them in place.

If the catheter is long enough, coil it over the gauze, cover it with the second piece of gauze and tape it in place.

yes no If the catheter is not long enough to coil, put the second slit gauze over the first, and tape it in place.

9. Tape the catheter securely to the child's chest.

Important Safety Information

If your child has both NG and CVC tubes, use colored tape to mark each tube. Phoenix Children's Hospital uses white tape for CVC lines and purple tape for feeding tubes.

10. Thank the child for helping with the dressing change.

Care of the Skin Around the Catheter

The better you care for the catheter, the less likely you are to have problems and the sooner you'll find and treat problems if they occur.

Prevention

Germs live on everyone's skin all the time. The strong immune systems of healthy people keep these germs from causing infections.

If the child's body is unable to fight off germs, they may cause problems. Even if you have perfect catheter care technique, irritation or infection could still occur.

To help prevent infections, always use good hand washing. Wash your hands with the antimicrobial scrub for 30 to 45 seconds. Wash the entire surface of your hands. Wash under your fingernails, the backs of your hands, your wrists and between your fingers. Rinse completely and dry your hands with a clean towel.

Another way to help prevent infections: closely follow the dressing change schedule and procedure prescribed by the your child's health care team.

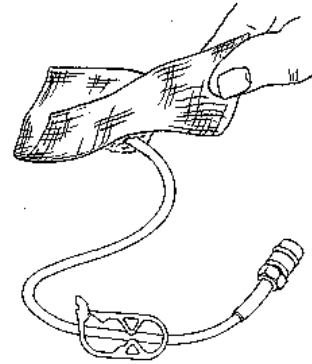
Keep the child clean and dry. Germs can't be seen and they are everywhere. They are on everything that is not sterile. But germs are even more likely to grow in dirty, damp areas.

Find Problems Early

If you use a transparent dressing without gauze, look at the skin around the tube each day. If you use a gauze dressing, look at the skin around the tube each time you change the dressing. Finding a problem early can make a great deal of difference to the child's health and well-being.

Irritation

Irritation is also called skin breakdown. This can happen when skin is sensitive, weak or irritated for a long time. Catheter dressings taped to the same patch of skin day after day can make the skin sore. Sometimes, a child can be sensitive to a certain type of tape.



Make sure the clamp is not under the dressing.

If the skin around the exit site or under the tape lines becomes red or sore:

- Clean the skin before putting on the tape.
- Avoid using too much tape.
- Alternate where you put the tape on the skin.
- Tell your health care team. They may suggest a different type of tape to secure the dressing or something to protect the skin.
- If you're using gauze dressing, alternate between 2x2 gauze and 3x3 gauze. Then the tape will be on a different part of the skin each time.
- If the problem continues, call your child's health care team.

Infection

The skin is the body's natural barrier against infection. Breaking this barrier creates an opening for germs to get in and cause infection. Irritated, broken skin and incisions are two ways germs can get in.

The redness, pus and swelling that signal infection are made by the body to kill the germs. This is called the body's **inflammatory response**. The heat kills heat-sensitive germs. The swelling walls off germs from spreading throughout the body. The pus is made of white blood cells that kill the germs.

Some illnesses and medicines lower the body's response to germ invasion. The infection may be there, but you don't know it because there's no redness, swelling or pus. Steroids, such as cortisone, can lower the inflammatory response. A low supply of white blood cells (**neutropenia**) also lowers the body's response to germs.

Some illnesses and medicines can cause low white blood cell counts.

When the inflammatory response is lowered, it is especially important to watch for little changes that may mean an infection is brewing.

Examine the catheter exit site. Look for any sign of infection:

- drainage, such as oozing or pus
- swelling
- tenderness, soreness
- warmth
- pain
- redness at the exit site
- redness along the catheter path beneath the skin
- a temperature above 101° F orally (check with your health care provider) or chills
- odor from the exit site



If you notice any of these signs, finish changing the dressing, then call your child's health care team.

Flushing Catheters

To stop bleeding from a wound, blood clots. This forms a scab. Sometimes, though, blood can clot when it doesn't need to, like in a central venous catheter.

To prevent this, the inside of the central venous catheter must be rinsed or flushed. The doctor decides whether the catheter gets flushed with **saline** (a special sterile solution salt water) or **heparin**. **Heparin** is a medicine that prevents the blood from clotting.

The small amount of saline or heparin that you use rinses the entire length of the tube. This small amount is not enough to thin the blood in your child's body, and will not cause bleeding problems.

When heparin is used, the flushing technique is called **heparinization**. Heparinization is the process of putting heparin into the catheter to prevent the

blood from clotting between uses. All ports of the CVC need to be flushed:

- on a regular schedule and
- after you draw blood,
- after you put any fluid through the tube, and
- anytime you see blood in the catheter cap.

If blood clots form, the tube may become plugged. Your child's health care team will tell you how often to do this procedure.

Important Safety Information

The CVC goes directly into the blood. **Do not put anything in the CVC that does not belong in your child's blood.** Stop and think before you inject anything into the CVC. If you put the wrong thing in (like food, or medicine meant for the mouth), it could hurt or even kill your child.

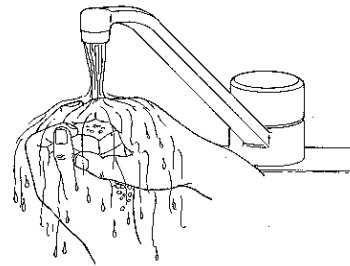
What you need

- antimicrobial scrub
- 2 alcohol pads
- one 10 mL syringe
- one plastic needle or one 23 gauge needle (check the one you are using)
- prefilled heparin syringe or sterile saline
 - or bottle of heparin (100 units per mL or 10 units per mL)
 - (check the one you are using)

What to do

1. Prefilled syringes are not stored in the refrigerator. If the heparin is refrigerated, take it out of the refrigerator about ten (10) minutes before you use it. Let it warm to room temperature. Cold heparin will not harm your child, but he or she may feel the heparin's coldness when it is injected.
2. Find a quiet place to do the flushing, where you will not be disturbed.
3. If the child is active, you will need another person to help keep the child still while you flush the catheter.

4. Wash your hands with the antimicrobial scrub for 30 to 45 seconds. Wash the entire surface of your hands. Wash under your fingernails, the backs of your hands, your wrists and between your fingers. Rinse completely and dry your hands with a clean towel.



Wash your hands for 35 to 40 seconds..

5. As you open the supplies, do not touch the parts of the equipment that come in direct contact with the catheter. Keep everything sterile.

6. Wipe the top of the bottle of heparin with the alcohol pad.

7. Attach the needle to the syringe.

8. Put the needle into the bottle and pull three mLs of heparin into the syringe.

9. Remove air bubbles from the syringe.

- point the syringe up
- gently tap the side of the syringe with your finger
- large air bubbles will rise toward the needle
- press the plunger until a small amount of heparin squirts out with the air bubbles

The small air bubbles that stay attached to the inside of the syringe despite your tapping, are safe to leave in.

If you use pre-filled syringes, remove air bubbles from the syringe before flushing.

10. Carefully recap the needle.

Only recap clean, unused needles. Never recap a needle that has been used.

11. With the other alcohol pad, wipe the catheter injection cap.
12. Be sure the catheter clamp is open.
13. Take off the needle and screw the syringe into the injection cap.
14. yes no Pull back on the plunger until you remove all the air in the cap. The air will rise up the syringe, away from the needle.

If you keep pulling on the plunger, you would eventually see blood entering the syringe. However, there is no need to pull back on the plunger until you see blood.
15. Push the solution into the catheter by slowly pressing the syringe plunger while holding the syringe straight up.
16. Inject the heparin until 1/2 mL is left in the syringe. Then remove the syringe from the injection cap while slowly pressing the syringe plunger. There should be a small amount of heparin left in the syringe after it is removed.

While you are flushing the last 1/2 mL into the catheter, close the clamp. This is called using **positive pressure** to get heparin to the tip of the catheter inside.

- If the catheter does not flush easily, make sure the clamp is open.
- Do not use force to flush.
- Have your child raise his arms over his head, or lay on his side, and try again.
- Change the cap and try again.
- If your baby has a very tiny catheter, it may have twisted and kinked. You may need to change the dressing to look for kinks.



- If you still cannot flush the catheter, call your child's health care team.

17. Immediately place the syringe and needle in the needle container.
Your nurse will tell you what to do with full needle containers.
18. Thank the child for helping with flushing.
19. Refrigerate the remaining heparin.

Changing the Catheter Injection Cap

The injection cap should be changed regularly. Each cap will only take so many needle sticks before it begins to leak.

If the cap is changed at the time of flushing, the flush is given through the new injection cap.

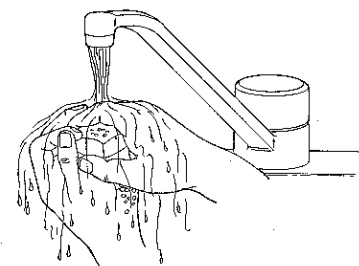
The nurse will tell you how often to change the catheter injection cap. If you are provided with a needle-free system, the nurse will teach you how to use that system.

What you need

- antimicrobial scrub
- new injection cap
- tape
- alcohol pad

What to do

1. Find a quiet place to change the cap, where you will not be disturbed.
2. If the child is active, you will need another person to help keep the child still while you change the cap.
3. Wash your hands with the antimicrobial scrub for 30 to 45 seconds. Wash the entire surface of your hands. Wash under your fingernails, the backs of your hands, your wrists and between your fingers. Rinse completely and dry your



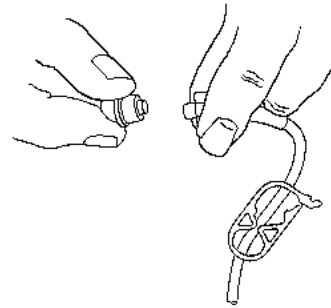
**Wash your hands
for 30 to 45 seconds.**

hands with a clean towel.

4. As you open the supplies, do not touch the parts of the equipment that come in direct contact with the catheter. Keep everything sterile.
5. Be sure the clamp on the catheter is closed and it is on the clamping area on the catheter.

Never take the cap off the catheter without clamping the catheter.

6. Remove tape from around the old cap.
7. Gently take the cap off of the catheter.
8. With the alcohol pad, scrub the connection between the cap and catheter for at least 10 seconds.



9. Without touching the connecting ends, attach the new cap.

Without touching the connecting ends, attach the new cap.

10. Fold each end of the tape over, on to itself, 1/8 of an inch. This makes two tabs that you can grab to remove the tape easily next time the cap is changed.
11. Tape the connection where the cap and catheter meet.
12. Flush the catheter as instructed.
13. Thank your child for cooperating.

Home Supplies for CVC Care

Your nurse or doctor will help you order your child's supplies for CVC care. Use the following form to create a list of what you need for about a month. Plan on one dressing and cap change every week, and a flush in each port twice a day and after each use. Allow for some extras, but order only the supplies you actually need.

- one needle disposal box
- one hemostat (clamp) for each lumen
- ___ pre-filled heparin syringes
- ___ box(es) of 10 mL syringes (50 per box)
- ___ box(es) of 23 gauge needles (100 per box)
- ___ box(es) of heparin 10 units/ml (25 of the 10 mL vials per box)
- ___ box(es) of heparin 100 units/ml (25 of the 10 mL vials per box)
- ___ box(es) of alcohol pads (200 pads per box)
- ___ bottle(s) of antimicrobial skin cleanser
- ___ roll(s) of 1 inch silk tape
- ___ roll(s) of 1 inch paper tape
- ___ pack(s) of ChloroPrep applicator sticks
- ___ injection caps
- ___ sterile water
- ___ box(es) 2"x2" gauze
- ___ transparent dressings, size _____
- ___ box(es) of split sterile gauze (25 pieces per box)
- ___ dressing change kits

Supplies are ordered through: _____

For orders, call: _____

Allow _____ hours notice.

- Supplies will be delivered Supplies need to be picked up

Phone number of child's health care team: _____

Living With a CVC

Safety

- The CVC goes directly into the blood. **Do not put anything in the CVC that does not belong in your child's blood.** Stop and think before you inject anything into the CVC. If you put the wrong thing in (like food, or medicine meant for the mouth), it could hurt or even kill your child.
- A medical alert bracelet or identification can help your child in an emergency. Ask your health care provider about medic alert items.
- Tell your child's dentist about the CVC. Children with CVCs may need to take antibiotics before dental work. During dental work, bacteria can be released into the bloodstream and attach to the CVC to cause an infection. Antibiotics could prevent that. Your dentist and doctor can decide whether your child needs an antibiotic before dental work.
- All people who care for the child should know your child has catheter and how to clamp it. This includes family members, babysitters, school nurse and teachers.
- For the first _____ weeks after the catheter is put in, when you bathe your child, keep the skin dry where the tube enters the body. Plastic wrap can be taped over a gauze dressing or a transparent dressing can be used to protect the site during bathing. If the dressing becomes wet during bathing, change it after the bath is finished.
- Keep all sharp objects, especially pins and scissors, out of the reach of a young child with a CVC.
- Never use scissors near the exit site.
- A T-shirt, a one-piece outfit, overalls or outfits that open in the back can keep your child from playing with the catheter.
- Never leave a young child with a CVC alone when he is undressed.

Activities

- Children with central venous catheters can enjoy most of their usual activities.
- A child with a central venous catheter needs to avoid pressure or blows to the catheter area. He or she should not play contact sports which may hit or pull the catheter.
- Your health care team will discuss swimming guidelines with you.
- Discuss activity restrictions with your child's health care team.

Supplies

- Order supplies before you run out.
- When on a trip, take supplies for catheter care during that time.
- A dressing change may occasionally be necessary at school. Keep catheter care supplies and catheter care instructions with the school nurse.

Coping

- If your child does not like the smells of the medicines of catheter care, you can:
 - before catheter care, show the child the items that smell and how they kill germs
 - have your child turn his or her head to the side, away from the catheter care activity
 - use a small fan to blow the smells away from your child's face, being careful not to blow germs around the dressing
 - let your child chew gum, suck candy or smell a cotton ball with perfume during the procedure
 - involve your child in the procedure. Can he or she help to remove an old dressing safely?
- If you flush with normal saline after a medicine, push the fluid in slowly. If pushed in too fast, some children feel dizzy or can taste metal or salt.

When a child is diagnosed with a serious condition, parents often feel out of control because they don't understand everything that is happening to their child. This crisis occurs because old ways of coping don't work in this new situation.

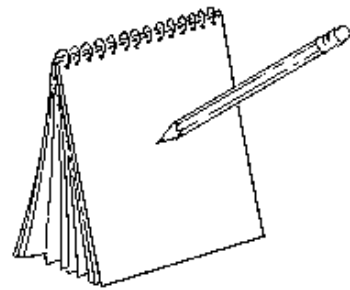
But there are things you can do to get through this overwhelming time:

- Learn about the medical condition and the treatment options. Ask questions about the things you don't understand. Keep asking the questions until you understand the answers.
- Master the home care techniques. Caring for your child can help you regain your sense of control over the situation.
- Express your feelings and concerns. When you are in the middle of a crisis, you may feel all alone. But you are not alone. Talk to your family, your friends and your support group. Talk to your child's nurses, doctors and other members of the health care team. Talk to other parents who have children with CVCs. Talk to your clergy person, your doctor and your therapist. Talk to your child. Talk to your other children.



Ask questions again until you understand the answers.

- Write down questions as you think of them. Ask your health care team all of your questions. Ask questions over again until you understand the answers. No question is stupid. When you don't get the answers you need, you may feel you won't be able to take care of your child. When you understand what to do, you can feel more in control over your situation.



Write down questions as you think of them.



- If you have any questions, ask your child's health care team. After you leave the hospital, your health care team can answer your questions during your follow-up office visits, or you can call them. Also, a nurse may visit your home to see how you are doing and answer any new questions you have.

Dealing With Problems

If the catheter stops working, or causes discomfort, the child will have to return to the doctor's office or hospital to have it checked. Problems may include an out-of-place catheter, a plugged catheter, damage to the catheter and infection.

Out-of-Place Catheter

- Always tape the catheter securely.
- To avoid catheter dislocation, don't twist or pull on the catheter.



- If you notice the cuff is coming out or the catheter is hard to flush, call your child's health care team during office hours.

A Plugged Catheter

- If the catheter is impossible to flush using normal flushing pressure, it may be plugged.
- Flush the catheter regularly, and every time you use it, to prevent plugging.
- Catheters may become plugged by blood clots or mineral precipitates.
- Never use force to flush the catheter. The pressure could loosen a plug so it is free to block a blood vessel. Forceful pressure could even break the catheter.
- A plug in the catheter can be treated by the doctor with medicine that dissolves the plug.



- If the catheter is impossible to flush, call your child's health care team.

Damage to the Catheter

- Don't use scissors, pins or other sharp objects near the catheter.
- Clamp the catheter only on the clamping site.
- Keep spare clamps with you at all times.
- If you see any leaking of blood or fluid from a catheter tear or hole, or if the tubing balloons out, clamp the catheter between the damaged area and the exit site.
- If the catheter is torn, clamp above the tear. If the end of the catheter is off, clamp, then place the end of the tubing in an open alcohol pad package. Fold the package closed around the tubing to keep it clean until you can see the doctor.
- Repairs can be made on damaged central venous catheters.



- The tube should be repaired as soon as possible because of the risk of infection. Call your child's health care team.

Infection

- Examine the catheter exit site with each dressing change for signs of infection.
- Signs of infection can be:
 - drainage or oozing, such as pus
 - swelling
 - tenderness, soreness
 - warmth
 - pain
 - redness at the exit site
 - redness along the catheter path beneath the skin
 - a temperature above 101° F orally (check with your health care provider)
 - odor from the exit site



- If you notice any of these signs call your child's health care team.

Catheter-Related Emergencies

- Call your child's health care team right away if your child has any unusual and severe:

- shortness of breath
- chest pain
- dizziness
- confusion



- If you have any questions or concerns about these, or other situations, call your child's health care team.

Words to Know

antimicrobial scrub	A liquid soap that is made to kill germs. Examples are Dial, Safeguard, Hibiclens, povidine-iodine scrub and sephsoft.
Broviac	The name brand of a central venous catheter.
CVC	See central venous catheter .
catheter	A flexible tube put into a blood vessel to withdraw or inject things like medicine or fluids.
catheter cuff	Just below the exit site, under the skin, is the CVC's catheter cuff. It looks soft and fuzzy like cotton, and is made of Dacron. Within 3 to 4 weeks of catheter insertion the fat tissue under the skin grows into the cuff. The seal that is formed helps to hold the catheter in place and acts as a barrier to stop germs on the skin from traveling to the bloodstream.
central venous catheter (CVC)	A thin tube made of soft, flexible rubber-like material (silicone) put into a major vein ("central venous") to withdraw or inject things like medicine or fluids.
clamping sheath	The area on the catheter where the clamp may be safely pinched on the catheter.
cuff	See catheter cuff .
dressings	A covering placed over the site where the catheter exits the child's body. It helps to keep germs from getting under the skin.
exit site	The catheter is tunneled just under the skin to another incision called the exit site. The catheter comes out of the child's body at the exit site.

heparin	A medicine that prevents the blood from clotting. This is one of the medicines in a group called anticoagulants.
heparinization	The process of putting heparin into the catheter to prevent the blood from clotting between uses.
Hickman	The name brand of a central venous catheter.
IV	See intravenous.
inflammatory response	The body's response to invasion and germs. The inflammation includes redness, swelling, warmth and germ-fighting blood cells. Some illnesses and medicines lower the body's response to germ invasion. The infection may be there, but you don't know it because you can't see the inflammatory response.
insertion site	The incision near the child's collarbone where the catheter is put in.
intravenous (IV)	Inside the vein.
lumen	The opening at the end of the catheter. Central venous catheters can have either one or two lumen.
neutropenia	A low supply of white blood cells. White blood cells kill germs.
port	The end of the CVC tubing with the cap, where the needle is inserted. Catheters may have one, two or three ports.
skin breakdown	Irritated skin that is red, sore or broken. When skin breaks down, germs can get through and cause an infection.

sterile

There is nothing living on the object. It means there are absolutely no germs at all. Your skin cannot be sterilized and still be alive itself. It can only be disinfected, where most of the germs on it are killed.



If you have any questions or concerns,
 call your child's doctor or call _____

If you want to know more about child health and illness,
visit our library at The Emily Center at Phoenix Children's Hospital
1919 East Thomas Road
Phoenix, AZ 85016
602-546-1400
www.phoenixchildrenshospital.com

Disclaimer

The information provided at this site is intended to be general information, and is provided for educational purposes only. It is not intended to take the place of examination, treatment, or consultation with a physician. Phoenix Children's Hospital urges you to contact your physician with any questions you may have about a medical condition.

Tuesday, April 29, 2008 • DRAFT for Family Review
#197 • Written by Fran London, MS, RN and Esther Muñoz, BSN, RN • Illustrated by Dennis Swain



How to Care for Your Child's Central Venous Catheter

Procedure/Treatment/Home Care
Si usted desea esta información en español,
por favor pídasela a su enfermero o doctor.

Name of Health Care Provider: _____ Number: 197
For office use: Date returned: _____ db nb

Family Review of Handout

Health care providers: Please teach families with this handout.
Families: Please let us know what you think of this handout.

Would you say this handout is hard to read? Yes No
easy to read? Yes No

Please circle the parts of the handout that were hard to understand.

Would you say this handout is interesting to read? Yes No

Why or why not?

Would you do anything differently after reading
this handout? Yes No

If yes, what?

After reading this handout, do you have any
questions about the subject? Yes No

If yes, what?

Is there anything you don't like about the drawings?

Yes

No

If yes, what?

What changes would you make in this handout to make it better or easier to understand?

Please return your review of this handout to your nurse or doctor or send it to the address below.

Fran London, MS, RN
Health Education Specialist
The Emily Center
Phoenix Children's Hospital
1919 East Thomas Road
Phoenix, AZ 85016-7710

602-546-1395

flondon@phoenixchildrens.com

Thank you for helping us!