



MODIFIED ON: OCTOBER 2024

Central Venous Catheter Care Manual

A helpful resource for your family

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Nti: O buru na asu Ibo, asusu aka oqasu n'efu, defu, aka. Call 1-720-777-1234.

CCBD-140974B-2020-2010

This book belongs to:

My child has a _____ (type) line in their
_____ (location of the body).

This central line is used for _____.

The medical team managing my child's line is _____.

If you have questions about your child's central line you can call the Parent Smart Health Line at 720-777-0123

Company delivering supplies and IV medicines _____;
phone number _____;
contact person/direct phone number _____.

Company providing nursing support at home _____;
phone number _____;
contact person/direct phone number _____.

**If your child is under 5 years old, ask about the Gus Gear vest for chest CVCs.*

Compiled and approved by Children's Hospital Colorado CVC line Steering Committee

Important Phone Numbers:

If you have questions or concerns, please call:

- Your child's doctor or care team
- The Parent Smart Nurse line: 720-777-0123

Watch the central line videos

Scan the QR code below to watch the videos on YouTube:



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What is a Central Venous Catheter?

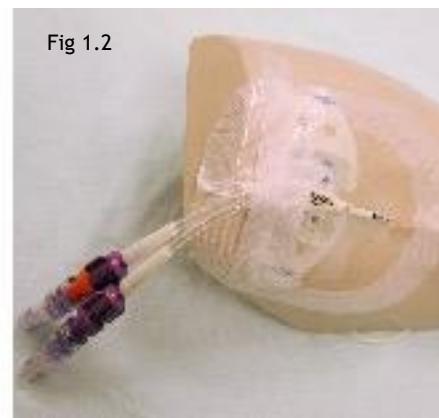
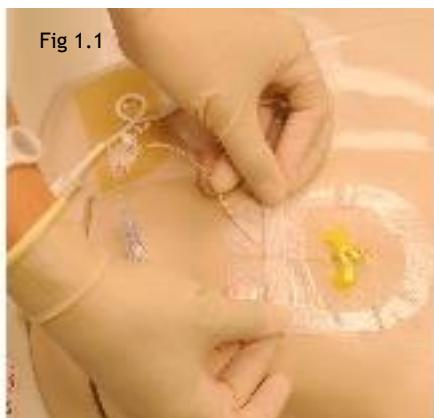
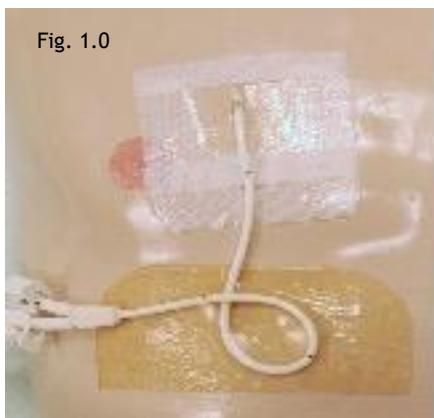
Helpful tips about CVC care



What is a Central Venous Catheter?

A central venous catheter (CVC) or central line is like a permanent IV. This tube is put into the body to deliver medicine and fluids to the heart, so it can be moved to the rest of the body quickly. It can also be used to draw blood for lab work. Most of the time the CVC is put in during surgery, however sometimes it is put in while the child is awake. The CVC goes straight into the heart, so we have to be very careful when caring for the line to make sure it does not get an infection. Your nurse will show you how to properly care for the central line.

Some common types of CVCs used at Children's Hospital Colorado are Broviacs (Fig. 1.0), Mediports/Powerports, (Fig. 1.1) and Peripherally Inserted Central Catheters (PICC's) (Fig.1.2).



What is a central line-associated bloodstream infection (CLABSI)?

A central line-associated bloodstream infection (CLABSI) is an infection that can happen when bacteria or other germs enter the blood of a child with a central line. If a child gets a CLABSI, they may get a fever and chills and become very sick. This infection is considered an emergency, even though it is well treated with medicines. The area around the central line may or may not look red and irritated with a CLABSI.

Increased risk of infection

A CVC puts a child at an increased risk of getting an infection. Even if you do all the right steps in caring for your child's central line, it can still get infected. The most important thing to do is call your child's doctor right away when your child has fever, redness at the CVC site, or any type of illness. We will help you with the next steps on what to do.

How are CLABSIs treated?

This type of infection is treated with medicines through the CVC, usually antibiotics. Sometimes, the CVC may need to be removed.

What can you do to reduce the risk of CLABSI?

- Clean your hands and put on clean gloves every time you touch the CVC or handle supplies to help prevent infection (Fig. 1.3).
- Use soap, running water and friction (or use hand sanitizer and friction) for 15 seconds to wash your hands. Use a clean towel or paper towel to dry.
 - If your hands are not visibly dirty, you can use a hand sanitizer – using friction until your hands are dry.
 - The most important thing about cleaning your hands is to use a lot of friction when rubbing them to make sure they're clean.
- If the dressing gets dirty, wet, or is peeling off do a sterile dressing change, or call the clinic or your homecare nurse right away.
- Change the dressing, caps, and tubing at the scheduled times.
- Do not have **fake nails**, gel, shellac, or chipped nail polish (Fig. 1.4).
- Do not do any central line care in the kitchen or bathroom and if you have pets be sure to keep them out of the room.
- Brush your teeth twice a day - using a soft bristle toothbrush or toothette.
 - Talk to your child's care team before going to the dentist
- Take a bath or shower every day.
- Put on clean clothes and underwear every day.
- Change bed sheets every week.
- Change towels used for bathing at least twice a week.
- If a Gus Gear vest is used to secure the line, wash it every day. You should have 2 vests to allow for daily washing.
- Change Bandnet with every bath.
- Keep supplies in a clean, dry place like a dresser or closet.
- Limit the number of times you use the CVC.
 - This may mean getting a finger poke when labs are needed.
- Decide each day if the CVC is still needed and remove it as soon as possible, if it's not needed.



Fig. 1.3



Fig. 1.4

Helpful tips about CVC care

- If your child is allergic to any of the supplies needed, please let your nurse know. We can help find a product that works best for your child.
- When your child is at home, they should continue normal activities, but try to avoid rough-housing or forceful movement. We want to make sure the CVC does not accidentally get pulled out.
- Please only use the provided clamps near the line. These should only be used when there is a tear in the line, causing it to leak. Your nurse will show you how to use them.
- **Do not let anyone touch the CVC unless they are familiar with how to use it.** If you go to another hospital, take a copy of the steps of how to care for the CVC with you. It is okay if they choose to follow their own procedure instead.
- A home care company will be chosen before your child leaves the hospital. They will deliver supplies and equipment you will need to care for the line. To get more supplies, contact your home care company.

Emergencies



Emergencies

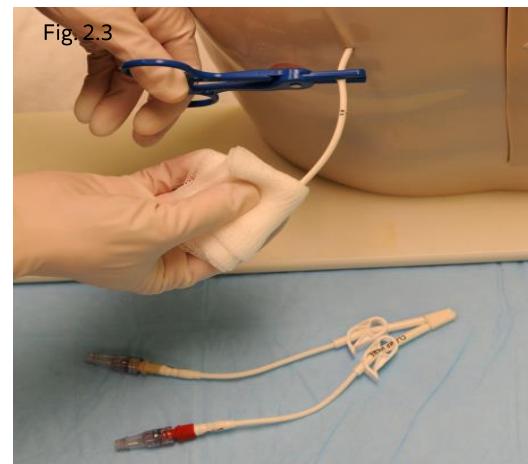
Keep emergency supplies with you at all times, especially if you live outside the Denver Metro area.

Call your child's doctor or go to the Emergency Room right away for any of the following:

- Fever of 101°F (38.3°C) or higher at **any time** OR
- Fever of 100.4°F (38°C) or higher **two times** in 24 hours (taken 2 hours apart)
- If your child is followed by the GI team, fever criteria is 100.4°F (38 °C) or higher 1 time
- Swelling of chest, neck, face, or arm
- Cannot flush the CVC (**don't force it**)
- Pain, redness, or swelling at the site
- If the CVC falls out, immediately put pressure on the insertion site with a sterile gauze and put a sterile dressing over it - and call right away! (Fig. 2.0)
- If the catheter is leaking, clamp the catheter with a blue clamp (hemostat) between your child and the leak and **call right away!** (Fig. 2.1)



- Never use scissors or sharp objects near the CVC! (Fig. 2.2)



- If the CVC breaks, clamp above the broken area and call the doctor. (Fig. 2.3)

- If the PICC line gets longer or shorter, or falls out, **do not push it back in** (Fig. 2.4). If it completely comes out, put sterile gauze and dressing over the site and call the doctor right away or go to the Emergency Room! (Fig. 2.5).

Fig. 2.4

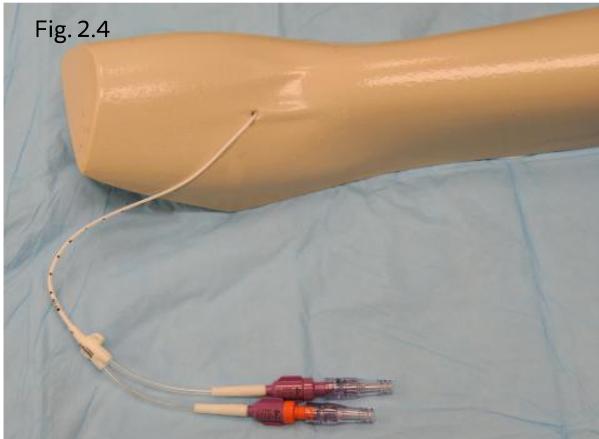
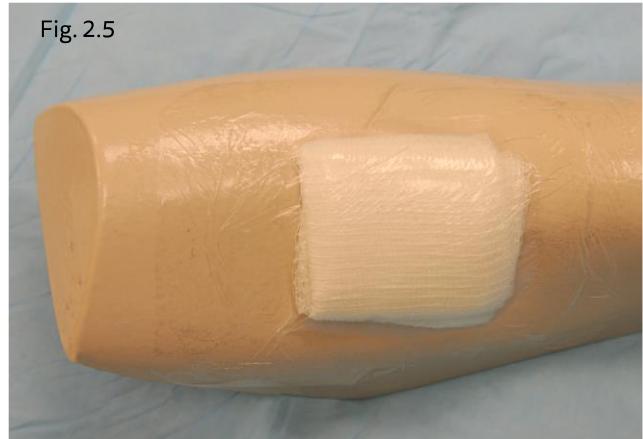


Fig. 2.5



Entering and Flushing the Catheter



Entering and Flushing the Catheter

General information

Each CVC lumen or tube must be flushed at least 1 time a day to keep the line open and flowing well. If you are not using the CVC at home, you still need to flush 1 time a day with Heparin only (see schedule below). If you are using the CVC to give IV fluids, TPN/lipids or medicine, you will use the SASH method for flushing (see page 14).

CVC Flushing Schedule/Volume for Daily Heparin Flushes

CVC device	Volume	Frequency	Solution
Tunneled & Non-Tunneled CVCs (Broviac, Cook)			
Less than or equal to 10 kg (22 lbs)	1-2 ml	Daily	Heparin 10 units/ml (Prefilled Syringe)
Over 10 kg (22 lbs)	3-5 ml		
PICC Lines			
Less than or equal to 10 kg (22 lbs)	1-2 ml	Daily	Heparin 10 units/ml (Prefilled Syringe)
Over 10 kg (22 lbs)	3-5 ml		
Implanted Venous Ports (Mediport/Powerport)			
Less than or equal to 10 kg (22 lbs)	1-2 ml	Daily	Heparin 10 units/ml (Prefilled Syringe)
Over 10 kg (22 lbs)	3-5 ml		

CVC Flushing Supplies

1. Alcohol wipes
2. Normal saline and/or heparin syringe
3. Clean gloves



How to Flush a CVC

1. Wash Hands for 15 seconds or use hand sanitizer.



2. Put on clean gloves.



3. Open the normal saline or heparin packaging.



4. Take cap off the syringe, pull back plunger then push out the air bubble, put the cap back on. (Remember, only touch the sides of the blue cap, not the part that attaches to the syringe.)



5. Clean the cap with friction for 15 seconds, let it dry for 15 seconds. **DO NOT** touch the tip of the cap after it's been cleaned.



6. Attach the syringe to the cap, unclamp the line, flush using the push-pause method. Clamp the line then remove the syringe.



SASH Method

When giving IV fluids, TPN/lipids or medicine at home, use the SASH method:

clean Saline clean Administer (give) medicine clean Saline clean Heparin

The reason you'll flush in between the medicine and heparin is to make sure they don't mix together. If the medicine is flushed with heparin, it may cause the medicine not to work.

REMEMBER: Clean with a new alcohol pad in between each step!

Important Reminders

- Always wash your hands or use hand sanitizer and put on clean gloves before touching the CVC.
- Always clean the clear cap on the end of the CVC with a new alcohol wipe before connecting anything to it (flushes, medicine, tubing, etc.).
 - Scrub the cap with alcohol for 15 seconds and let it dry for 15 seconds. The alcohol works best when it dries completely, so don't skip that step! This is different than in the hospital.
- Each lumen or tube must be flushed separately.
- Always use 5-10 ml syringe for flushing any CVC, no smaller, no bigger.
- Always use the push-pause method when flushing. Push a little fluid and then pause, this helps make sure clots do not form on the line.
- If it feels difficult to flush the line and you feel like you need to use force to flush it, **STOP! Don't flush it**, there might be a clot in the line. Close the clamp and call your child's doctor.

Alcohol Caps

- Alcohol caps are an added layer of protection for the end of the line, but the line is not considered to be open if these are not used.
- Not all hospitals and home care companies use alcohol caps.
- If you're using alcohol caps on the end of the CVC when it's not being used, you should still clean with alcohol after removing them.
- Each alcohol cap should only be used 1 time, so throw it away after removing it.



Changing the Cap



Changing the Cap

General Information

The clear caps on the end of each CVC lumen or tube must be changed 2 times a week or sooner if they get dirty. Pick 2 days that are a few days apart, such as Monday and Thursday, and change the caps on those 2 days every week.

- Make sure you do not go more than 4 days without changing the cap.
- If your child has IV fluids or medicine running continuously (all the time), change the tubing and cap together.
- Cap changes at home are done using clean technique which is different than in the hospital.

Important

If the clear cap looks dirty (with poop, throw-up, blood or you noticed it's in the diaper or toilet) change the cap right away. If you accidentally touch any materials when you are changing the cap, throw the dirty supply away and start again.

If the end of the line without a cap is accidentally touched, DO NOT clean it with alcohol. Instead, carefully replace the cap with a new, clean one right away.

Outpatient and Home Care Cap Change Frequency

CVC is being used for:	Change frequency
Daily flushes or medicine	2 times a week
IV Fluids given continuously (running all the time)	2 times a week
IV Fluids given intermittently (not running continuously)	2 times a week
TPN	2 times a week
Lipids	2 times a week
Chemotherapy	2 times a week
**Any cap that looks dirty	Change right away

Cap Change Supplies

1. Clear cap
2. Sterile, normal saline syringe
3. Heparin 10 unit/1ml Syringe
4. Clean Gloves
5. Mask



How to Change a Cap using Clean Technique

1. Put on mask, for you and your child (and any helpers).



2. Wash hands for 15 seconds and put on clean gloves.



3. Open heparin packaging.



4. Take cap off heparin, push out air bubble, put cap back on.



5. Open cap packaging from the bottom side and attach heparin syringe.

- Make sure to keep the packaging on the cap as best as possible.



8. Take the old cap off the line.



9. Quickly put the new cap on the line.



10. Unclamp the line, flush with heparin. Clamp the line then remove the syringe.



Tubing Change



Tubing Change

General information

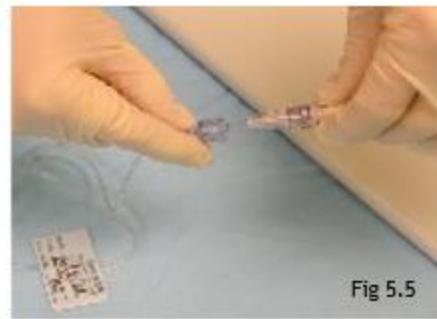
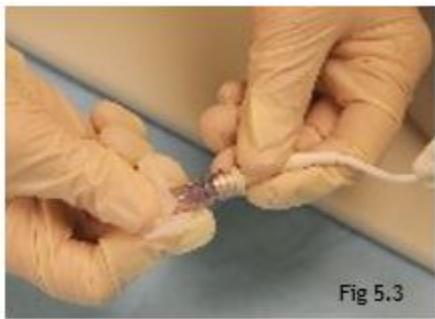
The tubing used for your child's infusion will need to be routinely changed. Depending on what your child is getting through their central line, the tubing may need to be changed with each new bag of medicine or fluids, or it will need to be changed twice a week with their cap changes. Please follow the instructions provided by the home care company providing your infusion supplies.

Tubing change procedure

1. Wash hands with soap and water or use hand sanitizer for 15 seconds. Make sure to rub your hands really well so they are completely clean (Fig. 5.1).
2. Put on clean gloves (Fig. 5.2).



3. Clamp CVC.
4. Remove the old IV tubing.
5. Scrub the cap with an alcohol wipe for 15 seconds and let it dry for 15 seconds. Don't forget to use friction. (Fig. 5.3). Remember: if anything gets touched after it's cleaned, clean again, or throw the dirty supply away.
6. Follow the "Flushing the Line" steps and flush the line with normal saline. (Fig. 5.4).
7. Remove syringe and clean the cap again with a new alcohol wipe for 15 seconds and let it dry for 15 seconds..
8. Remove the protective cap from the end of IV tubing.
9. Attach the primed IV tubing to the cap (Fig. 5.5).



10. Unclamp the CVC.
11. Start the infusion pump.

If you have any questions about the pump, please contact your home care company.

Changing the Dressing



Changing the Dressing

We recommend PICC line dressing changes be done by a trained professional.

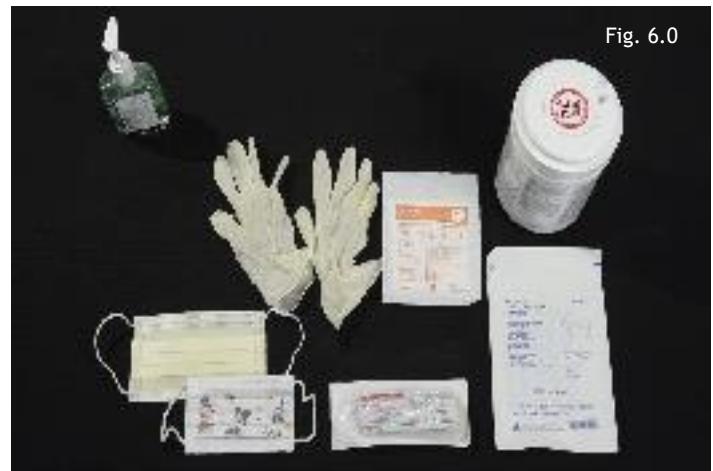
If you have been specially trained to do your child's PICC line dressing changes, do this with at least 2 people. One person will hold the child; one will do the dressing change.

General information

- CVC dressing changes are done using sterile technique.
- Chlorhexidine (ChloraPrep®) is the cleaning agent used to clean the area where the dressing is placed.
 - If your child has an allergy to Chlorhexidine there are other cleaning products we can try.
 - Please ask your child's doctor or nurse for more information.
- Clear dressings are preferred for all CVCs.
 - Dressings are changed every 7 days or if it is wet, dirty, or peeling off.
 - If you notice the dressing is peeling off, it needs to be changed right away.
 - Gauze should not be put under the dressing unless the site is oozing. If gauze is used, change the dressing every 2 days.
- Do not scrub too hard on a new dressing site, but friction is important!
- PICC dressing changes should be done ONLY by a nurse or trained professional. This is because, unlike the other CVC, the line can easily be pulled out. If you notice it's pulled out, DO NOT try to put it back in; call your child's doctor right away!

Dressing change supplies (Fig. 6.0)

1. Clean Gloves
2. Sterile Gloves
3. Mask for caregiver, helpers and child
4. Clear Dressing
5. Chlorhexidine (or other cleaning agent)



How to change a dressing using sterile technique

1. Clean surface area (table) for sterile field.
2. Put on mask, for you and your child (and any helpers).



3. Wash hands for 15 seconds and put on clean gloves.



4. Set up sterile field (sterile gloves, ChloraPrep, dressing). Be sure to only touch the inside of the gloves. After you have the sterile gloves on, only touch the dressing supplies.



5. Take off old dressing (you may use adhesive remover) and check site for oozing, redness, bleeding, skin breakdown, rash.



6. Wash hands for 15 seconds.



7. Put on sterile gloves.



8. Clean the CVC area for 30 seconds using a back-and-forth motion. Starting where the line goes into the skin and working your way out.



9. Let dry (this takes about 2 minutes).

10. Apply dressing and tape for extra security.



Living with a Central Line



Bathing and Showering

General information

For baths: only fill the tub to your child's waistline or lower to make sure the water is away from the CVC.

For showers: keep the water spraying on your child's back, away from the CVC.

- There are 2 things that are available to cover the dressing during a bath or shower: Aquaguard® which is available in the hospital and GLAD Press'N Seal® which can be bought at the store and used at home. Sometimes home care companies will give you Aquaguard® to use at home.
- Always cover your child's CVC site, even if you will be changing the dressing after the bath or shower.
- If your child is connected to tubing, make sure to hold the tubing out of the water so that it does not get wet.
- If your child is wearing a Gus Gear vest, take it off before their bath or shower. Make sure their skin is dry before putting on a clean vest.



Using GLAD Press'N Seal®

1. Take a piece of GLAD Press'N Seal® that will be large enough to completely cover the site. (Fig. 11.1)
2. Wrap the caps with GLAD Press'N Seal® to make sure they stay dry.
3. Pull the caps up to the dressing, so they are not hanging out of your covered area.
4. Put GLAD Press'N Seal® over the CVC dressing, covering the dressing and caps. (Fig. 11.2)
5. You may need to use some tape around the edges to make sure the GLAD Press'N Seal® forms a tight seal on the skin.
6. Pat dry the body and site with a clean dry towel, before removing the GLAD Press'N Seal®.
7. Remove the GLAD Press'N Seal® after the bath or shower is finished.
8. If CVC dressing seems wet, change it right away.



Fig 11.1



Fig 11.2

What if my child is on continuous intravenous (IV) fluids?

- If your child is on continuous IV fluids and they can be stopped for the time of the bath, disconnect the fluids to make sure the site is fully covered for the bath or shower.
- If you are not able to disconnect the IV fluids, use GLAD Press'N Seal® to cover the site and cover all the IV connections near the site (Fig. 11.3).
- Use small pieces of GLAD Press'N Seal® to wrap around the IV connection (Fig. 11.4).
- Remove the GLAD Press'N Seal® after the bath or shower is finished.



Fig. 11.3



Fig 11.4

Swimming

Tunneled Central Venous Catheters (Broviacs, Hickmans) and PICCs

Children may not swim or soak in any water. They should only participate in water activities when the chance of getting soaked or wet is low. (Example: fishing on a boat or water bank; but may not go rafting). The line and caps must be covered when doing these activities.



Securing the CVC

What is Gus Gear?

Gus Gear is a soft fabric vest that is used to protect a CVC placed in your child's chest. It helps prevent the line from accidentally being pulled out.

Your child may use Gus Gear if:

- They have a CVC in their chest.
- They are 5 years old and younger.

Stop using Gus Gear if your child:

- Shows signs of sensitivity (redness, irritation, hives).
- Has skin breakdown or pressure sores under their vest.
- Is getting Thiotepa chemotherapy.

How do I care for my child with Gus Gear?

- Look at the CVC site frequently by opening 1 strap and lifting the side of the vest. **Take the vest off right away if your child has irritation or pressure sores.** Move the tubing so it is sitting in a different place. This helps prevent pressure sores.
- Do not let the vest get wet or dirty. Take the vest off right away if it is wet or dirty.
- Wash the Gus Gear vest every day.
 - Vest must be machine washed with cold or hot water.
 - Let the vest air dry. **Do not put it in the dryer.**
- Read the Gus Gear manufacturer instructions for how to put on and take off the vest.

For more information, scan the QR code or visit the following websites:

- Gus Gear website: <https://gusgear.net/product/central-line-vest/>



- Gus Gear video: <https://youtu.be/XyyiGQ1ReK4>



Common Questions



Common Questions

Questions to ask about your child's central line:

How long will this line be in for?

Who will take the line out when it's ready?

Who is the team that will manage the line?

What is the line being used for?