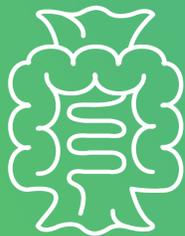




**TRANSPLANT UNWRAPPED
PRESENTS:**

A Caregiver's Guide to Central Venous Catheters (CVCs)



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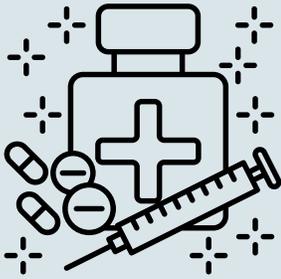
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The Basics

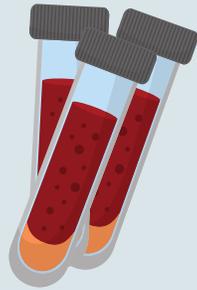
What is a central venous catheter (CVC) or central line?

A thin tube inserted into a large vein that goes just up to or inside the heart.

Uses of a Central Line



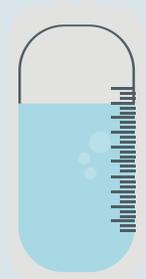
Give Medicine



Draw Blood



**Provide Nutrition
(Parenteral Nutrition)**



Give Fluids

Types of Central Lines

Tunneled Catheter:

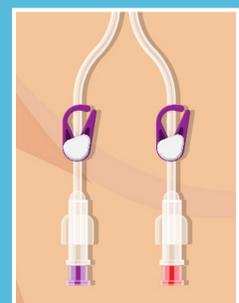
- The catheter is passed under the skin. This helps stabilize the line and makes it useful for long-term therapy.
- Central lines can have one or more lumens (access points).
- Examples: Hickman®, Broviac®, Port-a-Cath

Non-Tunneled Catheter:

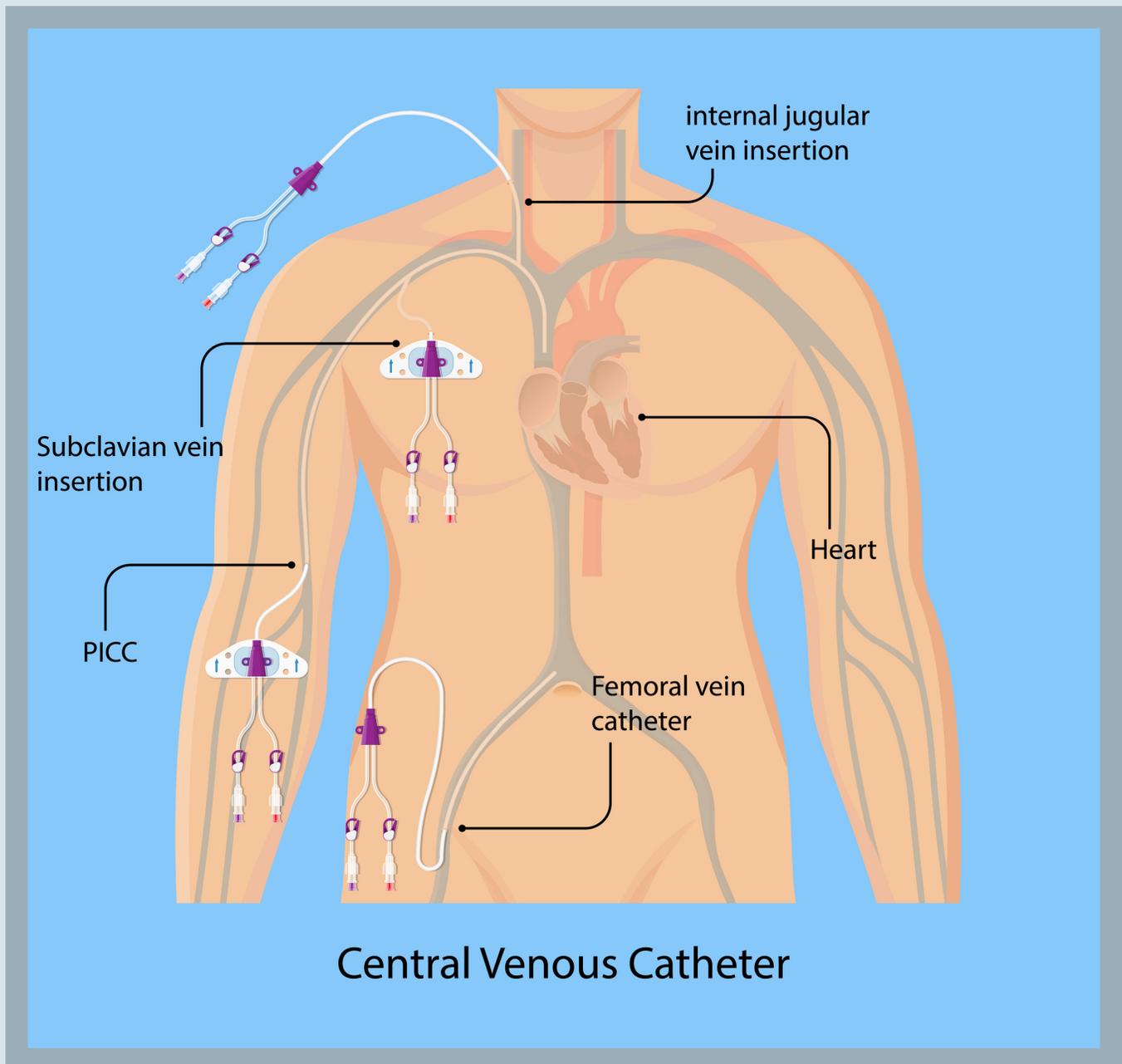
- Short-term use.
- Placed in a large vein of your child's arm, neck, groin, or leg.
- Example: Peripherally Inserted Central Catheter (PICC)

A note about multiple central line lumens:

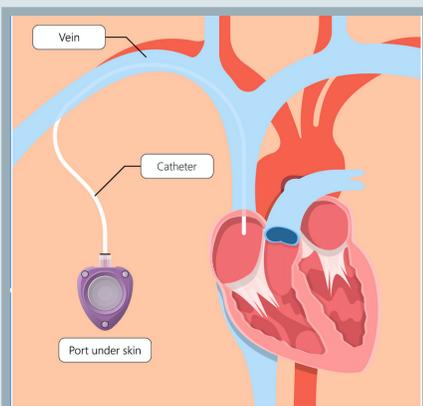
Multiple central line lumens (access points) increases the risk for infection. If possible, the ideal central line has one lumen. To help prevent infection, be sure to change your child's lumen end caps at least once per week, or as recommended by your child's care team.



Types of Central Lines



Note: The PICC and Internal jugular CVC are non-tunneled, short-term options. The subclavian vein insertion is a tunneled central line for long-term use.



This is a picture of a **Port-a-Cath**, a type of tunneled central line. The port itself is placed under the skin and accessed as needed. When not accessed, a port must be flushed occasionally, but otherwise do not require care. A port can have multiple lumens (access points) and can be used long-term.

Central Line Placement

How is a central line (tunneled) inserted?

- During surgery, the surgeon inserts the tip of the catheter under the chest skin and tunnels it into a large vein that goes to the heart.
- 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.

How can I help prepare my child for a central line?

- Use simple words to explain why the catheter is needed and what to expect.
- Use age-appropriate detail and terminology.
- Explain the procedure beforehand, especially what your child will see, hear, and feel. Depending on the age of your child, preparation may begin days or weeks in advance.
- Speak with your child's care team and child life specialist if your child has anxiety about the upcoming procedure. They can help prepare your child, such as giving them a tour of the hospital.
- Instruct your child on what is expected ahead of time, such as, "Your job is to hold still while I change the dressing."
- Be honest.
- Stress hand-washing and infection prevention.

Infection Prevention Tip from Melinda, Patient and Pediatric Caregiver

Showering with a Central Line

I used to wrap press and seal around my daughter's chest to seal out water from showering or running through the sprinkler, but water seemed to always leak in if it was not taped well. It was not the best way to keep water from getting her line wet. Now she showers with a Tegaderm on, and we change her dressing immediately after her shower. This makes it, so water does not cause infection from having a wet dressing/bandage on her central line.



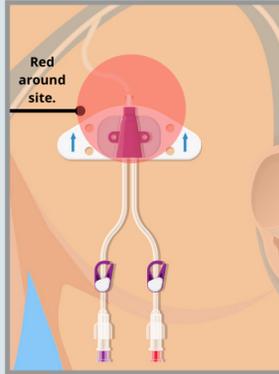
Central Line Infection

Central lines bring an increased risk of infection for your child. A **Central Line-Associated Blood Stream Infection** or **CLABSI** occurs when bacteria grow in your child's catheter and travels to the bloodstream. This can be very serious and life-threatening.

Signs and Symptoms of Central Line Infection



Fever (>100.4 degrees) and Chills



Redness, Swelling, or Warmth Around Central Line Site



Pain or Tenderness Around Line

Preventing Central Line Infections

Setting up a Workspace for PN and Central Line Dressing Changes:

- Select a clean, dry, hard surface away from busy household traffic, such as a bedside table or countertop. Avoid using bathrooms as they have a higher number of germs.
- Always prepare the area first by wiping the hard surface with a disinfectant cleanser (such as Lysol®, Chlorox®, or another brand). Once cleaned, do not touch the surface with "dirty" hands.
- Keep all pets and other family members away from the prep area when in use.

Other Important Tips:

- Some pieces of the supplies are sterile. **Sterile** means that all germs have been removed by a special cleaning process.
- **Never touch sterile parts with your hands** or allow a sterile item to contact a non-sterile surface. Wear sterile gloves and a mask when changing your child's dressing. It would be best if you had your child wear a mask, too.
- Always wipe off the end cap of the line with an alcohol swab before, between, and after each use or flush.

Preventing Central Line Infections

Most Important: Handwashing!



1. Wet hands with water.



2. Apply soap.



3. Rub your hands palm to palm.



4. Scrub your fingers.



5. Clean the back of your hands.



6. Clean around each thumb.



7. Clean under your fingernails.



8. Rinse your hands with water.



9. Completely dry your hands.

Handwashing Tips:

- Anyone that handles your child's central line must be vigilant in handwashing.
- **Remind your child about handwashing as often as needed.** Most children will wash their hands if dirt or grime is obviously on their hands (i.e., covered in mud or fingerpaints), but do not consider the germs that cannot be seen. Small reminders about washing away these 'invisible germs' is important in promoting handwashing and infection prevention.
- Teach your child to wash for 20 seconds: Sing the ABCs or Happy Birthday twice.
- If soap and water are not an option, use an alcohol-based hand sanitizer (Purell® or another brand) according to directions.

My Child's Central Venous Catheter (CVC)

Circle What Fits Your Child

Type of Central Venous Catheter: **Catheter Features:**

Hickman®

PICC

Single Lumen

Broviac®

Other:

Double Lumen

Port-a-Cath

Triple Lumen

Power Injectable

Date of Insertion: _____

Clinic/Hospital

Who Inserted Line: _____

How often should I change my child's dressing?

How often should I change the caps on my child's line?

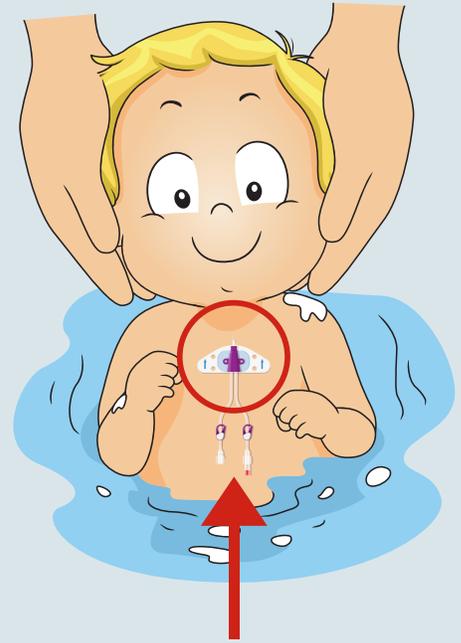
When should I flush my child's line?

- After infusing medicines, parenteral nutrition (PN), or fluids
- After drawing blood
- At least every 24 hours
- Other: _____

Important Considerations

Bathing and Showering

- Cover your child's line with a waterproof dressing.
- If the transparent dressing becomes wet, replace it immediately.
- For babies, bathe in an infant tub with a low level of water. Make sure the water is shallow enough to avoid touching the line.
- For toddlers who sit independently, fill a bathtub with a low level of water, but do not submerge line in the water. Avoid pouring water over the line.
- For older children that can stand, use a shower with your child facing away from the water stream and tilting their head back to wash their hair. Avoid water directly hitting the line.



Do not submerge the central line.

Physical Activity



- Your child should be able to participate in most activities. It is usually recommended to avoid contact sports and rough play.
- The most important thing to remember is to always attach your child's catheter to their skin or clothing to prevent accidental dislodgement.
- If you are unsure about a particular activity, such as swimming, please consult your care team.

Ordering and Handling Supplies

- Your child's supplies will be ordered through a home care pharmacy. Your care team will help to set this up before your child leaves the hospital.
- Be sure always to have the home care pharmacy number on hand and a list of what supplies are needed.
- Pay attention to expiration dates and storage instructions; certain items like parenteral nutrition (PN) and heparin syringes only last for 7 days.
- PN, multivitamins, and some other medications must be refrigerated.
- Many patients and caregivers have a separate mini refrigerator for storing these items.

Troubleshooting Central Line Problems

● **Problem:** Line will not flush. ●

Possible Causes:

- The line is clamped.
- The line or tubing is kinked.
- There is a clot or blockage in the line.

Prevention:

- Flush the line frequently and as directed by your care team.

What to do:

- Unclamp it.
- Remove the kink.
- If the line is not kinked or clamped, do not force the solution into the tube. Call your care team or home health company immediately.

● **Problem:** Tenderness, redness, or pus at the line insertion site. ●

Possible Cause:

- Infection

Other Signs:

- Fever
- Poor appetite
- Decreased activity, sleeping more.

What to do:

- Call your care team **right away**.
- Check your child's temperature.

Prevention:

- Always wash your hands when handling the line.
- Use sterile (germ-free) supplies.
- Change dressing if it is wet or loose.
- Secure line to stop it from dangling.

Infection Prevention Tip from Melinda, Patient and Pediatric Caregiver

Encourage play, but ensure your child's central line is secure.

- When my daughter began going to school, I was very careful about making sure her central line was taped down very securely, so it didn't accidentally get pulled out as she played. We bought multiple white tank tops and taped the line to the shirt. This helped so the tape would not irritate her skin.

Troubleshooting Central Line Problems

Problem: Leakage or Breakage.

Signs:

- Liquid leaking from anywhere along tubing or line; dressing is wet after flushing line.

What to do:

- Clamp the line above the point of leakage or breakage.
- Call your child's care team immediately.

Prevention:

- Never flush against resistance.
- Do not use sharp objects, such as scissors, around the line.
- If you have a young child, pay attention to times when they are teething or possibly chewing on the line.

Problem: Central Vein Thrombosis (CVT)

A blood clot has formed in the vein where the catheter lies.

Signs:

- Swelling of the neck, arm, or hand.

What to do:

- Call your child's care team immediately.

Prevention:

- Flush your child's line regularly and as recommended by your team.
- Some care teams may recommend flushing your child's line with heparin to prevent clots.

A helpful set of animations on parenteral nutrition (PN) and central lines can be viewed on the Transplant Unwrapped Kid's Site. [Go Now.](#)

Terms to Know

Adhesive tape remover: Helps to remove dressing and tape, usually in the form of a pad. Must be completely removed with Chloraprep before placing new dressing, or the dressing will not stick.

Antibacterial soap: Soap that will kill bacteria or germs. Always use it before handling your child's line.

Biopatch: A medicated disc placed around the exit site of your child's central venous catheter (CVC). Not all dressing change kits contain a biopatch. Consult your care team to see if they would like your child to wear a biopatch.

CC (cubic centimeter) or mL (milliliter): Units used to measure how much liquid is in a syringe. One cc is the same as one mL.

Chloraprep: The solution used to clean the skin around the exit site of your child's central venous catheter. It kills bacteria and helps prevent infection.

Clamp: Compresses the catheter line when not in use. You should clamp your child's line at the thickest portion. Many lines will have an area marked to indicate a proper clamping area.

Exit Site: Area on chest (or other location) where the catheter comes out through the skin.

Heparin: A medication that helps prevent blood clots from forming. Your child's care team may prescribe heparin flushes to help prevent clots in your child's central line.

Cap: The special cap at the end of the line that keeps blood from leaking out and germs from going in. Most care teams recommend changing the caps every seven days.

Interested in learning more?

Visit us on our [Main Website](#), where you will find helpful webinars, downloads, and support systems. In addition, our [Parent's and Caregiver's Page](#) on the Transplant Unwrapped Kid's site also offers helpful downloads and information.

Get in Touch!



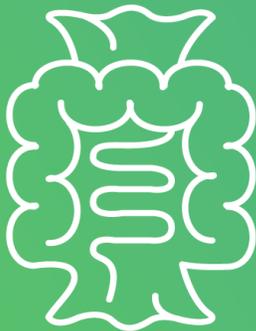
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