

A Patient's Guide to Central Venous Catheters (CVCs) or Central Lines

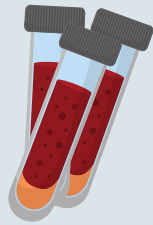
What is a central venous catheter (CVC) or central line?

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

Uses of a Central Line



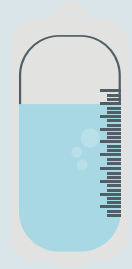
Give Medicine



Draw Blood



**Provide Nutrition
(Parenteral Nutrition)**



Give Fluids

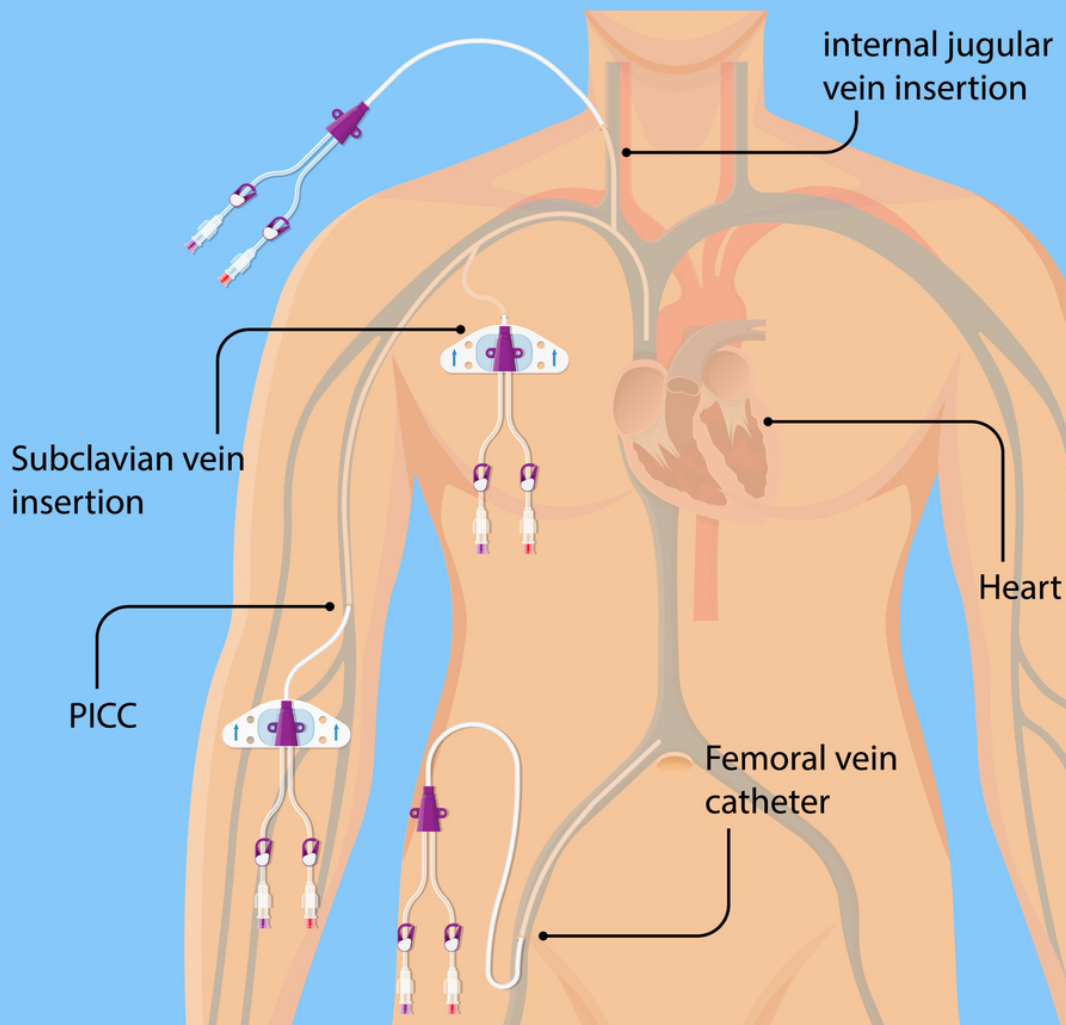
Types of Central Lines

Tunneled Catheter:

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

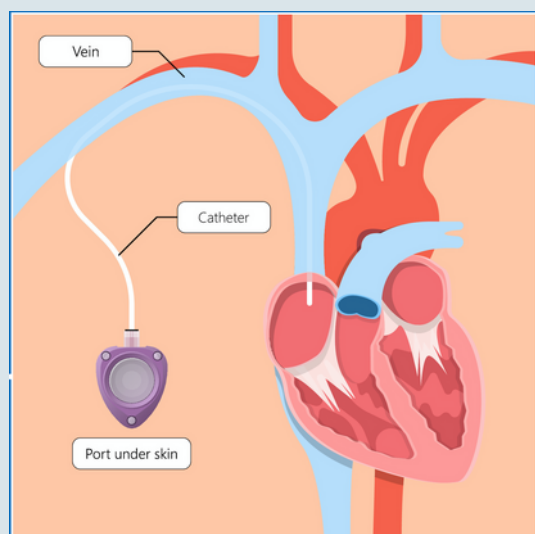
Non-Tunneled Catheter

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



Central Venous Catheter

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, they must be flushed occasionally but otherwise do not require care. A port can have multiple lumens (access points) and can be used long-term.

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").
- You may have soreness or discomfort at the incision sites.

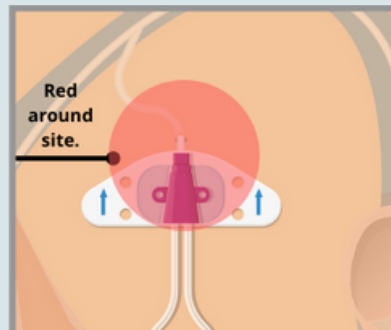
Central Line Infection

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 catheter and travels to the bloodstream. This can be very serious and life-threatening.

Signs and Symptoms of Central Line Infection:



Fever



Redness or swelling around the line.



Pain or tenderness around the line.

Diagnosis: Central line infections are diagnosed based on blood cultures.

Preventing Central Line Infection

Number One: Handwashing!

- You must be vigilant in handwashing.
- 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.



Other Important Infection Prevention Points:

- When doing a dressing change, preparing parenteral nutrition (PN), or doing anything else with the central line, prepare a clean work area by cleaning a solid surface with a disinfectant cleanser (such as Lysol® or another brand).
- Wear sterile gloves and a mask when changing your dressing.
- Always wipe off the end cap of the line for 15 seconds with an alcohol swab before, between, and after each use or flush.

Darryl's Experience with Central Line Infection

Throughout the course of my life I had multiple line infections. Generally this would present like what most people would think of as “flu like symptoms”. Fever, body aches and pains, fatigue, etc. There can also be redness and swelling at the entry site for the central line. Blood cultures are drawn from the line and from normal veins to check for bacterial/fungal growth in the body. If the bacteria was common or “wimpy”, it could sometimes be treated with IV antibiotics and the line could stay in. With more significant infections or more aggressive bacteria the optimal solution is to remove the line (to ensure there are no pockets of bacteria stuck on/in the line), treat with IV antibiotics through a temporary IV line (in the hand for example), and replace the line when all the bacteria are gone.

Important Considerations

Physical Activity

- You should be able to participate in most activities.
- If you are unsure about a particular activity, please consult your care team.



Bathing and Showering

- Cover your line with a waterproof dressing.
- If the transparent dressing becomes wet, replace it right way.
- Avoid soaking in tubs, which increases the risk for infection.



Ordering and Handling Supplies

- Your supplies will be ordered through a home care pharmacy. Your care team will help to set this up before you leave 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 must be refrigerated unless specified otherwise.
- Refer to your homecare pharmacy for specific storage and handling instructions.

What You Should Know About Your Central Venous Catheter (CVC)

Circle What is Applicable for You

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 Where Line was Inserted:

How often should I change my dressing?

How often should I change the caps on my line?

When should I flush my line?

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

Possible CVC Problems and Troubleshooting

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 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.

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 care team immediately.

Prevention:

- Never flush against resistance.
- Do not use sharp objects, such as scissors, around 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 care team immediately.

Prevention:

- Flush your line regularly and as recommended by your team.
- Some care teams may recommend flushing your 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](#) (Useful for adults too!)

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 before handling your line.

Biopatch: A medicated disc placed around the exit site of your central venous catheter (CVC). Not all dressing change kits contain a biopatch. Consult your care team for their recommendations.

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 central venous catheter. It helps prevent infection.

Clamp: Compresses the catheter line when not in use. You should clamp your 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 care team may prescribe heparin flushes to help prevent clots in your 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.

Do you want to learn more?

Visit us on our **Main Website** where you will find helpful webinars, downloads, and support systems.



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www.transplantunwrapped.org



www.transplantunwrappedkids.org



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