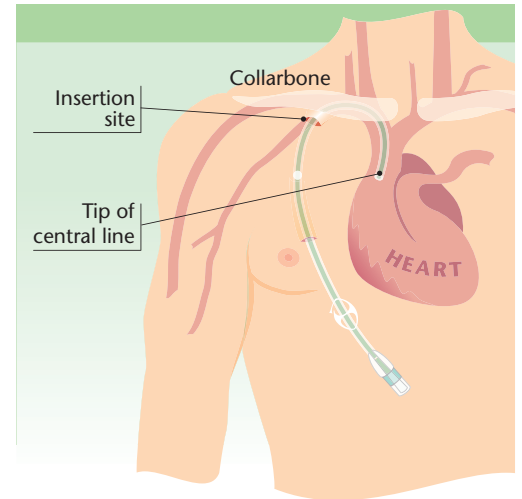


## Central Venous Catheter

A central venous catheter (KATHeter), also known as a central line or CVC, is long, soft, thin, hollow tube that is placed into a large vein (blood vessel). A central line is much like an intravenous (IV) catheter that is placed in a small vein in an arm, except that a central line is longer and is placed in a large vein leading to the heart in the neck, upper chest, leg, or arm. This type of catheter has special benefits in that it can deliver fluids into a larger vein, and that it can stay in the body for a much longer period of time than a usual, shorter IV.



### Why would a person need a central venous catheter?

Common reasons for having a central line include:

- To give IV medications over a long period of time because a large vein can tolerate an IV catheter for a longer time than a small vein. Examples of such medications are antibiotics and chemotherapy.
- To deliver IV medications as an outpatient. Compared with a shorter IV, a central venous catheter is less likely to come out of the vein and this allows patients to be more active and receive IV medications at home.
- To rapidly deliver large amounts of fluid or blood, for example when a person is in shock.
- To directly measure blood pressure in a large or central vein. This can help manage how much fluid a person needs.
- To take frequent blood samples (more than once each day) without being “stuck” many times.
- To deliver nutrition directly into the blood when food or liquids cannot be given through the mouth, stomach, or intestine.
- To connect a person with kidney failure to a hemodialysis machine that clears the body of wastes and extra fluid.
- As part of the procedure of inserting a right heart catheter (also known as a pulmonary artery or Swan Ganz catheter).

### Risks of a central venous catheter

Some of the possible risks of a central venous catheter may include:

- **Discomfort during placement**—Discomfort can result from the needle stick and placement of the catheter at the time it is inserted. Your health care provider will lessen the pain with a local numbing medicine (an anesthetic). The discomfort is usually mild and lessens once the catheter is in place.
- **Bleeding**—Bleeding can occur at the time the catheter is inserted. The bleeding is usually mild and stops by itself.

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- **Infection**—Any tube (catheter) entering the body can make it easier for bacteria from the skin to get into the bloodstream. Special care in cleaning and bandaging the skin at the catheter site can decrease the risk of infection. Some central venous catheters are tunneled under the skin so the entry site into the vein is away from the skin entry site. With care, central venous catheters can remain in the body for several months without becoming infected.
- **Blocking or kinking**—Blood clots may begin to form in the catheter but regular flushing of the catheter usually prevents the clots from blocking the tube. If the catheter becomes kinked, it must be repositioned or removed by your health care provider.
- **Collapsed lung**—This is called a pneumothorax. The lung is very close to the veins in the neck and chest. When a central venous catheter is placed in the chest area, if the needle passes through or misses the vein, the needle could pierce the lung causing the lung to collapse. If this happens, your health care provider can reinflate the lung by placing a tube between the ribs to remove the air that has leaked from the lung (see ATS Patient Series Chest Tube Thoracostomy [www.thoracic.org/patients/](http://www.thoracic.org/patients/)).

## Common Questions

### How long will the catheter stay in?

In general, the tube will stay in as so long as it is needed and the catheter is not blocked or infected. This may be days or months.

### How can I keep the catheter from getting infected?

Anything that touches the catheter site and anything that goes into the catheter must be sterile. If you are caring for your catheter at

home, your health care provider will show you how to care for your catheter.

### How do I know if there is a problem with the catheter?

- The catheter may be infected if you have:
  - Redness, tenderness, or swelling where the catheter enters the skin
  - Fever or chills
- The catheter may be blocked if it is difficult or impossible to flush.
- The catheter may be coming out of the vein if the length of catheter outside the skin is getting longer.

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Adapted from: Constantine A. Manthous, MD & Martin J. Tobin, MD, "A Primer on Critical Care for Patients and Their Families" ATS Website, [www.thoracic.org/patients/](http://www.thoracic.org/patients/).

#### Additional Lung Health Information

##### **American Thoracic Society**

[www.thoracic.org/patients/](http://www.thoracic.org/patients/)

##### **National Institutes of Health (NIH)**

<http://www.nlm.nih.gov/medlineplus/ency/patientinstructions/000156.htm>

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## Rx *What to do*

- ✓ Work with your health care provider to learn how to care for your central venous catheter.
- ✓ If you have any sign of infection or other catheter problem, call your health care provider immediately.

**Doctor's Office Telephone:**

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