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Printed January 30, 2015 from <http://www.cancer.net/navigating-cancer-care/how-cancer-treated/chemotherapy/catheters-and-ports-cancer-treatment>

Catheters and Ports in Cancer Treatment [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 02/2013

During cancer treatment, your health care team often needs access to your veins to give you treatments such as chemotherapy, blood transfusions, antibiotics, or intravenous (IV) fluids. They may also need to take samples of your blood for testing. To make these procedures easier, your doctor may recommend inserting a special medical device called a catheter or a port.

Types of catheters

Catheters are long, narrow, hollow tubes made of soft plastic that are often used to deliver cancer treatments, as well as drugs that manage symptoms and side effects, directly into a vein. Intravenous treatments are commonly given through a small needle connected to a tube called an intravenous catheter (also called an IV), which is inserted into a vein in the forearm or the hand. The IV is also used to give medications before cancer treatment, such as nausea medications or fluids. IV catheters are usually removed once the treatment for that day is completed. In some cases, it may be left in for two to three days as long as it is still in the vein safely and not causing any pain or discomfort. This procedure is repeated each time a person receives treatment.

Most chemotherapy treatments can be given safely using IV catheters if the patient has adequate veins in their forearms and hands. However, this process can become uncomfortable, and inserting the needle in a vein can become difficult, if an IV treatment is expected to occur weekly or for several days in a row. In addition, some types of chemotherapy can damage tissue, making the smaller veins in the forearm or hand not a good option for treatment. As a result, the nurse or doctor may suggest placing a larger catheter directly into a large vein in the upper arm or neck.

These catheters may be placed completely under the skin and connected to a small plastic or metal disc called a port (known as a port-a-cath), or they may be tunneled under the skin with the tip exiting outside the body so they can be used to give treatments. When not being used, the catheter tip will either be clamped to keep the line closed or sealed with a special cap. Some of these catheters have two (double-lumen) or three (triple-lumen) tips that allow more than one treatment to be given at a time, such as for a person receiving a [bone marrow/stem cell transplant](#) [3].

Inserting catheters

There are several types of catheters. The one you receive depends on many factors, including how long you need to receive cancer treatment, the type of treatment you will be receiving, how easy it will be to care for, and cost.

Most types of catheters are inserted and work in a similar way. Where and how they are placed depends on the type of catheter being used.

Peripherally inserted central catheters (PICC). A PICC line is inserted by a specially trained nurse or doctor into one of the large veins in the arm near where the elbow bends. This process does not require surgery, but you will be given a local anesthetic to numb the skin and tissue.

Central line, tunneled venous catheters, or Hickman catheters. This type of catheter is inserted into a large vein under the clavicle (collarbone) or in the neck and then tunneled under the skin. The other end of the catheter leaves the body through a separate exit point, usually in the upper chest, and the catheter is accessed from this exit site. Patients receive either local anesthesia or conscious sedation (medications that make you sleepy during the procedure).

Implantable ports or port-a-cath. A catheter connected to a port is surgically inserted (tunneled) under the skin of the chest, or sometimes the upper arm, by a surgeon or radiologist. You will receive either local anesthesia or be consciously sedated. Unlike the other two types of catheters, a port sits entirely underneath the skin. You may be able to see and/or feel a small bump in your chest or arm, but you won't see the tip of the catheter outside the body. Before each "access" or needle insertion, the skin over the port may be numbed using a cream. When treatment is given, the skin is cleansed and a special needle is inserted through the skin into the rubber seal. This allows blood to be drawn or treatment to be given into the catheter that is connected to the port.

Benefits of catheters and ports

Catheters in the upper arm or inserted into the veins in the neck can remain in place for several weeks or months and can be used to:

- Reduce the number of times a patient has to have a needle stick to draw blood (particularly helpful if a patient has small veins, has veins that have been damaged by previous treatments, or is anxious about needles)
- Give blood transfusions or more than one type of cancer treatment or medication at a time
- Decrease the risk of tissue and muscle damage that can occur if some types of chemotherapy leak outside a vein, which is more likely to occur with a regular IV
- Allow for frequent blood tests for monitoring treatment without needle sticks in the arm
- Avoid excessive bruising or bleeding in patients who may have bleeding problems, including low platelet counts
- Allow some chemotherapy treatments, such as those given by continuous infusion, to be given at home instead of requiring a long stay in the hospital

Ports can remain in place for several weeks, months, or even years, and can be used to:

- Reduce the number of needle sticks in the vein
- Provide chemotherapy or other treatments that last longer than one day (the needle used to access the port can be left in for several days)
- Give more than one type of chemotherapy or other treatment at a time (a double port is used rather than a single port)
- Allow blood testing and treatment on the same day with only one needle stick through the skin in the chest

Caring for catheters and ports

Each type of catheter has potential side effects and risks that should be discussed with your doctor. The risks may include infections [4], blockages or clots [5], and other problems that are less common, such as kinks under the skin or displacement (a shift in the position of the catheter or port).

There are special instructions for catheters or ports that reduce the risk of these problems (see below for specific directions). For catheters that have tips that remain outside the body, you must take special care of the tube and the skin surrounding the area where the tube exits in the arm or chest. These catheters also need to be flushed with sterile fluid each day to prevent blockage. This care may be provided by a special IV service in your home or by staff in your doctor's office or clinic until you are comfortable taking care of this on your own.

Typical instructions, which your doctor or nurse will explain in detail, include:

- Wash your hands before you touch the catheter to help prevent infection
- Never touch the tip of the catheter when the cap is off
- Clean the area around the tube and change any bandages as directed
- Prevent air from getting inside the catheter by making sure the top or clamps are on tightly when the tube is not being used
- Avoid any breaks or cuts in the catheter
- Flush a small amount of fluid into the catheter so it doesn't get blocked, as directed
- Protect the catheter area from being submerged underwater

Because ports are completely under the skin, there is less to care for. Ask a member of your health care team for specific instructions about how to care for the area around the port and follow these instructions until it heals. You may also need to use fluid to flush out the port so it does not get blocked.

Warning signs

Contact your doctor immediately if:

- The area around the catheter or port becomes red, swollen, painful, bruised, or warm
- There is excess bleeding from the insertion area
- You develop a fever

- Any fluid leaks
- You have shortness of breath or dizziness
- The catheter tube outside of your body gets longer
- The catheter or port cannot be flushed out with liquid; it seems blocked. Fluid should never be forced into the catheter

Removing catheters and ports

Your doctor or nurse will remove the catheter and/or port when you no longer need it. If you have a PICC line, the doctor or nurse will gently pull the tube until it feels loose and then remove it. This procedure is generally painless, and anesthesia is not normally needed. If you have a tunneled catheter or a port, your doctor or radiologist will make a small cut and gently remove it from your neck or chest. You may need local anesthesia or conscious sedation for this procedure.

Questions to ask your doctor

- Why are you recommending a catheter or port?
- What are the risks of a catheter or port?
- Will my health insurance cover the costs associated with inserting a catheter or port?
- What do I need to do before the catheter or port is inserted?
- Will I feel any pain when the catheter or port is inserted?
- How long does the procedure take?
- How long will the catheter or port be left in?
- How should I care for my catheter or port?
- Will I be able to see or feel a catheter or port under my skin?
- Can I wear regular clothes with a catheter or port?
- Can I bathe and swim with a catheter or port?
- Can I exercise with a catheter or port?
- Will a catheter or port interfere with radiation therapy or scans?
- Whom should I contact if I have problems with my catheter or port?

More Information

[ASCO Answers Fact Sheet: Catheters and Ports \(PDF\)](#) [6]

[Understanding Chemotherapy](#) [7]

[Chemotherapy - What to Expect](#) [8]

American Society of Clinical Oncology Clinical Practice Guideline: [Central Venous Catheter Care for the Oncology Patient](#) [9]

Additional Resource

[American Cancer Society: What Are the Different Ways to Take Chemotherapy?](#) [10]

Links:

[1] <http://www.cancer.net/navigating-cancer-care/how-cancer-treated/chemotherapy/catheters-and-ports-cancer->

treatment

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/24717>

[4] <http://www.cancer.net/node/25256>

[5] <http://www.cancer.net/node/25245>

[6] http://www.cancer.net/sites/cancer.net/files/asco_answers_catheters_ports.pdf

[7] <http://www.cancer.net/node/24723>

[8] <http://www.cancer.net/node/24473>

[9] <http://www.asco.org/guidelines/cvc>

[10]

http://www.cancer.org/docroot/ETO/content/ETO_1_4X_What_Are_The_Different_Ways_To_Take_Chemotherapy.asp?sitearea