



External Central Vascular Access Device

PATIENT GUIDE

How to take care of your external central vascular access device



Scan me for video tutorial

INFORMATION CARD

Catheter type:	
Catheter size: _	
Insertion date:	

SCHEDULE OF PROCEDURES

- **Clamp the catheter:** If your catheter has a clamp, keep it clamped whenever it is not in use.
- **Site care:** Change your dressing 24 hours after it was first inserted, then every seven days or more often if it becomes loose, wet or soiled.
- For patients less than 2 years old or those with skin sensitivities: Change your dressing as recommended by your nurse or more often if it becomes loose, wet or soiled.
- **Needleless connector change:** Change the needleless connector on each lumen (tube) every seven days.

For more information and video on how to take care of your central vascular access device, please visit **CityofHope.org/VAD**.

CONTACT CITY OF HOPE IMMEDIATELY IF YOU EXPERIENCE ANY OF THE FOLLOWING.

- Fever 100.4° (38.0° C) or higher, chills, puffiness of the neck or face, exit site redness, swelling, tenderness or drainage, or have a damaged or leaking catheter.
- Call 911 if you have a life-threatening emergency.
- Call 911 if you have problems such as shortness of breath, chest pain, uncontrolled bleeding, loss of consciousness or any symptoms that may be life-threatening.

Table of Contents

What Is an External Central Vascular Access Device?	
Why You Have a VAD	
Taking Care of Your VAD	9
Clamping the Catheter	9
Exit Site Care	
Securing the Catheter Using the "Safety Loop" Method	
Exit Site Care for Very Young Patients and Skin Sensitivity Patients	
Flushing the Catheter	
Changing the Needleless Connector	
Problem Solving	
Frequently Asked Questions	
Using Disinfecting Port Protectors	
If You Have Additional Questions or Need to Report Problems	

WHAT IS AN EXTERNAL CENTRAL VASCULAR ACCESS DEVICE?

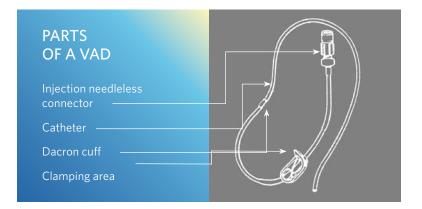
The external central vascular access device (CVAD or simply VAD) is a long, hollow tube called a catheter. It is made of a soft material and inserted into a large vein leading directly to the heart. Some VADs have more than one tube, making it possible to receive several medications or fluids at the same time.

The VAD is inserted by a surgeon in the operating room. You will receive anesthesia and be asleep during the procedure. Two small openings are made into the skin, one near the collarbone and the other about six inches lower. The catheter will come out of the lower opening onto the chest, called the exit site. The catheter is tunneled beneath the skin between the two openings. The opening near the collarbone, called the insertion site, is where the catheter is threaded into the large vein leading to the heart.

PLACEMENT OF A VAD	
Right atrium	
Insertion site	
Dacron cuff	
Exit site	1 A Co

A Dacron cuff, located between the two openings under the skin, is attached to the catheter and prevents bacteria from entering the bloodstream and holds the catheter in place. A slight bulge may be felt where the cuff is located.

Stitches are used at the exit site to prevent the catheter from slipping out of place. When your doctor feels the stitches are no longer necessary, they will be removed — usually in about six weeks. Once the sutures are removed, the Dacron cuff will then hold the catheter in place.



WHY YOU HAVE A VAD

You and your doctor have chosen a VAD to give medications and fluids directly into your bloodstream without having a needle inserted repeatedly into the veins in your arms. Blood for most lab tests can also be drawn from your VAD. Having a VAD will not cause a great deal of change in your lifestyle. However, swimming and activities that cause the exit site to soak in water (soaking in a bathtub or Jacuzzi) are not recommended.

Caring for your VAD is simple and takes only a few minutes. You will receive special instructions to care for your VAD from your nurse. It is also important for you to have a family member or friend learn how to care for your VAD in case there is a time when you do not feel well enough to care for it yourself. This care is very important and must be done on a regular basis to keep your VAD clean and working properly.

Please refer to this booklet while learning to care for your VAD. It has information that will help prevent problems and will help you solve any problems that may occur.

If a surgeon from another hospital inserted your VAD, it is likely that the care you were taught will differ from the method used at City of Hope. If your VAD is different from the type commonly used at City of Hope, your doctor or nurse will give you information about your particular VAD, how to care for it and what to do if problems occur.

If you have any questions, please ask your doctor or nurse; they are available to help whenever you need them.

You will find a list of telephone numbers to call for information and support on page 34.

TAKING CARE OF YOUR VAD

Below are five things you will need to know to take care of your VAD.

- Clamping the catheter
- Exit site care
- Flushing the catheter
- Changing the needleless connector
- Problem solving

CLAMPING THE CATHETER

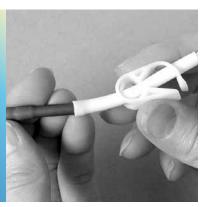
Your catheter is made from a soft material and can be cut or damaged easily. Never use scissors or sharp-edged clamps and avoid using any clamp not approved by your doctor or nurse.

Most catheters come with a preattached clamp and a thicker clamping area. Always clamp the catheter over this area. Clamp the catheter whenever it is not in use. If you have a spare clamp, please keep it with you at all times.

Fasten the catheter to your clothing to avoid tension or pulling on the catheter. Your nurse will show you how to do this.

CLAMPING IT

Always clamp the catheter when it's not in use. Avoid tension or pulling on it.



EXIT SITE CARE

Exit site care, or cleaning the exit site and applying a new dressing, must be done on a regular basis. This prevents infection and allows you to inspect the skin and the exit site area. If your catheter was newly inserted, the dressing must be changed 24 hours after it was placed, then every seven days, or more often if it becomes loose, wet or soiled.

Supplies:

- Rubbing alcohol
- Clean paper towels
- Plastic bag for disposal of used items
- Chlorhexidine (CHG)/alcohol applicator
- CHG impregnated dressing or CHG patch with transparent dressing
- Adhesive remover
- Skin barrier
- Securement device (Example: Statlock)
- Masks and gloves*

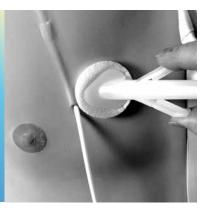
Procedure:

- 1. Clean the work surface by wiping with a paper towel that has been moistened with rubbing alcohol. Wipe dry or allow to air dry.
- 2. Thoroughly wash your hands for 30 seconds using warm, soapy water. Rinse completely and dry using a clean towel or fresh paper towels. Turn off the water facet using the towel. Take care not to touch the water faucet with clean hands.

- 3. Place all supplies on a clean work surface and open them.
- 4. Put on mask and gloves.*
- 5. **If using an impregnated dressing**, secure line if not sutured and remove the old dressing. Remove each dressing separately beginning with smallest to largest. Remove the smallest dressing, lifting from the bottom and pulling gently horizontally toward the other end. Remove the middle dressing, lifting from the top and pulling gently down toward your feet. Remove the large dressing, lifting from the bottom and pull gently upward toward your head, taking care not to pull on the catheter. Loosen the adhesive edges of the dressing with the adhesive remover. Remove securement device, if applicable.
- Throw the old dressing away in a plastic bag. Remove soiled gloves and wash your hands for 30 seconds. You must not skip this step. It is important to reduce the risk of infection. Place on new gloves.*
- Look carefully at the exit site and the skin around it. If you notice anything unusual, such as redness, swelling, drainage or tenderness, finish the exit site care and dressing procedure and then call your nurse or doctor.

CLEANING THE EXIT SITE WITH CHLORHEXIDINE/ ALCOHOL APPLICATOR

Use an up-and-down scrubbing motion over the exit site.



- 8. You are now ready to clean the exit site.
 - Holding the chlorhexidine/alcohol applicator with the sponge facing downward, gently squeeze the wings to release the antiseptic solution into the sponge.
 - Do not touch the sponge.
 - Place the sponge over the exit site and use a back-and-forth scrubbing motion cleansing the area for 30 seconds.
 - Cleanse the skin starting at the exit site and work outward away from the catheter about four inches. Remove any loose crust or debris from around the exit site and catheter. Do not forcibly try to remove debris as this may lead to bleeding and injury.
 - Allow the skin to air dry for 20-30 seconds until completely dry. Do not fan or blow on site.
- 9. Now you are ready to place the dressing.
 - Starting about 3/4 inch (2 cm) from the exit site, apply skin barrier to the skin around the catheter extending out to an area about the size of the dressing that you will be using. Do not apply

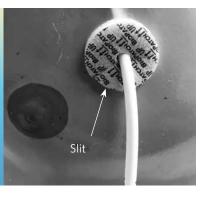
the skin barrier around the catheter where the chlorhexidine impregnated patch will go. Allow the skin barrier to air dry for a minimum of 20-30 seconds until completely dry.



- If you are using an impregnated dressing, begin by gently peeling away the the transparent dressing from the backing, leaving the window frame backing along the edges. Center the transparent dressing gel window over your catheter exit site, sticky side down. Do not stretch the dressing when applying it to the skin and smooth it into place. Remove the window frame and smooth the edges in place. Smooth the gel window along the catheter exit site.
- Proceed by removing the notched dressing from the backing. Place notched dressing at the base of the existing dressing with catheter resting above the notch. The notched dressing should overlap the existing dressing. Apply the remaining dressing strip across the exposed catheter site, covering the notched dressing. Proceed to step 10.

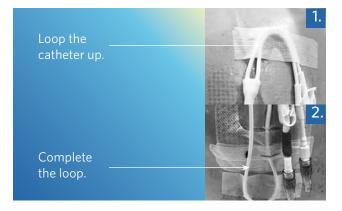
USING THE CHLORHEXIDINE IMPREGNATED PATCH

Place the patch around catheter.



- If using a CHG patch, place the patch around the catheter with the smooth foam side down next to your skin and colored side up. Place the patch slit between 4 o'clock or 8 o'clock. The slit of the patch should lie slightly off center from the catheter. This will make it easier to remove it next time you change the dressing. When placing the patch, the edges of the slit must touch one another to be effective.
- Then place the transparent dressing over the exit site, catheter and patch. Begin by gently peeling away the transparent dressing from the backing, leaving the window frame backing along the edges. Be careful not to touch the center inside of the transparent dressing.
- Center the transparent dressing over your catheter exit site and place it sticky side down over the exit site and patch. Do not stretch the dressing when applying it to the skin. Smooth it in place. Remove the window frame and smooth the edges in place.

- 10. Secure the catheter using the safety loop method (see below). To extend the likelihood that your transparent dressing will last a week, cover it with plastic wrap, extending over the shoulder when showering. Shower facing away from the water source to avoid direct contact with spray. If dressing becomes loose or wet, it will need to be changed.
- If you find your skin becomes sensitive to the chlorhexidine solution, the patch or the dressing, talk to your nurse or doctor. Different products are available.



SECURING THE CATHETER USING THE "SAFETY LOOP" METHOD

It is recommended that all patient lines be secured using the safety loop method. Children must always have the safety loop done.

TO CREATE THE SAFETY LOOP:

1. Loop the catheter up from the exit site toward your head and place tape over the catheter.

- 2. Complete the loop so that the catheter hangs down and secure it with another piece of tape.
- 3. Fasten the catheter to your clothing carefully with a safety pin or catheter clamp.
 - You can do this by cutting a piece of tape and folding the edges over to form tabs.
 - Place the tape around the catheter away from the needleless connector.
 - Do not cover the needless connector with tape.
 - Use the tabs to clamp or fasten the catheter to your clothing. Avoid tension or pulling on the catheter.
- 4. A T-shirt or BandNet is helpful to secure the line on a child.

CONTACT YOUR NURSE OR DOCTOR IMMEDIATELY IF:

- There are any signs of infection around the catheter such as redness, swelling, drainage or tenderness.
- You have a fever higher than 100.4 (38 C).
- The catheter appears to be slipping out, you can see the Dacron cuff, or if the catheter is cut or broken. Refer to page 30 for further guidance.
- You have nausea, vomiting, dizziness or any other unusual symptoms.

EXIT SITE CARE FOR VERY YOUNG PATIENTS AND SKIN SENSITIVITY PATIENTS

For patients less than 2 months old, or those with skin sensitivities to chlorhexidine, a chlorhexidine impregnated patch or transparent dressings, clean the exit site and change the dressing at least every two days, more often if the dressing becomes loose, wet or soiled. Proper exit site care helps prevent infection and allows you to check the opening and the skin around it.

Supplies:

- Rubbing alcohol
- Adhesive remover
- Plastic bag for disposal of used items
- Sterile 2"x2" gauze pad
- Tape
- Three alcohol swabsticks
- Povidone-iodine (such as Betadine) swabstick
- Skin barrier
- Prefilled syringe containing 10ml saline
- Appropriate dressing as recommended by your doctor or nurse
- Gloves and masks*

Procedure:

- 1. Clean the work surface by wiping with a paper towel that has been moistened with rubbing alcohol.
- 2. Wipe dry or allow to air dry.

- 3. Thoroughly wash your hands for 30 seconds using warm, soapy water.
- 4. Rinse completely and dry using a clean towel or fresh paper towels. Turn off the water faucet using the towel. Take care not to touch the water faucet with clean hands. Apply a mask followed by gloves.*
- 5. Place all supplies on a clean work surface and open them. Take care when opening the supplies and do not touch the supplies within the packaging until ready for use.
- 6. Secure the line if not sutured and remove the old dressing. Lift the bottom of the dressing first and pull gently upward toward your head, taking care not to pull on the catheter. Your nurse may recommend using an adhesive remover to help remove the old dressing. Remove securement device, if applicable.
- 7. Place in a plastic bag for disposal.
- Remove soiled gloves and wash your hands for 30 seconds. You must not skip this step. It is important to reduce the risk of infection. Place on new gloves.*
- 9. Look carefully at the exit site and the skin around it.
- If you notice anything unusual, such as redness, swelling, drainage or tenderness, finish the dressing procedure and then call your nurse or doctor.

CLEANING THE EXIT SITE WITH ALCOHOL

Never go back to the exit site with a swabstick that has touched skin away from it.



- 11. You are ready to clean the exit site.
 - Cleanse the exit site, catheter and surrounding skin area with an alcohol swabstick.
 - Begin at the exit site and work outward in a circular motion, covering a 4-inch area from the exit site (see diagram above). Never go back to the exit site with a swabstick that has touched skin away from it.
 - Repeat with a second alcohol swabstick.
 - Be sure to remove any loose crust or debris from around the exit site and catheter. Do not forcibly try to remove debris as this may lead to bleeding and injury.

CLEANING THE EXIT SITE WITH POVIDONE-IODINE

Cleanse the exit site and surrounding skin area.



- Cleanse the exit site and surrounding skin area with a povidone-iodine swabstick in the same manner as previously described.
- Let air dry for a full 60 seconds. Do not fan or blow on the site. It is very important that the povidone-iodine dry for a full minute before cleaning off.

REMOVE THE POVIDONE-IODINE

Cleanse the povidone-iodine off with another alcohol swabstick starting from the exit site out.



- Wipe off the povidone-iodine with the third alcohol swabstick, starting from the exit site out. Wipe any remaining providone-iodine with sterile normal saline and a 2x2 gauze pad from the exit site out until the providone-iodine is removed.
- Allow the skin to air dry for 20-30 seconds until completely dry. Do not fan or blow on site.

- 12. Apply skin barrier. Please refer to step number9 on page 12 and 13 of this booklet.
- 13. Cover the exit site with the dressing selected by your nurse or doctor.
- 14. Secure your catheter using the "safety loop" method described on page 15 and 16.
- 15. Fasten the catheter to your clothing. To extend the likelihood that your transparent dressing will last two days, cover it with plastic wrap extending over the shoulder when showering. Shower facing away from the water source to avoid direct contact with spray. If dressing becomes loose or wet, it will need to be changed.
- 16. If you continue to have skin problems with the cleansing solutions or dressings, your doctor or nurse will change the products and show you how to use them.

CONTACT YOUR NURSE OR DOCTOR IMMEDIATELY IF:

- There are any signs of infection around the catheter such as redness, swelling, drainage or tenderness.
- You have a fever higher than 100.4° (38.0° C).
- The catheter appears to be slipping out, or if it is cut or broken. Refer to page 30 for further guidance.
- You have nausea, vomiting, dizziness or any other unusual symptoms.
- You have any questions or concerns.

FLUSHING THE CATHETER

It is very important to flush your catheter once a day. Flush your catheter at about the same time every day. This will keep your catheter open and free of blood clots. It is very important to flush your catheter as directed using the push-pull method. If you have a Hickman, you will have to flush daily.

If you have a catheter that is different than what is commonly used at City of Hope, your nurse will tell you how often to flush it and what type of flushing solution to use.

Supplies:

For **each** lumen (tube) of your catheter you will need:

- Alcohol prep pad
- Prefilled 10 ml saline syringe
- Container (to throw away used syringes)
- Gloves*

Procedure for Flushing the Catheter

- 1. Always start with a clean area for your supplies. Wash hands after cleaning the surface area and place on gloves if desired.
- 2. Open your supplies. Be careful not to touch the supplies within packaging until ready for use.

- 3. To prepare your syringe with the cap still secure, hold the syringe pointing upward. Push against the plunger until the plunger moves slightly. This will loosen the syringe and provide ease when expelling excess air.
- 4. Loosen the cap of the syringe using a twisting motion. Be careful not to touch the tip of the syringe. Empty any air that may be in the syringe by holding it with the syringe pointing upward. Gently push the plunger until all of the air is removed and replace the cap.
- 5. Scrub the end of the needleless connector with an alcohol prep pad vigorously for 15 seconds.
- 6. Insert the tip of the syringe into the needleless connector by pushing it in and turning it clockwise half a turn.
- 7. Unclamp the catheter.
- Slowly inject saline into the catheter using a "push-pause" method. Do not use force. Leave a small amount of saline in the syringe.



- As you slowly inject the remaining saline, clamp the catheter while maintaining forward pressure on the plunger. Your nurse will explain this technique.
- Remove the syringe from the needleless connector and place it into the disposable container. Reclamp the catheter.
- 11. If your VAD has more than one lumen (tube), you must flush all of them.



Syringe Disposal

Carefully dispose of used syringes as instructed by your nurse or doctor. Make sure that used syringes are not accessible by children, pets or other people.

CONTACT YOUR NURSE OR DOCTOR IF:

- You are unable to flush the catheter. (Make sure it is unclamped.)
- You experience chills when you flush the catheter.
- You see any damage, breaks or leaks in the catheter.
- The catheter appears to be coming out, or if you can see the Dacron cuff. Refer to page 30 for further guidance.
- You have nausea, vomiting, dizziness or any other unusual symptoms.
- You have any questions or concerns.

CHANGING THE NEEDLELESS CONNECTOR

It is recommended to change the needleless connector(s) on the same day as your preferred dressing change day. Every time you take the needleless connector off, throw it away and put on a new one.

This should be done at least every seven days.

Supplies:

For **each** lumen (tube) of your catheter you will need:

- New sterile needleless connector
- Three alcohol prep pads
- Two sterile 2"x2" gauze pads
- Prefilled syringe containing 10ml saline
- Mask and gloves*

Procedure:

- Always start with a clean area for your supplies.
- Wash hands for 30 seconds, dry using a clean paper towel, turn off faucet using the paper towel. Place mask and gloves if desired.
- Open your supplies. Place an alcohol prep pad on top of each 2"x2" gauze pad.
- Be sure the catheter is securely clamped.

You will need to prime the new needleless connector before you remove the old connector and attach the new one to your catheter.

TO PRIME THE NEW NEEDLELESS CONNECTOR:

- Open the package of the new needleless connector and set aside. Be careful not to touch the supplies within the package until ready for use.
- 2. Open the package of the saline syringe.
- 3. To prepare your syringe with the cap still secure, hold the syringe pointing upwards. Push against the plunger until the plunger moves slightly. This will loosen the syringe and provide ease when expelling excess air.
- Loosen the cover of the syringe. Be careful not to touch the tip. Empty any air that may be in the syringe by holding it with the syringe pointing upwards. Gently push the plunger until all of the air is out.
- 5. Attach the syringe to the needleless connector. Be careful not to touch the tip of the needless connector with your fingertips.
- Inject a small amount of saline into the needleless connector until you see it coming out of the end. The connector is now primed.
- 7. Leave the syringe attached to the needleless connector and set them aside on a clean area such as the clean package of the new connector.
- 8. Proceed with the needleless connector change procedure.

TO COMPLETE THE NEEDLELESS CONNECTOR CHANGE PROCEDURE:

- Hold the catheter end with one hand throughout the procedure. Be sure the catheter is securely clamped.
- Scrub the end of the old needleless connector with the alcohol prep pad/2"x2" gauze pad vigorously for 15 seconds and remove the old needleless connector by twisting it off.
- 3. Scrub the exposed catheter end with the second alcohol prep pad/2"x2" gauze pad for 15 seconds.
- 4. Without releasing the secure hold of the catheter in your nondominant hand, remove the protective cover from the new needleless connector. Screw the new connector onto the end of the catheter with the saline syringe still attached.
- 5. Unclamp the catheter lumen and flush the catheter using the push-pause method.
- 6. Remove the syringe by holding the needleless connector with one hand while unscrewing the syringe with the other. This will prevent disconnecting the connector from the catheter end when removing the syringe.

- 7. Repeat the procedure for each lumen (tube). Ensure all lumens are securely clamped.
- 8. Fasten the catheter to your clothing carefully with a safety pin or catheter clamp.

CONTACT YOUR NURSE OR DOCTOR IF:

- You see any damage to the catheter end. Refer to page 30 for further guidance.
- There are any leaks around the needleless connector.
- You have any questions or concerns.

PROBLEM SOLVING

Below is a list of problems and what to do if they occur.

Infection

This is the most common problem. You may have a fever of 100.4° F (38.0° C) or higher, chills, redness, swelling, tenderness or drainage at the exit site of your catheter. If you have any of these signs, call the Nurse Triage Call Center immediately. For help with any of these problems, reach out to your nurse or doctor. If it is after hours, call the Nurse Triage Line.

Disconnected needleless connector

Clamp the catheter immediately if it is open. Clean the end of the catheter with an alcohol prep pad and put on a new needleless connector. Then, follow the instructions to connect a new needless connector on page 27.

Plugged catheter

If you feel any resistance when flushing your catheter, do not use extra force. Be sure it is unclamped. If you still feel any resistance, call your nurse or doctor who will arrange to unplug the catheter.

• What happens if the catheter is damaged?

If you see damage, breaks or liquid leaking from your catheter, find the area and clamp the catheter between the damaged area and your body. Wrap sterile gauze around the damaged area and immediately call your nurse or doctor. You will need to come to City of Hope to have the catheter repaired.

Catheter is coming out

If the catheter appears to be coming out, or if you can see the Dacron cuff when you are changing the dressing, complete the dressing change and then call City of Hope.

FREQUENTLY ASKED QUESTIONS

• Can I bathe?

Your doctor or nurse will tell you when to shower or bathe after your VAD is inserted. If you prefer a tub bath, keep the exit site above the water level.

Cover the exit site, catheter and needleless connector with a waterproof barrier when you bathe or shower. There are several items that you might use as a barrier such as plastic wrap or a plastic bag secured with tape. There are also moisture barrier products commercially available that you can purchase. Your nurse will discuss these options with you.

• **Do l always need to use a dressing?** The exit site should always have some type of dressing or bandage on it. Your nurse will help you decide which one is best for you.

 If I forget to flush the catheter on time, what should I do?

Flushing your catheter once a day will keep it open and free from blood clots. If you forget to flush it or are delayed, flush the catheter as soon as possible. If you experience difficulty flushing, contact your nurse or doctor immediately. Never use force to flush the catheter.

• What happens if I cannot flush the catheter?

If you have difficulty flushing the catheter, check your equipment. Be sure the catheter clamp is open and that there are no kinks in the catheter. Check the plunger of the syringe. Rotate the plunger a quarter turn if you think the plunger is stuck. Remove the syringe and flush with a new syringe after scrubbing the needleless connector with alcohol for 15 seconds. If the equipment is working and you still cannot flush using normal pressure, contact your nurse or doctor immediately. Never use force to flush the catheter.

• Should someone else also learn these procedures? It is important to have another person available who is familiar with the care of your VAD. Then, if you cannot take care of it, the other person can do this for you. Make sure that someone else knows what to do if there is a problem.

USING DISINFECTING PORT PROTECTORS

While you are at City of Hope, your nurse may place disinfecting port protectors on the needleless connector on the end of your catheter or on the unused injection ports of your IV tubing. These port protectors are used only while you are in the hospital and are not required for home use.

However, if you choose to use them at home, it is important to remember the following.

- **NEVER** reuse port protectors. Once they are removed they must be discarded.
- Port protectors are NOT waterproof. Replace them with new ones DAILY after you shower and if they get wet.
- City of Hope does not supply port protectors for home use. Contact the manufacturer or supplier to purchase them. A doctor's order may be required. Please be aware that your insurance company might not cover these items.

IF YOU HAVE ADDITIONAL QUESTIONS OR NEED TO REPORT PROBLEMS

Call the City of Hope Nursing Triage Call Center, available 24 hours a day, seven days a week at 626-218-7133.

If you have a home health nurse:

Call the number of the home health agency given to you by your case manager.

Pediatric service patients:

Call the City of Hope operator at 800-826-HOPE (4673). Ask the operator to connect you to your pediatrician or the pediatrician on call.



Patient, Family and Community Education Department of Supportive Care Medicine 1500 E. Duarte Road, Duarte, CA 91010 800-826-HOPE (4673)

CityofHope.org