Know about your tunnelled Central Venous Catheter (CVC)

Information for patients and families

Read this resource to learn:

• What a tunnelled CVC is
• What to expect when getting your tunnelled CVC
• How to care for your tunnelled CVC to prevent infections
• How to protect your tunnelled CVC from getting damaged
• Who to call if you have any questions

My tunnelled CVC will be put in on:

• Date: _________________________________________
• Time: ________________________________________

Check-in 30 minutes before your appointment at the Medical Imaging reception desk. Your CVC will be put in at one of these sites:

□ Toronto General Hospital
  Peter Munk Building, 1st floor
  585 University Avenue,
  Toronto
  General Inquiries:
  416 340 4800

□ Toronto Western Hospital
  East Wing, 3rd floor
  399 Bathurst Street,
  Toronto
  General Inquiries:
  416 603 2581

Please visit the UHN Patient Education website for more health information: www.uhnpatienteducation.ca

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What is a tunnelled central venous catheter (CVC)?

A central venous catheter (CVC) is a soft flexible tube. One end of the catheter is placed under the skin and into a large vein above your heart. This is called the entrance site. The other end of the catheter is outside the skin of the chest. This is called the exit site.

When a part of the catheter lies under the skin, it is called a tunnelled CVC. You may also hear it being called a central line, a CVC line, or a Hickman® line.

Why do I need a tunnelled CVC?

You may need a tunnelled CVC if you are getting long-term intravenous (IV) therapy. IV therapy means fluids and medicines can be put right into your veins. Your tunnelled CVC can stay in for the whole time you are on treatment, as long as it is working well. This means you do not need to be poked as many times with a needle.

A tunnelled CVC can be used for:

- Giving chemotherapy treatment.
- Giving antibiotics (medicine to fight infections) and other medicines.
- Taking blood samples.
- Giving IV fluids.
- Giving nutrients (food) through IV. This is called Parenteral Nutrition.
- Hemodialysis treatment (for patients with kidney disease).
What does a tunnelled CVC look like?

Here is an image of a tunnelled CVC.
These are the parts of your tunneled CVC:

- **Dacron Cuff**
  
  The Dacron cuff is placed under your skin, just above the exit site. In about three to four weeks, tissue will grow onto the cuff and create a seal. The seal helps keep the catheter from slipping out. The seal also prevents germs from going into the bloodstream.
• **Lumens**

Your tunnelled CVC may have 2 or 3 tubes that come out of your skin. These tubes are called lumens. Each lumen is a separate tube. Lumens are the part of the catheter used to give IV treatments or take blood. Having more than 1 lumen means your nurse can give 2 or 3 different IV treatments at the same time.

On each lumen, you will find a:

• **Clamp**

The clamp is used to:
  ◦ Prevent blood from coming out of the catheter. Keep the catheter closed at all times when the catheter is not in use.
  ◦ Keep the catheter closed to detach and change a cap.

Some tunnelled CVCs do not have a clamp. Instead they have a special valve inside the catheter that works like a clamp. Your nurse will let you know if you have this type of catheter.

• **Cap (the lumen cap)**

A cap is added at the end of each lumen opening. This cap is used to:
  ◦ Stop blood from coming out of the lumen if the catheter is not clamped.
  ◦ Prevent germs from entering the catheter.
  ◦ Allow IV tubing and syringes to attach to the lumens safely.
What to expect when getting your tunnelled CVC

How should I prepare for getting a CVC?

Do your bloodwork at least 3 days before the procedure (getting your CVC put in). Your results must be reviewed by the health care team 2 – 3 days ahead of the procedure. You may get a call from your nurse if extra bloodwork is needed.

Let your healthcare team know if you have history of low platelets or liver disease. Low platelets or liver disease can increase your risk of bleeding.

Some medicines can increase your risk of bleeding. Talk to your doctor if you are taking any of these medicines:

- warfarin (Coumadin®)
- dabigatran (Pradaxa®)
- rivaroxaban (Xarelto®)
- fondaparinux (Arixtra®)
- dalteparin (Fragmin®)
- enoxaparin (Lovenox®)
- tinzaparin (Innohep®)
- apixaban (Eliquis®)

Your doctor may tell you to stop taking these medicines. Your doctor will tell you how many days before your procedure to stop these medicines.

On the day of the procedure:
- You can have a small amount of fluid (like water, juice, tea and coffee).
- Take your daily medicine. You can take your medicine with a small amount of fluid (like water, juice, tea and coffee).
- Do not drink thick fluids like milk shakes or smoothies.
- Do not eat solid foods on the day of the procedure.

Your doctor may need to give you medicine to relax. If you need this medicine, having a full stomach may cause you to vomit (throw-up). It could also put you at risk for choking if you vomit.
Before coming to hospital, make sure to:

- Bring your government issued health card (OHIP).
- Carry a list of all medicines you take.
- Bring an adult with you to take you home. Be aware that the whole process of getting your tunneled CVC takes about 2 hours.
- Leave anything of value at home, such as jewellery and credit cards.

**What to expect during the procedure**

Your tunneled CVC will be put in at the Interventional Radiology department in Medical Imaging.

1. You will lie on your back while the tunneled CVC is put in. Getting the CVC put in takes about 30 – 45 minutes. You will be awake when you get the CVC put in.

2. Your doctor may give you sedation (medicine to relax you). This may make you feel sleepy.

3. Your doctor will inject medicine to numb the area where the catheter goes in. You should only feel a small amount of pain or discomfort during the procedure.

4. The doctor will make 2 small cuts:

   a. A cut at the bottom of your neck near the collarbone. This is where the catheter is put into a central or large vein. It is called the entrance site.

   b. A second cut is made further down your chest above the nipple area. This is where the catheter comes out. It is called the exit site. A tunnel is made under the skin between the 2 cuts. This tunnel allows the catheter to be passed through the skin. (See image on the next page).
5. Once the catheter is in place, the cuts are closed with stitches or steri-strips (small strips of sterile tape).

- Stitches on the entrance site will dissolve in 7 – 10 days. The area is covered with a gauze tape (or BandAid®) that you can remove in 2 days.

- Stitches on the exit site will stay in place for about 4 – 6 weeks. The area is covered with a dressing to prevent infection.

- Do not remove the stitches by yourself. Your doctor or nurse will remove the stitches. Let your doctor or nurse know if the stitches come out by themselves. Make sure to tape the lumens securely to prevent tugging on the stitches. See page 14 for how to secure your lumens.

- Do not remove the steri-strips by yourself. The steri-strips will fall off on their own in about a week.

**What happens once I get home?**

- Relax for the rest of the day when you get home. If you had sedation:
  - Don’t drink alcohol or take other medicines that will make you sleepy.
  - Don’t drive or operate any machines.
• Wear loose clothes or clothes with a front opening so you can easily access your catheter.

• Avoid wearing tight bras, suspenders or carrying a purse or bag across your chest until the exit site has healed.

• You may feel sore around the area where the catheter was put in. This area may be bruised and swollen. These symptoms will usually go away within 2 – 3 days. Ask your doctor if you need medicine to manage your pain.

• If you have questions about your tunnelled CVC within 1 – 2 weeks after the procedure, call the numbers below. See page 19 for who to contact if you have questions after 2 weeks.

<table>
<thead>
<tr>
<th>✓</th>
<th>Place where you got your CVC put in</th>
<th>Monday to Friday From 8 am to 4pm</th>
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<tbody>
<tr>
<td></td>
<td>Toronto General Hospital</td>
<td>416 340 4800, ext. 5403</td>
</tr>
<tr>
<td></td>
<td>Toronto Western Hospital</td>
<td>416 603 5800, ext 6301</td>
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• Check your dressing for bleeding. If the entrance or exit site bleeds, apply firm pressure to the site with sterile gauze. Apply pressure to the site until the bleeding stops. Put on new dressing after bleeding has fully stopped. If blood still leaks out after you apply constant pressure, go to the nearest emergency department.

**Call for Emergency Help (911) or go to the nearest hospital emergency department if you have:**

• Fever of 38°C (100.4°F) or higher, with or without chills.
• Trouble breathing, with or without dizziness.
• Sudden onset of chest pain.
• Swelling of the face, neck, arm or chest on the same side where your tunnelled CVC was put in.
• Heavy bleeding from the catheter sites that does not stop. Apply pressure to the site with sterile gauze while waiting for help.
How to care for your tunnelled CVC to prevent infections

Your tunnelled CVC needs to be kept clean to prevent infections. It also needs to be kept clean to keep the CVC working well. This care includes:

- changing the exit site dressing
- changing the lumen cap
- flushing the lumens when the catheter is not in use

Your nurse will change your CVC dressing while you are in hospital. Before you go home, your nurse will show you and your caregiver how to change the dressing if needed. This pamphlet will also give you step-by-step instructions for changing your dressing. See page 12 for how to change your dressing.

When the catheter is not in use, your nurse will change the lumen cap and flush your catheter every week. Some patients may have to change their own lumen cap and flush their catheter. Your nurse will teach you how to do this.

What can I do to prevent tunnelled CVC infections?

Wash your hands well with soap and warm water for at least 30 seconds before and after taking care of your tunnelled CVC. Anyone who helps you with catheter care must also wash their hands.

- Do not put the tunnelled CVC entrance and exit sites, lumens, and caps under water.
- Change your dressing right away if it is damp or wet, dirty, or has blood on it.
- Use only new unopened supplies when changing the dressing or flushing the catheter.
- Do not to touch the open end of the catheter lumen if you are changing the cap.
- Never push any part of the catheter back into the exit site.
- Never put a cap back on after it has come off the lumen.
- Follow the instructions on page 12 for changing your dressing.

<table>
<thead>
<tr>
<th>Check your catheter, the dressing, and the skin around your catheter every day. Let your doctor or nurse know right away if you notice:</th>
</tr>
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<tbody>
<tr>
<td>- Redness, warmth, or swelling around the catheter entrance or exit site.</td>
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<tr>
<td>- Redness, warmth, or swelling along the tunnel.</td>
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<tr>
<td>- Increased pain at the catheter entrance or exit sites.</td>
</tr>
<tr>
<td>- The catheter looks longer than usual, or you can see the Dacron cuff outside of the skin. This means your catheter has moved out and may need to be replaced. Tape the catheter safely onto your skin until it is seen by your doctor or nurse.</td>
</tr>
<tr>
<td>- Itching, rash or broken skin around the catheter entrance or exit site.</td>
</tr>
<tr>
<td>- Any discharge (pus, bleeding or fluid) leaking from or around the exit site or from the cap.</td>
</tr>
<tr>
<td>- Trouble flushing your catheter.</td>
</tr>
<tr>
<td>- Cannot flush your catheter at all.</td>
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</tbody>
</table>
How often should I change my CVC dressing?

A dressing is a sterile pad used to protect the CVC exit site. You need to keep the dressing clean and dry at all times. You will normally have a gauze dressing for the first 48 hours. After 48 hours, your nurse will put on a transparent dressing.

Change the exit site dressing:

- every 2 days if you have gauze (cloth) dressing.
- every 7 days if you have a transparent (clear) dressing.

You should also change the dressing if it:

- is damp or wet.
- is dirty.
- has blood on it.
- is no longer sticking to the skin.

You do not need a dressing once all the stitches are taken out and the area is healed.

Tell your nurse if you have problems with your dressing like itchiness, rash or blister. You may need a different dressing. Your nurse can help find the right dressing for you.
How to change your dressing

Follow these steps for changing your dressing:

1. Clean your work surface with a disinfectant wipe. A disinfectant wipe will kill germs on your work surface.

2. Set up your supplies on the clean work surface. You can buy all these supplies at a pharmacy close to you.

   You will need:
   □ Transparent dressing
   □ Chlorhexidine swabsticks to disinfect skin.
   □ Tape
   □ Open trash can

3. Wash your hands with soap and water for 30 seconds. Dry your hands with a paper towel. You can also use an alcohol-based hand sanitizer.

4. Gently remove the old dressing from the bottom up toward the catheter site. Be careful not to pull on the catheter. (See the image to the right).

5. Drop the old dressing into an open trash can.

6. Look at the skin around the catheter for any:
   • redness
   • rash
   • discharge (pus, bleeding or fluid)
   • swelling

Tell your doctor or nurse as soon as you can if you have any of the above symptoms.
7. Wash your hands again with soap and water.

8. Hold the catheter lumens up. Use the chlorhexidine swab to clean the exit site. Use an up-and-down and side-to-side motion for 30 seconds. Make sure to clean the area that will be covered by the dressing.

9. Make sure the exit site is properly dry. The site takes about 2 – 3 minutes to dry. The skin at the exit site should not be “shiny” looking before you put the clean dressing on. This will prevent your skin from getting red, dry or itchy. **To prevent infections, do not use your breath or anything else to blow the site dry. Do not touch the clean exit site with your bare hand or anything else like a Q-tip® or Kleenex®.**

10. Peel the backing paper from the new dressing (see image to the below). Put the new dressing on the exit site. Cover the exit site fully. Do not stretch the dressing as this can cause skin tear.

11. Tape the catheter lumen in a “U-loop shape” onto your skin to prevent pulling the catheter. Use tape that will not bother your skin like paper tape or plastic tape (see the image below).

12. Write the date of the dressing change on the tape. This will help you remember when you have to change the dressing again.
What is a heparin lock?

Your tunnelled CVC must be flushed (or cleaned out). Flushing it will keep the catheter lumen clear of blood and medicine. Heparin is a medicine that keeps blood clots from building up inside the lumen. Heparin is put into each lumen of your tunnelled CVC to prevent it from blocking. This process is called a heparin lock. In most cases, your nurse will do the heparin lock.

If you are allergic to heparin or know you have Heparin Induced Thrombocytopenia condition, let your doctor or nurse know. They will use different medicine to flush your catheter.

A heparin lock of your catheter (or flushing heparin lock) must be done:

- Once a week when the catheter is not in use.
- After an IV therapy is done.

Some catheters do not need a heparin lock. Your nurse will let you know if your catheter does not need a heparin lock.

What is a lumen cap change?

Your catheter must always have a cap attached at the end of each lumen. The cap should be changed once a week. The cap should also be changed whenever the cap is removed from the catheter lumen. In most cases, your nurse will change the lumen cap.

If you want to do your own care, your nurse will teach you and your caregiver how to do a heparin lock and change the lumen cap.
Can I shower, bathe or swim while the tunnelled CVC is in place?

- You can shower after your dressing has been changed for the first time. Your first dressing is usually changed 24 – 48 hours after the catheter is put in.

- You need to cover the dressing before you take a shower. Cover the dressing with plastic (Saran®) wrap. Tape all sides of the plastic wrap to seal the dressing from water.

- After you shower, make sure your dressing is dry and sticks well to the skin. Change the dressing right away if it is wet or damp. Change the dressing if it no longer sticks well to the skin.

- If the dressing is no longer needed on the exit site, you can shower as usual. Use mild soap to clean the site and pat it dry with a clean towel.

- Do not swim or take a tub bath while you have a catheter. Putting any part of your catheter under water may increase your risk of getting an infection.

What should I do to keep my tunnelled CVC safe?

- Always loop (U shape) the catheter and tape it to your skin or dressing. (See the image on page 14).

- **Do not use a safety pin** to secure your catheter as it may poke a hole in the catheter. You can use a clip to hold the catheter onto your clothes. (See the image on page 17).
- **Do not** put tape on the catheter clamp. You need to access the clamp quickly if you have an emergency.

- **Never** use scissors or other sharp objects near the catheter.

- Avoid contact sports, such as hockey or football. Avoid any other activities that may tug or pull your catheter out.

- Make your own emergency kit and have it with you all the time. The kit should include:
  - sterile gauze
  - tape
  - alcohol swabs
  - hospital contact information
How to deal with problems

What if I forget to flush the catheter or change the dressing on time?

If you forget, flush your catheter or change the dressing as soon as you remember.

What if the cap falls off or there is leakage around the cap?

Clamp your catheter right away. If there is leakage, remove the cap and discard it. Scrub the lumen end with an alcohol swab for 30 seconds. Be careful not to touch the end of the lumen with your hands. Screw a new cap onto the lumen.

If you do not have a new cap, wrap the end of the lumen with sterile gauze until you get a new cap. Call your doctor or nurse to get a new cap. After office hours, go to the nearest emergency department.

What if any part of the catheter is cut or breaks off?

Clamp the catheter right away between the exit site and where the cut or break is. If the catheter has no clamp, bend the catheter lumen that has the cut or break to make a U shape. Wrap a rubber band tightly around the lumen. Go to the nearest hospital emergency department.

What if the clamp breaks?

Make sure the cap is still attached to the lumen (do not over tighten the cap). Blood will not come out from the lumen as long as the cap is on. Call your doctor or nurse right away.

If there is no cap at the end of the catheter, bend the catheter lumen and wrap a rubber band tightly over the catheter. Go to the nearest hospital emergency.

What if my catheter moves or falls out?

If the catheter moves out of its regular place, tape the catheter firmly onto the skin. Call your doctor or nurse to find out what you should do.
**Do not push the catheter back into the skin as this can cause an infection.**

If the catheter falls out, cover the site with clean gauze or a clean towel right away. Then apply firm pressure until the bleeding stops. Go to the nearest hospital emergency room right away.

**When will my tunneled CVC be removed?**

Your catheter will be removed once you no longer need it. The catheter will also be removed if you get an infection or the catheter gets blocked.

Removing the catheter is a simple procedure. The catheter can be removed either at the bedside or in a procedure room. You may feel tugging or pulling when the catheter is removed. Once the catheter is out, a dressing will be put on to cover the site. Your doctor or nurse will tell you when to take off the dressing. They will also tell you when you can shower.

**Who should I call if I have questions about my tunneled CVC after 2 weeks?**

**If you are a patient of:**

**Princess Margaret Cancer Centre**

(The information below will be filled in by a nurse)

Days______am to______pm. Call: 416 _____ _____

Evenings______am to______pm, weekends and holidays. Call: 416 _____ _____

**If you are a patient of:**

**Toronto General, Toronto Western, or Toronto Rehabilitation Institute**, contact your home care coordinator.
Go to the nearest emergency room if you have:

- A fever (38°C or 100.4°F), with or without chills.
- Shortness of breath.
- Dizziness.
- Chest pain.
- Excess pain, drainage (fluid) around your cuts.
- Swelling on your neck, face, or arm on the side where the catheter was inserted.
- The catheter was pulled out.
- Any fresh (bright red) blood coming through your dressing.
- Any fresh (bright red) blood after you remove the dressing.

These may be signs of an infection or other problems.

Notes:

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