

# Skin Tunnelled Central Venous Catheter (STC) Insertion

This leaflet explains about STC insertion, including the benefits, risks and any alternatives and what you can expect when you come to hospital. If you have any further questions, please speak to a doctor or nurse caring for you.

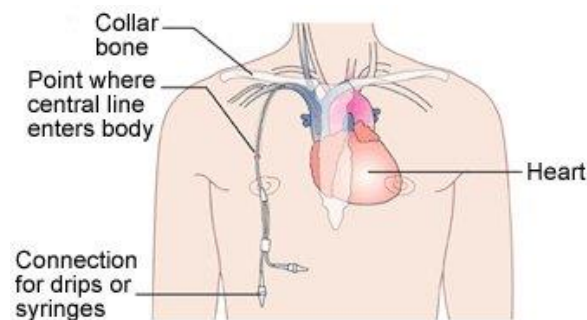


Diagram showing a central line  
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## What is an STC?

An STC is a tube (catheter) that is inserted into a vein. This may be a vein located in the neck (internal jugular vein) or located under your collarbone (subclavian vein). The tip of the catheter is passed along the vein until it is positioned in a larger vein. This vein is called the superior vena cava, which returns blood back to the heart. The STC is made from silicone or Polyurethane and can stay in place for one to six months and perhaps longer. Part of the catheter is tunneled under the skin (subcutaneous tunnel). This part of the STC has a small cuff on the outside made from a material called Dacron. The skin tissue in the tunnel adheres to the cuff and prevents the catheter from being dislodged.

## Why should I have an STC?

All types of intravenous drugs (for example chemotherapy, antibiotics, blood products and other fluids) can safely be given via the device. Blood samples can also be withdrawn from it.

The catheter may have one, two or three tubes (lumens). Your doctor may choose this type of device if:

- you require long term medication which must go into a large vein
- you require several types of long term intravenous medication
- veins in your arms are difficult to access.

## What are the risks?

Although inserting an STC is quite straightforward, there are potential risks and complications known to be associated with the procedure.

- Sometimes a few attempts may be required to locate and insert the needle into the vein. This may cause bruising and some tenderness around the area.
- A small amount of bleeding can occur (immediately after the procedure) around the insertion site. This is quite common and is easily controlled by applying an extra dressing that puts direct pressure on the site.
- An artery runs parallel with the vein and, on rare occasions, it can be punctured with the needle used to locate the vein. The blood in our arteries is under a greater pressure than in the veins, so artery punctures tend to bleed more. Any bleeding is managed by applying pressure to the site for five to ten minutes.

- Sometimes the chest x-ray shows that the STC may have been inserted too far. This rarely causes any problems, but it is best practice to withdraw the catheter a few centimetres. This is so that the tip is correctly positioned just above the heart chambers. This is a simple and painless procedure that takes about five to ten minutes.
- There is a rare risk that the top of the lung could get punctured during the procedure. This may lead to one lung deflating (pneumothorax). If this occurs, it may be necessary to have an additional tube placed in the side of the chest to re-inflate the lung.

### **Are there any alternatives?**

It is unlikely that you would be able to have the treatment that you require without an STC. You will be able to talk to the person who is going to insert the STC before the procedure.

### **How can I prepare for STC insertion?**

You will be asked to arrive at the x-ray department at a prearranged time. One of the Nurse Practitioners or Radiology doctors will discuss the procedure with you.

### **Asking for your consent**

It is important that you feel involved in decisions about your care. For some treatments, you will be asked to sign a consent form to say that you agree to have the treatment and understand what it involves. You can withdraw your consent at any time, even if you have said 'yes' previously. If you would like more details about our consent process, please ask for a copy of our policy.

### **What happens during STC insertion?**

A specialist nurse or doctor puts in the STC. The procedure takes approximately one hour. A local anaesthetic is injected to numb the

area on the chest wall. Two small cuts (incisions) are made to on the chest (insertion and exit sites). This will enable the catheter to be tunnelled and inserted into the vein. Both incisions are closed with a couple of stitches. Great care will be taken by the person inserting the catheter to avoid introducing any infection. This will involve the use of sterile gloves and drapes.

### **Will I feel any pain?**

The injection of the local anaesthetic does sting. Most patients say this is the most uncomfortable part of the procedure. However, the anaesthetic works quickly and then very little further discomfort should be felt. You may feel some pushing as the catheter is advanced through the skin tunnel.

### **What happens after STC insertion?**

A routine chest x-ray will be taken after the procedure to show exactly where the catheter tip is positioned. Occasionally a doctor may use x-rays during the procedure and the routine chest x-ray may not be required. Immediately after the STC has been placed, you will have a small dressing placed over each of the two incisions. There will also be two stitches on top of the chest. This is used to stop the catheter from moving outwards until the skin tissue within the tunnel has adhered firmly to the cuff. This takes approximately three weeks.

After the local anaesthetic has worn off, you may feel some discomfort around the area where it has been inserted. This can be relieved by taking a mild painkiller. The pain usually begins to ease after a day or two.

### **What do I need to do after I go home?**

If you are staying in hospital, the nursing staff will help you look after the catheter.

The following information is for patients who go home with their STC in place.

**The dressing over the insertion site** needs to be changed, by the nursing staff, 24 hours after the insertion procedure. Then it only needs to be changed weekly, unless it gets wet or soiled. Changing the dressings is easy and you will be given advice about the procedure by the nursing staff.

**The stitch(es)** from the top (insertion) site are absorbable and will take three to four weeks to disappear. The bottom (exit site) stitch and plastic wing will be removed after about four weeks. Once removed, there may be no need to apply further dressings. This will be discussed with the medical team supervising your care.

If any of the incisions or the skin around the tunnel, become **inflamed, red, swollen or painful**, please contact the unit looking after you or nurse who is visiting you. This may mean that an infection is present and antibiotics will need to be prescribed. Any infection along the skin tunnel is difficult to treat and the device usually needs to be removed.

**You can shower and bathe** if care is taken to avoid getting the dressing wet. If the dressing does get wet, after washing your hands, remove it and pat the site dry with some sterile gauze. Clean the site with an antiseptic applicator (supplied by the hospital), let it dry naturally and then apply a new dressing. It is most important that you do not allow the catheter to be submersed in water. You should not swim with an STC in place.

**The STC needs to be flushed** with a salt solution (saline) once a week to make sure it doesn't get blocked. The nurses on the unit or who visit your home are usually responsible for doing this once a week whilst you are undergoing treatment. Some patients can be trained to perform this procedure themselves.

Having an STC in place should not stop you from undertaking your normal daily activities.

### **What problems can arise after the insertion procedure?**

The following information is intended to give you more awareness of some of the late complications associated with living with an STC:

- **Inability to draw blood from one of the lumens of the STC**  
On occasions, fluids can be given into the lumens, but blood cannot be withdrawn. This is caused most frequently by a small blood clot that attaches to the tip of the STC. It is not dangerous but can be frustrating because blood samples must be taken with a needle from another vein. A chest x-ray may be taken to ensure that the tip is still in the correct position. If it has dislodged, the device may have to be removed.
- **Blocked lumen**  
Sometimes one of the lumens can become completely blocked by a small blood clot. In most cases the injection of a drug called Urokinase, which dissolve clots, will resolve the problem.
- **Damage to the STC**  
STCs do not tear easily, however, this can happen. If you notice any leaking of fluid or blood from the STC, check from where it is coming. If it is between the clamp and your skin, you must put an extra clamp (blue, toothless clamp) above the tear. This ensures that no air can enter your blood circulation. If the fluid is in between the STC clamp and hub, ensure that the clamp is closed. **You must ring the unit** looking after you as soon as possible, because a torn STC can quickly become a source of infection. In most cases, STCs can be repaired and usually do not need to be removed.
- **Movement of the line outwards**  
STCs are at risk of moving back outside the body, especially in

the first three weeks (until the cuff has secured). Care must be taken to ensure it doesn't get tugged at any time. It is best to take the weight off the tunnel by securing the lumens to another part of the chest wall with some tape. For women this can be done by placing them in the bra strap. If the STC cuff becomes visible or you notice that the catheter is longer, never try to push it back in. Always report this to the nursing staff. An x-ray may be taken to establish where the tip lies. If it has moved out of position the STC may have to be removed.

- **Infection**

If you have a suspected infection, blood will be withdrawn (blood cultures) and sent to the laboratory. This is to see whether any bacteria are present in your blood. You may also be given antibiotics down the lumen/s of the catheter. If an infection is confirmed, the STC may need to be removed. However, this decision is dependent on the type of infection that has been identified and how unwell it has made you.

- **Thrombosis (blood clot)**

A rare complication of having a device placed in a vein is that a blood clot may form around it. The clot can slow down and congest the flow of blood through the vein. This is called a venous thrombosis. The most common signs of a forming venous thrombosis in the internal jugular (neck) vein are:

- swelling of the fingers (difficulty removing rings)
- pain in the back of the shoulder
- a headache that is worse when lying down.

The device will need to be removed and some patients are prescribed drugs to thin their blood (anticoagulants). This will prevent any more clotting and help to dissolve the clot.

## **How is an STC removed?**

If the catheter has been in place for more than three weeks, a small incision needs to be made over the cuff in the tunnel. This is to enable it to be loosened from the adhered skin tissue. This is a simple procedure, which takes between 20 and 30 minutes.

An injection of local anaesthetic will be used to numb the skin.

Once the cuff has been freed the STC can be removed. Whilst lying flat your bed will be tilted so that your head is slightly lower than your feet. You will be asked to take a big breath and hold it as the STC is removed and then you can exhale. This is a simple procedure and not overly uncomfortable. The person removing the catheter will then apply gentle pressure to the site for up to five minutes.

The hole in the vein closes naturally. A dressing will be placed over the site, which should be left undisturbed for 48 hours. You will be instructed to lie flat for half an hour after the procedure to ensure that any bleeding from the vein has completely stopped before you sit up.

## **When should I contact the visiting nurse or the hospital?**

- If you have a fever or experience cold, shivery, flu-like symptoms.
- If there is any swelling, redness or discharge at the catheter insertion site.
- If you have swollen fingers, pain in the back of your shoulder and/or a throbbing headache that is worse when lying down.
- If the cuff is visible or more of the catheter seems to be outside your body than usual.
- If there is a tear in the catheter.
- If you ever have any other concerns or worries related to the STC.



## Contact us

If you have any questions or concerns about your STC, please contact the relevant department:

Central Venous Access Office: 020 8725 3153 Monday to Friday (except Bank Holidays)

Ruth Myles Unit: 020 8725 2442 (Outside office hours)

Trevor Howell Day Unit 020 8725 0519 (Office hours)

Trevor Howell Ward 020 8725 1082/3 (Outside office hours)

Nutrition Nurse 020 8725 2280

**For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit [www.stgeorges.nhs.uk](http://www.stgeorges.nhs.uk)**

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## Additional services

### Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

**Tel:** 020 8725 2453 **Email:** [pals@stgeorges.nhs.uk](mailto:pals@stgeorges.nhs.uk)

### NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health. **Web:** [www.nhs.uk](http://www.nhs.uk)

## NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones. **Tel:** 111

## AccessAble

You can download accessibility guides for all our services by searching 'St George's Hospital' on the AccessAble website ([www.accessable.co.uk](http://www.accessable.co.uk)). The guides are designed to ensure everyone – including those with accessibility needs – can access our hospital and community sites with confidence.



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