What is Spinal Cord Stimulation?
Spinal Cord Stimulation is a technology that aims to reduce pain by electrically modifying (reducing) pain signals in the spinal cord. This technology can also be used to reduce pain signals in the dorsal root ganglion (Dorsal Root Ganglion or DRG Stimulation) or peripheral nerves (Peripheral Nerve Stimulation). Traditional low frequency stimulation produces a pleasant tingling sensation in the area of pain, whereas more recent technologies can reduce your pain without the tingling.

Your doctor will discuss with you the best options for your pain and will recommend the type of therapy that is best suited for you.

Spinal cord stimulation is usually not suitable for persons with lowered immunity (including smoking), bleeding disorders, active infection, or anyone who is pregnant.

Implantation of a spinal cord stimulator is offered after a successful trial. The procedure usually requires a two night stay in hospital.

Will I be awake during the procedure?
The procedure is performed under sedation. You will likely have little or no memory of the procedure, however this is not guaranteed (especially if a deeper sedation is not safe for you).
How do I prepare for the procedure?

Please advise staff if you are:

- Taking blood thinners. These *will need to be stopped* for some time prior to the procedure. You may need to transition to another form of blood thinner leading up to the surgery.
- A smoker. You *will need to quit* for some time prior to the trial and commit to remain off the cigarettes.
- Diabetic.
- Pregnant (or any chance of you being pregnant).
- Allergic to iodine, latex, shellfish, local anaesthetics, or anything else.
- Unwell (especially if you have an infection).
- Implanted with any other medical device.

Staff may advise you to:

- Avoid eating for 6 hours prior to the procedure (You will be told the exact time to start fasting).
- In most cases it is OK to drink clear fluids until 3 hours prior to your procedure time (e.g. water, clear cordial, black tea).
- Take your usual medications (unless advised otherwise).

What does the procedure involve?

After arriving and completing the necessary paperwork:

- You will be asked to change into a hospital gown
- You will meet the anaesthetist and he/she will speak with you about the anaesthetic.
- A small cannula will be inserted into one of your veins to administer the anaesthetics medicines.
- Your heart rate, blood pressure and oxygen levels are continuously monitored throughout the procedure.
- You will lie face-down on an x-ray table, the skin over the area to be injected is cleaned with an antiseptic solution, and sterile drapes applied.
- A local anaesthetic will be injected into your skin.
- A surgical incision will be made for the leads to then be inserted via a needle using an X-ray machine to guide them into the correct position. The leads will then be stitched internally to prevent movement.
- A ‘pocket’ will be created via a surgical incision for the internal battery (Implantable Pulse Generator, or IPG). The leads will then be burrowed under the skin and tissues and then attached to the IPG.
- Once the leads and battery are in position the incisions will be sutured and waterproof dressings will be placed over the surgical wounds.
- You will be transferred from the procedure room into the recovery area to wake up.
- The procedure usually takes 90-120 minutes, plus recovery time.

What happens after the procedure?

In recovery

- Once you arrive in the recovery area your vital signs will be monitored. Your dressings will also be checked.
- When you are awake you will be given something to eat and drink.
- You may be seen by the representative from the stimulator company who will commence the programming of your stimulator. This may be delayed until the following morning.
- When you are fully awake, you will be transferred to the ward where you will remain for two nights.

**On the ward**
- You will probably have some surgical pain, minor swelling and bruising. You will have analgesics available for this. You may mobilise gently with restrictions.
- You will be seen by your doctor, pain clinic nurse and the representative from the stimulator company. If it has not already been done, your stimulator will be programmed and you will be instructed on the use of the remote control.
- You will have received sedative medicines during your procedure; the effects of these medications may last for up to 24 hours. You may not remember some of the information given during the procedure. This is a normal side effect of the medication. For the 24 hours following the anaesthetic you should not drink alcohol, make important decisions or sign legal documents.

**Post Spinal Cord (DRG & PNF) Stimulator instructions**
- You may shower three days after your implant. Please be careful not to allow a lot of water to run over your dressing areas, as they are merely splash resistant. If these dressings become wet, please see your GP or GP's nurse for a dressing change as quickly as possible.
- While infection is uncommon, it is important that you observe for any signs of infection. These may include fever, chills, pain, redness, swelling or discharge at the wound sites. If you are at all concerned you should contact your pain specialist during office hours. After hours you should present to your local Accident and Emergency Department for medical assessment.
- You should not adjust your pain medication. Medications will be discussed with your pain specialist at your appointments.
- For three months following implantation of the spinal cord stimulator you will have restrictions similar to those of the trial. It is important that you avoid any twisting, bending, stretching of your arms above your head or lifting anything greater than five kilograms in weight as this could move the precisely placed electrodes.
- You will be reviewed by your pain specialist at regular time points following insertion of the spinal cord stimulator:
  - 8 - 10 days post procedure,
  - one month,
  - three months, and
  - twelve months post implant.
  - Thereafter an annual review is recommended.
- You may need to have your spinal cord stimulator reprogrammed from time to time. You can organise an appointment directly with the company representative who will then liaise with your pain specialist’s rooms to arrange a suitable date and time for this to occur.
- Depending on the type of device that you have implanted you may be required to turn the device off before driving or operating heavy machinery. Please check with your treating doctor if you are unsure.
- It is safe to travel on airplanes with a spinal cord stimulator. It is important that you keep your remote control with you in your carry on luggage during the flight. You will be issued with an identification card that you must show the airport security staff. You may be escorted around the screening device. If you are asked to pass through the screening device you should turn your device off using your remote control and then turn it back on once your have passed through the scanner.
• It is safe to use all household appliances such as microwave ovens, computers, mobile phones and general household appliances. They do not interfere with the device.
• Most spinal cord stimulators have rechargeable implantable pulse generators (IPG’s) which means that they need to be recharged periodically. The frequency of charging varies according to the device. It is important that you check with the company representative regarding the charging instructions.
• For most spinal cord stimulators, the use of MRI is restricted. It is important that you consult with your treating doctor or stimulator representative if an MRI is requested.
• Medical treatments that involve the use of lithotripsy, electrocautery, dental drills and electrolysis may interfere with the device. You should seek advice from your treating doctor before these devices are used.
• Electromagnetic field devices (e.g. welders) may interfere with your device. You should seek advice from your treating doctor regarding any precautions.
• If you have severe pain, or notice any swelling, discharge or bleeding from the site or have any other concerns, please contact QPain, your General Practitioner, or the Emergency Department of your local hospital.

What are the potential complications?
This procedure is generally very safe. However all invasive procedures carry the risk of complications. In general the risk is low, but includes a number of potential complications, some of which can be quite serious.

Please discuss with your doctor any questions or concerns that you may have about your procedure or this information sheet.

Before the procedure is performed, you will be asked to sign a consent form, requesting to have the procedure. The consent form will spell out any potential complications under the following headings:
• Common side effects
• Less common side effects
• Rare side effects
• Potential side effects specific to you

You should take your time reading the consent form as it is very important that you have been fully informed about the potential benefits, risks, alternatives, and what the most likely course of events are if you do not want to go ahead with the procedure.

There are risks associated with having sedation. You should discuss these with your anaesthetist.

You can withdraw consent at any stage up to the start of the procedure.
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