



## Neck Spinal Surgery Guide

This guide provides information about what to expect during your hospitalization and when you return home following your spine surgery. As spine surgery affects each person differently, some of the information included in this guide may not be applicable specifically to your condition, so it is important for you to discuss any questions or concerns with your doctor or nurse.

### **Reasons for spine surgery**

Spine surgery may be recommended by your neurosurgeon to manage your condition and prevent it from getting worse. This could be for any of the following reasons:

- Reducing and managing symptoms such as pain, numbness, tingling and weakness
- Relieving pressure on nerves, for example by removing discs that have degenerated or tumors, nodules, cysts or bony growths (osteophytes)
- Stabilising the spine, e.g. after traumatic injury
- Draining an infection or abscess

### **Risks and complications of spine surgery**

No surgery is without risk, even for a healthy person. Your surgeon will discuss the risks and complications with you.

General complications:

- Allergic reaction to drugs, anaesthetic agents, blood transfusions and products
- Bleeding
- Infections
- Stroke
- Death

Specific complications related to spine surgery:

- Nerve or spinal cord damage, which can result in paralysis, numbness and/or limb weakness
- Persistent pain (or other abnormal sensations)
- Infection of the surgical wound
- Pressure ulcers/abrasion (position related)
- Leakage of cerebrospinal fluid (CSF)
- Hoarseness of voice
- Swallowing difficulties
- Bladder and bowel changes
- Spinal cord/nerve injury
- Visual impairment
- Need for additional unplanned procedures or revision surgery
- Unsatisfactory position or failure of spinal implants
- Failure of fusion
- Excessive bleeding or excessive blood clot formation
- Formation of blood clot within a major vein (Deep Vein Thrombosis or DVT)
- Major blood vessel injury

- Blood clot on the spinal cord (Spinal epidural haematoma)
- Paralysis from spinal cord reperfusion effect – this is an uncommon complication that causes a stroke-like effect in the spinal cord.

## **Pre-preparation for surgery**

- **History** – It is important for you to inform your doctor about your past medical and surgical history, your current regular medication especially blood thinning agents, such as aspirin, warfarin and drug allergy.
- **Neurological examination** – Physical and neurological examination may be performed as a baseline for post-operative comparison.
- **Investigations / Tests** - Diagnostic imaging studies of the spine, such as CT, MRI, spine angiography etc may be performed to provide your surgeon with anatomic details for surgery.
- **Informed consent** – Your neurosurgeon will discuss the potential benefits, risks and complications that may result from the surgery, any alternative treatments, operative procedure, peri-operative investigations and estimated duration of surgery to you. If the doctor uses term not familiar to you, please clarify with him. You will have to sign a consent form to show that you have understood what was told to you and have agreed for the procedure. You will also need to sign consent for receiving blood transfusion if needed.
- **Financial counseling** - You will be advised on the estimated cost of the surgery, implant (if any) and expected length of stay in hospital.
- **Pre-operative education** – It is normal to be fearful of the surgery and experience anxiety. You will be referred to nurse clinician who will provide explanation on what to expect before, during and after the surgery.
- **Hair and beards** - some upper neck surgery may require your hair to be trimmed at the back of your head and for beards to be removed. Your team advise.

## **Pre-Admission Counselling and Evaluation (PACE) clinic**

Before any surgery, you will need to be assessed by an anaesthetist at the Pre-Admission Counselling and Evaluation (PACE) clinic. Please inform the anaesthetist if you have any medical illnesses or any of the following:

- history of allergy or reaction to any medication, drugs, or food.
- history of bleeding or clotting disorders.
- You are taking blood thinning drugs (e.g. warfarin, aspirin, Clopidogrel) can increase your chance of bleeding and the doctor at PACE clinic will advise if you need to stop taking them before the surgery.
- You are taking Cordyceps, Ginkgo Biloba, Lingzhi and all other Traditional Chinese Medicines and supplements. These may affect blood clotting and increase the risk of bleeding so they should be stopped before your surgery.
- You are a smoker or have recently stopped smoking.

Most spinal surgery is done under general anaesthesia. This will be further discussed by the anaesthesiologists at the pre-admission clinic. Sometimes, the doctor at PACE clinic may refer you to other specialists to investigate/optimize your medical condition(s) before surgery. This can result in postponement of your surgery.

### **Day of admission/surgery**

- Bring along your own toiletries and all current medication.
- DO NOT bring valuables to the hospital.
- DO NOT drink/eat anything 6-8 hours prior to your surgery – hospital staff will call you with instructions the day before your surgery.
- Wash your hair and shower before coming to the hospital.
- For your safety, you will be asked to remove your dentures, glasses, jewellery, hearing aids and nail polish. Please store them in containers or a plastic bag labeled with your name.
- Your family members may remain with you until you leave for the surgery.
- Depending on the type of surgery, the length of operation may range from 4 to 6 hours or possibly longer. If there are other emergencies, your surgery may be delayed or postponed.
- Your family members may wait for you outside the ward waiting area while you are in surgery. They may leave their contact numbers with the ward staff so that they can be informed when you are out of the operating theatre.
- You will be asked to remove all your undergarments and change into an operating gown and to empty your bladder before you leave for the operating theatre.
- The operating theatre staff will fetch you on a trolley to the operating theatre.
- **If you are unwell on the day of your surgery**, please call the number given by PACE.

### **During surgery**

- You will receive medication(s) in the operating theatre to make you sleep unless your neurosurgeon has told you otherwise.
- After you are asleep, one or more of these catheters/tubes may be inserted:
  - **Breathing tube** - Breathing tube will be inserted into your throat to help you breathe during the surgery.
  - **Monitoring devices** – Wires will be attached to your hand and body. These are connected to automated machines that will continuously check your breathing, heart rate, blood pressure and oxygen saturation throughout the surgery.
  - **Intravenous (IV) line** – One or more intravenous lines for medications, fluid administrations or blood transfusions will be inserted before or during surgery.
  - **Urinary catheter** – A urinary catheter may be inserted into the bladder to drain and monitor the urine output.
  - **Arterial catheter (IA)** – A catheter may be inserted into an artery in your wrist in order to measure your blood pressure more accurately and allow blood sampling to be taken.
  - **Intra operative spinal cord and nerve monitoring (IOM)** may be used by your surgeon to monitor spinal cord and nerve root function during your surgery.

## **After Surgery**

### **Monitoring**

You will be monitored in the Intensive Care Unit, High Dependency ward, or general ward until all acute risks of infections and bleeding have passed. This will include frequent questions and requests to move your arms and legs to assess your limb strength and sensation. It is important for you to respond even if you think it is repetitive. Blood pressure level, pain level, temperature, blood sugar, oral intake and output may also be checked.

You may also be monitored closely for other potential complications as a result of decreased movement and presence of invasive tubes or catheters e.g. chest and urinary tract infections, deep vein thrombosis etc.

### **Catheters / tubes/ collar**

Depending on the type of spine condition, various tubes, drains and intravenous lines may be placed temporarily for a few days or longer after the surgery:

- **Monitoring devices attached to your body and hands** - to check your breathing, heart rate, blood pressure and oxygen saturation continuously or at regular interval.
- **Oxygen face mask / Nasal prong** - An oxygen face mask or nasal prong is usually given to you when you are more alert and able to breathe better.
- **Intravenous (IV) lines** – One or more intravenous lines will be inserted and kept in for fluid, blood transfusion and medication until you can take oral fluids well.
- **Nasal/Oral gastric tube** – A tube may be inserted via the nose or mouth for milk and drug feeding if you have swallowing difficulty, at the advice of a speech therapist. It is usually removed when you are taking food well by mouth and able to swallow food and water safely.
- **Urinary catheter** – A urinary catheter may be inserted into your bladder to drain and monitor your urine output. The urine will be drained through the tube into a plastic bag which will be hung low by the foot of the bed. It is usually removed the day after your surgery; unless you are unable to pass urine and/or empty your bladder completely. You may feel the urge to urinate which is caused by feeling the catheter against the bladder neck. Upon its removal, you may feel a stinging sensation for 2 to 3 days, which is normal.
- **Surgical drain** – A tube may be placed in the surgical site to drain blood and fluid. It is usually required for 2 to 3 days after the operation depending on the drainage amount.
- **Anti-embolic stockings** - Tight thigh-high stockings are usually worn to promote blood circulation in the lower legs and to minimize the risk of blood clots forming in the deep veins of both legs. Before you are allowed out of bed, you are encouraged to perform leg exercises every one to two hours. The stockings may be removed once you start walking.

- **Collar/brace Application**

Your surgeon will advise if you need to wear a collar or brace, what type is required, when and for how long it needs to be worn.

There are several types of collars and braces:

- **Hard collar**

- If a hard collar needs to be worn, it will be fitted at the end of your operation so you will be aware of it when you wake up in the recovery area.
- The collar will need to be worn at all times while you are warded in hospital.
- On the advice of your doctor, you may be able to remove your hard collar when sleeping lying flat in bed or showering, (provided the dressing is protected so it does not get wet).
- Before you are discharged home, a nurse clinician will teach you and/or your family/caregiver how to care for your prescribed collar and how to wear it.
- During your outpatient appointment, your surgeon will advise when you can stop wearing the collar.

- **Soft collar**

- If you need to wear a soft collar, it should be worn at all times while you are hospitalized, except when sleeping in bed or showering, (provided the dressing is protected so it does not get wet).
- During your outpatient appointment, your surgeon will advise when you can stop wearing the collar.

- **Neck and back brace (Cervical Thoracic Brace)**

- If neck and back brace needs to be worn, it will be fitted at the end of your operation so you will be aware of it when you wake up in the recovery area.
- The brace will need to be worn at all times while you are warded in hospital.
- On the advice of your doctor, you may be able to remove the brace when sleeping lying flat in bed or showering, (provided the dressing is protected so it does not get wet).
- Before you are discharged home, a nurse clinician will teach you and/or your family/caregiver how to care for your brace and how to wear it.
- During your outpatient appointment, your surgeon will advise when you can stop wearing the brace.

## **Investigations / Tests**

Repeat x-rays may be needed to assess the spine condition after surgery. Repeat blood tests may be performed to detect or correct any abnormalities if any.

## **Diet**

Your healthcare team will advise you when you can start drinking and eating again. Most patients are able to eat after they are transferred to the ward. No special diet is usually needed after spine surgery, however, if your surgeon has operated through the front of your neck, you will likely need to eat soft food for the first few days. A normal well balanced diet is recommended for recovery. The use of painkillers often causes constipation. You may need to drink more water, increase fibre in your diet and take a stool softener or laxative. You will only be referred to a speech therapist for swallowing assessment if necessary.

## **Wound management**

Your wound is covered with a dressing and will be changed when dirty or loose. Keep your wound clean and dry until the stitches have been removed. Do not apply any lotions, ointments or other

products to your wound unless specifically instructed to do so by your doctor. Notify your doctor or nurse clinician if you notice any of the following:

- Pain
- Redness
- Swelling
- Discharge
- Fluid leakage
- Skin breakdown
- Temperature >38 degree Celsius

### **Removal of stitches / Steri-strips /Prineo**

Some patients have stitches and others may have Steri-strips (thin plaster strips) or Prineo (clear, waterproof dressing) to close the wound. Stitches and Steri-strips need to be kept dry. Your surgeon will decide when your stitches or Steri-strips can be removed – this is normally about 10 to 14 days after surgery and will be done in the ward or outpatient clinic. Patients are allowed to shower after their stitches and Steri-strips have been removed. If you have a Prineo dressing, you will be advised when you are allowed to shower. Prineo dressings are usually removed 14 days after surgery at the outpatient clinic.

### **Spine implants**

Spine implants include metal or synthetic plates, rods, wires, screws and devices that are designed to stabilise the spine. Therefore, implants are only used when the goal of surgery is to restrict excessive movement between two or more segments of the spine.

If spine implants are used in your surgery, you may need to have x-rays and/or scans to check on their condition. Your surgical team will advise how often this needs to be done based on your condition and implant.

Implants used in spine surgery may be detected by airport security checkpoints. You will receive an implant card after your operation which states that you have an implant. This card should be kept in your wallet and shown to security staff during airport security checks.

Implants are usually safe for Magnetic Resonance Imaging (MRI) scans, however you should always inform staff if you have such implants before going for an MRI scan and show them your implant card.

## **What to expect after surgery?**

### **Pain**

Sometimes, spine surgery cannot completely eliminate the pain experienced before the operation. Pain may persist for many reasons, for example:

- the spine may have multiple abnormalities which surgery cannot completely address.
- the nerves may already be irreversibly damaged by the disease condition and cannot recover even after surgery
- scar tissue (which develops around the nerves) can also cause pain.
- Pain, tingling and numbness on the front and side of the thigh(s) may be experienced, however this is usually temporary and can be treated.

Tell staff if you are suffering from pain. Taking painkillers as prescribed by your doctor will help manage the pain and you should need fewer painkillers as the wound heals.

### Tiredness

Most people feel tired and need more rest than usual, but this will gradually improve. Even sitting up in the first few days after surgery may require more effort than you expect. Don't be afraid to ask for help if you cannot do these tasks on your own. Most importantly, remember to "listen to your body" and take each step of the healing process at your own pace. As you begin to feel stronger you should gradually resume your previous activities, building up as you feel able. Try to avoid doing too much too soon.

### Altered sleep patterns

It is not uncommon to find that your sleep patterns change after surgery, such as having difficulty falling asleep at night, or waking up often during the night. This will gradually return to normal. A portable music player with some soothing music may help you to relax.

### Pain or numbness around the scar

The scar will feel more sensitive generally and may feel itchy or have a sensation of pins and needles occasionally. The nerves that supply the sensation of the skin may be damaged during the surgery, making the area around and behind the scar to feel numb. Odd creeping sensation and sharp pains are also common.

### Changes in sensation

Surgery may not completely reverse injuries to spinal cord and nerves. Some patients feel numbness and weakness in their arms and legs which could improve over time.

## **Medications**

You may be given some new medications for your condition after your spine surgery. You will receive instructions from the pharmacist explaining what, why and how you should take your medication upon discharge. It is important you know which drugs you will need to continue to take and the dosage. Check you have enough drugs till you see your doctor again. If you were taking blood thinning medication (e.g. warfarin, aspirin) before the spine surgery, your doctor will advise you when to re-start the medication after the operation.

## **Your recovery journey**

Recovery and the benefits from spine surgery are different for each person and depend on various factors, including:

- The underlying disease or condition you had
- How severely the spinal cord or nerve roots were compressed
- Complications of the injury
- The presence or absence of neurological problems
- The type of surgery you had
- Complications of the surgery
- Side effects or complications of postoperative treatments
- Your age and general health, including other medical conditions you have

Patients who have significant medical problems before their surgery, may take longer to recover and their recovery can be unpredictable.

Some patients may have temporary or permanent problems after spine surgery, such as:

- Weakness of hands and legs
- Numbness of hands and legs

- Poor balance or lack of coordination

### **Recovery and rehabilitation**

After any surgery, it is not unusual, at first, to feel worse than you did before. This can be depressing if you are not prepared for it. Dizzy spells may also occur. These episodes can come and go and may be upsetting for you and your relatives.

The nurse and therapist will assist you in getting out of bed as soon as your condition allows. Early activity after surgery is extremely important to help prevent complications from decreased mobility, such as pressure sores, constipation and urine retention. It also promotes recovery and relieves muscle stiffness.

Rehabilitation can help you regain independence in your daily activities, such as walking, getting dressed, eating and bathing. This starts as soon as possible in the ward and can include physiotherapy, occupational therapy and/or speech therapy. Some patients may require longer rehabilitation and will be transferred to a community hospital. Once discharged from hospital or community hospital, patients may still require rehabilitation at outpatient clinics or at home.

When you return home after your surgery, you may need help with simple household tasks such as cooking and cleaning, looking after yourself, and travelling to the hospital for appointments.

Try to plan ahead and make arrangements with your family, so help is available when you return home from hospital. Knowing who will accompany you to your medical/physiotherapy appointments and assist you with bathing and cooking can help you to avoid some possibly difficult situations after your surgery. It will also make it easier for your family members to share the tasks and manage their time.

Recovery is a natural process and it takes time. Some patients see quick improvements at the start, but their progress slows down over time and continues at a very slow rate for years.

### **Family and friends**

Support from family and friends is very important for a person recovering from spine surgery. At times, adjustments may need to be made in the family depending on the person's condition and progress. It is helpful to maintain a realistic and positive attitude towards recovery and rehabilitation and make plans for the short and long-term care of the person in consultation with the healthcare team.

The family should appoint one or two people to be the family spokesperson. They should be the key point of contact for the Doctor and healthcare team and pass information on to other members of the family to ensure consistency of information. This helps to avoid misunderstandings that can arise if there are many different people asking questions.

### **Preparation for home**

We will discuss plans for continuing your recovery at home. These include if you need help with activities of daily living or other similar issues. We will provide information and training to your carer if you require assistance or special equipment upon discharge. To ensure a smooth transition to your discharge destination, we will assist you by mobilizing community resources and making referrals for follow-up therapy if needed.



## Research Studies

Your doctor may discuss the feasibility of you participating in some research studies. Before conducting medical research involving people, medical staff are required to obtain the written consent of the patient or their legal representative to participate in the research project. The Doctor will explain the purpose of the study to you, including any hoped-for-benefits or potential side effects.

If you agree to take part, you will be asked to sign a consent form. After giving your written consent, you can still choose to refuse to participate or to opt out at any point during the research project. Your decision not to participate will not affect the care you receive. Some of research studies require follow-up appointments at the clinic or telephone calls to check on your progress.

## Recovering at home

### Follow-up studies / visits

Your first follow-up appointment will be scheduled 2 to 8 weeks after you are discharged from hospital. This will include consultations with the neurosurgeon as well as spinal assessments and wound reviews with specialist nurses. Histology findings (test results), further surgery if needed or any additional treatment such as radiation therapy and chemotherapy in cases of spine cancer may be discussed in the outpatient clinic. Further follow-up appointments will be planned according to your condition and recovery.

### Leave

You will usually be given hospitalisation leave to recover at home. The duration of your leave will depend on the type of surgery you had and your recovery progress.

### Activity

#### Restrictions

For the first 4 to 8 weeks after surgery:

- Do not lift anything heavier than 5kg
- Do not do any kind of heavy exercises or activities that cause you to hold your breath and push, for example weight lifting, lifting or moving heavy objects.

Some contact sports are best avoided after neck surgery – your doctor will advise.

#### Neck collar or neck brace

If you wore a collar while in hospital, you should continue to wear it when you get home. For the daily care activities on collar use, please scan the QR code for more information. During your outpatient clinic visit, your surgeon will advise you when you can stop wearing the collar or brace.



<https://for.sg/aspencollaredu>

#### Driving

Depending on your condition, your neurosurgeon may advise you to stop driving permanently or temporarily if you continue to have weakness and numbness of your limbs. Your doctor will advise if/when you can start driving again. You should not drive if you wear a neck collar or neck and back brace because you are unable to turn your head to check for on-coming traffic/pedestrians and blind spots.

### Sexual activities

You may like to discuss this with your doctor.

### Air travel

Please seek advice from your neurosurgeon.

### **Return to work/school**

The type of work you do and the demands of your job, as well as your recovery will determine when you are able to return to work. Your doctor will discuss this with you during your follow-up appointment.

Rest, proper nutrition and a positive attitude will promote healing, but recovery does take time and patience. Recovering after surgery may be a challenging experience. You and your family may find talking to someone or attending a support group helpful. If you would like contact details of associations, organisations and support groups, please ask your nurse.

### **When to seek medical attention?**

**Call your doctor or nurse or go to the nearest hospital if you experience new or worsening symptoms:**

- Increased weakness/numbness
- Difficulty speaking or swallowing
- Persistent fever
- Wound breakdown or discharge

### **YOUR HEALTHCARE TEAM**

Our doctors, nurses and other members of the healthcare team will guide you and your family members during your road of recovery. If you have any questions, concerns or comments, please feel free to contact us.

For Surgery & Wound related matters	<b>6357 7545 (Neurosurgery Nurse)</b> Monday to Friday (excluding Public Holiday), 8.00am to 5.00pm
For appointment and other related matters	<b>6330 6363 (NNI Neuroscience Clinic)</b> Monday to Wednesday, Friday: 8.00am to 5.30pm Thursday: 8.00am to 5.00pm Saturday, Sunday, Public Holidays: Closed

### **National Neuroscience Institute**

11 Jalan Tan Tock Seng

Singapore 308433

Main Fax : (65) 6357-7016

Appointment Line : (65) 6330-6363

Website : [www.nni.com.sg](http://www.nni.com.sg)

Email: [appointments@nni.com.sg](mailto:appointments@nni.com.sg)

### **NOTE :**

This brochure is given as a guide only and does not replace professional advice and care from your doctor. You should seek the advice of your doctor before starting any treatment or if you have any questions related to your health, physical fitness, or medical condition.