PARTICULAR RISKS ASSOCIATED WITH THE PATIENT

There are risks associated with undergoing surgery which are particular to the individual. These risks are associated with:

- Smoking: If you smoke, there is a higher chance that your surgery will not be as successful compared to a non-smoker. There is a higher chance of the fusion not fusing properly. There is also an increased chance of other complications, such as wound infections, chest infection, heart and lung complications and DVT.
- Medical Conditions: If you have underlying immunosuppressive conditions, such as cancer, rheumatoid arthritis or any other similar states (i.e. AIDS, diabetes, chemotherapy), there is a significantly raised risk of complications occurring.
- Obesity: If you are overweight, the probability that you will have a significant complication increases.
- Other Co-Morbidities: If you already have an underlying medical condition there can be increased risks associated with your surgery.

GENERAL RISKS RELATED TO YOUR SURGERY

- Death: This is an extremely rare complication that can occur for many reasons. Most of the time it is due to an underlying condition (which we may or may not know about before the surgery).
- Neurological Injury: An injury can occur to your spinal cord or one of your nerve roots during the procedure. This is rare but it can have serious consequences. Sometimes further surgery may be required. The results of such injuries can include:
  - Paraplegia - this may result in your legs and feet not functioning properly and it can affect your bowel and bladder function as well as sexual function. You may become dependent on the help of others and a wheelchair. This is an irreversible complication.
  - Cauda Equina - this is an injury to the nerves supplying the bowel and bladder. The result of such an injury is that the bowel and bladder will not function properly. This injury may be permanent.
  - Nerve root injury - if a nerve root injury occurs, you may sense a loss of power in the legs or the sensation in the legs may be altered. Your balance may become poor. The ability to move the foot up and down may be lost. You may require further corrective surgery or need to wear an orthotic splint. On occasion, you may experience more pain. These complications may be permanent.
- Anaesthetic Complications: Complications can arise from the anaesthetic you receive. It is the role of the anaesthetist to discuss these with you before you undergo an anaesthetic. You need to be aware that in a small number of cases serious complications can occur and, in very rare instances, death. The common adverse effects of anaesthetic include fatigue, altered mental state, sleep disturbance, nausea, vomiting, sore throat, bruising and venuipuncture. If you have an epidural type of anaesthetic, you may experience a headache following surgery. You may also feel some temporary numbness or weakness in your legs. Some of the complications that can be related to your anaesthetic are death, neurological damage, allergic reactions to the anaesthetic, infection of the epidural or IV sites, aspiration of stomach contents into your lungs, and malignant hyperthermia.
- Bleeding: You will lose blood during the procedure. A blood transfusion is rarely required. Bleeding after surgery may result in haematoma. This is a rare occurrence. If a haematoma occurs further surgery may be required and there is an increased risk of infection.
- Infection: Infection is thought to occur in about 2% of post spinal surgery. Some are minor in nature and some can be very serious. A minor infection can be treated by antibiotics and your stay in hospital may be prolonged. In a small number of cases infections may require further surgery to clean the wound. A serious infection of the prosthesis may result in osteomyelitis, an infection in the bone. Discol, or an infection in the disc, can also occur. These types of infection may adversely affect the outcome. Extensive surgery may be required to correct the problem. The prosthesis may need to be removed and further spinal fusion performed. In a small number of cases, infection can spread to other areas of your body making you seriously ill. In rare instances infection may occur from an infection.
- DVT: This is one of the most common complications. It is a blood clot in the vein in the muscles of the calf or thigh. The clot can break and travel into the lungs or heart. DVTs can cause pain, shortness of breath, and even death on rare occasions. A DVT can increase the length of stay in hospital and possibly need for further surgery.
- Stroke and Heart Attacks: These complications occur rarely. You are not at increased risk of suffering a stroke or heart attack during or following surgery, your heart would already need to be diseased prior to surgery. The stress of the procedure or the anaesthetic may contribute to the stroke or heart attack. This may result in being physically or mentally disabled (or both). Death can also result from a stroke or heart attack.
- Scarring: A surgical scar is a necessary part of the procedure. The size of the scar will depend upon your particular procedure that is performed. In some cases keloid scarring may make this scar look unsightly.

OTHER COMPLICATIONS: The complications raised in this document are the most common and the most serious complications. Other complications may arise during or after your surgery that are not recorded in this document. In most cases, they will be extremely rare complications. It is impossible to advise you of every possible risk associated with your surgery but should you have any specific concerns you need to discuss them with your surgeon.

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PERSONAL REASONS FOR HAVING SURGERY

- Paraplegia: including bladder and/or bowel dysfunction.
- Pain: low back pain, radiculopathy and facet joint pain.
- Sensory Deficit: weakness in legs, clumsiness and loss of balance.
- To prevent further deterioration of spinal motion segments.
- Lack of predictability for the future.

Prior to recommending surgery, you will generally have undergone a period of conservative treatment without successful resolution or reduction of your symptoms. However a decision may be made to undergo surgery earlier because of the severity of your symptoms or because your outcome without surgery is inevitable.

ALTERNATIVES TO SURGERY *

As this elective surgery, this decision is yours whether to have the surgery. You may continue with non-operative treatment for your condition. This approach can involve:

- Working within the physical limitations put on you by your condition.
- Avoiding those activities that aggravate the symptoms.
- Using medication to help manage your symptoms.
- Making use of the right health field such as physiotherapy and massage.
- Exercises to improve your general fitness.

It is important to be aware that, if you have a neurological deficit, following a non-operative line of treatment may result in the deficit becoming permanent or deteriorating further.

* This does not apply if you are diagnosed with Cauda Equina Syndrome or Conus Medullaris Syndrome

HOW THE PROCEDURE IS PERFORMED

The description of the procedure and this document is a general description of a typical procedure. You must be aware that during the procedure depending on the intra-operative encounters it may result in further or different steps being performed. It is impossible to describe exactly how each individual procedure will be performed. Before the procedure, you will be put to sleep under general anaesthetic. The surgery is performed in a posterior approach via a back incision. You will be placed on the abdomen lying face down. A catheter may be used to decompress the bladder. Your skin will be cleaned with an antiseptic solution. A midline incision is made over the level of interest, the muscles are retracted and x-ray is taken to identify and verify the level. A high speed Burr is used to remove bone from the laminae of the spine to expose spinal nerves and discs.

**Discectomy / Laminectomy:** In the case of discectomy, only the part that is compressing (hemiated disc, hypertrophy of facet joint and/or ligamentum flavum) will be removed. Nerve roots are checked and freed by removing foraminal compression.

**Fusion:** If fusion is performed, complete discectomy is performed and interbody cage will be inserted. Once discectomy and cage reconstruction is completed the remaining disc space in between vertebrae will be filled with bone, bone graft or substitute. Segmentational fixation is performed using pedicle or cortical bone screws and rods to immobilise spinal segments. Posterior bone graft is laid to achieve posterior fusion. Washout is performed, wound is closed, then a drain is placed at the operative site which will drain blood thereby preventing haematoma for the first 24-48 hours.

AFTER SURGERY

After surgery you are returned to the ward for observation. Usually, there is a catheter in place in the bladder and an IV line giving you pain relief. This will stay in place for approximately 24 hours. You are then mobilised with the aid of a physiotherapist and will usually spend 1 night in hospital for discectomy, 2 to 3 nights for laminectomy and longer for fusion.

Either the hospital ward nurses or your GP at two weeks post op will assess the wound for suture removal and replacement of the dressings. The surgeon will review patients between four and six weeks post op and commence rehabilitation physiotherapy. The rehabilitation physiotherapy is performed for about four to six weeks, focused on mobilisation of the buttock and leg muscles and core strengthening. Wound must be kept dry and not contaminated or tempered for 2 weeks.

It is generally expected that patients are able to commence the following activities:

- Walking unrestricted at 2 weeks post op.
- Driving a motor vehicle at 4 to 6 weeks post op.
- Commence sexual activity in recumbent position at 6 weeks post op.
- Lifting is limited to 10kg from 6 weeks post op to 3 months post op.

If you underwent fusion:

- **3 Months:** An x-ray will be performed to assess interval healing and to assess recovery. Generally patients are fairly comfortable and have returned to work in some capacity.
- **6 Months:** Another x-ray or CT will be performed to assess interval healing and depending on the imaging findings, the restrictions placed will be modified.

**12 Months:** Most patients have achieved the desired result of the operation and x-ray or CT will be performed to confirm this final outcome. Generally no restrictions remain and patients are given a clinical scoring survey to assess and document their final outcome.

EXPECTED OUTCOMES FROM THE SURGERY

The outcomes of surgery related to goals to be achieved. You need to be aware of the difference between procedural success which has been a technical success and that of a clinical success. Given the skills of surgeons today there is a high probability that any surgery performed will be technically successful. This means that the surgery was performed in the correct manner and no problems arose during the surgery.

While most surgery will be technically successful, some surgery may not be clinically successful. This is about how you perceive the outcome. Even though the surgery was successful there is a chance that your perception maybe that you will feel no better or worse following the surgery. There are many reasons contributing to this perception and they can include unrealistic expectations on the part of the patient, depression, psychological issues relating to the patient, other physical ailments of the patient, the patient's overall physical condition, drug or alcohol problems, the patient being involved in litigation, and complications following the surgery.

The particular goals of the procedure are:

**Cauda Equina Syndrome (CES) / Conus Medullaris Syndrome (CMS):** In the setting of CES or CMS, early surgical intervention may restore your bladder and/or bowel function relatively soon, however in the setting of missed/delayed intervention may cause permanent injury to the bladder and/or bowel.

**Decompression of Spinal Nerves & Spinal Cord:** The main goal is to remove compression on the spinal cord and spinal nerves. In most cases pain associated with neural compression will be resolved immediately following surgery but in some cases, particularly in chronic compression, recovery and relieving pain may not be as dramatic. Neurologic recovery, e.g. sensory and motor deficit, may take many months to recover.

**Reduction in Leg and/or Back Pain:** The goal is to address the main generators of your pain and thereby reduce your back pain. There may be other pain generators in the tissues of the spine and it is not possible to guarantee full relief of all your back pain. In both cases your back pain will be significantly improved.

**Increased Function and Mobility:** As a result of the improved stability of the spine and the reduction in pain, your function and mobility should be improved, but once again this cannot be guaranteed.

SPECIFIC RISKS ASSOCIATED WITH DISCECTOMY, LAMINECTOMY & INSTRUMENTED LUMBAR FUSION

**Recurrence:** In discectomy and laminectomy there may be recurrence at either the adjacent level or index level that may result in similar symptoms.

**Dural Tears:** There is a small risk of a dural tear during spinal surgery. A dural tear is a tear in the outer lining of the spinal sac that encloses the spinal cord and fluid. CSF may leak from a dural tear. This may result in headaches after the surgery. Generally any tears that are pertinent are repaired during the surgery. However, further surgery may be required to repair the tear fully. There is a higher incidence of infection when a dural tear occurs.

**Complications relating to Bone Graft:** In some cases, a pseudarthrosis may occur. This means that the bone grafting does not work and fusion at the site of surgery is not achieved. The chance of this occurring now has been reduced by use of improved biologic materials and implants. We use bone morphogenic protein (BMP) or other bone substitute in combination with structural bone allograft, cages and hardware which result in very high union rates. Nevertheless, smoking still does reduce the fusion rate by about 20%. If you smoke in the first year following the surgery you run the risk of non-union. The diagnosis of non-union does not necessarily equate to incidence of back pain. Recent study demonstrates that 10% of patients undergoing posterior spine fusion will develop non-union but only 1% of patients will require revision surgery to address the non-union.

**Hardware Complications:** Occasionally complications can occur with the metal cage, plate, screws use in the fusion. The screws can break, they can move, and back out or unscrew. If these complications occur, further pain may result. Further surgery may be required to correct the problem or to remove the screws, plate and/or cage.