

PREPARING FOR SUCCESS:

Spine Surgery Patient Guide



Neurosurgery One



We've Got Your Back

Thank you for entrusting your care to our team of experienced neurosurgeons and staff at Neurosurgery One. We are honored and want to assure you that we will be by your side throughout your spine surgery and recovery journey.

We take pride in providing patients and care givers with unbiased information that is supported by medical research. Our team is dedicated to providing you with the highest quality care in a safe and supportive environment.

Use this packet as your essential guide to your spine surgery preparation and recovery. It provides information you need to plan and engage in your surgery and optimize your recovery. If you have additional questions or are unclear about something, please ask us — no question is too small or unimportant!



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Your Spine Care Team

The following terms are used to describe members of the spine care team who interact with you and your caregivers throughout the spine care and surgery process.

Anesthesiologist: Your anesthesiologist will provide the medications needed to keep you asleep and monitor your vital signs throughout the surgery to ensure your safety.

Attending surgeon: Neurosurgery One has a team of board-certified neurosurgeons and spine surgeons who offer expert neurosurgical care to help relieve back, neck, arm, and leg pain caused by spine conditions. Your surgeon has been specially trained in orthopedic or neurosurgery to care for complex spine problems and has years of experience doing so. He or she will provide a customized treatment plan and oversee your care throughout your stay.

Case manager: Your case manager is your point of contact in the hospital and will assist with discharge planning and arrange any accommodations you may need related to your surgery.

Certified nursing assistant/advanced care partner (CNA/ACP): Your CNA/ACP will assist you while in the hospital with personal care activities, such as bathing, changing clothes, or getting to and from the bathroom.

Chaplain: A chaplain is trained to serve you and your family's spiritual needs in the hospital upon your request, regardless of your religious denomination.

Coach: Your coach is a family member or friend whom you identify as someone to help you throughout the spine surgery process. Your coach is encouraged to attend the presurgery education class, as well as any follow-up appointments with your surgeon.

Dietitian: Your dietitian provides nutritional support throughout your stay in the hospital and can help you make healthy food choices.

ERAS: Enhanced Recovery After Surgery is a unique program offered by Neurosurgery One that helps patients regain function quicker and reduce complications from surgery. You will participate in an online class with other patients who are preparing for spine surgery, to learn how to get yourself and your home ready, exercises and other things to do after surgery, and more.

ERAS NP: A nurse practitioner who will guide you through the Enhanced Recovery After Surgery program, which begins before surgery.

Medical assistant (MA): A medical assistant is often the first person you will interact with after checking in for your presurgery appointments. Your MA will greet you and prepare you to be seen by your surgeon or mid-level practitioner.

Mid-level practitioner: A physician assistant (PA) or nurse practitioner (NP) is a mid-level practitioner who is more involved in your day-to-day care. They assist your surgeon throughout your entire surgical experience.

Nurse navigator: A nurse navigator is a registered nurse (RN) who is there to assist and guide you through your surgical journey. Your nurse navigator will teach your presurgery class, visit you while in the hospital, and answer any questions you may have throughout the process.



Occupational therapist (OT): Your occupational therapist will help you with activities of daily living (ADLs), like eating, changing clothes, and bathing. Your OT may teach you to use specialized equipment or techniques to minimize your pain and protect your spine.

Pharmacist: A pharmacist will collaborate with your surgical team to manage your medications during your hospital stay. He or she will also flag any potential drug interactions.

Physical therapist (PT): Your physical therapist will assist you before and after surgery, coaching you on how to move safely, including getting in and out of bed, walking, and following proper spine precautions during your recovery.

Primary care provider (PCP): Your primary care provider is the physician who oversees your overall health care. Information about your surgical care and discharge will be sent directly to your PCP.

Registered nurse (RN): Much of your care while you are in the hospital will be provided by a registered nurse who coordinates with all team members and delivers the care specified by your surgeon.

Resident: A medical doctor (MD) who has completed medical school and is in training may work closely with your attending surgeon.

Schedulers: They will assist in getting clinic appointments and surgery scheduled.

Spine fellow: Some patients may interact with a spine fellow, which is a surgeon completing a one-year program to specialize in complex spinal problems who will work closely with your attending surgeon.

Meet Your Neurosurgery One – Lakewood Spine Specialists



Zain Allison, MD, specializes in neuro-oncology, craniotomy, vascular surgery, and minimally invasive spine fusion and decompression surgeries.



John Hudson, MD, PhD, FAANS, is an expert in neuroendoscopic and other minimally invasive approaches to brain surgery. He also provides treatment for general spinal disorders.



Joshua M. Beckman, MD, FAANS, specializes in minimally invasive spine surgery, including lateral access to the thoracic and lumbar spine and other emerging advanced spine surgery techniques.



Jason E. McGowan, MD, FAANS, specializes in degenerative spinal disorders, including scoliosis, and performs minimally invasive spine surgery and complex spinal reconstruction.

Meet Your Neurosurgery One – Lakewood Advanced Practice Providers



Nick Boyce, PA-C — Nick provides care to neurosurgery and surgical patients in Lakewood at St. Anthony Hospital.



Tessa Henderson, ACNPC-AG, FNP-BC — Tessa is optimizing bone health and surgery results for patients.



Kate Setter, MSN, FNP-BC — Kate provides patient care and education in spine surgery recovery, concussion care, and bone health.



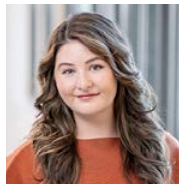
Chelsea Carruthers, MSBS, PA-C — Chelsea cares for patients with spine conditions in our Lakewood clinic.



Anna Jackson, MPAS, PA-C — Anna is providing care before and after surgery to neurosurgical patients.



Lindsay Shanley, MS, PA-C — Lindsay is providing care for neurosurgery and spine inpatients at St. Anthony Hospital.



Kate Davis, PA-C — Kate is a surgical physician assistant supporting Dr. Beckman in spine and neurosurgical procedures.



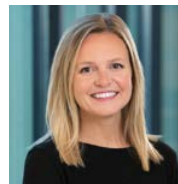
Monika Koehler, MPAS, PA-C, DMSC — Monika is providing care to patients with brain and spine conditions and supports Dr. Allison.



Kendra Yakobson, PA-C — Kendra provides care to surgical patients at St. Anthony Hospital.



Georgina Garvey, PA-C — Georgina provides care to neurosurgery and spine inpatients at St. Anthony Hospital.



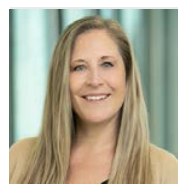
Tess O'Brien, MPAS, PA-C — Tess is providing care to spine patients before and after surgery and supports Dr. McGowan.



Garkie Zhu, MPAS, PA-C — Garkie provides care to surgical patients at St. Anthony Hospital.



Sara Goyzueta, MPAS, PA-C — Sara provides care for neurosurgery and spine inpatients at St. Anthony Hospital.



Jamie Page, MPAS, PA-C — Jamie provides care to patients with brain tumors, brain trauma, and other cranial conditions.

Unique Programs to Improve Your Experience

ERAS — Enhanced Recovery After Surgery

Neurosurgery One offers a unique back surgery program that helps patients regain function quicker. The program, called Enhanced Recovery After Surgery (ERAS), also decreases use of opioids and reduces complications from spine surgery — leading to a better overall patient experience.

This ERAS program, offered exclusively by Neurosurgery One spine surgeons, is the first in the Denver area. While the benefits of ERAS are seen in recovery, you will start your ERAS program before surgery. As you prepare for surgery, you will undergo testing and assessments at a preoperative evaluation and risk stratification clinic with an ERAS nurse practitioner. You will then be invited to attend an online spine class with other patients who are preparing for spine surgery to learn how to prepare for your return home after surgery and obtain steps to improve your recovery and regain function faster.

You can learn more about ERAS on our website at neurosurgeryone.com/ERAS.

The benefits of ERAS include:

- > Faster functional recovery
- > Shorter hospital stays
- > Decreased opioid use
- > Reduced surgery complications
- > Improved patient satisfaction

Bone Health Clinic

Successful spine surgery often depends on the health of your spine — especially if your surgery requires use of any type of hardware. If you've been told you have osteoporosis, osteopenia, or "weak bones," Neurosurgery One's Bone Health & Spine Fracture Clinic can help.

Our team of board-certified bone health specialists will evaluate your bone health and develop a specialized plan to help you strengthen your bones in as little as six weeks! Working with a Bone Health Clinic provider prior to spine surgery helps ensure a successful procedure with better outcomes. After surgery, an evaluation helps improve recovery, improve your overall health, and decrease the likelihood of hardware failure as you return to normal activity.

Our Bone Health Clinic can help:

- > Improve spine surgery outcomes
- > Prevent future bone fractures
- > Enhance recovery from a spinal fracture or spine surgery



Most Common Surgical Procedures and Risks

SURGICAL PROCEDURES:

Fusion: A surgical procedure to make two or more of the bones in the spinal column (vertebrae) grow together (fuse) into one solid bone so motion does not occur between them. This helps to relieve pressure on the nerves or the spinal cord. We use autograft and bone stimulator material. Titanium, cobalt, or carbon fiber screws and rods are used to achieve stability and fusion. Note: The amount of levels for a fusion are equal to the degree of motion limitation.

Discectomy/microdiscectomy: The removal of a portion of, or the entire disc, which is causing pressure on the nerves and spinal cord. Typically, if the whole disc is removed, a fusion is also performed. A microdiscectomy is a minimally invasive procedure, whereas a discectomy is an open procedure.

Decompression: A surgical procedure in which the surgeon removes the affected degenerative (worn out) disc and some bone. This helps relieve pressure on the nerves and/or spinal cord.

Laminectomy: A surgical procedure where part of the vertebral bone is removed in order to expand the diameter of the spinal canal. This can relieve pressure on the nerves and spinal cord caused by spinal stenosis.

Anterior or posterior cervical discectomy and fusion: The most common cervical fusion surgery where the painful disc is removed (discectomy) and stabilized with a fusion. The incision is made in the front (anterior) or back (posterior) of the neck.

Laminoplasty: A surgical procedure to treat spinal stenosis by relieving pressure on the spinal cord. This is a form of motion-preserving surgery.

Artificial disc replacement (ADR): The removal of a painful disc and replacement of it with a metal or plastic implant. This is a form of motion-preserving surgery.

Sacroiliac joint fusion: The area where your pelvic bone and lower spine meet is the sacroiliac (SI) joint. A SI joint fusion is a procedure where this joint is fixed into position.

SURGICAL RISKS:

There are risks to every invasive procedure. Your job is to weigh the risks versus the benefits of the surgery that is being recommended to treat your condition. Your surgeon will discuss the unique risks of your surgery with you, and there are also certain risks that are associated with all spine surgeries. These include, but are not limited to:

- > Bleeding
- > Infection
- > Spinal fluid leak
- > Blood clots in the legs or lungs
- > Need for additional surgery
- > Nerve and/or spinal cord injury resulting in weakness, paralysis, loss of bowel/bladder or sexual function
- > Change in temperature
- > Failure to fuse
 - Risk factors of this include tobacco use and uncontrolled diabetes
- > Hardware problems/failure
 - Risk factors of this include tobacco use and the presence of multiple significant comorbidities
- > No improvement in symptoms
- > Dysphagia and permanent hoarseness (anterior cervical only)

Planning for Your Spine Surgery Experience

You will need to identify a coach to help you during and after surgery. This person should be present for preoperative visits and education. He or she should also plan to arrive at the hospital or surgery center prior to your discharge to hear your discharge instructions and drive you home. Here is some general information to help you and your coach prepare.

Healthcare decisions

Prior to your surgical procedure, you will be asked to designate someone to make medical decisions for you in the event you are unable to make your own decisions. To assist you in this process, we have copies of the *5 Wishes* book available (at the hospital). This book is considered a Living Will, which allows you to clearly state the decisions you have already made about your medical treatment, comfort, Power of Attorney, and any other information regarding your health that you want your loved ones to know.

If you already have a Living Will, Power of Attorney, or Advance Directive, please be sure to bring copies of each with you to the hospital.

Insurance coverage

Neurosurgery One will assist in contacting your insurance company to check your benefits, including: copay, deductible, and coinsurance based on the type of surgery you are having.

Smoking cessation

Nicotine disrupts the normal function of the body's systems and affects bone growth. New bone growth is crucial for patients having spine surgery, especially those having spinal fusions. Patients who smoke or use nicotine products have a higher risk of developing an infection after surgery or of experiencing hardware failure. All hospitals and surgery centers where we perform surgery are nonsmoking facilities (including electronic cigarettes). Quitting 4-6 weeks before your surgery and staying smoke-free four weeks after can decrease your rate of wound complications by 50%. If you need smoking cessation resources, please call the Colorado QuitLine at 1.800.QUIT.NOW or access their website at coquitline.org

Medications

- > Always follow your doctor's instructions regarding your medications. Your Enhanced Recovery After Surgery (ERAS) team will tell you which medications you should and should not take before surgery.
- > Ask your doctor when you should stop taking rheumatology medications, aspirin, ibuprofen, and other blood thinners. These are typically stopped one week before surgery.
- > Make sure your doctor knows all vitamins and supplements you are taking and include them on your medication list.
- > Please bring a detailed list of your medications with you to the hospital. Please also include any nonprescription medications, substances, or supplements you are using to help control pain such as marijuana, kratom, herbs, mushrooms, etc. Because these can cause your body to be more resistant to pain medications, it's important for your doctor to know the dose and frequency of all pain medications and pain relief products you are taking at home so we can adequately control your pain after surgery, and the pharmacist can advise which medications to use.

Visitation

- > Your coach/advocate and family can wait in the surgical waiting room until you are out of the operating room. Your family may sign up for text updates to track your progression.
- > Once you are settled in your hospital room, your coach and family can visit you at any time. In the intensive care units, there are restrictions on the number of visitors who may be in the room at one time.
- > The hospitals offer private rooms with a pullout couch.
- > We do not provide visitor meals or personal hygiene items for guests.
- > Our hospitals have relationships with local hotels and motels that offer friends and family discounts.
- > We are not responsible for making living arrangements for your family while you are in the hospital. You are encouraged to investigate lodging options that meet your budget prior to your surgery.

Transportation

- > You will not be able to drive yourself home. Please ensure your coach, or another responsible adult, is available to drive you home from the hospital or surgery center.
- > Your doctor will give you instructions as to when you will be allowed to drive following your surgery. Be sure to talk with your doctor before driving.
- > Typically, you may return to driving once your medication use has been reduced and you are cleared by a doctor.

At home

- > Arrange your items at home (utensils, clothing, toiletries, etc.) so that most frequently used items may be reached easily. There should be no bending, lifting, or twisting after surgery.
- > Remove throw rugs and other tripping hazards from your floors.
- > Arrange for childcare and pet care, if needed, while you are in the hospital and during your initial days home.
- > It is a good idea to prepare and freeze meals ahead of time for your return.

What to Expect: Surgery Checklist

Packing for the hospital

- > Comfortable, loose-fitting clothes
- > Socks and shoes that are easy to put on (but NO flip-flops)
- > Cellphone and charger
- > Personal hygiene items
- > If you wear dentures, bring your dentures and their case — your family will need to keep these
- > Hearing aids, if applicable; keep these in a safe location with a trusted family member or friend until you return to your hospital room post-operation
- > Neck or back brace if your doctor has ordered one for you
- > If you already use an assistive device, put your name on it and bring it with you
- > Glasses, if applicable; write your name on them and bring with you
- > Your CPAP mask if you use one at home (bring your settings)
- > Insurance card and ID
- > Medication list, including dosage and frequency

What NOT to bring

- > Cash
- > Jewelry
- > Valuables
- > Medications (only special medication if it's not available in hospital pharmacy)

Three nights before surgery

- > Please shower or bathe for three days before surgery using an antibacterial soap, such as Dial.
- > You will need to use two different washcloths and a clean towel every time you bathe. Use a clean washcloth for your face, genital, and groin areas, and the other clean washcloth for the rest of your body.

Night before surgery

- > Shower the night before, using chlorhexidine gluconate (CHG) wipes after you are dry.
- > Change your bed linens so that they are clean when you return home.
- > Eat a normal dinner.
- > Do not drink alcohol.
- > Do not eat or drink anything for eight hours before your surgery. You may have clear liquids up to three or four hours prior to your surgery time. Clear liquids include water, black coffee, juice you can see through, and clear sodas. NO orange juice.

Morning of surgery

- > Your ERAS team will advise you which medications you should and should not take the day of surgery.
- > Shower and use CHG wipes after you are dry.
- > Do not wear any lotion, deodorant, makeup, or cologne.
- > Do not chew gum or suck on hard candy.
- > Arrive two hours early to the surgery check-in. If your surgery is at St. Anthony Medical Center, surgery check-in is on the second floor of the hospital. Follow wall plaques and overhead signs for guidance.
- > Patients and visitors may park in the parking lot in front of the main entrance and adjacent lots around St. Anthony Hospital. Free parking is available 24 hours a day, and free valet parking is available Monday through Friday, from 8 a.m. to 6 p.m.
- > Our team typically moves quickly on the day of surgery to ensure we are on schedule and to prevent any delays. If you have any questions prior to surgery or about our neurosurgical plan, please contact our office before surgery day, so we can give adequate time to address your concerns and questions.

What to Expect: Day of Surgery

Preoperative care

Your surgery team will include your surgeon, anesthesiologist/CRNA, nurses, operating room technicians, and any residents or physician assistants/nurse practitioners who will be assisting during your surgery.

Before your surgery, members of the team will:

- > Review your surgery consent with you
- > Mark your surgical site
- > Review the anesthesia consent with you and obtain your signature
- > Ask you to change into a hospital gown and place an armband on your wrist
- > Ask you for your name and birth date regularly
- > Assess your fall risk and provide you with nonslip socks
- > Place an IV in your arm or hand
- > Place compression stockings on your legs to prevent blood clots
- > Identify where your family will be and who will notify them when surgery is over
- > Possibly apply an antibacterial ointment to your nostrils.

Your coach and family can wait in the surgical waiting room until you are out of the operating room; they will be able to view your status on monitors or by text updates throughout your surgery.

Operating room

- > The operating room is bright and kept at a cool temperature. A nurse will offer you a warm blanket upon arrival if you feel cold.
- > You will be connected to various monitors so that your anesthesiologist can begin to give you pain and sedation medications for your surgery. Your surgical team will prepare you and place drapes to ensure a sterile environment.
- > You will initially receive oxygen through a mask on your face until the anesthesiologist administers the general anesthesia (medication to put you to sleep) through your IV. Once the anesthesia takes effect (you are asleep), a breathing tube will be inserted through your mouth to deliver oxygen to your lungs.
- > Your surgeon will give you an estimated time that your surgery will begin and how long your surgery will take. Although every effort is made to keep surgeries on schedule, there are occasional delays that prevent us from starting on time. Your surgical team will update your coach, family members, or friends about any delays. In addition, there are monitors in the waiting room that will display real-time status updates.

Postoperative care

- > You will spend some time in the Post Anesthesia Care Unit (PACU) recovery area before being taken to your hospital room.
- > Your nurse will monitor your vital signs and blood flow to your hands and feet carefully while you recover from anesthesia.
- > We will frequently ask you about your pain, and we will check the strength and feeling in your arms and legs.

What to Expect: Pain Management

Typically, patients who are undergoing spine surgery have experienced great pain that led them to seek medical help. Postoperative pain is different from your preoperative pain and can be related to your incision, swelling, and muscle tension.

- > **Incisional pain** is pain right at your incision site.
- > **Muscular pain** and pain related to swelling can be relieved by early walking, gentle range-of-motion exercises, applying heat or cold packs, and/or taking muscle relaxers.

Our goal is to reduce your pain so that you can work with physical and occupational therapy and regain your mobility and independence.

We will ask you frequently to rate and describe your pain. We use a 0-10 rating scale: 0 is no pain and 10 is the worst pain you could ever have. We also will ask you to describe your pain, using terms such as aching, burning, throbbing, or shooting.

Narcotic medications

IV narcotics:

- > You may receive pain medication through your IV, or you might be given a pump to use as a PCA (patient-controlled analgesia). The PCA allows you to press a button and a dose of narcotic will be administered through the IV. The PCA has a set dose of narcotic and a set interval between doses.
- > You will be placed on a continuous telemetry and pulse oximeter to monitor your heart rate and oxygen levels in your blood.
- > Common IV pain medications are Dilaudid, fentanyl, and morphine.
- > Our goal is to transition you to oral pain medications as soon as possible and create a good plan to manage your pain at home.

Oral narcotics:

- > Once you are able to eat a little without nausea, you will receive oral pain medications. Oral meds tend to control your pain for longer periods of time.
- > Common oral medications are Percocet, Vicodin, oxycodone, and Ultram.

Narcotic medication side effects

Everyone responds differently to narcotics. Common side effects and treatment include:

Constipation:

- > Limit narcotics to the least amount necessary to control your pain.
- > Take scheduled stool softeners such as Colace and senna, as long as you are taking pain medicine.
- > Drink plenty of water.
- > Eat high-fiber fruits and vegetables.
- > Get out of bed and walk as soon as you are able to and continue to walk short distances frequently.

Shallow breathing:

- > Use your incentive spirometer as instructed by your nurse to prevent pneumonia.
- > You will be asked to take deep breaths and cough to clear out any mucus in the lungs.

Nausea:

- > Take oral medications with food.
- > Eat bland foods first; avoid spicy or heavy foods.

Itching:

- > Medications like Benadryl can help relieve itching. If this doesn't work, we may need to adjust your medications.

Sleepiness:

- > If you become too sleepy with pain medications, your physician may decrease the amount of medication you are taking.

Non-narcotic pain medications

- > Please note that medications are ordered on an individual basis and not everyone will be prescribed all types of medications. These may include:
 - Muscle relaxers such as Flexeril, Zanaflex, or Valium.
 - Medications for nerve pain such as Lyrica or Neurontin. If you were on these before surgery, your physician may increase your dose after surgery.
 - Tylenol or acetaminophen. You should not take more than 3,000 mg of acetaminophen per day.
 - Celebrex, a nonsteroidal anti-inflammatory drug (NSAID) used to relieve pain, inflammation, and swelling.

Other treatments that can reduce pain

- > Repositioning and early walking can help prevent muscle spasms.
- > Ice can help decrease postoperative swelling and should be used for 20 minutes on and 20 minutes off.
- > Relaxation techniques, including deep breathing, meditation, and imagery, can be helpful.
- > You may also experience a sore throat following surgery. Drinking water and using throat lozenges may help with this.
- > Distraction techniques such as listening to music or watching TV can help take your mind off your pain.

What to Expect: Days Following Surgery

Early walking/mobilization

In the evening after your surgery, you will be guided by your postoperative nurse to sit on the side of the bed or perhaps get out of bed. You do not need to be evaluated by the therapy team prior to mobilizing unless specifically instructed by the surgical team. Moving around and getting out of bed are important to prevent blood clots and pneumonia, as well as to promote healing.

While you are in bed, leg pumps or sequential compression devices (SCDs) will be worn to prevent blood clots in your legs.

Physical and occupational therapy

Your doctor will order physical and/or occupational therapy, depending on your needs. If your doctor has ordered a specific neck or back brace, either the physical therapist or occupational therapist will teach you how to put it on and take it off. They will also explain spinal precautions and how to protect your neck and spine when you begin moving around. The therapists will also help you learn how to complete activities of daily living (ADLs) while following your spine precautions of no bending, lifting, or twisting (BLTs). They will evaluate you and recommend any assistive devices or adaptive equipment that might help you with ADLs. Your therapists will educate you in more specifics after your surgery and will give you additional written instructions for you to take home.

Patients who had neck surgeries may be seen by a speech therapist to assess how they are swallowing.

Diet

Directly after surgery, your diet will begin with ice chips and slowly advance to clear liquids. Once you have met certain goals (passing gas, no nausea/vomiting), your diet will be advanced per your physician's orders. You will be given a menu and can order what you would like, according to your prescribed diet.

Patients who had neck surgery may have a more difficult time swallowing after surgery and may need assistance from a speech therapist in improving swallowing.

Lung function

You will be given oxygen through a nasal cannula (tube) in your nose until you can maintain oxygen levels on your own. Your oxygen level will be monitored with a probe taped to your finger.

Occasionally, patients require continued supplemental oxygen at home. Your care team will ensure your home oxygen therapy is arranged prior to your discharge from the hospital. You will need to follow up with your primary care physician within one week of your discharge to discuss how long you will need to remain on oxygen.

Bowel function

Many people experience constipation after spine surgery and when taking narcotics.

It is very important to drink plenty of fluids, take stool softeners and laxatives as needed, eat plenty of fruits and vegetables, and get up out of bed as soon as you can.

To prevent constipation, stool softeners, such as Colace or Senokot, may be taken twice daily; Miralax may also be added as needed once daily. You may require a suppository or enema if you do not have a bowel movement by post-op day 4-5. Not having a bowel movement since surgery does NOT prevent discharge.

Bladder function

You may have a urinary catheter inserted into your bladder in the operating room. This will be removed as soon as you are able to move around.

Occasionally, people have problems urinating freely after their catheter is removed. Your care team will monitor the amount of urine in your bladder and drain urine with a catheter if necessary. Rarely, people must go home with a catheter until they are able to urinate on their own. If this is the case, you will have close follow-up with a urologist prior to discharge.

Incision care

Your nurse will assess your dressing (bandages) and incision frequently. Your doctor will provide instructions regarding your dressing removal, which is usually three days after surgery, although this is subject to change.

You may have a drain coming from your incision site to drain fluid from the incision into a small container. This drain will be cared for by your nurse and will be removed by your doctor.

Equipment in the room

- > **Urinary catheter:** A urinary catheter (Foley) that drains urine from your bladder. This will be removed when you are able to get out of bed.
- > **Intravenous (IV) catheter:** This will remain in place until you are discharged. You will receive IV fluids through an IV pump until you are able to eat and drink normally.
- > **Oxygen:** You will be given oxygen until you are able to maintain on your own.
- > **Incentive spirometer:** This is a tool to help keep your lungs active and clear to prevent pneumonia. Your nurse will teach you how to use it, and you will be instructed to use this every hour while you're awake.
- > **Leg pumps:** Inflatable sleeves or boots worn around the legs that are connected to a pump. The pump periodically inflates and deflates the sleeves, applying gentle pressure to prevent blood clots in your legs.

What to Expect: Hospital Discharge

Our goal is for patients to return home as quickly as possible after spine surgery. If additional care is required after surgery, our team will help you find the best option. Case managers and social workers will help with discharge planning and work with your insurance company. Insurance coverage does vary, so please be aware of your insurance benefits for home health care, acute rehabilitation, outpatient therapy, and skilled nursing facilities.

Goals for discharge

- > Get in and out of bed independently
- > Walk in the hallway by yourself or with a walker/cane
- > Perform personal hygiene
- > Tolerate eating and drinking
- > Urinate after removal of the urinary catheter
- > Manage pain with oral medications
- > Walk up and down stairs, if you have stairs in your home

Some things to keep in mind

- > **You won't be allowed to drive yourself home. Your coach will need to arrive at your hospital room the day of your discharge and be ready to take you home.**
- > Neurosurgery One will give you typed discharge instructions, which your nurse will go over with you.
- > We encourage you to have your prescriptions filled by the hospital pharmacy, or we can send them to a pharmacy of your choice. If you choose not to use the hospital pharmacy, please know the phone number and address of your preferred pharmacy.
- > Your follow-up appointment will be prearranged. Our team is available if needed in the interim for questions.
- > If needed, you can call a provider overnight for emergencies only.

What to Expect: Beyond the Hospital

Spinal precautions

- > Wear your brace if your doctor has ordered one for you.
- > Your doctor may order a bone stimulator; a representative will contact you within a few days after surgery to set it up for you.
- > Avoid high-impact or strenuous activities. Do not do any heavy housework such as vacuuming, cleaning windows, shoveling snow, or mowing the lawn. Do not resume any sports activities until cleared by your doctor. Walking is the only exercise you should do until your surgeon tells you otherwise. Shorter, frequent walks are preferable to long-distance walks.
- > *No bending, lifting, or twisting (BLTs).*

Lifting restrictions

- > No lifting greater than 10 pounds (about the weight of a gallon of milk) for six weeks or until your follow-up appointment with your doctor. When you do need to lift something, carry the object close to your body.
- > Make sure to change positions frequently to avoid stiffness.

Cervical (neck) surgery

- > Do not bend your neck forward, backward, or side to side after a cervical surgery unless told otherwise. Avoid lifting the arms above the head for extended periods of time. Prop reading materials, phones and tablets or computer screens at eye level to prevent flexing the neck down to the chest.



General rules for activities of daily living (ADLS)

NOTE: All activities should be performed using spinal precautions:

Sitting

- > Use a chair with armrests and good back support.
- > Avoid soft sofas or chairs; it is difficult to stand up without bending forward.
- > Avoid chairs with wheels.
- > Maintain good posture and move slowly.
- > Scoot forward to the edge of the chair and use the armrests to help push yourself into a standing position.

Sleeping

- > Use pillows for positioning. Place pillows under your knees when on your back and between your legs when on your side.
- > Sleep on a firm mattress or surface.
- > Sleeping on your stomach is not recommended.
- > “Log roll” by moving shoulders and hips together to avoid twisting.
- > To get out of bed, push down with your elbow closest to the bed, at the same time you are lowering your legs off the side of the bed. Move the knees, hips, and shoulders together as one unit.

Standing

- > Wear comfortable shoes with good support.
- > Change positions frequently.
- > Maintain good posture.
- > Pushing/pulling:
 - It is better to push than to pull.
 - Keep your back straight and head up.

Toileting

- > You may want to get a raised toilet seat to make it easier to get up, and down to the toilet.
- > Make sure the toilet paper is easy to reach and that you don't have to twist to reach it.

Showering

- > You should shower every day. You will be given specific instructions regarding when you can let the water run over your incision.
- > You may want to purchase liquid soap and a long-handled bath brush to avoid bending and twisting in the shower.
- > You may want to have someone stay close by until you feel safe.
- > No bathtubs, hot tubs, swimming, or soaking for at least six weeks after surgery.

Incision care

- > If you go home with a dressing in place, your doctor will give you dressing care instructions.
- > Stitches or staples will be removed by your doctor at your follow-up appointment. Some stitches are dissolvable and don't need to be removed.
- > Wash your hands before and after touching your incision.
- > When you are cleared to get your incision wet, do not scrub your incision site. Let the water gently run over your incision and gently pat it dry.
- > Keep pets away from your incision.
- > Do not take off your Steri-Strips; they will fall off on their own. If they do not come off after two weeks, gently peel them off.
- > Monitor incision for signs of a surgical site infection. Notify your surgeon if you notice any of the following:
 - Redness or warmth around the incision site
 - Any puslike drainage
 - Fever greater than 101 degrees

Medications

- > Your doctor will instruct you on which medications you should resume after you go home. Take your medications as instructed, noting that some medications are to be taken only as needed.
- > You will be given prescriptions for medicine to help with pain and discomfort. The discomfort will gradually decrease over the next few weeks. This will allow you to take less pain medication daily. You should be able to switch to acetaminophen (Tylenol), 500 to 1,000 mg every six hours as needed. Do not take more than 3,000 mg of acetaminophen in one day. Please be aware that some medications, such as Percocet and Vicodin, already contain Tylenol.
- > Please note: Narcotic pain medication is typically prescribed by our team for about six weeks. Prescriptions extended beyond that date may require transition to your primary care provider or a pain specialist.
- > A paper prescription will need to be picked up from the clinic if your medications are not filled at a hospital pharmacy.
- > Our clinic will only refill pain medication prescriptions for three months following your surgery. If you require further refills, you will need to contact your primary care physician.
- > You may also be given prescriptions for medications such as Flexeril or Robaxin for muscle spasms to take as needed. These can both make you sleepy.
- > Do not operate heavy machinery or drive while on narcotic pain medications or muscle relaxants since they can alter your level of alertness.

Driving

- > Most importantly, you should not drive while taking narcotics, as these can impair your thinking and reaction time. You may begin driving once your medication use has been reduced and you are cleared by our team.
- > Make arrangements with your friends and family to assist with any transportation you may need in the period following your surgery. This includes getting home from the hospital, as well as during the estimated length of time you will not be able to drive.

Diet/nutrition

- > To promote healing, you should eat a well-balanced diet that is high in protein. If you were on a special diet before surgery, you should resume the diet following surgery. Make sure to drink plenty of fluids.
- > Do not drink alcohol. It will interact with your pain medication(s) and lead to more side effects.
- > To prevent constipation, increase your fluid, fiber, fruit, and vegetable intake. Increased activities will also be helpful. If you continue to have problems, there are multiple over-the-counter medications you can take, including prune juice, Colace, Miralax, etc. Talk to your healthcare practitioner for additional recommendations if you continue to have problems.

Smoking

- > New bone growth is vital for patients going through spine surgery, and smoking can disrupt that growth. Smoking increases the risk of pseudarthrosis, a condition that causes bones not to fuse properly, and increases the risk of infection after surgery.
- > For resources, please call the Colorado QuitLine at 1.800.QUIT.NOW or access their website at coquitline.org.

When to Contact Your Healthcare Provider

Call your healthcare provider immediately if you or your caregiver notice any of the following:

- > Temperature greater than 101.5 F (38 C) that lasts more than 24 hours.
- > Pain in your chest, especially when you cough or take a deep breath
- > Difficulty breathing or swallowing
- > Thick, dark yellow, or foul-smelling drainage around your incision
- > Pain and redness around your incision
- > Confusion, unusual changes in behavior, or increased headaches
- > Problems controlling your bowels or bladder
- > New or increased focal weakness
- > New or increased focal numbness/tingling
- > New or increased difficulty walking
- > New or increased hand clumsiness
- > Pain, redness, or swelling in your calf

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Frequently Asked Questions

Will I set off metal detectors?

Most patients do not have a problem with this. Very occasionally, when the security wand is waved over the location of hardware, an alarm may result. Then the surgical scar will have to be shown. Titanium, carbon fibers, and cobalt are nonferrous metals that do not prohibit you from obtaining future MRIs. However, some spinal cord stimulators do. We recommend discussing MRI-compatible stimulators with the device representative and your doctor.

When can I return to work?

This is very individualized to you and the type of work you do. Discuss this with your surgeon. In general, most patients require anywhere from two to six weeks off work, depending on the type of surgery and the amount of lifting required with the work they do.

Will I begin outpatient physical therapy after surgery?

The best activity for your back is walking both before and after surgery. After your surgery, you should gradually increase the time and distance you walk. As you heal, your surgeon will order physical therapy after surgery only if it is needed. Typically, at six weeks unless you are at high risk for deconditioning. Please wait until cleared by your surgeon to begin any demanding sports.

How long before I can travel?

Traveling will depend on your ability to sit for an extended period of time and/or how much movement is required in your travel plans. We encourage you to not sit longer than two hours at a time without getting up and moving around. You are cleared to travel after your stitches or staples have been removed.

What if I have no help after surgery?

You will not be discharged from the hospital unless there is a proper care plan in place that will allow you to remain safe. Since most surgeries are done on an elective basis, you can prepare by identifying your coach and other support systems before going to the hospital for your surgery. Case managers and social workers will discuss discharge plans with you while you're in the hospital. They work hard to make sure you return home or to another facility safely.

Important Contact Information

Phone Numbers:

Main hospital (St. Anthony): 720.321.0000

Main hospital (OrthoColorado): 720.321.5000

Main hospital (St. Anthony North): 720.627.0000

Neurosurgery One office: 720.638.7500

Additional Information Can be Found on the Following websites:

Neurosurgery One: neurosurgeryone.com

Spine Health: spine-health.com

NASS — Know Your Back: knowyourback.org

Scoliosis Research Society: srs.org

AAOS — OrthoInfo: orthoinfo.org

Smoking Cessation: coquitline.org or quitnet.com

St. Anthony Hospital: mountain.commonspirit.org/location/st-anthony-hospital

St. Anthony North Hospital: mountain.commonspirit.org/location/st-anthony-north-hospital

OrthoColorado Hospital: mountain.commonspirit.org/location/orthocolorado-hospital

St. Anthony Hospital and Neurosurgery One — Lakewood

Neurosurgery One — Lakewood: 11750 W 2nd Pl, Suite 255, Lakewood, CO 80228

St. Anthony Hospital: 11600 W 2nd Pl, Lakewood, CO 80228

OrthoColorado Hospital: 11650 W 2nd Pl, Lakewood, CO 80228

St. Anthony North Hospital: 14300 Orchard Pkwy, Westminster, CO 80023

ST ANTHONY HOSPITAL GUEST PARKING MAP

