



SPINE CARE

PATIENT

EDUCATION

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hank you for choosing Eisenhower Health for your spine surgery. Eisenhower is committed to providing excellence in clinical care, patient satisfaction and customer service by adhering to the highest standards in spine surgery and our values of integrity, caring, accountability, respect and excellence.

At our state-of-the-art facility, we aim to provide an environment that fosters optimal recovery after your surgery. We are dedicated to implementing a plan of care after your spine surgery that will allow you to return to an active lifestyle. With this in mind, our physicians, nurse practitioners, nursing staff, physical and occupational therapists, and case managers all work together to get you back on your feet and prepared to go home, in most cases, as soon as possible.

We aim to provide a multidisciplinary approach that fosters a safe and effective experience for our patients. We continuously pursue new evidence-based treatment modalities that improve surgical outcomes and patient satisfaction. Your satisfaction, recovery and safety are important to us; therefore, we will provide:

Excellent Teamwork

• You are the most important member of our *Spine Care Team*. We encourage you to play an active role in your recovery! Multiple disciplines will be working with you throughout your stay to prepare you for discharge. Please let us know if you need anything. A team leader is available 24 hours a day to assist you with any concerns or needs you may have.

Quality Pain Management

• You will be asked to rate your pain, and staff will work with you to manage your pain. Please request pain medication as needed to keep your discomfort at a manageable level. If what you are receiving is not keeping your pain controlled, notify our team so we can discuss a plan and possible changes to your medication regimen to better manage your pain.

Outstanding Patient Safety

• With spine surgery you are at risk for falls. Please do **not** get up without assistance at any time during your hospitalization. **Always** call for help with mobility.

Please don't hesitate to contact your surgeon or staff with any questions or concerns. We look forward to being a part of your successful spine surgery and wish you a speedy recovery!

Sincerely,

The Spine Program at Eisenhower Health

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The Spine Program at Eisenhower Health specializes in the care of patients who have had spine surgery. While the team consists of many, the main members are listed below:

Surgeon

This physician performs your surgery and directs your care, following you from your first office visit through your rehabilitation.

Clinical Nurse Specialist (CNS)

This clinician works with your surgeon, providing pre- and post-operative care and education, as well as assisting during surgery.

Nurse Practitioner (NP)

This clinician works with your surgeon, providing post-operative care and education.

Physician Assistant (PA)

This team member works with the surgeon, providing pre-operative and post-operative care, as well as assisting during surgery.

Anesthesiologist

These physicians work with you to support and keep you comfortable during your surgical procedure. As part of the Peri-Operative Pain Management Team, they work with your surgeon to manage your post-operative pain.

Registered Nurses (RN)

Registered nurses, under the direction of the surgeon, manage your care during your hospital stay and provide education about your health and recovery needs to both you and your family.

Certified Nursing Assistant (CNA)

Nursing assistants monitor vital signs and assist with ambulation and bathroom activities.

Clinic Team (RN, LVN, MA, CA)

The clinic team, who work in your surgeon's office, will follow your care, both before and after discharge.

Physical Therapist (PT)

Physical therapists work with you throughout your rehabilitation, helping you with proper body mechanics and spine protection after surgery.

Occupational Therapist (OT)

These team members work with you to plan safe ways to complete your daily activities, such as bathing and dressing, using proper body mechanics.

Speech Therapist (ST)

Speech therapists can help patients who have trouble swallowing after cervical spine surgery.

Care Coordinator

This registered nurse works with you, your loved ones and the other team members to provide you with information about the best and safest discharge plan. The care coordinator is highly knowledgeable about insurance coverage for services and equipment.

Nurse Navigator

The nurse navigator is a registered nurse who works with all of your care team and additionally provides support and education for your and your loved ones.

Surgeon + Clinical Nurse Specialist / Certified Physician Assistant / Nurse Practitioner **Nurse Navigator**

PRE-OP

• Licensed Vocational Nurse (LVN)

• Registered Nurse (RN)

Medical Assistant (MA)

• Certified Assistant (CA)

Clinic Team

HOSPITAL





Floor

- **Operating Room** • Anesthesiologist (DO/MD)
 - Perioperative Registered
 - Nurse (RN)

• Nurse Practitioner (NP)

- Floor Registered Nurse (RN)
- Certified Nursing Assistant (CNA)

POST-OP

• Licensed Vocational Nurse (LVN)

Clinic Team

• Registered Nurse (RN)

Medical Assistant (MA)

• Certified Assistant (CA)

- Physical Therapist (PT)
- Occupational Therapist (OT)
- Speech Therapist (ST)
- Nurse Care Coordinator (RN)

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Anatomy of the Spine

The foundation of our body, the spine allows us to stand, walk and sit in an upright manner while maintaining flexibility. It also serves as an anchor for multiple tendons and muscles that allow for movement of our upper and lower extremities.

The basic unit of the spine is the vertebra. The spinal column is comprised of 33 vertebrae – seven cervical, 12 thoracic, five lumbar, five sacral and four coccygeal. These vertebra are joined by multiple ligaments and their intervening discs. In addition to its structural function, the vertebrae provide protection to the spinal cord and its merging nerves. Each vertebra has a large circular opening called the spinal canal through which the spinal cord and its emerging nerves pass through.

The vertebrae are stacked and joined together by intervening discs and ligaments. Additional stability is provided by the facet joints which limit your ability to flex, extend, rotate or twist.

- The spine consists of bones called vertebral bodies which are separated by soft tissues (discs).
- At each level of the vertebral body, there are nerve roots that exit the spinal canal through a small hole called the foramen. The nerve root goes through the foramen from the spinal cord to the different parts of the body. The nerve roots and their branches send both motor and sensory signals to and from the brain to the respective muscle or organ.







DISC



Anatomy of the Spine (Continued)

If a disc has herniated, a small amount of disc material comes out of the disc space from between the two vertebral bodies depicted in this illustration. This disc material can press on the spinal cord or the exiting nerve root causing neurological symptoms, including pain, numbness, tingling or weakness.



The spine is divided into four areas: cervical, thoracic, lumbar and sacrum.

- The cervical portion of the spine consists of seven vertebrae (C1-C7) starting from the base of the skull to the clavicle. There are eight pairs of nerves arising from the cervical spine (C1-C8). These nerves exit their respective foramen to merge and branch with other nerves. These innervate various muscles and organs. The nerves that exit from the cord through the foramen go into the head, shoulders, and down into the forearms and hands.
- The thoracic portion of the spine consists of 12 vertebrae (T1-T12) starting at the level of the clavicle down to the last rib. These ribs not only protect the important organs of the chest, but also provide additional support and stability to this region. There are 12 pairs of nerves arising from the thoracic region which supply the muscles in the thoracic region and also many of the organs in the chest and abdomen.



The lumbar portion of the spine consists of five vertebrae (L1-L5) and extends from the bottom of the last rib to just below the waistline. The vertebrae are separated by fibrocartilaginous discs that provide cushioning and mobility. Additional mobility and stability are provided by the facet joints and various ligaments. The five pairs of nerves and their numerous branches arising from the lumbar region pass through the pelvis and into the legs and feet. These nerves provide both motor and sensory information to and from the legs to the brain.



The sacrum and the pelvis are at the bottom of the spinal column. The bottom portion of the sacrum is known as the tailbone or coccyx. The pelvis is a ring-shaped bone that connects the sacrum and spine to the hips. The joint between the sacrum and pelvis is known as the SI (sacroiliac) joint. There are several ligaments that help connect and provide stability between the sacrum and pelvis. The five pairs of nerves arising from the sacrum innervate areas such as the pelvic floor muscles, bladder, bladder sphincter, as well as the anus.



What is Spine Surgery?

Surgery on the spinal column can be performed for a variety of reasons, including to relieve pain and to preserve or restore spinal function and stability. The most common spinal procedures including taking pressure off the nerves and/or spinal cord, creating decompression and realigning or stabilizing a spine that is malaligned or moving abnormally to create fusion.

Decompression

Decompression procedures of the spinal column take pressure off of the nerves and/or spinal cord. These procedures have different names depending on the part of the spinal column that is removed.

Laminectomy / Laminotomy

These are procedures that remove a portion of the back part of the vertebral body (the lamina) in order to relieve pressure within the central spinal canal. A laminectomy is removal of the majority of the lamina, while a laminotomy is removal of a smaller portion of the lamina.

Discectomy

A discectomy is the removal of a portion of the disc (the soft cushion between the vertebral bodies) that is putting abnormal pressure on a nerve, causing pain or loss of function. This is often, but not always, done through a laminotomy.

Foraminotomy

A foraminotomy is a procedure to open the side tunnels through which the nerves exit the central spinal canal and spinal column. This is often, but not always, done through a laminectomy or laminotomy.

Corpectomy

A corpectomy is removal of a substantial portion of the vertebral body which is often done to relieve pressure on the spinal cord (usually done on the cervical, thoracic or upper lumbar spine).

Stabilization

Stabilization procedures of the spinal column decrease the amount of motion between two vertebrae. Any malalignment of the two vertebrae can be "fixed" at the expense of lost motion. By far the most common type of procedure is an instrumented fusion where the two vertebrae are fused together to form one block of bone. Fusions take time to heal and thus instrumentation/hardware (e.g., screws and rods) are often used to hold the two vertebrae together while they fuse. In certain circumstances your surgeon may recommend a disc replacement. This procedure maintains motion versus a fusion which is designed to eliminate motion.

Replacement Surgery

In this procedure, a segment of the spine, such as a disc, is replaced. In certain circumstances this may be an option offered to you by your surgeon.

Spine surgeries are highly successful and generally safe procedures. Despite their success, complications can arise. The following are just some of the possible complications associated with spine surgery. It is important that the patient understands these risks. Any questions relating to these risks should be discussed with the surgeon in advance of the surgery.

Infection

Patients will be given antibiotics just before and after the operation. The surgery will be performed under sterile conditions with sterile equipment. Despite this, infections can still arise. Infections can arise: 1) from within the patient, as in the case of a remote infection, such as a urinary tract infection that spreads to the surgical site, and 2) from outside the patient, that is, from contamination of the wound itself (soiled or contaminated objects coming into contact with the wound). An infected wound can become red, hot and painful. Infected wounds also commonly have drainage; however, just because a wound is draining does not mean it is infected. It is important to let your surgeon know if you have concerns about your wound because they may want to start you on antibiotics or, in certain situations, may recommend an operation to clean/wash the wound. Infection can sometimes lead to sepsis (blood infection) which can become a very serious, possibly life threatening, complication.

Bleeding

During any operation, some bleeding is expected. Your surgeon will make every effort to minimize the amount of bleeding during your operation. Occasionally there may be enough bleeding to require a blood transfusion though this is uncommon. Injuries to a nearby artery or vein can cause accelerated bleeding, either during or after the surgery. This is a rare but very serious complication.

Hematoma

A hematoma is a localized collection of blood that can cause complications from the pressure it exerts. For example, bleeding after neck surgery done through the front of the neck can form a hematoma that can compromise the airway and the ability of the patient to breathe. Bleeding within a muscle can form a hematoma that pressurizes the muscle and causes pain. Bleeding within the spinal canal can form a hematoma that compresses the nerves and can cause pain and loss of nerve function (e.g., loss of control of the legs, bowel and bladder). The surgeon may place drains during your surgery to minimize the chances of a significant hematoma forming.

Acute or Persistent Pain

A common reason for having spine surgery is to reduce the level of pain caused by arthritis or stenosis (narrowing of the nerve tunnels). Acute pain after surgery is common as one heals. Your surgeon will make every effort to keep you comfortable after surgery. Persistent pain past the typical recovery period is rare. It can be due to a variety of reasons discussed in this section or other less common reasons.

Altered Wound Healing

The wound may become thickened and painful (keloid scar). Massaging the scar with cream (vitamin E or Mederma®) after the wound has healed may help the appearance. NEVER start wound massage and cream application without getting the approval of the surgeon as the wound can breakdown and become infected if this is done too early.

Nerve Damage / Paralysis

Altered sensation along the incision is fairly common. This is usually temporary and may take several months to resolve, but may also be permanent. Rarely, damage to nerves within the incision or within the spine can result in altered sensations, altered muscle function (weakness, loss of coordination), or both.

Spinal Fluid Leakage

The nerves within the spinal canal lie within a fluid-filled sac called the thecal sac. Rarely, the sac can leak fluid after surgery. Untreated, this can cause problems including headaches, swelling of the wound or drainage from the wound which can prevent the wound from healing. If the surgeon has to repair a leak during surgery, the patient may have to stay lying flat in bed for a short period of time to decrease pressure on the repair.

Adjacent Level Disease

Surgery on one part of the spine does not prevent other parts of the spine from wearing down. In some instances, surgery itself can be associated with increased wear and tear in another part of the spine, often affecting the levels adjacent to where surgery was performed. This can result in symptomatic arthritis or stenosis. For this reason, it is important that the patient learns to move properly in order to decrease the wear and tear changes within the spine as much as possible.

Understanding Risks of Surgery (Continued)

Need for Fusion after Decompression

Decompression procedures are excellent for taking pressure off of nerves and relieving symptoms. Unfortunately, because these procedures involve removal of a portion of the spine, they do weaken the spine slightly. This weakening of the spine can sometimes result in symptoms like abnormal movement within the spine. Some cases may require a stabilization procedure, such as a fusion.

Constipation / Urinary Retention

Pain medications, anesthesia and inactivity slow the intestines and the bladder and can cause constipation and urinary retention, respectively. Constipation can be treated with medications and increased activity. Urinary retention typically resolves with the constipation, but sometimes requires placement of a foley catheter into the bladder to drain the urine. If you have had difficulty with bladder emptying or retention, please notify your surgeon.

Blood Clots / Pulmonary Embolism / Stroke

Any patient undergoing surgery is at risk for blood clots. Clots typically happen in the vein but may also occur in the artery. They can inhibit blood flow to organs (in the case of an arterial clot) or flow back to the heart (in the case of a venous clot). Clots can also break off and travel to another organ such as the brain or a lung. In either of these cases, these complications can be devastating and at times fatal. If you experience shortness of breath or chest pain after surgery call 911.

Organ Failure

Undergoing surgery is a major risk. There must be a balance of patient optimization, proper anesthesia, fluid balance, and careful resuscitation. Despite best efforts, bodily organs can be affected. This may include heart attack, heart failure, stroke, kidney or liver failure. These are very uncommon but potentially devastating complications.

Falls

Patients are often at a higher risk for falling right after surgery due to multiple factors. Falls can result in fractures, bleeding within the brain, and can affect surgical outcomes. Fall prevention is an important part of postoperative recovery.

In Advance of Surgery

Insurance companies require pre-authorization for elective spine surgery. Your surgeon's office and the hospital admitting department will work with your insurance provider to gain pre-authorization. Upon receipt of pre-authorization approval, you will be contacted by the surgeon's scheduler to discuss available surgery dates.

You will need to schedule the following appointments:

- Medical clearance (if required)
- Cardiac clearance (if required)
- Spine education class
- Eisenhower Health surgical interview
- Pre-surgery office visit with the surgeon/clinical nurse specialist/physician assistant
- Surgery date
- First post-surgery office visit

Please inform your surgeon of all the medications you are presently taking — including vitamins and all nutritional supplements. Talk to your doctor about any medicines you take to thin your blood (aspirin, Plavix[®], Pradaxa[®], Coumadin[®], Lovenox[®], Eliquis[®], Xarelto[®], Ticlid, etc.).

Medications to stop prior to surgery

Seven days before surgery, stop taking:

All NSAIDs (non-steroidal, anti-inflammatory drugs) naproxen (Aleve®), ibuprofen (Advil®, Motrin®), nabumetone (Relafen®) meloxicam, (Mobic®)

All vitamins and supplements

If you are taking blood thinners (anticoagulant medications), your prescribing physician will let you know when to stop taking them before surgery.

These include:

warfarin (Jantoven[®]), apixaban (Eliquis[®]), rivaroxaban (Xarelto[®]) edoxaban (Savaysa[®]), enoxaparin (Lovenox[®]), fondaparinux (Arixtra)

If you have a cardiac stent, mechanical heart valves, and/or a history of pulmonary embolism, do not stop taking your medications to prevent clots without first talking to the doctor who put in the stent.

Those medications include:

aspirin, clopidogrel (Plavix[®]), ticagrelor (Brilinta[®]), prasugrel (Effient[®]), ticlopidine (TIclid)

Failure to discontinue the above medications may result in rescheduling your surgery.

*You must have clearance from your prescribing physician to stop any anticoagulant medication.

If you have any questions, please call your surgeon's office.

Quit Smoking Before Surgery

Evidence has shown that tobacco and nicotine use is known to impair the body's ability to heal bones and wounds and that smokers are at a higher risk for infection and other complications. Patients who quit smoking before and during spine care treatment have less pain than those who smoke and also have better outcomes.

Why Should You Quit Smoking Before Spine Surgery?

Smoking changes blood-flow patterns, delays healing, and slows recovery. This is true for any major surgery. The Anemia Institute for Research and Education reports smoking can reduce your blood cell count. Of course, smoking can also increase lung complications, which is always a concern for patients undergoing general anesthesia.

In an article for the *Medical Journal of Australia*, Matthew Peters, MD, wrote that, "Wound infection rates are higher in smokers than in non-smokers who have had surgery." Earlier studies have also shown smoking is linked to longer surgeries, lengthened hospital stays, and a higher demand for hospital services.

According to Dr. Peters, "Continuing smokers must accept that some risks are simply unacceptable given the intent of surgery." And the key is quitting – simply cutting back on smoking is not adequate. To achieve a benefit, patients need to stop several weeks before surgery. Smoking effects bone healing crucial to the success of any spine surgery, especially stabilization or fusion.

The specific reason for higher infection rates in smokers is not clear. However, there is a glimmer of good news. Dr. Peters indicated nicotine replacement devices, such as nicotine gum and patches are not linked to increased infection rates. Your doctor can refer you to smoking cessation programs offered locally.

Just think of how your life may change when you've quit smoking and have had your diseased spine surgically repaired to improve pain and mobility. You'll have a better chance for a faster recovery, and you could be on your way to a new, much healthier life.

Alcohol Use and Surgery

Evidence has also shown that complications following surgery are exponentially related to pre-surgery alcohol use/misuse. Alcohol use increases the risk of infection, excessive intra-operative bleeding, poor healing and falling. If possible, minimize your drinking well in advance of surgery.

If you would like more information about smoking cessation and a variety of other health-related programs and services, please call the Healthy Living Resource Center at 760-610-7205. The goal of the Center is to promote healthy lifestyles through education, information, screenings and wellness programs.

Preparing for Surgery (Continued)

Pre-Operative Test Requirements

These screening tools may be needed to confirm that you are in optimal health for your surgery.

- Blood tests (Must be 30 days current to the date of surgery)
- EKG (Must be six months current to the date of surgery)
- Chest X-ray (Must be 12 months current to the date of surgery)

Surgical Interview

This appointment includes a comprehensive screening tool used to obtain your medical and surgical history.

Please have the following available for this appointment:

- An up-to-date list of all your current medications the dose and frequency of each (include all vitamins, minerals and nutritional and herbal supplements)
- An advance directive a copy will be placed on your chart
- Insurance card(s)

Medical and Cardiac Clearances

It may be necessary for you to receive medical and/or cardiac clearance to ensure you are in optimal health prior to your surgery. Your surgeon will order these, as needed, based upon your medical history.

Dental Work

At your next appointment, please discuss any dental work with your provider.

Spine Education Class

This class is provided to all patients and their families either in person or you can view the content online using this web address EisenhowerHealth.org/Preopedu

You will be given information on how to prepare your home and what to expect when you go home. Education about therapy and discharge planning are also part of this class.

Equipment

You **MUST** have any equipment you may need PRIOR to surgery. It may or may not be covered by your insurance. Please check with your surgeon's office if you need any of the following items.

- Walker
- Appropriate brace, if one has been ordered by your surgeon
- Bedside commode which can be used as a toilet riser and/or shower chair
- Reacher/grabber
- Long-handled sponge



Front-wheeled walker



Reacher/grabber



Long-handled sponge

- Designate an area in your home where you will spend most of your day. The chair/sofa seat should be firm and at the proper height, and easy to get in and out of. Consider using a chair with armrests as that will assist you with standing and sitting.
- Everything should be within easy reach, including the phone, lamps, TV remote and medications.
- Place a small covered container at your bedside. This will hold one dose of pain medication that may be needed at night.
- Remove all loose rugs.
- Secure a bath mat outside your tub or shower.
- Place a non-skid surface in the bathtub and/or shower. Consider installing grab bars.
- Secure all loose wires, especially around your desk area.
- □ Place nightlights in the halls and bathroom.
- Use non-skid shoes; no flip-flops, slip-ons or heels.
- Stock your kitchen with healthy foods; some high in fiber to prevent constipation, and fluids for hydration.
- Arrange a place for your pets to stay.
- Place underwear and comfortable clothes that you anticipate wearing after surgery on top of your dresser or in drawers that are waist high or higher.

Pre-Surgery Checklist

- Find your "coach," a support person who will assist you with your home care needs for the first five to seven days after surgery and who will also attend the spine education class with you.
- Prepare your home (see page 15).
- Stock your kitchen with prepared meals.
- Arrange a place for your pets to stay, if possible.

Three to Four Weeks Prior to Surgery

- Complete any required pre-admission testing (labs, EKG, X-ray) no sooner than 30 days prior to surgery.
- □ Attend the Spine Class or watch the class online, along with your coach, at EisenhowerHealth.org/Preopedu.
- Watch Anesthesia Patient Education Video: Eisenhowerhealth.org/Anesthesia
- Review and practice the spine precautions and body mechanics.

Two to Three Weeks Prior to Surgery

- Complete your pre-admission appointment (either in-office or a phone call).
- Continue to practice proper spine precautions and body mechanics (see page 18).

One to Two Weeks Prior to Surgery

- Attend your pre-surgery office visit with your surgeon or the surgeon's CNS or PA.
- Pack any personal items you wish to bring to the hospital (see page 23). Make sure to bring dentures, hearing aids, or glasses if you use them, and their cases to store these items.
- Continue to practice proper spine precautions and body mechanics (see page 18).
- □ STOP any medications as instructed.
- Sign up for MyChart at EisenhowerHealth.org/MyChart

Pre-Surgery Checklist (Continued)

Day Prior to Surgery

- Pack any medical equipment you may need (CPAP/BiPAP, etc.)
- □ Finish packing. Make sure to bring this book.
- □ Complete your shower as instructed by the pre-admission nurse using the chlorhexidine soap. See page 19.
- You will receive a phone call regarding the time for your procedure.
- Remove all jewelry and plan to leave all valuables at home.

Day of Surgery

- Follow instructions provided regarding your medications and eating on the day of surgery.
- Before coming to the hospital this morning, take another shower, using the chlorhexidine soap. See page 19.
- \Box Arrive at the hospital on time.
- Bring this book with you.

Spine Precautions and Body Mechanics to Prevent Injuries

After your surgery, you will have precautions to protect your spine.

They include:

- Always log roll into and out of bed.
- Turn your entire body as a unit when getting into or out of a car.
- Do not drive until your surgeon clears you.
- Walking is a **required** activity after surgery.
- Pain is a warning to slow down.
- No Bending No Lifting No Twisting

For cervical (neck) spine surgery

No **Bending**, **Lifting**, or **Twisting** of the chin in any direction and no **Lifting** of your arms above shoulder height.

For lumbar (back) spine surgery

B No bending hip more than 90 degrees, no side-to-side-bending.
No bending neck in any direction.



No lifting more than five to 10 pounds. Examples

- 12 pack of soda is 10 lbs.
- 2 liters of soda is 7.8 lbs.
- 1 gallon of milk is 8.6 lbs.
- Large sauce pan is about 1 lb.



T No twisting while performing any activity.



Night Before Surgery

- Review the instructions given to you by the surgical interview nurse.
- Eat a light dinner.
- No alcohol or smoking prior to surgery as it interferes with anesthesia, pain medication and the healing process.
- Take a shower using chlorhexidine wash. (If not provided, you may purchase it at any local drug store.)

Chlorhexidine Wash Instructions

No one wants an infection. By washing your skin carefully before surgery, you can lower your chances of infection.

Using chlorhexidine liquid soap

- Wash your body and hair with your regular soap and shampoo and rinse off. Do not shave the area where you will be having surgery.
- Turn off the water or step out of the shower and put the chlorhexidine soap all over your body from the neck down. Wash gently for five minutes, adding more soap as you wash parts of your body. (Avoid washing your genitals with the chlorhexidine soap.) This soap will not lather like your regular soap. Pay extra attention to the place where you will be having surgery.
- Turn the shower back on and rinse all of the chlorhexidine soap off of your body. Do not use any additional soaps.
- Dry yourself with a clean towel.

After using chlorhexidine liquid soap

- Be sure to put on clean clothes after you use the liquid soap.
- Do not put on lotion, deodorants, creams, powders or perfumes.

Benefits and risks of chlorhexidine liquid soap

You will have fewer germs on your skin, lowering your risk of infection at your surgery site.

What problems could happen?

Rash, itching, burning

Day of Surgery

Follow instructions provided regarding your medications and eating on the day of surgery.

- If you were instructed to take medications by the surgical interview nurse, do so with a very small sip of water.
- Take another shower this morning, prior to coming to the hospital, using the chlorhexidine soap. Avoid using this soap on your face and genitals.
- Do not mark the surgical area.
- Do not shave the surgical area.
- Bring this book with you to the hospital.
- Arrive on time and check in at the lobby of the designated surgical location. You will be escorted to the pre-surgery area.
- A name band will be placed on your wrist after verifying your name and date of birth. Throughout your hospital stay, you will be frequently asked to say your first and last name as well as your date of birth. This helps to ensure your safety.

In Pre-surgery Area

- You will be cared for by a registered nurse.
- You will change into a surgical gown, anti-embolism stockings commonly known as TED hose, a pair of socks, a soft blue hat and a warm blanket.
- One or two intravenous (IV) line(s) with fluids will be started by your nurse.
- All consents, paperwork and lab results will be reviewed with you by your nurse.
- You will be asked several routine screening questions these are safety checks.
- Your nurse will administer any medications ordered by your surgeon.
- You will meet the following members of the peri-operative team:

Your anesthesiologist will review your medical and surgical history, your medications and allergies to determine the best type of anesthesia for you; you will then sign a consent. Notify your anesthesiologist of any prior issues with anesthesia.

Your circulating nurse, who is a member of the surgical team, will ask you to verify your name, date of birth, and ask routine screening questions regarding your health and medication allergies prior to escorting you to the operating room. Their role is to manage the nursing care inside the operating room, document the progress of the surgery, and maintain a safe, comfortable environment for the patient.

Your Surgery (Continued)

- Your family will be able to visit with you in this area.
- Your stay in the pre-surgery area will be about 90 minutes to two hours.

In the Operating Room

- A registered nurse will take you into the operating room on a gurney and remain with you during the entire surgery.
- The room is bright, cold and noisy.
- You will see the anesthesiologist, a surgical technician who assists the surgeon, and an anesthesia technician who assists the anesthesiologist. Some surgeons work with a physician assistant as well.
- You will be placed on a monitor that continuously records your vital signs.
- A registered nurse will monitor your care in the operating room, will ask you several routine screening questions, and will monitor safety checks.
- You will be kept comfortable during the procedure.
- The length of time for your surgery will depend on complexity.

When the procedure is completed, the surgeon will speak with your designated contact person, if they are available. If your contact leaves the area, please ask them to leave a phone number where they can be reached.

After Your Surgery

- You will be cared for by a registered nurse.
- Your vital signs, including your pain level, will be monitored by the staff.
- The incision will be covered with a dressing.
- You will have a warm blanket, oxygen, IV fluids, SCDs (sequential compression devices) to prevent blood clots, and may have a catheter in your bladder. If you have a catheter, it will be removed as soon as possible. This helps prevent a urinary tract infection from developing. A bladder ultrasound may be used to make sure you are emptying your bladder after the catheter is removed. You may also have a wound drain that will be removed in a few days.
- Your stay in the recovery room will be approximately two hours.
- You will receive any medications ordered by the surgeon and/or anesthesiologist.
- You will begin to take clear liquids. When tolerated, your diet will be advanced
- A physical therapist will see you for an initial evaluation.
- Cold therapy will be used to help reduce pain and swelling.
- If your procedure is an outpatient surgery, you will be discharged home once you have met discharge criteria.
- If you wish, one person will be allowed to visit briefly.

Visitors

Patients may designate and receive visitors of their choosing. Eisenhower Health does not have established visiting hours; however, the hospital may limit the number of visitors for any one patient during a specific period of time. The patient will be informed regarding the reason for any restriction or limitation of visitors.

To protect our patients' health, friends and relatives who are ill should not come to the hospital to visit.

Hospital Information

Items to Bring to the Hospital

- Comfortable, loose fitting clothes, such as short-sleeved shirts, clothes with hems above the knee and an elastic waistband, T-shirt, shorts, sundress, house coat, etc.
- Comfortable shoes with a back; no flip-flops, slip-ons or heels
- Toiletries
- Paper and pen to write things down
- Dentures, hearing aids and/or eyeglasses (these items should be kept in protective cases when not in use)
- Personal electronic equipment, such as computer, e-reader
- Your spine brace, if applicable

Items to Leave at Home

- □ Jewelry
- Money, credit cards

If you bring any personal belongings such as a watch, jewelry or money, please arrange for a family member or friend to take them home for safekeeping. If no one can take them home for you, ask your nurse to place them in the hospital vault. The hospital will not be responsible for a patient's personal belongings or valuables.

Post-Op Day One (If Applicable)

- Your vital signs and pain level will continue to be monitored by the staff.
- Your surgical dressing will be monitored by the nurse.
- Your intake and output will be monitored by the nurse.
- You are encouraged to change into your regular clothes for the day.
- If you have a drain, it may be removed.
- If you have a urinary catheter, it will be removed.
- Continue to use the incentive spirometer.
- You may be seen by physical or occupational therapist.
- The care coordinator will complete any final discharge planning needs and most patients are discharged on this day.

Your Hospital Stay (Continued)

Post-Op Day Two (If Applicable)

- Your vital signs and pain level will continue to be monitored by the staff.
- You are encouraged to change into your regular clothes for the day.
- Continue use of the incentive spirometer.
- You may be seen by the physical therapist and occupational therapist.
- The care coordinator will complete any final discharge planning needs.

Day of Discharge

- Your nurse will review with you all of your discharge instructions.
- You will receive prescriptions, if you have not already, for all required post-surgical medication ordered by the surgeon.
- You should plan in advance for a loved one to arrive at the hospital in the morning, the time when patients generally feel their best.
- Most patients will be discharged home. If you go home, ensure that a family member or friend is available to drive you.

Pain Management

Pain Management in the Hospital

Pain management is a joint effort. You, the surgeon, the pain management team and your nurses will all work together for optimal pain relief.

During your hospital stay you will be asked the following questions:

- Where is the pain?
- What does it feel like? Aching, burning, pressure, throbbing, etc.
- Is it there all the time or does it come and go?
- At what number would you rate your pain?



- 1 3 = mild pain
- 4 6 = moderate pain
- 7 9 = severe pain
 - 10 = worst pain imaginable



Managing your pain is an important part of your recovery and rehabilitation. While managing your pain is a collaborative effort, pain is subjective; only you know how you really feel. Understand you will have pain after your procedure. Only take narcotic pain medications when it becomes intolerable, otherwise utilize non-pharmaceutical treatments, such as ambulation, repositioning, distraction, and/or ice. If you have a need for pain medication, please notify your nurse. Our goal is to keep your pain level manageable. This will help you to successfully reach your goals. Set realistic expectations for your pain management as the first few days are the most painful. If you are currently seeing a pain specialist, make sure to notify them you are having surgery to coordinate a pain management plan. You will need to follow up with this specialist for pain management after your surgery.

Managing Pain without Medicine

Below is a list of suggestions to help manage your post-surgical pain. They are to be used in conjunction with the pain medication recommended by your surgeon.

- Move every hour to 90 minutes.
- Change your position frequently.
- Use cold therapy to help reduce pain and swelling as instructed by your doctor.
- Practice meditation.
- Allow distractions (such as music, podcasts, movies, audiobooks, phone calls, etc.).
- Practice relaxation.
- Watch the CARES channel.

Pain Management at Home

At the time of your discharge, your surgeon will decide which medication you will require at home.

It is important to continue with the following:

- Keep your pain manageable.
- Take your medication as stated on the label.
- Frequently change your position every 1 to 1½ hours.
- Get up and move around as instructed.

If your pain is preventing you from normal daily activities after doing all of the above, call the surgeon's office.

Bending, lifting or twisting should be avoided

Do not bend, lift, or twist after having spine surgery. For lumbar or thoracic (back) surgery, bend your knees and hips when picking something up. Do not lift more than 10 pounds (a gallon of milk), until cleared by your surgeon to do so. Turn your whole body instead of twisting (log roll). For cervical (neck) surgery, do not bend, twist or lift the chin in any direction. Do not lift above shoulder height. Adhering to these restrictions will promote healing after surgery.

On a Bowel Regimen

At home, you need to ensure your bowels stay regular as pain medications cause constipation. Drink plenty of fluids and eat foods high in fiber. If needed, you may take over-the-counter softeners or laxatives to keep to keep yourself regular.

Need for Pain Control

Pain medication, walking, ice, repositioning, etc. should be used at home to keep you comfortable. Take your pain medications as instructed by your surgeon. If you are having pain that is not tolerable with these measures, please contact your surgeon's office.

Exit Plan

Identify your plan for help when you go home. Who will stay with you after surgery? Ensure you have a walker prior to arriving to the hospital for your surgery.

Stay Active

Please continue to be active at home. Walking several times daily is important to your recovery. Movement helps prevent blood clots and promotes healing after surgery.

Prior to your surgery, your health care team will begin working with you on your discharge plan.

The goal is for you to go directly home after your surgery. Your safety is top priority; therefore, you must have someone to help you during your first few days at home.

Home Health Services

If your surgeon feels services are needed after surgery, there are several home health agencies in the area from which to choose. The agencies generally provide a nurse and physical therapist. The visiting nurse will monitor your incision, medications and any other health needs. The physical therapist will work with you on a home exercise program. The duration for home health services is generally two to three weeks.

In rare instances home health services may not be available where you live. If you and your physician anticipate needing home health services and you live in a remote area please, discuss alternative discharge destination options with family or friends prior to surgery.

Rehabilitation Center/Skilled Nursing Facility

In the rare occasion it is deemed medically necessary and insurance has approved the request, you could be transferred to a rehabilitation center (or SNF) after your hospital stay. While your surgeon is involved in the clinical decision making, successful transfers are a result of insurance authorization, qualification under the facilities guidelines, and the medical need for additional support. For this reason, be sure to have a back-up plan available in case these arrangements cannot be made. Having a friend or family member that can assist you at home, or with whom you can stay while you recover is recommended.



Helpful Hints After Spine Surgery

Tips to protect the back or neck while the tissues heal:

Careful Positioning

- Be aware of your posture, especially while sitting or standing.
- Tighten your abdominal muscles to support the back.
- Break up tasks, such as washing dishes, to avoid prolonged standing.
- Choose a chair with arms and a firm seat that will support good posture.
- Sit with a pillow behind you for additional support, as needed.
- Sleep with a pillow under your knees or between your legs, as needed.

Frequent Movement

- Walk frequently to relax your muscles.
- Change positions frequently; do not sit for more than one hour.
- Plan rest breaks, such as lying flat, throughout the day.
- And again, walk frequently.

Remember Your Precautions

Avoid Bending

- Use your reacher to pick up something far away or near the floor.
- Bend at your knees and hips (instead of your back) when you stand up, flush the toilet, brush your teeth, wash your hair in the shower, etc.

Avoid Lifting

- Keep your load under 10 pounds and carry that load in front of you, such as groceries or trash.
- Do not push, pull or reach overhead.

Avoid Twisting

- Remember to log roll when getting in or out of bed.
- Use both hands to open the refrigerator or a heavy door.

Prevent Falls

- Sit down to dress and undress. Use your reacher for pants, and find supportive slip-on shoes.
- Avoid flip-flops or slides.
- Take your time using stairs. Feel each step with your toe when going up, or your heel when going down.

Avoid Infection

- Do not allow your pets to sleep in bed with you until your incision is fully healed.
- Do not sit in water, including bathtubs, hot tubs, swimming pools, bodies of water, etc. until your incision is healed.
Activity After Surgery

Physical therapy will help you progress with moving in bed, standing up and walking. The physical therapist in the hospital will assess your mobility needs, and teach you how to protect your surgery site while your tissues heal, such as how to log roll, move in bed to a sitting position, and use the proper gait technique while maintaining spinal precautions and proper body mechanics.

You will begin to work with physical therapy the day of your surgery. If you have any concerns about mobility in your home – narrow hallways, stairs, etc. – please let your therapist know.

You will not receive an exercise program while in the hospital or for the first few weeks after surgery. The best activity is to take short walks frequently. You can expect to be up walking on the day of surgery..

After several weeks of healing, your surgeon may initiate a referral to outpatient physical therapy for any weakness or balance concerns. They can work on correct body mechanics, which helps prevent any further injury to your spine.

Occupational therapy will help you to be as independent as possible with your activities of daily living (ADLs). An occupational therapist will see you in the hospital to assess your ADL needs for getting in and out of bed, hygiene, bathing and dressing, as well as simple light home activities. They will also instruct and have you demonstrate spine precautions while completing ADLs to protect your surgical site and assure a safe and successful discharge home.

Activity After Surgery (Continued)

After spinal surgery, it is important to protect the surgery site as you heal.

There are a couple of ways to protect your spine.

1) You will be instructed in post-op **Spine Precautions.**

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Avoid "BLT" = Bending
  Lifting, Pushing or Pulling
 Twisting
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If your surgery is in your neck, you have two additional precautions:

- Avoid reaching overhead.
- No overhead lifting.
- 2) You may, or may not, wear a **brace** to protect the surgery. This is up to your physician and based on the procedure.
 - After Cervical surgery, your brace may look like one of the following.



After Lumbar surgery, your brace may look like this.

















Neck Braces

Not all cervical spine surgery patients require a brace post-operatively. If you need a brace, your brace type is determined by your surgeon. **Check with your surgeon, if you have a brace, regarding when it can be removed (e.g., showering, not at all, when in bed, etc.).**

Soft Collar

The "dip" is the front and fits under your chin.



To remove the collar, pull the Velcro[®] tab on the left side.



The collar will open and you may remove it easily.



Reverse this process to put the brace on. Place the "dip" under your chin, close and attach the Velcro[®] tab to your desired fit.

The collar should be supportive and comfortable, but you should not be able to tuck your chin down in to the brace. If you can, please tighten the collar.

Neck Braces (Continued)

Hard Collar

You will remove this collar to shower.

To remove, pull the Velcro[®] tab on one side.

Open the brace and pull it forward.

Reverse the process to put the brace on. Place the front of the brace to you, close the back, and attach the Velcro[®] to the desired fit.

Shower Collar

- If you have a hard collar, a shower collar may be ordered.
- If it is, place the front of the brace to you, close the back and attach the Velcro[®] to the desired fit.



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Back Braces

Types of Back Braces

Not all thoracic and lumbar spine surgery patients require a brace post-operatively. If you need a brace, your brace type is determined by your surgeon. Check with your surgeon, if you have a brace, regarding when it can be removed (e.g., showering, not at all, when in bed, etc.).

Lumbar Sacral Orthosis (LSO)

To put on the LSO brace, place it around your waist.

Pull both tabs by stretching out your arms.

Place one Velcro[®] tab across your body. Then, the other Velcro[®] tab across your body.

Ensure the back of the brace is centered over your spine.







Back Braces (Continued)

Thoracic Lumbar Sacral Orthosis (TLSO)

To put on the TLSO brace, place it around your waist

Pull both tabs by stretching out your arms.

Place one Velcro[®] tab across your body. Then, the other Velcro[®] tab across your body.











• OR may go *under* the armpits.





For any questions regarding braces, please contact your surgeon or a physical therapist.

Activities of Daily Living

Sleeping on Side

- Place pillow between knees.
- Use cervical support under neck and a roll around waist as needed.



Sleeping on Back

- Place pillow under knees.
- A pillow with cervical support and a roll around waist are also helpful.



Log Roll

- Lying on back, bend left knee and place left arm across chest.
- Roll in one movement to the right.
- Reverse for rolling to the left.
- Always move as one unit.





Activities of Daily Living (Continued)

In/Out of Bed

- Lying on back, bend left knee and place left arm across chest.
- Roll in one movement to the right.
- Reverse for rolling to the left.
- Always move as one unit.
- Lower self to lie down on one side by raising legs and lowering head at the same time.
- Use arms to assist moving without twisting.
- Bend both knees to roll onto back if desired.
- To sit up, start with lying on side and use the same movements in reverse.
- Keep trunk aligned with legs.



Activities of Daily Living (Continued)

Vacuuming

- Hold the vacuum with arm held at side.
- Step back and forth to move the vacuum, keeping head up.
- Avoid twisting.



Brushing Teeth

- Place foot on ledge under sink. This may require you to open the cabinet door.
- Use a cup or basin to spit into.
- Place one hand on counter.
- Bend other knee slightly to keep back straight.



Flushing the Toilet

- Get up from the toilet coming to a complete stand.
- Turn your whole body towards the flush handle.
- Bend slightly at your knee to flush, keeping your back straight.



Picking Up and Carrying Items

- Distribute weight evenly on both sides.
- Use a cart whenever possible.
- Do not twist trunk.
- Move body as a unit and hold item(s) close to your body.



Activities of Daily Living (Continued)

Laundry – Front Loading

- Squat down keeping back straight.
- Reach into clothes machine.
- Small items can be placed in a zippered mesh bag.
- Use a reacher to pull out the bag.



Laundry – Top Loading

- Reach into the washing machine using a reacher, keeping back and neck straight.
- Small items can be placed in a zippered mesh bag.
- Use a reacher to pull out the bag.



Nutrition

Nutrition is important during the recovery process. Nutrients important for healing are:

- Vitamin A
- Vitamin C
- Zinc
- Protein

Vitamin C helps your body to form collagen which is an important protein needed for strength and flexibility. It repairs ligaments and strengthens bones. Vitamin C is decreased when the body is under stress. Food sources of Vitamin C include citrus, kiwi, strawberries, broccoli and bell peppers.

Vitamin A in needed for cell growth and development and to help the immune system. Vitamin A is found in liver, paprika, sweet potatoes, carrots, dark green leafy vegetables, lettuce and cantaloupe.

Zinc is needed for wound healing. Zinc rich food sources include oysters, shellfish, wheat germ and low-fat roast beef.

Surgery and surgical wounds are stressful on the body. The human body requires more calories and protein for recovery after surgery. This will increase your nutritional needs. Infection after surgery can also increase calorie and protein needs. Protein rich sources of food include milk, soy milk, eggs, cheeses, yogurt, peanut butter, tofu, beans, lentils and nuts.

Adequate hydration and fiber are keys to optimal nutrition after having spine surgery. Fluids and fiber are important to avoid constipation while taking pain medications after surgery. When at home, if you are having...

Nausea

- Take your medications with food, unless otherwise instructed.
- Eat small, frequent meals.
- Call the surgeon's office if it is not relieved.

Constipation

Constipation is a side effect of narcotic pain medications, anesthesia, surgery, and decrease in activity.

- Take a stool softener as ordered.
- Increase the fiber in your diet (e.g., fiber cereal, fiber bars, plenty of fruits and vegetables).
- Drink plenty of water unless restricted by your primary physician or cardiologist.
- If you have not had a bowel movement for two days, please take an over-the-counter laxative (MiraLAX[®], magnesium citrate, suppository, etc.). If you still don't have a bowel movement after taking these medications, please contact your surgeon's office.

Swelling and Bruising

Swelling and bruising after surgery is normal. It will resolve over the first few weeks.

Difficulty Swallowing

Having difficulty swallowing, also called dysphagia, is among the most common and concerning aspects of an Anterior Cervical Decompression and Fusion (ACDF) recovery. Not only is swallowing critical to how the body naturally gets needed nutrients, it also plays an important role in making eating a pleasurable experience. Dysphagia can also be dangerous as it increases the risk of choking. Most ACDF patients fully recover their ability to swallow within a few days after surgery. Sometimes, however, dysphagia lingers for weeks, months or even longer. After ACDF surgery, most patients have a sore throat. To monitor for a potential swallowing problem while in the hospital, patients are started on clear liquids and then progress to soft foods. Here are some tips to help manage dysphagia that lingers after returning home from the hospital:

- Stock up on soft foods. Yogurt, applesauce, creamy soups and other soft foods are good choices during the recovery period when swallowing is still difficult.
- Puree hard foods. Using a food processor or blender to breakdown solid foods such as meat, chicken and veggies is a good way to keep the calorie count up and maintain protein levels. Remember to add enough liquid so the pureed food slides down easily.
- Smoothies. Using a food processor or blender to make a smoothie can be an easy way to get the proper food and nutrients in a fast and efficient manner.
- Use a bendy straw if it helps. Unlike a straight straw, a bendable straw's angle can be altered to conveniently meet the user's mouth to minimize head and neck movements.

If the ability to swallow seems to be getting weaker or if swallowing water is difficult or impossible, a doctor should be consulted. Waiting too long to see a doctor could increase the risk of choking.

When to Call the Surgeon

It is relatively common to experience some surgical site pain, as well as some residual arm or leg pain, numbness, or tingling immediately following the surgery, but these symptoms generally improve on a weekly basis.

You should contact the office if:

- You have a temperature greater than 101 degrees.
- You have excessive bloody or odd colored drainage from the incision.
- You have increasing redness around the incision.
- Your pain is not relieved with the appropriate pain medication.
- You have new onset numbness, tingling, or loss of bowel or bladder function.
- You are unable to urinate.
- You have ongoing belly pain or if you have not had a bowel movement for three days.
- You have any side effects from medications prescribed by the surgeon.

For any life-threatening emergencies or symptoms, call 911 to be transported to the nearest emergency room.

Frequently Asked Questions and Phone Numbers

Do I have to protect the position of my spine after surgery?

Yes, maintain your spine precautions and proper body mechanics.

Can I get the incision wet?

You will be instructed at the time of your discharge if/when you can get the incision wet.

May I use a heat pad on my incision?

You may only use ice, unless cleared by your surgeon to use heat.

When can I drive?

You may drive when you are not taking narcotics during the day and have been cleared by your surgeon to do so.

When can I play golf or tennis?

• Your surgeon will determine this at your follow-up visit.

Frequently Used Phone Numbers

Business Office and Patient Financial Services	800-453-6012
Eisenhower Health	760-340-3911
Nurse Navigator	760-340-3911 ext. 2512
Your Surgeon's Office:	

Intimacy after Spine Surgery

At Eisenhower Health, our goal is to ensure you are safe after having spine surgery as you resume your normal daily activities, including intimacy.

The following pages contain detailed information and graphics regarding safely resuming intimacy. There is no need to view and you may disregard if you are not sexually active. For any questions regarding intimacy after spine surgery, please talk with your physical or occupational therapist.



Intimacy

Sexual activity can promote relaxation and relieve tension if you are able to assume a pain-free position. Open communication with your sex partner is recommended to continue in a manner satisfactory to both of you.

- Tell your partner what you like that they are already doing sexually.
- Tell them what you would like them to do to arouse you.
- Ask them what they would like you to do for them.

Being open about your feelings will mean the end of guess work between you and your partner. Frequent, sincere comments on what feels good is the most helpful guide you can offer.

Suggestions to increase relaxed state prior to sexual activity:

- Warm bath or shower.
- Low back massage/vibration.
- If analgesics are effective, take approximately 45 minutes before sexual activity.
- Be well rested.
- Use a relaxation technique before sexual activity.
- Set up for a relaxed atmosphere, pleasant music, room temperature.
- Allow plenty of time.
- A lubricant such as K-Y[®] jelly is recommended, as needed, for lubrication.
- Spend more time caressing one another before beginning lovemaking.

Intimacy after Spine Surgery (Continued)

Positioning

A "spooning" position is safest with both partners on their sides and hips and knees flexed.



You may also be on the bottom of a "missionary" position after having spine surgery.



When severe back pain makes intercourse itself undesirable, concentrate your efforts on alternatives, such as stroking, fondling, hugging or kissing.

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