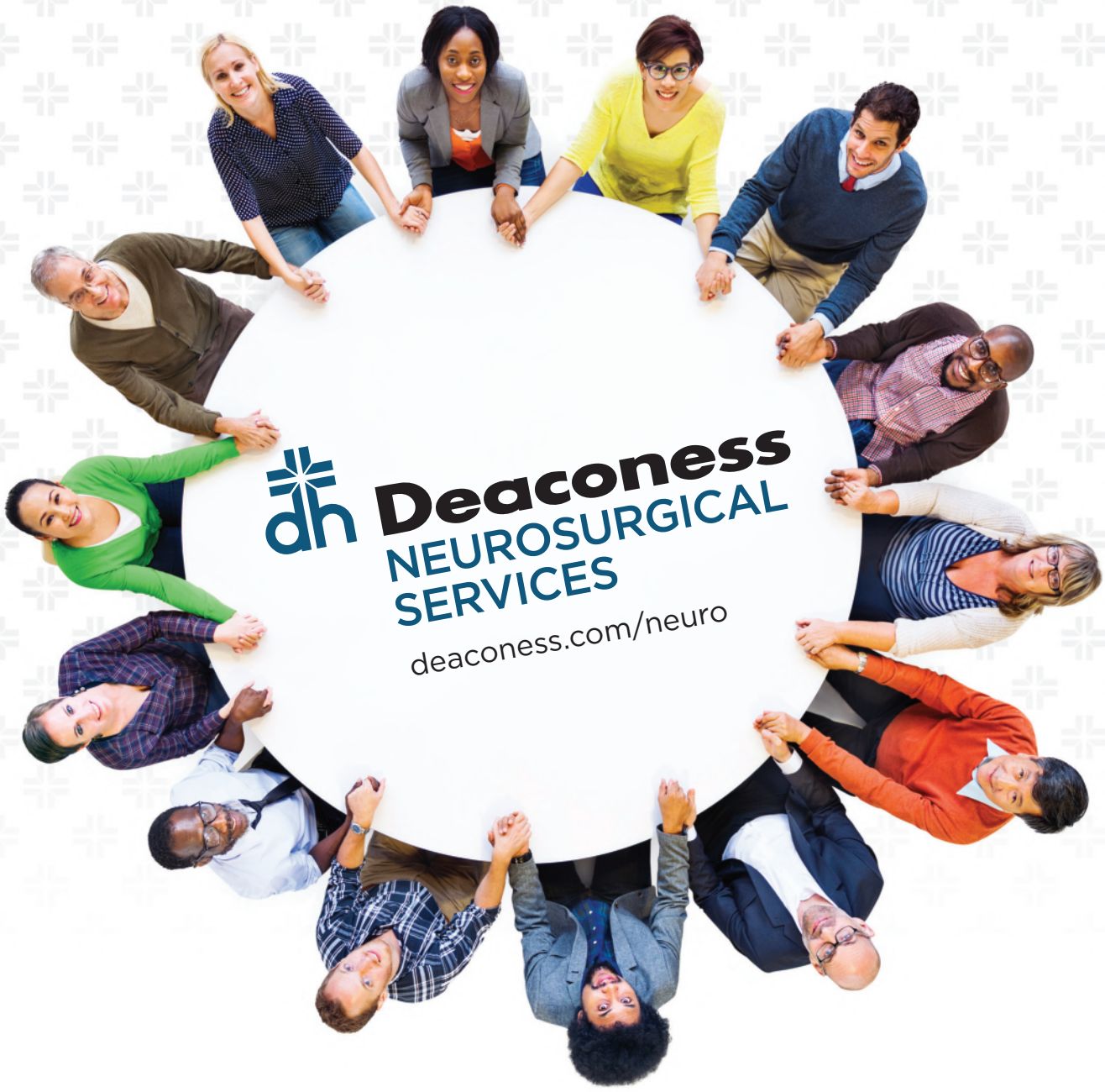
GUIDEBOOK

FOR SPINE SURGERY PATIENTS



Deaconess
NEUROSURGICAL SERVICES

deaconess.com/neuro

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WELCOME TO THE DEACONESS NEUROSCIENCE DEPARTMENT

for Spine Surgery Patients

Welcome from your surgeon, Deaconess Health System and your health care team. We will all work with you in partnership to prepare you for your spine surgery.

You are our most important team member. Together, we will accomplish our team goals: effective preparation, successful surgical procedure, smooth recovery and, finally, a safe discharge.

Your care will be coordinated by your surgeon and a team of Deaconess Hospital nurses. Other members of the health care team will also be available to help you as necessary. They include physician assistants, physical therapists, occupational therapists, social workers, case managers, dieticians, pharmacists and patient care technicians.

Our goal is to return you to your maximum functional ability. You play a vital role in reaching that goal. Recovery is a process that starts with education and participation before you enter the hospital. When you complete your hospital stay, recovery continues at home and throughout your life. We could not achieve the expected outcomes without your hard work and effort.

We hope this information will help you prepare for your surgical procedure and will help make your recovery quicker and easier. Please read it carefully, and feel free to ask questions of any team member.

Deaconess
NEURO SERVICES

CHECKLIST FOR PREPARING FOR SPINE SURGERY

Schedule the following appointments three to four weeks prior to your surgery date.

The results of these tests are required at least 48 hours prior to your scheduled admission.

Physician/Lab Name Date/Time

- ☐ History and Physical _____ AM/PM
- ☐ Lab Work _____ AM/PM
- ☐ EKG _____ AM/PM
- ☐ Medication List _____

You will need written clearance from your heart or lung doctor.
Schedule the following if necessary.

- ☐ Heart Physician _____ AM/PM
- ☐ Lung Physician _____ AM/PM
- ☐ Diabetes Physician _____ AM/PM
- ☐ Other Physician _____ AM/PM

This Book is Only a Guide

Your care will vary according to your individual needs. Preparation, education, continuity of care, and a pre-planned discharge are essential for optimum results. Communication is also essential to this process. The guidebook is a communication and education tool for patients, physicians, therapists and nurses. It's designed to be used to educate you so you know what to expect every step of the way and what you need to do to prepare.

Remember, this is just a guide. Your physician, physician assistant, nurse or therapist may add to or change any of the recommendations mentioned in this book. Always use their recommendations first and ask questions if you are unsure of any information. Keep your guidebook as a handy reference for at least the first year after your surgery.

Using this Guidebook

Instruction for use:

- Read entire book prior to surgery
- Review preoperative checklist, and check each item as you complete them
- Review surgical and postoperative information
- Bring this book with you to the hospital to use as a reference

INTRODUCTION TO DEACONESS AND SPINE SURGERY TEAM

The following staff members may be involved in your care:

Neurosurgeon

- Performs surgery and directs your care
- Visits you on rounds in the hospital in conjunction with the physicians' assistants
- Evaluates you at follow-up appointments at the office
- May consult other health care professionals (nurse practitioner, physician assistant, consulting doctors) to help in your care

Nursing Staff (including hospital nurses, office staff, case managers, nurse practitioners, nurse educators and discharge planners)

- Coordinate and provide patient care in the hospital
- Share information about your condition with the health care team
- Help you plan for the move to your home or rehab
- Answer your questions during your hospital stay

Physical Therapist (if needed)

- Evaluates your physical capabilities
- Instructs and helps you with a walking program
- Provides instructions for home activity
- Identifies possible home needs

Occupational Therapist (if needed)

- Instructs you in methods of handling day-to-day activities after spine surgery
- Demonstrates temporary lifestyle changes for self-care at home after discharge
- Identifies possible home needs

Social Worker/Discharge Planner (if needed)

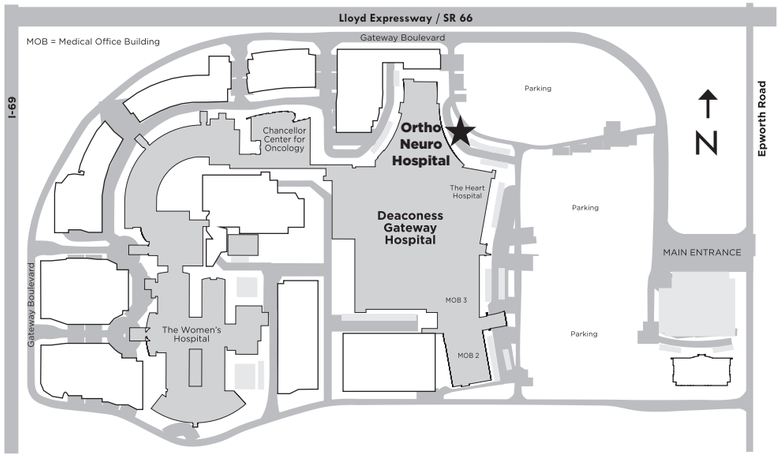
- Identifies possible home needs
- Makes arrangements for continued care after discharge if needed
- Makes arrangements for home health care, equipment or rehab
- Helps with insurance questions and financial concerns

DIRECTIONS/MAPS

Deaconess Gateway Hospital

Deaconess Gateway Hospital is located near the intersection of I-69 and the Lloyd Expressway in Newburgh, just east of Evansville, Indiana.

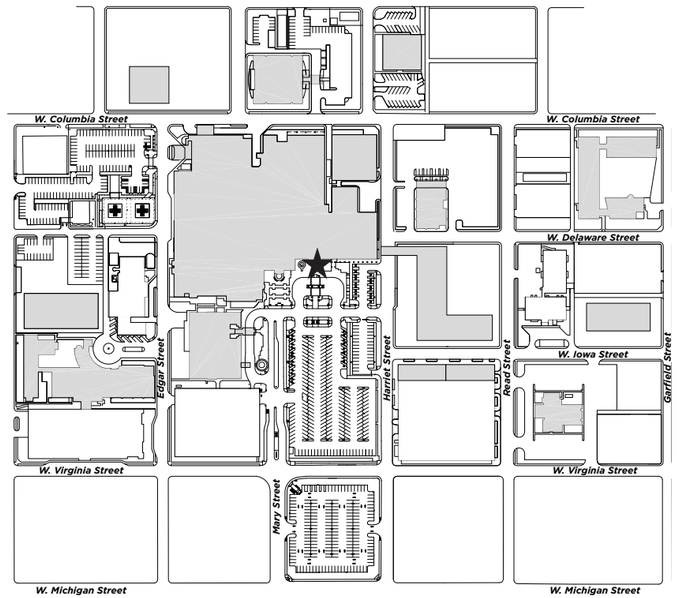
★ *Indicates the main entrance to the hospital.*



Deaconess Midtown Hospital

Deaconess Midtown Hospital is located near downtown Evansville just off the Lloyd Expressway. After taking the Martin Luther King Jr. Boulevard exit you'll want to head North on Mary Street.

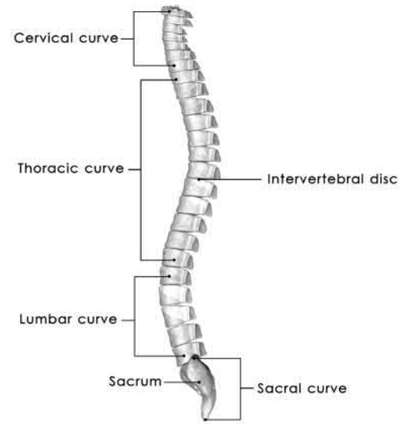
★ *Indicates the main entrance to the hospital.*



UNDERSTANDING YOUR SPINE SURGERY

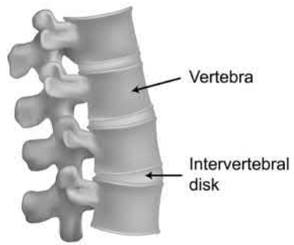
It's important to understand how your neck and back function so you can protect your spine before and after surgery. A healthy spine shelters the spinal cord and supports the body while allowing it to move freely.

- It does this with the help of three natural curves, strong and flexible muscles, and soft cushioning discs.
- The spine is composed of 24 bones called vertebrae.
- The vertebrae are separated by a shock absorber, called a disc, and flexible joints that slide to allow movement.
- Cervical vertebrae: 7
- Thoracic vertebrae: 12
- Lumbar vertebrae: 5
- The base of the spine is called the sacrum.
- The tailbone or coccyx is attached to the bottom of the sacrum.



COMMON TYPES OF SPINE SURGERY

Lumbar laminectomy and **laminotomy** are surgeries performed to relieve pressure on the spinal cord and/or spinal nerve roots by removing all or part of the lamina. The lamina is the roof of the spinal canal that forms a protective arch over the spinal cord. A laminotomy is the partial removal of the lamina. A laminectomy is the complete removal of the lamina. Patients can undergo laminectomies at several levels and still remain structurally stable.



The spinal cord and nerves are protected by the bridge of bone on each side, along with overlying muscle and fascia, so the spinal cord is not exposed. The average hospital length of stay after this procedure is one night.

Lumbar microdiscectomy or **microdecompression** uses a special microscope or magnifying instrument to view the disc and nerves. The magnified view makes it possible for the surgeon to remove herniated disc material through a smaller incision, causing minimal damage to surrounding tissue. The average hospital length of stay after this procedure is one night, although you may go home the same day as your procedure.

Spinal fusion (arthrodesis) joins, or fuses, two or more vertebrae with a bone graft. The bone is used to form a bridge between adjacent vertebrae. This bone graft stimulates the growth of new bone. In some cases, metal implants are secured to the vertebrae to hold them together until new bone grows between them. In non-instrumented fusion, the surgeon does not use screws, cages or other hardware to help join the vertebrae together. Instead, the surgeon collects small pieces of bone from a bone bank. Next, the surgeon grafts these pieces between your vertebrae, which fuses the vertebrae together. Instrumented fusion refers to specifically designed implants (including cages, rods and screws) that are used to ensure correct positioning between vertebrae to help successful fusion take place. These implants add strength and stability to the spine.

The two most common fusion techniques are posterior lumbar interbody fusion (PLIF), transforaminal lumbar interbody fusion (TLIF) and anterior lumbar interbody fusion (ALIF). The average hospital length of stay after this procedure is one to three nights.

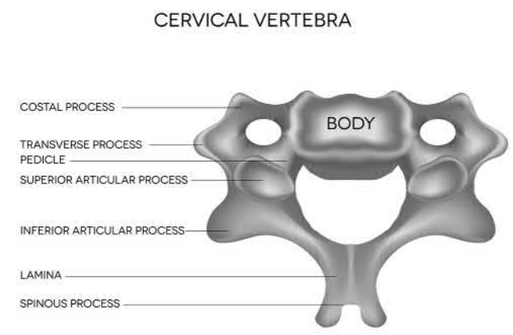
Posterior lumbar interbody fusion (PLIF)—With PLIF, the approach is from the back of the spine. After the approach, the lamina is removed (laminectomy). The facet joints may be trimmed, and the disc space is cleaned of the disc material. A lumbar interbody cage with bone graft is then inserted into the disc space. Additional implants may be used to further stabilize the spine. The average hospital length of stay after this procedure is one to three nights.

Transforaminal lumbar interbody fusion (TLIF) is a surgical procedure done through the posterior (back) part of spine. The anterior (front) and posterior (back) columns of the spine are fused through a single posterior approach. Screws and rods are attached to the back of the vertebra, and a spacer is inserted into the disc space from one side of the spine. A bone graft is placed into the interbody space and alongside the back of the vertebra to be fused.

Spinal procedures may be open or minimally invasive. A minimally invasive spinal procedure is any spinal surgery that specifically attempts to minimize tissue damage through the use of highly specialized tools and computer-assisted technology. The goal is the same as with more invasive, traditional procedures. You may or may not be a candidate for the minimally invasive option. Please discuss this further with your surgeon. The average hospital length of stay after this procedure is one to three nights.

Anterior lumbar spinal fusion (ALIF)—With the ALIF option, an anterior (frontal) approach is used. The surgeon makes an incision in the abdomen to access the spine and remove the damaged disk, which is replaced with an implant. The average hospital length of stay after this procedure is one to three nights.

Cervical spine/neck surgery can be performed to relieve pressure on the spinal cord or to help stabilize the cervical spine. Fusion may be performed to add stability. Cervical fusion can be performed through the front of the neck (anterior) or through the back of the neck (posterior). Bone grafts may or may not be used in these procedures. The average hospital length of stay after this procedure is one to two nights.



Anterior cervical discectomy and fusion is performed through the front of the neck. The surgeon removes the disc and inserts a bone graft into the evacuated space to prevent disc space collapse and promote growth of the two vertebrae into a single unit. This can be done for one or more levels.

Posterior cervical laminectomy and fusion is when the surgeon performs the procedure from the back of the neck to relieve pressure on the spinal cord. The objective of this procedure is to remove the lamina (and spinous process) to give the spinal cord more room. Sometimes fusion is necessary for stabilization.

Anterior cervical corpectomy is sometimes recommended when cervical disease encompasses more than just the disc space. The surgeon removes the vertebral body and disc to completely decompress the cervical canal. He or she then reconstructs this space, employing an appropriate fusion technique.

Cervical laminoforaminotomy is a procedure that can be either minimally invasive or open. The surgeon creates a small “window” on one side of the spinous process and the junction of the lamina and facet joint and then removes some bone and ligament to enlarge the area that the nerve passes out of.

Cervical laminoplasty involves a posterior approach. The surgeon accesses the cervical spine from the back of the neck and cuts through the lamina on one side and a groove on the other side, leaving a hinge that can open to relieve pressure on the spinal cord. The spinous process may be removed, and the bone flap is then propped open using small wedges or pieces of bone so the enlarged spinal canal can remain in place.

Artificial disc for cervical disc replacement involves inserting an artificial disc between two cervical vertebrae after the intervertebral disc has been removed to decompress the spinal cord or nerve root. The device preserves motion at the disc space. It is an alternative to having a bone graft, plates and screws used in a fusion, which eliminates motion at the operated disc space in the neck.

PREPARING FOR SURGERY

BEFORE GOING TO THE HOSPITAL

Steps you should take before your surgery include:

- Review all medications you are taking with your surgeon (be sure to include nonprescription drugs, as well as vitamins and food supplements). If you are taking herbal medications, it's also important to mention these to your surgeon, as these may cause bleeding.
- It's important for you to report a complete and accurate history of all medications taken (including medication for pain), so we can provide you with the best level of care while you're at Deaconess. Please also discuss your alcohol consumption and use of any recreational drugs with your surgeon.
- Some medications you currently take may prove harmful during surgery because they thin your blood and increase the risk of excessive bleeding during and following surgery. If you take medications that contain aspirin, anti-inflammatory medications (such as ibuprofen, Advil, Aleve, etc.), blood thinners (such as warfarin (Comadin) or Plavix), or arthritis medications, ask your surgeon when you should stop taking these medications. During your visit with your surgeon for your history and physical, your medications will be reviewed. You will be instructed on which medications you must stop taking before surgery and how long you need to wait following surgery to resume taking them.
- If you are having a spinal fusion, you may be asked to stop taking biophosphates (including but not limited to Fosamax or Actonel).
- You will be given prescriptions for any medications you might need specifically related to your surgery before your discharge.
- Make sure your surgeon knows about your past history of medical conditions, surgeries, allergies and drug allergies.
- **STOP SMOKING**—Smoking slows down the healing process and may interfere with the development of solid bone fusion.
- If you are overweight, losing weight will help improve your mobility after surgery.

HOME PLANNING AND PREPARATION

Setting up your home prior to surgery is an essential step to ensure a safe environment after discharge from the hospital. Listed below are some questions to consider BEFORE SURGERY while setting up your home.

Not all patients need special equipment. An occupational therapist will help you by recommending the appropriate equipment as needed.

STAIRS

- Do you have stairs to get into/out of your home?
  - Having a family member/caregiver present to help you into and out of your home is highly recommended.
- Are there railings on both sides of the stairwell, or just one side?
- For your first few days at home after your surgery, you should make arrangements to have a family member or friend stay with you.

BATHROOM

- Do you have a tub or a stand-up shower?
  - Your surgeon recommends showers only, no tub baths
- Do you have grab bars in the shower?
  - Grab bars can be installed to increase safety in the tub/shower.
- How high is your toilet seat?
  - For standard toilet seat heights, it's recommended that you get an elevated commode seat to ensure safety with transfers to/from the toilet.

BEDROOM/LIVING ROOM

- Is your home arranged for ease of movement once you return home?
  - It's recommended that you remove throw rugs and other obstacles from the floor to ensure safety while walking.
- Are items in cabinets and dresser drawers easily accessible?
  - You should not be on step stools or ladders after discharge, so be sure to move items as necessary so you can reach them easily (not too high or too low).
- How high is your bed?
  - Be sure to let your nurse or therapist know the approximate height of your bed so he/she can help you practice bed motility with a bed height more realistic to your home setup.

CHILDREN/PETS

- Do you have small children or pets?
  - Small children may need some education on how to interact with you in a way that ensures their safety and yours.
  - Take steps to ensure your pet does not try to jump on you or bump you while walking.
  - Restrictions such as no bending or lifting can make it difficult to care

for small children as well as caring for some large, active pets. You may want to have some help for a short time after surgery and prepare in advance.

- If your bedroom is upstairs, you may need to set up a temporary sleeping area on the first floor. Stairs are not impossible but may be difficult. Limit trips up and down stairs.
- Remove all throw rugs, loose rugs, electrical cords and clutter from hallways/walking areas. These pose a risk for falling.
- Have extra pillows or pads for chairs, sofas and automobile seats to ensure proper body alignment.
- Ensure that internal and external railings are secure.
- For elderly patients or patients with special needs, you may want to consider rearranging furniture so you can maneuver easily.

DISCHARGE PLANNING

You should plan to return directly to home after your surgery. Some patients may need skilled services (for example, rehab or home care). If your doctor feels that you need additional services, your case manager will help you.

PRESURGICAL ACTIVITY AND EXERCISE

Keeping your muscles toned and endurance high will help you recover faster after surgery. Be sure to follow any exercise program you've been given by your doctor or health care provider, and consult your doctor before starting any new program.

PRESURGICAL NUTRITION AND DIET

Good nutrition is important before surgery. Eating healthy and avoiding any unnecessary weight loss prior to your procedure is preferred. We recommend a weight maintenance diet to have adequate nutrition before heading into surgery. This will help ensure that you have the strength necessary after your surgery for rehabilitation.

Build a healthy plate

Before you eat, think about what goes on your plate or in your cup or bowl. Foods like vegetables, fruits, whole grains, low-fat dairy products and lean protein foods contain the nutrients you need without too many calories. Try some of these options:

Make half your plate fruits and vegetables.

- Eat red, orange and dark-green vegetables, such as tomatoes, sweet potatoes and broccoli, in main and side dishes.
- Eat fruit, vegetables or unsalted nuts as snacks—they are nature's original fast foods.

- Switch to skim or 1% milk. They have the same amount of calcium and other essential nutrients as whole milk but less fat and fewer calories.
- Try calcium-fortified soy products as an alternative to dairy foods.

Make at least half your grains whole.

- Choose 100% whole-grain cereals, breads, crackers, rice and pasta.
- Check the ingredients list on food packages to find whole-grain foods.

Vary your protein food choices.

- Twice a week, make seafood the protein on your plate.
- Eat beans, which are a natural source of fiber and protein.
- Keep meat and poultry portions small and lean.

Cut back on foods high in solid fats, added sugars and salt. Many people eat foods with too much solid fats, added sugars and salt (sodium). Added sugars and fats load foods with extra calories you don't need. Too much sodium may increase your blood pressure.

Choose foods and drinks with little or no added sugars.

- Drink water instead of sugary drinks. There are about 10 packets of sugar in a 12-ounce can of soda.
- Select fruit for dessert. Eat sugary desserts less often.
- Choose 100% fruit juice instead of fruit-flavored drinks.

Look out for salt (sodium) in foods you buy—it all adds up.

- Compare sodium in foods like soup, bread and frozen meals—and choose the foods with lower numbers.
- Add spices or herbs to season food without adding salt.
- Select lean cuts of meats or poultry and fat-free or low-fat milk, yogurt and cheese.
- Switch from solid fats to oils when preparing food.

Eat fewer foods that are high in solid fats.

- Make major sources of saturated fats—such as cakes, cookies, ice cream, pizza, cheese, sausages and hot dogs—occasional choices, not everyday foods.

Alcoholic Beverages

- No alcoholic beverages 24 hours prior to surgery.

Dietary Supplements

- All herbal and diet products must be stopped two weeks before your surgery, and MAO drugs must be stopped three weeks before surgery.

THE NIGHT BEFORE SURGERY

You will be instructed to shower with a special antibacterial soap called Hibiclens, or a common soap—Dial.

- Shower with soap the night before surgery AND the morning of surgery. **DO NOT shave your body with a razor before surgery.**
- Wash your hair as usual with your normal shampoo.
- Then apply the soap to the area of surgery. Gently wash for five minutes, do not scrub skin too hard.
- Rinse your body thoroughly. Pat dry with a clean soft towel.
- **DO NOT** use perfume, deodorant, powders or creams after showering.

Please DO NOT eat or drink anything after midnight. This includes no water, gum, candy or cigarettes. Brush your teeth and spit out the water. Make sure you have a bowel movement this day.

THE MORNING OF SURGERY

- Take **ONLY** those medications you were instructed to take by your physician. Take these with a small sip of water.
- Diabetics please follow the instructions in *Patient's Guide to Diabetes Medications Before and Day of Surgery* on the next page, unless your diabetes doctor tells you otherwise.
- You may brush your teeth but do not swallow water.
- Do not use perfume, deodorant, powders, creams, make-up or nail polish.
- Wear comfortable clothing that is easily removed.
- Wear comfortable non-skid or rubber-soled shoes.

WHAT TO BRING TO THE HOSPITAL

- **Do not bring any medications to the hospital,** but please bring an updated list with the medication's name, dosages and how often the medication is taken.
- If a patient has an insulin pump, they must arrive to the hospital with the information provided by their physician concerning dosages and use, and present it to the Same Day Care Center staff.
- Please leave all valuables at home, including, cash, credit cards and jewelry (all jewelry is removed for the patient's protection before going into surgery.)
- If a patient has any implantable devices, such as a pacemaker, defibrillator, pain pump, insulin pump, etc., please bring to the hospital any information about your device and the name of the manufacturer of your device.
- All patients who wear contact lenses should bring a case and solutions to keep their contacts protected during surgery, as they must be removed for surgery.
- All patients who use a CPAP or BiPAP machine should bring their machine to the hospital the day of surgery. Please give the machine to the staff on arrival to be checked into the recovery room so the anesthesia staff can utilize it after your surgery.
- List of allergies.
- Copy of your advance directive or living will (if applicable).
- Glasses, hearing aids, dentures, toiletries and slippers.
- Back/neck brace or lumbar support (if you have been provided one by your surgeon's office).
- Insurance information and an emergency phone number.
- This *Guidebook for Spine Surgery Patients*
- Loose fitting clothes, such as sweatpants and t-shirts.

Because we cannot assume liability for items such as jewelry, credit cards, wallets, watches or cash, we urge you to leave all valuables at home. If you need to bring cash or a credit card with you, please have a family member take them home after you are admitted.

PATIENT'S GUIDE TO DIABETES MEDICATION BEFORE AND AFTER SURGERY

If you have diabetes, please follow the instructions provided to you by the doctor that manages your diabetes. This would be the doctor who orders your medication to manage your blood sugars.

Day of Surgery

Your surgeon's office will contact you the day before surgery to give you an exact time to arrive at the hospital and your scheduled surgery time. Please note that you may be asked to arrive several hours before your surgical time to adequately prepare you for your surgery. If your surgery is at the Deaconess Gateway Campus you should enter through the Orthopedic Neuroscience tower entrance when you arrive. If your surgery is at the Deaconess Midtown Campus proceed through the main entrance at the front of the hospital.

Once entering, stop at the Iinformation desk just inside the door. You'll be led to the admissions area. Once you've been registered, you will be escorted to the Same Day Care Center (SDCC) for your admission and preparation for surgery. Once in SDCC, you'll be escorted to your pre-op room. Your family will stay in the waiting room while you receive your initial preparation.

This includes checking your height/weight/vital signs, signing consents, starting an IV, using antibacterial skin wipes, drawing blood for any lab work needed for your surgery. Staff will review current medications and health history. If any changes have occurred since your visit with your surgeon, inform SDCC staff.

You'll be educated on how to use an incentive spirometer for post-surgical care. The incentive spirometer will help keep your lungs clear and helps prevent pneumonia after surgery. You may also receive compression stockings and/or compression pumps for your lower legs. These work to prevent blood clots and promote good circulation. At this time, you may be given anesthesia protocols or additional medications as directed by your surgeon. Once these tasks are completed, your family will be escorted to your room.

After you're taken to surgery, your family will be asked to wait in the waiting room and will be in charge of your belongings while you are in surgery. They will be escorted to a private room when it's time to talk to the surgeon after your surgery is completed.

You'll be contacted by one of the pretesting nurses one to two weeks prior to your surgery. They will review your medical history and record your height and weight. Be sure to have a current list of all of your labeled medication bottles. The nurse will remind you how to take your regular medications on the day of your surgery. This is an excellent time for you or your family or significant other to ask questions.

Before surgery, your anesthesiologist will review your medical records and speak with you about your anesthesia plan. After surgery, you'll be taken to the Postop Anesthesia Care Unit (PACU), where you'll stay for 60 to 90 minutes. During this time, you will be monitored closely to ensure your comfort and help prevent complication. After recovery, you'll be taken to the Neurosugical Unit, where a neurosurgical nurse will care for you; however, if your surgery is an outpatient surgery you may return to the Same Day Surgery (SDS) recovery area.

YOUR SURGICAL EXPERIENCE

Anesthesia

General anesthesia is medicine given to you during surgery to put you to sleep and keep you comfortable. An anesthesiologist gives this medicine and will monitor your care throughout surgery. There are different types of anesthesia, and your anesthesiologist will discuss what is right for you.

You will meet your anesthesiologist the day of your admission prior to your surgery. Your anesthesiologist will review all information needed to evaluate your general health. This will include your medical history, laboratory test results, allergies and current medications. With this information, the anesthesiologist will determine the type of anesthesia best suited for you. He or she will also answer any further questions you may have.

You will also meet your surgical nurses. Intravenous (IV) fluids will be started, and preoperative medications may be given, if needed.

WHAT HAPPENS IN THE OPERATING ROOM

If you have never been in an operating room before, all the equipment and hustle and bustle can be overwhelming. You'll probably see a lot of people you've never seen before. There may be a lot of noise as the surgical team talks to one another and puts equipment in place. Much of the equipment you see is designed to help your surgical team watch you very carefully during surgery.

The surgeon may come in while you are still awake to say hello and give you reassurance.

You may feel cold. Don't be shy about asking for a blanket.

- A blood pressure cuff will be placed on your arm.
- An electrocardiograph machine will monitor your heart rate.
- A fingerclip will measure your blood oxygen levels and anesthesia.
- A breathing tube may be placed in your throat.
- For longer surgeries (over an hour), compression boots or stockings may be placed on your lower legs to prevent blood clotting. These feel strange but are not uncomfortable or painful.
- Just before surgery, your skin will be cleaned with an antiseptic solution, and your body will be covered with a sterile drape, leaving only the area to be operated on uncovered.

AFTER YOUR SURGERY

Recovery-Post Anesthesia Care Unit (PACU)

- After your surgery you'll be taken to the PACU, where you will be closely monitored as anesthesia wears off.
- The length of stay in PACU is determined by many factors, including the type of procedure and the nature of the anesthetic used.

The nurses will monitor your blood pressure, pulse and breathing; assess and manage your pain; monitor your IV intake, urine output and incision dressings; and encourage you to take deep breaths, cough and move your feet and ankles. When you're ready to leave PACU, you'll be transferred to your room. Please remember that family or visitors are not allowed in PACU.

After surgery

After recovering in the PACU for 60 to 90 minutes, you'll be transferred to the appropriate unit. Our specially trained nurses and patient care technicians will implement your plan of care at that time. After our team gets you settled into your room, we'll invite your visitors to come in and update everyone on your condition.

Monitoring: The staff will monitor your vital signs (blood pressure, pulse, temperature, oxygenation, etc.) every hour for the first four hours and then every four hours thereafter. If you have a drain, we will empty it as ordered by the doctor. We'll keep you and your family updated on any concerns. Some patients need supplemental oxygen after surgery for the first few hours.

Activity: You'll be asked to get out of bed and walk with the staff within four hours after arriving to the unit unless the doctor gives other orders. Walking is very important to your recovery. If you'd like to walk, please ask a staff member to help you. Your safety is very important to us. If you're considered a high-fall-risk patient, a staff member will be with you at all times when out of bed. Some patients will have physical and/or occupational therapy ordered if they aren't progressing adequately with nursing staff.

Pain Control: ***You will have pain after surgery***. Often your initial complaint of pain (extremity pain, numbness, tingling, weakness, etc.) will be better after surgery, but your incision and muscles will hurt. The staff will ask about your pain frequently and will do all they can to help your pain. Most patients are given oral pain medication every four to six hours and IV medication for severe pain. Some surgery patients are also prescribed a muscle relaxer to help with spasms.

Bathroom: You'll be expected to urinate within six hours after surgery. If you're unable to urinate, staff will check your bladder with an ultrasound machine to see how full your bladder is. If necessary, staff will catheterize you (use a tube to drain your bladder).

Itching Control

Some patients may experience severe itching after surgery, which can be a result of the anesthesia. If you experience this, please let your nurse know immediately so we can give you medication to control it.

IV Fluids and Medications

Your IV will remain in place until discharge. You will receive IV fluids until you are able to eat or drink without nausea. You may receive IV antibiotics in the first 24 hours. Your IV may also used for pain medication.

Oral Pain Medication

You will be given oral pain medication once you are able to tolerate liquids. It's best to request oral pain medication when your pain level starts to increase. Remember not to wait until the pain is severe. Keep in mind that it takes 30–40 minutes for oral pain medication to start working, and it also takes time for the nurse to check your chart and obtain the medication. The sooner you request pain medication when your pain starts to increase, the better you will manage your pain. Pain medicine may be available to you as often as every four hours.

Constipation

Constipation often occurs when you're taking pain medication and are less active, as you will be after your surgery. Drinking plenty of water and other fluids such as prune juice is helpful in preventing constipation. If you don't have a bowel movement by the second or third day after surgery, please let your nurse know. You may need a laxative, suppository or enema to relieve the constipation.

Coughing and Deep Breathing

You will be encouraged to take deep breaths and cough after surgery. This exercise will help keep secretions in your lungs from accumulating. When fluids accumulate, it can cause a problem called *postoperative atelectasis*. You'll be give a device called incentive spirometer to help with deep breathing. It's best to use it 5 to 10 times every hour when awake for the first few days after your surgery. Make yourself cough after each use. The nurse or respiratory therapist will show you how to use it.

Dressings/Bandages

You will have a dressing over your incision to protect your wound and promote healing.

Your Incision

You may return from surgery with a drainage tube coming from your incision, and a bandage. The drainage tube is usually removed the first or second day after surgery. Your dressing will be removed or changed on the day of discharge.

The incision will remain covered. Your incision may have sutures or staples, and your surgeon or physician's assistant will decide when they will be removed. On the day of your discharge, your nurse will give you instructions on the care of your incision site.

Diet

You may eat whatever you like after surgery. Most patients don't have much of an appetite after surgery for a week or two. Eat only what you feel like eating, and don't force yourself to eat or let friends or family influence you to eat just like you did prior to surgery. Doing so could cause you to become very nauseated. It's important, however, to drink plenty of fluids to keep you from becoming dehydrated. Should you have any nausea, tell your nurse right away so we can quickly get it under control. It's a good idea to order breakfast for the next morning by 6:30PM the evening before.

Fall Risk

Due to your pain, medications and anesthesia after-effects, you will be unsteady on your feet after surgery. For your safety, you may be listed as a fall risk during your stay in the hospital. If you need something or would like to get out of bed or your chair, it's important that you ask for help from a staff member. We're here to help you and prevent any injury.

Visitors

While in the hospital, you're welcome to have guests and visitors. You may also have one adult family member stay overnight with you. Overnight visitors will need to obtain a visitor pass from security each night in order to remain in the building after hours. No children from 8PM-8AM.

Preventing Blood Clots

Getting out of bed and walking is the most important thing you can do to help prevent blood clot formation. Leg pumps, compression stocking and/or anticoagulant medications may also be used.

Physician Rounding

The physicians typically round in the morning between 6:30 and 9:00. There is a physician assistant (PA) or nurse practitioner (NP) who also rounds with the physicians to help with seeing patients and orders. You may not see your surgeon after surgery, but one of their associates will see you daily during your stay.

WHAT TO EXPECT AFTER SURGERY

Discharge Criteria/Goals:

- Eating and drinking without nausea/vomiting
- Urinating without difficulty
- Pain managed on oral pain medications
- Walking in halls safely (independently or with help of family/friends who will be staying with you)

Once you are meeting the above goals, you will be discharged home.

Exercise Throughout Your Hospital Stay

Performing ankle pumps and quadricep sets in bed will help increase circulation and strengthen the legs. Try for 10 repetitions of each exercise every hour. You will likely have some mild muscle aches or stiffness when you begin these exercises.

Ankle Pumps
Lie on your back with straight legs. Keeping your heels flat, pull your toes toward your head, flexing your feet, then point your toes away from you. Move your feet and ankles back and forth, completing a full range of motion.

Quadricep Sets
Lie on your back with one leg fully extended and the other leg bent, foot flat on the bed. Slowly tighten the thigh muscle of the extended leg and push the back of the knee into the bed. Keep your heel on the bed. Hold the muscle contraction for five seconds. After 10 repetitions, switch legs.

Proper Sleep Positions Following Spine Surgery

On your back, place a pillow under your head and another pillow under your knees.

On your side, place a pillow under your head and another pillow between your knees.

Proper Sitting Position Following Spine Surgery

Start sitting out of your bed for short periods as soon as you are able.

Do not sit for more than 20–25 minutes at a time. Feet must be supported on the floor.

The spine should be supported on the back of the chair with a pillow.

Change positions throughout the day! Avoid spending prolonged periods of time in any one position.

Rehabilitation after Spine Surgery

Your motivation and participation in physical and occupational therapy are important parts of your recovery. **You must play an active role in every step of your rehabilitation.**

Your rehabilitation team will include physical therapists, occupational therapists and their assistants. You and your team will work together to achieve important goals, including regaining independence and mobility, developing a program for walking at home, and understanding proper body mechanics and spine precautions.

If You Have a Brace

Your surgeon may decide that it's necessary for you to have a brace, depending on the type of surgery you've had. The brace is designed to protect your spine while healing takes place. The brace can be fitted before admission or the first day after your spine surgery. It is usually worn for a minimum of four weeks at all times when out of bed (except while in the shower). You'll need to wear a fitted T-shirt, camisole or sleeveless shirt under the brace. When you return for your post-operative appointment, your surgeon will determine if you need to continue to wear the brace.

Your surgeon will decide which of the following braces you need based on your specific case:

The Lumbosacral Corset Brace is an elastic, corset-type brace with a velcro attachment in the front. Most patients learn to put on and remove this brace independently, but some may require help from a caregiver. This brace may be applied while sitting on the edge of the bed.

The Flexiform Brace is designed as one or two plastic molded pieces with straps on each side. It has a soft foam lining with plastic overlay. This can be applied while sitting on the edge of the bed.

The Thoracic-Lumbo-Sacral-Orthosis (TLSO) Brace is designed as two molded plastic pieces (front and back) with straps on each side. Most patients will require help to place and remove the TLSO brace. Your physical therapist and occupational therapist will work closely with you and your caregivers on proper procedures for placing the brace or taking it off. If you are experiencing problems with your customized TLSO, notify the company that made your brace. In the meantime, pad any pressure areas with gauze or cotton. However, do not delay in contacting the brace company.

Spine Precautions

No Bending, Lifting, Twisting (B, L, T)

- Do not bend at the waist; do bend at the hips and knees.
- Do not lift objects heavier than a gallon of milk (eight pounds).
- Do not twist your trunk.

The only aerobic exercise prescribed by your surgeon immediately after surgery is walking. You will be expected to TRY to walk up to one mile OVER THE COURSE OF THE DAY at one week, and two miles over the course of the day within two weeks, if you are able. When using a step pedometer, know that approximately 2,100 steps = 1 mile and 4,200 steps = 2 miles.

DOs

DO keep your back straight and keep your nose and toes pointed in the same direction.

DO lift with your legs.

DO log roll to get out of bed.

DO keep your neck and back straight and in a neutral position while sleeping.

DO sit in a firm, supportive chair with arms.

DO carry items close to your body.

DO change positions and move frequently.

DON'Ts

DO NOT bend or twist with your back.

DO NOT lift with your back.

DO NOT twist or bend your back to get out of bed.

DO NOT allow your neck and back to be bent or twisted while sleeping.

DO NOT sit in a low, soft or unsupportive chair

DO NOT lift items that weigh more than a gallon of milk (8 pounds).

DO NOT carry items with your arms extended and away from your body.

DO NOT sit for more than 20–25 minutes at a time.

DISCHARGE PREPARATION

Upon admission to the hospital, discharge planners will begin planning your discharge from the hospital. Most patients will not require home health care or rehab after discharge. Home health care or admission to a skilled nursing facility may be deemed necessary by your care team based on individual needs. If needed, discharge planners will confirm your home health agency or skilled nursing facility.

LEAVING THE HOSPITAL

Once your surgeon says you are medically ready for discharge, there are several options available. You and your health care team will make the decision together with your insurance provider. Approval and authorization from your insurance carrier may also affect the discharge decision.

YOUR DISCHARGE

The day of discharge, you should expect to leave before lunchtime (in most cases). The doctor will round between 6:30 and 9:00 AM and give the nurse discharge orders if he or she feels you are ready to leave. You must be adequately urinating, eating/drinking well, walking safely, and have pain control with oral medications in order to be discharged. The nurse will then prepare the necessary paperwork and go through your instructions with you, including your medications. You must have someone available to drive you home.

Follow-up appointment

The nurses will schedule wound check for you in three to five days after your surgery. At this appointment a nurse at the surgeon's office will look at your incision and give the surgeon a report. If there are any issues with your incision, they will be addressed at that time. If you're being seen in Owensboro, you will only have a wound check scheduled, and the office staff will schedule your surgeon appointment at the wound check. Also, your surgeon may choose not to have this done. Your discharging nurse will go through your appointments with you.

The nurses will also schedule surgeon follow-up appointment for you in two to four weeks, depending on your surgeon's preference. If you had a FUSION, FRACTURE or any kind of INSTRUMENTATION, you will need an X-ray of your operative site prior to this appointment. **It's very important that you have this X-ray done prior to your appointment.** Please arrive one hour before your appointment to get this completed. The X-ray will be done in the outpatient testing department in the same location as your appointment.

PRECAUTIONS: LUMBAR AND THORACIC SURGERIES

Lifting

Do not lift anything heavier than a gallon of milk (8 lbs) until your follow-up appointment with your surgeon. Lifting after surgery can cause permanent damage.

Bathing

You may not shower for three days after your surgery. Leave your dressing on while showering and change it immediately afterward. If your incision should get wet, blot it dry with a clean towel. Do not rub, scratch or wash your incision. Do not apply any kind of lotion, ointment or salve to your incision. IF YOU HAVE STAPLES, you must cover your dressing with plastic wrap to keep it dry while showering and change the dressing afterward.

Driving

No driving for at least three days after surgery. UNDER NO CIRCUMSTANCES should you drive within 24 hours of taking pain medication or muscle relaxants. If you are wearing a brace, no driving is permitted.

Exercise

You should walk three times a day for at least 15 minutes each time. Walking can decrease the amount of pain you have. No overhead work, hard pushing or pulling. No excessive bending or twisting.

Family Care Activities

No household duties until you have been to your surgeon follow-up appointment. This includes cooking, laundry, cleaning, yard work, etc.

Wound Care

Incision Care—Your surgeon will provide discharge instructions about care of your incision. You'll be told to either keep a clean, dry dressing on the site or to leave the incision open to the air. If there is drainage, a small dressing with minimal breathable tape is okay. If you notice any of the following symptoms of infection, please call the surgeon's office immediately:

- There is drainage from the incision
- The incision becomes red and very hot
- You develop a fever over 100.5 degrees

Change your dressing daily (after shower). Keep incision covered until your wound check (three to five days if no wound check scheduled). The steri-strips will fall off on their own in five to seven days. If they are still present after seven days, you may remove them.

Sex

There are no restrictions on sexual activity as long as you stay within the parameters listed above.

Reasons to call Surgeon

Signs of infection:

- Redness, swelling or drainage from incision.
- Elevated temperature (greater than 100.5° F)
- SEVERE pain

There is always someone available to answer the phone at the surgeon's office. You can call at any time if you are having problems.

Medications

Pain medications can no longer be called in by the nurses or physicians. You must have an original, paper prescription for pain medication. DO NOT TAKE any blood thinners, aspirin, NSAIDs, ibuprofen, Aleve, Excedrin, Mobic, etc. for the next seven days unless told otherwise by your surgeon. A side effect of pain medications is constipation. You may take an over-the-counter stool softener or laxative if needed.

Miscellaneous

NO SMOKING! Not only is smoking bad for your overall health, it can delay healing.

Diabetics—Blood sugar control is very important during the healing process. Elevated blood sugars put you at a higher risk of infection and can delay the healing of your incision.

PRECAUTIONS: CERVICAL SURGERY

Activity

We recommend that you stay as upright as possible for the next three to five days. This will help decrease the amount of swelling you experience. Sleeping in a recliner or elevated on pillows would be best.

Lifting

Do not lift anything heavier than a gallon of milk (8 lbs) until your follow-up appointment with your surgeon. Lifting after surgery can cause permanent damage.

Bathing

You may not shower for three days after your surgery. After showering, dry your incision with a clean towel. Do not rub, scratch or wash your incision. Do not apply any kind of lotion, ointment or salve to your incision. IF YOU HAVE STAPLES, you must cover your dressing with plastic wrap to keep it dry while showering and change the dressing afterward.

Driving

No driving for at least three days after surgery. UNDER NO CIRCUMSTANCES should you drive within 24 hours of taking pain medication or muscle relaxants. If you are wearing a brace, no driving is permitted.

Exercise

You should walk three times a day for at least 15 minutes each time. Walking can decrease the amount of pain you have. No overhead work, hard pushing or pulling. No excessive bending or twisting. Avoid harsh neck movements.

Family Care Activities

No household duties until you have been to your surgeon follow-up appointment. This includes cooking, laundry, cleaning, yard work, etc.

Wound Care

Watch for signs of infection (redness, swelling, drainage, etc). The steri-strips will fall off on their own in five to seven days. If they are still present after seven days, you may remove them.

Sex

There are no restrictions on sexual activity as long as you stay within the parameters listed above.

Reasons to call Surgeon

Signs of infection:

- Redness, swelling or drainage from incision.
- Inability to swallow
- Elevated temperature (greater than 100.5° F)
- SEVERE pain

There is always someone available to answer the phone at the surgeon's office. You can call at any time if you are having problems.

Medications

Pain medications can no longer be called in by the nurses or physicians. You must have an original, paper prescription for pain medication. DO NOT TAKE any blood thinners, aspirin, NSAIDs, ibuprofen, Aleve, Excedrin, Mobic, etc. for the next seven days unless told otherwise by your surgeon. A side effect of pain medications is constipation. You may take an over-the-counter stool softener or laxative if needed.

Miscellaneous

NO SMOKING! Not only is smoking bad for your overall health, it can delay healing.

Diabetics—Blood sugar control is very important during the healing process. Elevated blood sugars put you at a higher risk of infection and can delay the healing of your incision.

GOING HOME AFTER YOUR SURGERY

Ankle Swelling

You may have ankle swelling. If you lie down during the day and elevate your legs, the swelling should go away. If the swelling continues or if you have swelling in both legs, you should call your surgeon.

Blood Clots

The following symptoms may indicate the formation of a clot. If you notice any of these symptoms, please call your surgeon immediately:

- Calf is painful and feels warm to the touch.
- Persistent swelling of the foot, ankle or calf that does not go away with elevation of the leg.
- Chest pain or shortness of breath (if this chest pain or shortness of breath is sudden or severe, call 9-1-1 and seek emergency care immediately).
- Rapid or irregular heart beat.

GENERAL COMPLICATIONS OF SPINE SURGERY

Deep Vein Thrombosis and Pulmonary Embolism (DVT/PE)

A DVT is a blood clot that forms in a vein, usually in the calf. This can occur following surgery because blood can pool (become stagnant) due to leg muscles contracting less vigorously and because your body's clotting mechanism is hard at work healing from surgery. A DVT presents most often with redness, warmth and swelling in the calf. This can sometimes also cause cramping in the calf muscle. A piece of the clot can break off and travel to the lung—causing a pulmonary embolism (PE). This requires immediate medical attention. Some common symptoms of a PE are shortness of breath and chest pain.

Prevention is the key. Getting up and walking soon after surgery is critical to prevent blood clots. Compression mechanical devices are used as well to help prevent pooling of blood in the legs. Medications called blood thinners are often used for higher-risk patients.

Wound Healing Problems

This is rare but can occur any time an incision is made. Some patients also have risk factors such as advanced age, multiple prior procedures, diabetes, alcoholism and poor nutrition, among others that increase their risk.

Infection

Developing an infection is a risk with any surgical procedure. We take every precaution to prevent infection, including administering IV antibiotics to our patients before and after surgery. Infections can be superficial or deep. Superficial infections may include pain, drainage, redness, odor, swelling and/or warmth around the incision area. These infections involve the skin and the layer of tissue just under the skin. They are normally treated with oral antibiotics and wound care. A deeper infection involves deeper tissue, sometimes surrounding tissue and/or bone, possibly the disc, typically at the level of the spine and instrumentation (if present). These infections are treated with IV antibiotics for longer periods of time and sometimes require surgery.

Atelectasis/Pneumonia

Atelectasis occurs when the air sacs in the lungs collapse and gas exchange is compromised. Atelectasis can decrease oxygenation of one's blood and can increase the chance of developing pneumonia. Getting up, walking and performing incentive spirometer (device that helps patients keep lungs inflated) deep breathing and coughing exercises are important to avoid developing atelectasis.

Ileus

An ileus can occur after surgery if the movement in the intestines slows or stops. This temporary condition can lead to a partial or complete blockage in the intestinal tract. Common symptoms of an ileus include abdominal discomfort, bloating, distension and inability to pass gas. Nausea, vomiting and loss of appetite can occur, along with the inability to have a bowel movement.

Treatment normally starts with increasing fluids, walking and using suppositories and/or enemas to get the intestines "moving." Sometimes reduction of pain medication can help, as narcotics can slow intestinal movement.

Bleeding/Hematoma

Bleeding complications during or after spine surgery are rare but can occur. After surgery, there is a chance that a blood vessel can begin to bleed. Often the body can reabsorb this blood, but sometimes the blood can collect and expand like a "water balloon," called a hematoma. The hematoma can put pressure on nerves and/or other structures and sometimes has to be drained. Occasionally, surgery is necessary to remove the hematoma.

Position-Related Issues

After administering your anesthesia, your surgeon and physician assistant take great care in moving you and positioning you on the operating table. As you are asleep, every effort is made by the surgical team to properly pad any part of your body that could potentially incur discomfort and/or injury from constant pressure while lying still for a prolonged period of time. Despite this protocol, there are times when a muscle group can become bruised, a superficial nerve can be become irritated (or even injured) or another pre-existing condition can become aggravated. Following surgery, most of these issues resolve quickly, but in some rare cases, some serious or long-lasting issues can occur.

Nerve Damage

Fortunately, serious neurological complications are very rare. However, there is a risk of injury to the spinal cord or nerves. Injury can occur from bumping or cutting the nerve tissue with a surgical instrument, from swelling around the nerve or from the formation of scar tissue. This can sometimes cause muscle weakness and a loss of sensation in an area supplied by the nerve.

Problems with the Graft or Hardware

Fusion surgery requires that bone be grafted onto the spinal column. The bone comes from the bone bank (from donors) or can be harvested from another area of the body. There is a risk of pain, infection or weakness in the area the graft is taken from.

NOTES

M2581 (4-2020) cwc