

**Dr. Scott Luhmann  
Neuromuscular  
Spine Education Booklet**



**Pre Operative**



**Post Operative**

## Important Phone Numbers



Dr. Scott Luhmann



June, Debbie and Kim

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### **Saint Louis Children's Hospital Important Numbers**

Orthopedics Appointment Desk	(314)454-2500
Main Number	(314)454-6000
Same Day Surgery	(314)454-6174
PICU	(314)454-6213
10 <sup>th</sup> Floor	(314)454-6038
After Hours Number	(866)582-8055

### **Checklist prior to Surgery:**

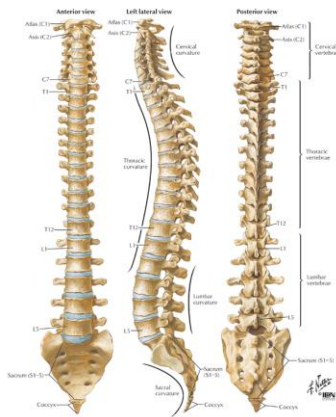
- Pre op Visit: date \_\_\_\_\_
- Anesthesia consult:
  - This is typically coordinated with the pre op visit
  - Date \_\_\_\_\_
- Bring a current list of medications with you to the above appointments
- Primary care doctor/ Pediatrician Clearance
- Clearance from other services seen
- Pulmonary Function Test **if able** to perform
- Lab work- nasal swab and Blood work
- School Homebound or FMLA paperwork

## Spinal Fusion

You are going to have a spinal fusion. This decision has been reached by you, your family and Dr. Luhmann.

The Spine is consisted of 26 bones known as vertebrae (7 cervical, 12 Thoracic, 5 Lumbar, the sacrum and the coccyx). Each vertebra is separated (except the top two in the neck) by a disc. Each disc has a soft jelly like center surrounded by a tough outer layer of fibers known as the annulus. Discs, bony structures ligaments and strong muscles stabilize the spine.

The spinal cord is composed of nerves leading to and from the brain. It controls and transmits all muscle movement and sensation for the trunk, arms and legs. Nerve roots come from the spinal cord and carry electrical impulses to and from muscles, organs and other structures. These nerve roots can become pinched or irritated by abnormal conditions.



Post operative Look at incision for posterior approach

## Types of Spinal Fusions:

### Posterior Spinal Fusion

The incision is down the middle of your back. The length depends on the number of vertebrae needing to be fused.

The majority of spinal fusion incisions made by Dr. Luhmann are completed this way.

### Anterior Fusion

The incision will be on your side near your rib cage.

### Anterior/posterior Fusions

The incisions will be both on your back and on your side.

## Preparing your Home:

- You **cannot** sleep on a waterbed or on a mattress on the floor
- clearing a track for a wheelchair if you will be in wheelchair after surgery
- Shopping for snacks and drinks for home after surgery

### **Planning for Discharge needs:**

You may need equipment at home after surgery. The doctor, nurse, and physical therapist will review each child's individual needs after surgery to decide what equipment will be needed.

Common equipment needs include: wheelchair, bedside commode, hospital bed, shower seat, hoist lift and wheeled walker.

These will be ordered after surgery by the orthopedic home coordinating nurses. If you currently work with a home health nursing company, and or equipment company please notify us of their name and numbers.

### **Common Questions:**

#### **When to notify Dr. Luhmann's office pre operatively ASAP?**

- **Illness or hospitalization prior to surgery**
- **Skin break down or Acne on back**

#### **What do I need to bring to the hospital? You may bring:**

- \_ Current List of Medications, dosages and frequency
- \_ T-shirt/undershirt (under armor) for under brace, if necessary
- \_ Robe , Pajamas
- \_ Slippers
- \_ Personal Items of comfort (blanket, stuffed animal, books, movies)
- \_ Toiletry items you feel you will need during your stay
- \_ Comfortable clothes for day of going home

#### **Can my mom, dad or caregiver stay at the bedside?**

- In the Pediatric Intensive Care Unit (PICU) two people can visit at a time, but only ONE can sleep in the room with the patient.
- Parents can also sleep in the PICU lounge.
- On the Floor- If there is availability patients have their own room and both parents are welcomed to sleep at the bedside. If there is a roommate only one parent can sleep at the bedside, and the other parent can sleep in the lounge.

#### **What do we do the night before surgery?**

\*If you live far...you may want to stay at a local hotel because you will be required to be here early. (About 6 am)

\* The patient may not have anything to eat or drink after Midnight

\* **Please shower thoroughly shampooing your hair the night prior to surgery and be sure to use the Hibiclens back wash for the last night**

\* Please remove any nail polish, and be sure your nail beds are clean for surgery.

**Please let surgeon and anesthesiologist know all Medications!**

## **STOP!!!**

ALL NON-STEROIDAL ANTI-INFLAMMATORY medications/arthritis medicines (such as Advil, Aleve, Ibuprofen, Motrin, Clinoril, Indocin, Daypro, Naprosyn, Celebrex, Vioxx, etc.) **two weeks** before surgery. Tylenol products are suggested for pain.

Anesthesia staff will let you know which of your current medications should be stopped prior to surgery.

- Some antidepressants will need to be stopped a few days to 1 week prior to surgery.
- Some medications such as Insulin and Prednisone have specific instructions that may need to adjust prior to surgery.
- ASPIRIN products and BLOOD THINNERS (Coumadin, Persantine) need to be stopped 1-2 weeks prior to surgery.

Patients with pacemakers will need to check with their cardiologists to see if the pacemaker settings need to be reset 1-2 days prior to surgery. The electrical currents in the operating room could alter pacemaker rhythm if the settings are not adjusted.

Patients with Deep Brain Stimulators or Vagal Nerve Stimulators may need to see the neurosurgeon prior to surgery.

STOP SMOKING and family members should not smoke in the household... it decreases healing time! Dr. Luhmann usually does not do spine fusion if you smoke or use smokeless tobacco.

## **Walking Through the Spine Surgery Steps...**



**Home-Same Day Surgery-Operating Room- ICU-Floor-Home**

### **Pre Op care:**

- Patients are asked to bath/shower with **Hibiclens solutions for the 3 consecutive days prior to surgery.**
- You will receive a call if your child tests positive for Staph Auerus, and if this is the case you will be required to place Bactroban in the nasal passage twice a day for 5 days prior to surgery this will be phoned to your pharmacy of choice.

**Dr. Luhmann:** will see you at the preoperative visit. He does not typically see patients the day of surgery until they are in the operating room. If there are any questions or concerns prior to surgery, please call Debbie or Kim before the day of surgery so that they can be addressed.

### **Same Day Surgery:**

The 6<sup>th</sup> Floor Same Day Surgery Unit is where you and your family will begin your journey. The day of surgery you will be able to meet with the, anesthesiologist, child life therapist and nurses.

- ❖ Your weight, height and vitals signs will be obtained.
- ❖ You may be given medication prior to surgery by the nurse to decrease anxiety.
- ❖ You will have an IV catheter placed in a way that is Ouchless as possible.
- ❖ Your parents or the nurse will wipe your back with Hibiclens wipes prior to going to the operating room.
- ❖ Girls will have to give a urine sample.

### **Operating Room:**

#### While you are asleep:

- ❖ Your back and or abdomen/chest will be cleaned during surgery with special soap by the nurses.
- ❖ Gel pads and pillows will be used to have you placed in a comfortable position for surgery.
- ❖ We will have special electrodes placed on your body to check for neuro/sensory movement. If there is a question of the monitors not picking up, we will ask you to move parts of your body. You will not fully be awake. You will have pain medication that will keep you comfortable at all times during the surgery.



### **Family Waiting Room**

Parents will be in the Same Day Surgery waiting room in either a cubicle or a room. Parents are called every couple of hours during the surgical procedure to notify them of where their child is in the process of the surgery. Parents are given a pager if they leave the area that works ONLY in the hospital.

### **Post Anesthesia Care Unit (PACU):**

We will wake you up when the surgery is complete. You will then be wheeled in a bed to the PACU or taken to the PICU directly. When you are awake, we will be able to ask your parent(s) or caregiver to come to the PACU with you. In the PACU, you will be closely monitored by the doctors and nurses.

### **Pediatric Intensive Care Unit/PICU:**

Patients will typically stay at least **one** night in the PICU. The PICU is set up to allow close patient monitored care. The nurses in the PICU will have 1-2 patients at a time depending on the acuity.

Parents are allowed to visit, and one parent is allowed to sleep in the PICU. There is a parent lounge with lockers to hold personal items and chairs that pull out for sleep. Visitors are limited to two at a time.

### **Surgical Floor/ 10<sup>th</sup> Floor:**

Patients are typically transferred to the 10<sup>th</sup> floor which is home to the orthopedic patient after the night in the ICU.

This is a 30 bed unit with both single and double rooms.

You may have a roommate.

The 10<sup>th</sup> floor has a parent lounge and small kitchen with a refrigerator and microwave.



10<sup>th</sup> floor



PCA

### **Pain Control YOU WILL HAVE PAIN.**

**THE GOAL OF PAIN MEDICATION PRESCRIBED IS TO MINIMIZE THE PAIN A PATIENT EXPERIENCES TO A MANAGABLE LEVEL.**

- 1) You will have a Patient Controlled Anesthesia (PCA) for the first day after surgery, and this controlled by the Pain Service Team. The pain service team is a special team of doctors (anesthesiologists) and nurse practitioners who are trained in monitoring and treating your Post-Operative pain. If the patient is able to comprehend, the patient will be able to press the button for pain medication. The patient may also be delivered medication continuously through the PCA.



- 2) Post OP Day 1 patients are transitioned to oral medications by mouth or by g-tube. This will be a combination of narcotics, over the counter medications (i.e. Tylenol) and possibly medication for spasms. The patients may have IV medication for "break through pain".

Incision Site The actual incision will be closed with sutures and glue that does not need to be removed.

- 1) Immediately after the surgery the incision site will be covered with a dressing. This will remain intact until the orthopedic resident or orthopedic nurse practitioner removes this on day 3 or 4.
- 2) The incision site should then remain intact. Do NOT pick at or remove the glue.
- 3) Don't put any ointments, creams or lotions on the incision site.

### Activity

#### In Hospital

- The doctors, nurses, and physical therapists will partner with the patient and family in order to:
  - Turn the patient every 2 hours using the log roll method
  - Get the patient out of bed at minimum three times a day.
  - The physical therapist will visit with you the day of surgery, go over the plan of care and initiate care the am after surgery.
- If a brace is required patients may have to wait until the brace is available to get out of bed.
- The goal (if ambulatory prior to surgery) is to be up sitting, walking and to use the stairs prior to leaving the hospital.
- Child Life Therapy- Teen Room, Play Room, and volunteers

### Diet

#### Post-Operative-

- Progression of diet can be slow after spine surgery. Patients are started on clear liquids post op day one and then transitioned to regular diet. This will be by mouth or per g-tube.
- Patients may also be receiving either TPN (total parental nutrition) and Lipids or Intravenous Fluids (IV fluids).
- Nausea can occur and we can give medications to alleviate symptoms.

### Pulmonary (lungs)

- ❖ It is important for you to use the incentive spirometer or blow bubbles 10x an hour in order to prevent pneumonias
- ❖ If you have a history of pulmonary issues, you may be seen by a respiratory therapist every 4 hours.
- ❖ The respiratory therapist will deliver medications and pulmonary therapy.

**Some Patients will be required to wear a TLSO thigh cuff brace for up to four months after surgery. The patient will only be able to be elevated to a 30 degree position. Below are pictures of one of our patients in a TLSO thigh cuff brace.**





## Neuromuscular Spine Discharge Instructions

<b>Hospital to Home</b>	Patients are typically hospitalized 5-7 days.
<b>Diet</b>	<ul style="list-style-type: none"> <li>• High fiber and high protein- encourage small frequent meals with plenty of hydration Minimum of 6-8 glasses of water daily</li> <li>• Patients may be discharged prior to first bowel movement</li> </ul>
<b>Activity</b>	<ul style="list-style-type: none"> <li>• Light Activity recommended</li> <li>• If ambulating- walk 30 minutes a day which can be broken up into three increments</li> <li>• Patient can return to Physical Therapy and Occupational Therapy with restrictions of no spine twisting or torsion ( patient can be out of brace during therapy)</li> </ul>
<b>Restrictions</b>	<ul style="list-style-type: none"> <li>• No spine twisting or torsion</li> <li>• NO IBUPROFEN OR IBUPROFEN PRODUCTS FOR 6 months post operatively</li> <li>• If laying on the stomach do not use pillow under head for 6 weeks post operatively; thin pillow is best for sleeping otherwise</li> </ul>
<b>Shower</b>	<ul style="list-style-type: none"> <li>• 2 week s</li> <li>• gentle soap suggested ( Dove)</li> </ul>
<b>Baths</b>	2 weeks if incision is completely healed
<b>Swimming</b>	<ul style="list-style-type: none"> <li>• 2 weeks in chlorinated pool</li> <li>• NO natural bodies of water for 6 weeks post operatively</li> </ul>
<b>NO PEIRCING or tattoos</b>	6 weeks post operatively

<b>Incision care</b>	<ul style="list-style-type: none"> <li>• No creams, lotions or ointments to incision site until completely healed</li> <li>• if incision site exposed in the sun cover or if healed completely use SPF skin protection</li> </ul>
<b>Medication Calendar</b>	<ul style="list-style-type: none"> <li>• Calender given by the Pain Service</li> <li>• <b>PAIN MEDICATIONS will only be filled during office hours Monday through Friday 8am-430pm.</b></li> <li>• Stool Softeners and or MiraLAX should be given when taking narcotic medications</li> <li>• Please refer to discharge bowel management sheets</li> </ul>
<b>School</b>	<p>4 weeks Post-Operative will go full day of school; can return 3 weeks with 1/2 days to start  * <b>see school note*</b> no back packs, don't carry more than 5 to 10 pounds on back, 2nd set booked home and school, allow to leave few minutes early from class to go to next class, NO PE one year</p>
<b>When to call the doctor</b>	<ul style="list-style-type: none"> <li>• Fevers greater than 101.5 not relieved by Tylenol</li> <li>• vomiting</li> <li>• incision site redness, warmth or drainage</li> <li>• numbness tingling or weakness in your arms or legs</li> <li>• change in bowel or bladder pattern</li> <li>• rash</li> <li>• increased pain not relieved by pain medication</li> </ul>
<b>Dental appointment or other planned procedures call our office</b>	<ul style="list-style-type: none"> <li>• For 5 years post operatively- We will have the child take an antibiotic prior to appointment, and 2 mores doses 8 hours apart to decrease risk of infection. We will phone the medication to your local pharmacy</li> </ul>

**Typical Follow Up Appointments with Dr. Luhmann:**

- Six weeks
- Six months
- One year- with Pulmonary Function Test
- Two years- with Pulmonary Function Test
- Three years- with Pulmonary Function Test
- Five years

Online Suggested Resources:

- [www.slch.org](http://www.slch.org)
- [www.ortho.wustl.edu](http://www.ortho.wustl.edu)
- [www.posna.org](http://www.posna.org)
- [www.aaos.org](http://www.aaos.org)

**No directed donation of blood accepted:**

Beginning in 2013, the blood bank at St. Louis Children’s Hospital will no longer accept blood from directed donors (family and friends) for transfusion to patients, except in cases of medical necessity, *i.e.* when only a family member’s blood would be optimal for transfusion.

The American Red Cross lists the following concerns about blood from directed donors\*:

- “There is no evidence that patients can select safer donors than the volunteer blood system provides.”
- “Social pressure associated with directed donations may compromise the reliability of the donor’s answers to health-history questions.”

We encourage family members and friends of patients to consider blood donation through the volunteer blood system as a way to give back to the St. Louis community. They can set up an appointment to donate or search for blood drives in their area through the American Red Cross website (<http://www.redcrossblood.org/>) or through other regional blood providers.

**Rehabilitation- These services have to be authorized by insurance.**

Some patients may require an extended stay for physical therapy. This decision is reached by Dr. Luhmann, patient and caregiver.

Typically we send patients to Ranken Jordan. The web site for Ranken Jordan is <http://www.rankenjordan.org/> . Tours of Ranken are available prior to hospitalization. Ranken Jordan’s phone number is 314-872-6400.

