The compelling need for a good definition of health care value highlights a fundamental challenge. We have not yet developed scientifically sound or accepted approaches to defining or measuring either patient-centered outcomes of care, or the costs of producing those outcomes. The scientific hurdles to defining patient-centered outcomes are numerous. Outcomes can be subtle and multidimensional, involving not only physiological and functional results, but also patients’ perceptions and valuations of their care and health status. The ability of health care organizations to measure costs is primitive at best and doesn't meet the standards used in many other advanced industries. Equally challenging is the lack of data systems to support outcome measurement.

The Vanderbilt Department of Orthopaedics (VDO) presents this compilation of Value, Quality and Safety as testimony to our mission, accomplishments and culture. The Divisions within VDO have proudly displayed some examples of the programs conducted in 2013 which document our commitment to value in health care. Value can be defined as: Quality Patient Outcomes, Safety and Satisfaction divided by Cost, Waste Reduction and Operational Redesign. We strive to deliver the very best care for our patients, as per our credo of putting the patient first, by performing evidence based medicine whenever appropriate and setting examples of that behavior for our residents, alumni and colleagues.

At Vanderbilt, the promise of discovery is our passion. Teamwork within VDO is fundamental and each team member is critical in facilitating a constantly evolving and improved product. We emphasize patient’s rights and the sanctity and privacy of the patient-doctor relationship. We use our data management systems to support our discovery of best practices and apply them to the individual based upon their needs. Our team tries to focus on optimal access and care-delivery while minimizing the distractions of poor metric proxies of performance. We must be mindful in our changing healthcare environment that we maintain our focus on delivering the care to our patients that they need.

Please enjoy reviewing our march toward delivering value based health care.

Best Wishes in the New Year,

**Herbert S. Schwartz, M.D.**

*Professor and Chairman*

_Vanderbilt Orthopaedic Institute*

_MCE South Tower, Suite 4200*

_Nashville, TN 37232-8774_

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Total Number of Patients Enrolled from October 2010 – April 2013

<table>
<thead>
<tr>
<th>Period</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct - Dec 2010</td>
<td>183</td>
</tr>
<tr>
<td>Jan - Dec 2011</td>
<td>860</td>
</tr>
<tr>
<td>Jan - Dec 2012</td>
<td>940</td>
</tr>
<tr>
<td>Jan - April 2013</td>
<td>317</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,300</strong></td>
</tr>
</tbody>
</table>

Anatomical Region

- Cervical – 31%
- Lumbar – 69%

Type of Surgery

- Revision – 28.5%
- Primary – 71.5%

Types of Cervical Surgeries

- Laminectomy + Fusion: 60%
- Microdiskectomy: 16%
- Laminectomy: 24%

Types of Lumbar Surgeries

- Laminectomy + Fusion: 67%
- Laminectomy: 33%
Outcomes Reported by Our Patients

Lumbar Surgery

- Back Pain
- Leg Pain
- Back-Related Disability
- General Health State
- Quality of Life

Cervical Surgery

- Neck Pain
- Arm Pain
- Neck-Related Disability
- General Health State
- Quality of Life

Return to Work – Lumbar Surgery

- Lumbar Non-Fusion
  - 97% returned to work
- Lumbar Fusion
  - 94% returned to work

Return to Work – Cervical Surgery

- 98% returned to work

Patient Satisfaction with Care

- Satisfaction with Surgeon
  - Lumbar: 97%
  - Cervical: 98%
- Satisfaction with Nursing Staff
  - Lumbar: 97%
  - Cervical: 99%
Primary total knee replacement remains the most common procedure performed by the Joint Replacement Center, while primary hip replacement volume continues to grow. Our center has remained a strong referral center for revision hip and knee replacements, as well as infected joint replacements.

Infection and complication rates after total joint replacements continue to remain below national standards, as compared to other large, tertiary centers (de-identified) as seen in the data obtained from University HealthSystem Consortium (UHC).
Core Principles
- Patient Education
- Multimodal Pain Management
- Early Mobilization
- Inpatient Assessments (2x day)
- Innovative Discharge Planning
- Telephone Follow-up with Patient After Discharge from Hospital

Length of Stay Due to Accelerated Recovery Program (ARP)

The average length of stay following a primary joint replacement following the accelerated recovery pathway program was 2.18 days between November 2012 and January 2013. This average includes 6 patients who chose inpatient rehabilitation which requires at minimum a 3-night hospital stay.

Average Patient-controlled Analgesia Usage

The average patient-controlled analgesia (pain medication usage) among patients participating in the Accelerated Recovery Program (ARP) was nearly half that of the group not participating in ARP.

Average Oral Pain Tablets Usage

The average number of oral pain tablets (taken as needed for pain) per visit using a random sample of 30 patients. The total overall average of tablets taken per visit for all of the ARP patients was 7 per patient.
Pediatric Spinal Fusion Surgical Site Infection (SSI) Improvements

Surgical site infection rates for patients receiving spinal fusions continues to decrease. In Quarter 3 of 2011 there were 7 surgical site infections for every 100 procedures completed. That number has been reduced to 0 surgical site infections for every 100 procedures completed in Quarter 3 of 2013.

Spinal Fusion Surgery Protocol

Prior to Surgery
- Skin Assessment
- Bath Using Antiseptic Wipes
- Antibiotic Selection
- Implants and Surgical Instruments are Present 24 Hours Before Surgery

During Surgery
- Administer Antibiotics Prior to Incision
- Hair Removal
- Prepare Skin
- Perform Hand Hygiene Procedures
- 2 Gloves for Surgical Staff
- Proper Surgical Attire
- Limit Personnel
- Antibiotics Every 4 Hours
- Wound Irrigation
- Antibiotic Power

After Surgery
- Antibiotic Regimen
- Dressing Changes
- Patient and Family Education

Pediatric Spinal Fusion Surgical Site Infection (SSI) Improvements

<table>
<thead>
<tr>
<th>Procedure: Pediatric Spinal Fusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infections</td>
</tr>
<tr>
<td>Procedure</td>
</tr>
<tr>
<td>Inf Rate*100</td>
</tr>
</tbody>
</table>

Pediatric Fusion SSI Standardized Infection Ratio (SIR)
The length of stay for patients undergoing a spinal fusion has been reduced from 6.8 days prior to the postoperative pathway modifications to 4.3 days. This is 1.61 days below the national average of 5.91 (as indicated by black bar on table above).

**Benefits of a shorter length of stay:**
- Patients are able to recover quicker and return to school/activities sooner
- Families face less of a socioeconomic burden (lower cost, less time off of work)
- Hospitals have increased open beds, available staff for new patients, and reduced costs.

**Postoperative Pathway Modifications**

<table>
<thead>
<tr>
<th>Previously Occurred on PostOp Day</th>
<th>Now Occurs On PostOp Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient is ordered to be out of the bed 3x/day</td>
<td>2</td>
</tr>
<tr>
<td>Discontinue patient controlled analgesia</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Pain medication taken by mouth</td>
<td>2 or 3</td>
</tr>
<tr>
<td>IV fluids stopped</td>
<td>3</td>
</tr>
<tr>
<td>Patient ambulates (moves) 3x/day</td>
<td>3</td>
</tr>
<tr>
<td>Hemovac drain removal</td>
<td>3</td>
</tr>
</tbody>
</table>
Outcomes of Hook of the Hamate Fracture Excision in High Level Athletes

Demographics

Outcomes

Patient Satisfaction

Pain Scores

Return to Sport

Performance Scores

Postoperative DASH Scores

All patients successfully returned to full participation in their sport an average of 6 weeks after surgery. Performance in the patient's respective sport was measured on a scale of 1 (worst possible performance) to 10 (best possible performance). A patient's functional outcome was measured using the DASH (Disabilities of the Arm, Shoulder, and Hand) questionnaire and DASH Sports module which uses a scale of 1 (no difficulty doing specific function) and 5 (unable to do specific function).
The Vanderbilt Sarcoma Service is able to achieve the same overall survival, local recurrence rates, and wound healing in obese (Body Mass Index > 30) and non-obese (BMI < 30) patients in contrast to other orthopaedic and general surgery literature.

81% of patients (n=91) who underwent preoperative radiation prior to the operative procedure to resect their soft tissue sarcoma did not suffer any wound complications. In addition, 88% of the patients did not have a local recurrence.

Management of Obese Patients with Extremity Soft Tissue Sarcomas

The Vanderbilt Sarcoma Service is able to achieve the same overall survival, local recurrence rates, and wound healing in obese (Body Mass Index > 30) and non-obese (BMI < 30) patients in contrast to other orthopaedic and general surgery literature.
Quality Projects on Incomplete Excisions of Soft Tissue Sarcomas

**Patient Distance**

![Bar chart showing patient distance for primary excision and reexcision surgeries]

**Insurance Status**

![Bar chart showing insurance status for primary excision and reexcision surgeries]

**Difference in Charges Between Primary and Reexcision**

![Bar chart showing cost differences between primary and reexcision surgeries]

**INSURANCE AND DISTANCE ANALYSIS**: Insurance status and patient distance from the treatment center were not significantly different between patients who underwent primary excision and reexcision of a soft tissue sarcoma. However, large and deep tumors and certain histology types predicted appropriate referrals.

**COST ANALYSIS**: The average professional charge was $9694 for a primary excision and $12896 for a reexcision. After adjusting for variables such as: tumor size, grade, and site, patients undergoing reexcision saw an increase of $3,699 in professional charges more than those with a primary excision.

**Proposed Flowchart for Avoiding Unplanned Resections of Wrist Sarcomas**

**Flowchart of purposed algorithm of diagnostic steps (■) and treatment recommendations (■) for patients presenting with dorsal wrist mass. This algorithm was created to help surgeons avoid treating malignant tumors thought to be dorsal ganglion cysts.**
Relationship of Hyperglycemia and Surgical-Site Infection (SSI) Rates
Review of 790 Non-Diabetic Orthopaedic Trauma Patients Requiring Surgery

Of the 790 patients, 294 had more than one glucose value of ≥ 200mg. This factor was associated with thirty-day SSIs, with 4.4% of the 294 patients with that indication of hyperglycemia having a surgical-site infection versus 1.6% of the 496 patients without more than one glucose value of ≥ 200mg. Hyperglycemia was an independent risk factor for thirty-day SSIs in orthopaedic trauma patients without a history of diabetes. We now closely monitor and control glucose levels perioperatively.

Stress-Induced Hyperglycemia as a Risk Factor for Surgical-Site Infection (SSI) Rates
Review of 187 Non-Diabetic Orthopaedic Trauma Patients Admitted to the Intensive Care Unit (ICU)

Stress-induced hyperglycemia demonstrated a significant independent association with surgical-site infections in a nondiabetic orthopaedic trauma patients who were admitted to the ICU. In addition, patients with an SSI received a greater amount of blood transfusions. We also closely monitor and control glucose values in severely injured patients.
Health Literacy in Orthopaedic Trauma Patients

Implementation of Program to Improve Patient’s Understanding of Injuries

Patient Assessment
1. What bone did you break?
2. How was the bone fixed?
3. How much weight can you put on the extremity?
4. How long until your bone is healed?
5. Are you supposed to be on medicine for blood clots?

Provided M.D. Information to Patient
- Hometown
- Residency Program
- Fellowship Program
- Medical Interests
- Professional Memberships
- Name

Overall Patient Performance on Comprehension Questions

- Pre-Intervention (N=146)
- Post-Intervention (N=153)

Patient Satisfaction

- Patients with Intervention (N=34)
- Patients with no Intervention (N=153)

All patients receive plain language information on their injury, surgery and follow-up.
The Worker’s Compensation Patient

Over half (56%) of the sampled worker's compensation population (n=50) were restricted to light duty for less than 30 days. 84% of the patients were restricted to light duty for 60 days or less. The average number of days a worker's compensation patient was restricted to light duty ranged from 19 days for patients with foot and ankle injuries to 50 days for patients suffering from hand injuries.

51% of 29 worker's compensation patients sampled were able to return to work following treatment. Over 67% of lumbar spine injury patients and 100% of amputation patients were able to return to work.
Value–Based Treatment of Atraumatic Rotator Cuff Tears

MOON (Multicenter Orthopaedics Outcomes Network) Physical Therapy Program for Atraumatic Rotator Cuff Tears

Physical Therapy (6 weeks)
• Daily Range of Motion Exercises
• Daily Flexibility Exercises
• Strengthening Exercises (3x/week)
• Heat/Cold Therapy
• Home Therapy Program

Further Treatment Determined
• Patient “cured” – No Further Treatment
• Patient “improved” – Physical Therapy for 6 More Weeks
• Patient “no better” – Could Elect to Have Surgery

Outcomes

Patient-completed Survey Scores

Range of Motion Measurements

Nonoperative treatment using the MOON physical therapy program was found to be effective for treating atraumatic rotator cuff tears in approximately 75% of the 452 patients that were followed for 2 years. Patient-reported outcomes improved significantly at 6 and 12 weeks. If patients did fail the therapy program it was usually within the first three months.

87% Cost Savings
(Between patients undergoing surgery for rotator cuff tear and patients treated successfully using MOON physical therapy program)

Realized Costs Savings = $11 million/per year
Value-based health care is no longer merely an aspiration, goal or an academic concept. It is happening now at Vanderbilt University Medical Center (VUMC) and Vanderbilt Department of Orthopaedics (VDO). Orthopaedics can lead the way. It is our ambition to become a trusted leader in value-based care for the musculoskeletal system for primary to tertiary disorders and rehabilitation. Our vision: clinical care emphasizing quality, outcomes and patient safety, encompassing education and research.

Growing our program in a manner consistent with our vision requires not only high quality physicians but a dedicated shared governance team committed to a culture of excellence and hard work. Improved communication between team members requires adopting new technologies and enhanced infrastructure. As we grow and learn, it has become apparent that one department, one hospital or one medical center cannot effectively improve quality alone. VDO, in partnership with VUMC, will develop a clinically integrated network with like-minded orthopaedic surgery groups to compare performance and understand how to improve and deliver the best outcomes. We feel confident this will provide the maximum benefit to our patients and that a key component of success will be the emphasis on physician-led quality initiatives.

Enclosed is our 2015 Quality and Patient Safety report. We want to make the results of our progress easily accessible to our patients and the public. Thank you for your interest.

Sincerely,

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Patient Characteristics That Affect Patient Satisfaction Scores in Spine Clinic

Patient satisfaction has become an important component of quality assessments. The purpose of this study was to investigate patient characteristics:

1: between patients participating vs. not participating in satisfaction surveys, and

2: potentially associated with lower satisfaction scores

Important to identify patient factors associated with satisfaction scores in order to develop strategies for improvement and standardization comparison of scores among providers.

Patients participating in the standardized patient satisfaction phone survey were older, were less likely to have commercial insurance, were more likely to be workers compensation patients, and were less gainfully employed.

200 consecutive new patients presenting to 11 spine providers were contacted to take a standardized patient satisfaction phone survey. 40% of new patients were able to be contacted and agreed to participate.

200
40%

NON-PARTICIPANTS

PARTICIPANTS

AGE OF SURVEY PARTICIPANTS VS. NON-PARTICIPANTS

Patients participating in the standardized patient satisfaction phone survey were older, were less likely to have commercial insurance, were more likely to be workers compensation patients, and were less gainfully employed.
PATIENT CHARACTERISTICS AND THE RELATIONSHIP WITH LOWER SATISFACTION SCORES

Patient characteristics associated with lower scores across all 3 outcomes of interest were: younger age, less formal education, and smoking. Workers compensation patients also had lower scores compared to non-work related injury patients.

RELATIONSHIP OF INSURANCE TYPE AND PROVIDER SATISFACTION SCORES

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Provider Satisfaction</th>
<th>Visit Satisfaction</th>
<th>Quality of Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers Compensation</td>
<td>7.8</td>
<td>8.7</td>
<td>8.8</td>
</tr>
<tr>
<td>Medicaid</td>
<td>8.7</td>
<td>8.8</td>
<td>9.3</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicare</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Peri-articular injections yielded:
- Improved pain relief
- Superior early ambulation and discharge
- No learning curve

Peri-articular Injections Versus Combined Femoral and Sciatic Nerve Blocks in TKA

Peri-articular injection has been shown to be equivalent in pain relief to femoral nerve blocks following total knee arthroplasty (TKA), and to be free of the associated complications of falls and nerve palsies.

Compare indwelling femoral nerve catheter (24 hrs) and single shot sciatic blocks to injection of ropivacaine, epinephrine, and toradol solution.

82 CONSECUTIVE TKA PATIENTS WERE ENROLLED IN THIS STUDY.

Length of stay significantly dropped in patients receiving peri-articular injections. More patients required an extended care stay in the nerve block study group, but it was not statistically significant.

Surgical site infection (SSI) rates for patients undergoing hip replacement surgery continues to decrease. In Quarter 2 of 2014 there were 3 surgical site infections out of 121 procedures completed. That number has since reduced to 0 surgical site infections for every 100 procedures completed since Quarter 3 of 2014. The SSI standardized infection ratio (SIR) calculated by the CDC provides an expected number of SSI events based on the risk makeup of the hip replacement population. In Quarter 4 of 2014 our SSI SIR was 0, below that of the CDC benchmark of 1.
We credit our low infection rate to several factors:
- Heavy physician oversight and review
- The creation of an atmosphere of awareness that encompasses all ASC personnel
- Strict adherence to protocols and standards

Surgical Site Infection Rates at a Single Specialty Outpatient Orthopaedic Surgery Center

Evaluate surgical site infection (SSI) rate compared to other single speciality, outpatient orthopaedic, ambulatory surgery centers (ASC).

When specifically looking at single specialty and orthopaedic outpatient infection rates, two recent studies found an infection rate of 0.38% and 0.33%.

We present data from five consecutive years (2010-2014) showing an overall 0.17% surgical site infection rate at our ASC, half of published studies.

INFECTION RATES AT SINGLE SPECIALTY OUTPATIENT ORTHOPAEDIC ASC


Surgical Site Infection (SSI) rates after pediatric spinal deformity surgery may range from 1-5%, but may be as high as 24% in neuromuscular conditions.

Topical Vancomycin Powder has demonstrated efficacy in reducing SSIs in adult spine surgery. However, the safety has not been clearly defined in the pediatric population.

Average cost of pediatric spine SSI treatment: $150,000

**Pediatric Spinal Fusion Infection Prevention Safety Initiative with Topical Vancomycin Wound Application**

Evaluate complications associated with 1 gram of topical vancomycin powder.

Determine safety by measuring postoperative serum and drain vancomycin levels.

No systematic effects or complications of vancomycin were observed.

POSTOPERATIVE VANCOMYCIN DRAIN LEVELS

Drain levels were supratherapeutic without approaching toxic levels to bone and soft tissue.

POSTOPERATIVE VANCOMYCIN SERUM LEVELS

Nontoxic serum levels (<25 mcg/ml) were observed in the pediatric patient population.
Pediatric Supracondylar Humerus Fractures and Radiation Safety

Supracondylar humerus fractures (SCH) are a common pediatric injury that requires reduction and fluoroscopic guided pin fixation.

It is common practice to shield radiosensitive organs like the thyroid and gonads to minimize the iatrogenic risks of radiation-induced malignancy and genetic effects. Despite these concerns, the amount of radiation exposure to these organs outside the field of the beam has not been measured directly. We performed this study to ascertain the actual radiation exposure to these organs during this relatively common procedure.

Fluoroscopy times were recorded in a prospective cohort of patients (n=18) during closed reduction and pin fixation of SCH fractures, and radiation exposure to the thyroid and gonads was directly measured using sensors. To determine if the study group was representative of our practice, we then recorded fluoroscopy times in a statistically similar retrospective cohort of patients (n=163). Though fluoroscopy times were slightly longer in the control group, the difference was not statistically significant. We determined that the equivalent dose of radiation to radiosensitive organs in the study group was 0.01 mSv, which is a minimal amount approximating daily background exposure to ionizing radiation.

Though the results of this study suggest that the risk of iatrogenic exposure to radiosensitive organs is minimal, shielding of these organs (thyroid and gonads) should still be considered to further minimize the patient’s risk of radiation exposure. This may be more important for smaller patients whose radiosensitive organs will be closer to the edge of the beam or if longer fluoroscopy times are anticipated.
Typing accuracy was fairly consistent over the course of the study, with accuracy between 92 and 94% for all time points. Time was a statistically significant factor in a faster return to pre-surgery typing proficiency. There was a significant impairment in typing function on the first postoperative typing exam, with steady improvement from there, with a higher average typing speed at the 12-week postoperative typing exam than at the preoperative exam.

**Typing Proficiency Following Carpal Tunnel Release Surgery**

The purpose of this study was to investigate what patient factors are associated with a faster return to pre-surgery typing proficiency as measured by typing speed and accuracy.

An analysis of patient factors determined that worker’s compensation status was statistically significant, with a 0.26% higher typing speed among patients with compensation than those without. In addition, preoperative motor and sensory nerve conduction speed were statistically significant. An increase in preoperative median nerve sensory latency significantly correlated with an 8.3% increase in postoperative typing speed \( p=0.04 \). An increase in preoperative median nerve motor latency significantly correlated with a smaller increase (5.8% less improvement per 1ms of motor latency) in postoperative typing speed \( p=0.004 \). Age was not statistically significant and did not affect typing speed percentage.
Accuracy of MRI-based Diagnoses for Distal Upper Extremity Soft Tissue Masses

Soft tissue masses of the upper extremity are a common hand clinic patient complaint. While the majority of these are benign, locally aggressive and malignant soft tissue tumors can arise in the upper extremity. The accurate diagnosis of soft tissue masses prior to surgical intervention is crucial for preoperative planning.

Determine the accuracy of MRI-based diagnosis of soft tissue masses in the upper extremity by evaluating 139 patients who underwent an MRI followed by excision of a soft tissue mass. Compare MRI-based diagnosis to histological diagnosis.

While the accuracy of MRI-based diagnosis varied widely, there was an overall sensitivity of 75%. The most accurate diagnosis was of ganglion cysts with 94% sensitivity and specificity. Of particular concern, the MRI-based diagnosis of a malignancy was only 66.7% sensitive, with a positive predictor value of 44.4%.

While pre-operative MRI remains a valuable tool for the evaluation of soft tissue masses in the distal upper extremity, caution is warranted when basing the diagnosis on MRI evidence alone.
Conclusion: Unnecessary AIS are frequently performed and are a significant source of expense.

Solution: Imaging algorithms have been developed which may reduce unnecessary AIS.

Overutilization and Cost of Advanced Imaging for Long-Bone Cartilaginous Lesions

Long-bone cartilage lesions are frequently encountered in clinical practice. Once a lesion is identified, subsequent imaging studies are presumably ordered to distinguish between enchondromas and chondrosarcomas. Advanced imaging studies (AIS) have not been proven to reliably distinguish enchondromas from low-grade chondrosarcomas.

Evaluate AIS to determine if they alter patient management or are unnecessary expenditures. Two blinded radiologists independently reviewed the initial imaging study and determined if further imaging was indicated. Imaging was deemed unnecessary if it was not recommended by our radiologist after review of the initial imaging study.

AVERAGE NUMBER OF UNNECESSARY AIS PER ENCHONDROMA PATIENT: 1

AVERAGE UNNECESSARY COST PER ENCHONDROMA PATIENT: $1,346

SENSITIVITY AND SPECIFICITY

<table>
<thead>
<tr>
<th></th>
<th>Radiologist 1</th>
<th>Radiologist 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enchondromas</td>
<td>95%</td>
<td>95%</td>
</tr>
<tr>
<td>Chondrosarcomas</td>
<td>95%</td>
<td>87%</td>
</tr>
</tbody>
</table>

RADIOLOGIST INTERPRETATION AGREEMENT

<table>
<thead>
<tr>
<th></th>
<th>Radiologist 1</th>
<th>Radiologist 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enchondromas</td>
<td>85%</td>
<td>100%</td>
</tr>
<tr>
<td>Chondrosarcomas</td>
<td>85%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Narcotic Use and Postoperative Doctor Shopping in the Orthopaedic Trauma Population

Evaluate narcotic prescription utilization in orthopaedic trauma population. Single narcotic group (prescriptions from treating physician) vs. multiple narcotic group (prescriptions from treating physician & additional provider(s)). 8.5% Patients using narcotics preoperatively. 20% Patients were “doctor shopping” postoperatively.

RESPONSE: PROVIDE ADEQUATE, SAFE PAIN RELIEF.

- Use of the Tennessee Controlled Substance Monitoring Database prior to writing narcotic prescriptions
- Discussion with patients on who will manage their medications
- Educate patients preoperatively of limited time on narcotics
- No weekend or night refills
- Multimodal pain medication perioperatively
- Postoperative weaning plan for all patients

INCREASED RISK FOR DOCTOR SHOPPING

![Graph showing increased risk for doctor shopping]

Education Level and Preoperative Narcotic Use

Education level and preoperative narcotic use were significant, independent predictors of multiple narcotic providers. Patients with a high school education or less were 3.2 times more likely to seek multiple providers, and patients with a history of preoperative narcotic use were 4.5 times more likely. There was significant increase in postop narcotic prescriptions, duration of postop narcotic use, and morphine equivalent dose per day among the multiple provider group.
Allograft material used for ACL reconstruction produces significantly worse outcomes in younger patients. Patients in the age group of 10 to 19 years had the highest percentage of graft failures. The odds of graft rupture are 4 times higher than those of autograft reconstructions.

OTHER IMPORTANT FINDINGS

- The contralateral normal knee ACL is at a similar risk of ACL tear (3%) as the ACL graft after primary ACL reconstruction (3%)
- Economic modeling using the MOON ACL data demonstrates that early ACL reconstruction is more effective (as determined by improved Quality Adjusted Life Years and lower cost) than rehabilitation plus optional delayed ACL
Decreasing Wound Complications in the Surgical Treatment of Calcaneus Fractures

Retrospective review to compare wound complication rates following surgical intervention of calcaneus fractures utilizing standard extensile lateral or mini open approach techniques. A total of 47 patients with 50 calcaneal fractures underwent primary surgical fixation. 56% were treated using standard extensile lateral incision and 44% using small mini open approach.

**SURGICAL APPROACH (N=50 FRACTURES)**

**POSTOPERATIVE WOUND COMPLICATION RATE**

Postoperative wound complications were seen in 46.6% of the fractures in the extensile lateral approach group compared to only 4.5% of fractures in the mini open approach group. The occurrence of wound complications was significantly different (p=0.001) between the two surgical approaches.

**WOUND COMPLICATION TREATMENT PATH**

15.4% of wound complications within the extensile lateral approach group required surgical debridement and IV antibiotics, compared to 0 in the mini open group.