

# Resident Research Day

---



**Department of Orthopaedic Surgery & Sports Medicine**

Lewis Katz School of Medicine at Temple University

---

Saturday April 14, 2018

Supported by the John Lachman Orthopaedic Research Fund

# Research Day Agenda

4/14/2018

Clancy Conference Room (MERB 342)

Moderator: Saqib Rehman, M.D.

---

8:00-9:00am

**Grand Rounds Presentation**

Kurt R. Weiss, MD

Assoc Professor of Orthopaedic Surgery,  
Division of Musculoskeletal Oncology,  
Director of Musculoskeletal Oncology  
Laboratory

University of Pittsburgh School of Medicine

“An Evolution of  
Osteosarcoma Metastasis  
Translational Research”

---

9:00-11:30

**Resident Research Presentations**

Robert Ames, Dayna Phillips, Colin  
Vroome, Jeffrey Wera, James  
Bennett, Katharine Harper, John  
Jennings, William Smith

10 minute presentations  
5 minutes for questions

---

11:30

**Lunch and announcement of  
winners presented by Dr. Weiss  
and the John Lachman Orthopaedic  
Research Fund**

## 9:00 Robert Ames – “Intraoperative Neuromonitoring in Pediatric Spinal Deformity Surgery: The Impact of Consistency on Surgical Outcomes”

Ames RJ, Casper D, Hwang S, Samdani AF

**Introduction:** Several studies document the positive impact of consistent operating room staff on safety and efficiency. No previous study has explored the impact of a consistent intraoperative neuromonitoring (IONM) team. We sought to compare IONM related outcomes with 1) an outside vendor team consisting of eight different technicians with offsite supervision (Ven) to 2) three in house IONM personnel with on-site supervision (InH ) at a complex pediatric deformity center.

**Methods:** After IRB approval, pediatric patients requiring spinal deformity correction between January 2007 and December 2015 were identified. From January 2007 to March 2010 IONM was provided by Ven, and InH provided IONM coverage after 2010. Patient clinical, radiographic, and procedural data were collected. IONM alerts (similar criteria utilized for both groups), number of Stagnara wake-up tests, percentage of cases aborted, and postoperative neurologic status were recorded. Univariate analysis compared the two cohorts.

**Results:** The two cohorts were similar particularly with respect to demographics, diagnosis, major coronal and sagittal Cobb angles, number of levels fused, and number of patients with Ponte osteotomies. Significant differences included the percentage of 3-column osteotomies. The Ven cohort consisted of 519 patients who experienced 47 (9.1%) alerts, 37 (7.1%) Stagnara wakeup tests, and two permanent neurologic deficits. 866 patients comprised the InH cohort, resulting in 28 (3.2%,  $p<0.001$ ) alerts with only 4 (0.46%,  $p<0.001$ ) Stagnara wakeup tests, and one permanent neurologic deficits. In addition, the Ven cohort had a greater percentage of procedures aborted secondary to IONM related changes (Ven= 26%(12/47),

InH=14.2% (4/28),  $p=0.25$ ). OR time was similar in both groups (Ven=507, InH=534,  $p=0.72$ ).

**Discussion:** A single center’s experience in changing to a smaller, consistent IONM team contributed to decreasing the number of alerts, need for Stagnara wake-up tests, and aborted surgeries. This team model provides opportunity for preoperative discussion between surgeon and IONM team members, standardization of IONM protocols, and builds trust/familiarity through regular collaboration. Likely, any IONM setup (vendor or hospital employee) that incorporates the aforementioned attributes would have a similar positive impact on safety.

Level of Evidence: Level III, therapeutic study.

## 9:15 Dayna Phillips – “Orthopaedic Scientific Literature has Poor Uniformity in Defining Clubfoot Relapse”

Dayna Phillips, Cheryl Lawing, Sarah Nossov

**Introduction:** Congenital clubfoot (talipes equinovarus) treatment is initially largely successful by Ponsetti technique. Recurrence is unfortunately a real secondary problem borne largely from non-compliance in bracing and remains a struggle for orthopaedic surgeons to determine when and how to intervene for optimal correction and clinical improvement. Lack of uniformity in objectively describing recurrence may complicate accurate and helpful scientific evidence for efficacy of intervention for relapsed clubfoot.

**Methods:** Literature review through Pubmed resulted in 334 of published articles from 1960-2017 which included the term clubfoot relapse and in English language. Articles were additionally excluded if they did not primarily include data on idiopathic clubfoot relapse, were case studies or reviews, and if article was not accessible online. Original research articles were identified and analyzed by two

contributors for language to define relapse, clinical outcome measures utilized, and results.

**Results:** 60 original research articles were identified published most frequently in JPO (11), CORR (7), JBJS Br(7), and JPO B (4). 21(35%) contained no definition at all or no specific definition for relapse for inclusion criteria. The most common measures for defining relapse were described as requiring further treatment (8/13%), any CAVE deformity component recurrence (8/13%), a particular CAVE component recurrence (6/10%), utilizing a previous published clinical scale alone as in Dimeglio/Pirani/or other (5/8%). Less than 50% utilized a reproducible clinical exam method of any kind to define relapse. 63% of studies were analyzing results of a significant surgical intervention.

**Discussion:** There is no clear or agreed-upon method to define or classify the occurrence of relapse after initial successful treatment of clubfoot. There has been little published information to assist in unifying definitions for relapse or relapse correction.

Scientific literature on relapses of clubfoot lack uniformity in defining relapse and further suffer from clear explanation of what degree of relapse is clinically significant or which intervention is most appropriate and effective. A consensus agreement or prognostic classification system may help to better guide practicing orthopaedic surgeons.

### **9:30 Colin MacElroy Vroome – “Regional Anesthesia Techniques in Patients Undergoing Surgical Repair of Tibial Plateau Fractures”**

Colin Vroome, Akshat Gargya, Meera Gonzalez, Christopher Haydel

**Background:** The use of sciatic nerve blocks for pain control in patients with operatively treated tibial plateau fractures is contraindicated as the resultant blockade impedes diagnosis of perioperative

compartment syndrome. A novel regional anesthetic technique called the IPACK block (infiltration of local anesthetic into the Interspace between the Popliteal Artery and posterior Capsule of the Knee) has recently been employed for patients undergoing total knee arthroplasty<sup>1,2</sup>. This block provides analgesia to the posterior capsule of the knee while preserving motor function. Another novel technique has recently been shown to improve pain control following operative treatment of femoral shaft fractures using injection of local anesthetic at the fracture site<sup>3</sup>. The goal of this study is to investigate the effect of regional anesthesia with IPACK block and surgical site injection of local anesthetic on pain control following operatively treated tibial plateau fractures.

**Methods:** A retrospective review was performed on patients undergoing open reduction internal fixation (ORIF) of tibial plateau fractures from August 2016 through January 2018. Patients were differentiated base on whether or not they received regional anesthesia with an IPACK block and injection of local anesthesia. Patient medical history including of intravenous drug use (IVDU), concomitant injuries and surgeries, time from injury to definitive surgery, surgery performed, and postoperative neurologic exam were recorded. Twenty-four hour pre- and postoperative narcotic requirements were calculated as Oral Morphine Equivalents (OMEs) per hour and compared between patients who received an IPACK block and local anesthetic and patients who underwent ORIF under general anesthesia alone.

**Results:** Open reduction internal fixation was performed on 31 patients with tibial plateau fractures in the period from August 2016 through January 2018. Nine patients were excluded due to hospital discharge prior to return for ORIF as they did not have documentation of preoperative narcotic consumption. Other reasons for exclusion were: additional procedures performed the same day as plateau ORIF (2 patients), altered mental status (1), spinal anesthesia (1), and previous spinal cord injury (1). This left 4 patients who received IPACK block and local anesthesia prior to ORIF and 13 patients who underwent ORIF under general anesthesia alone. Hourly opioid use decreased by an

average of 2.5 OMEs from pre-op to post-op in patients who received regional anesthesia compared to a post-op increase of 3.6 OMEs in patients who did not receive regional anesthesia ( $p= 0.061$ ). No difference was detected between groups regarding time from injury to fixation, number of incisions used, and number of opioid tolerant patients. All patients maintained normal motor and sensory function in the leg following the block without any signs or symptoms of compartment syndrome.

**Discussion:** The combination of IPACK block and analgesic infiltration at the surgical site show a trend towards reducing opioid requirement in a patients undergoing open reduction and internal fixation of tibial plateau fractures but more data is required to determine whether this relationship is statistically significant.

#### References:

1. Gi E, Yamauchi M, Yamakage M, et al. Effects of local infiltration analgesia for posterior knee pain after total knee arthroplasty: comparison with sciatic nerve block. *J Anesth* 2014;28:696-701.
2. Cullom C, Weed JT. Anesthetic and Analgesic Management for Outpatient Knee Arthroplasty. *Current pain and headache reports* 2017;21:23.
3. Koehler D, Marsh JL, Karam M, Fruehling C, Willey M. Efficacy of Surgical-Site, Multimodal Drug Injection Following Operative Management of Femoral Fractures: A Randomized Controlled Trial. *JBJS* 2017;99:512-9.

### 9:45 Jeffrey Wera – “The Correlation between Boston Hand Questionnaire and Electrodiagnostic Study Results in Patients with Carpal Tunnel Syndrome”

Wera J, Smith WR, Poorman M, Abdelfattah H, Thoder JJ

**Background:** Carpal tunnel syndrome (CTS) is the most common entrapment neuropathy. Its diagnosis is based on clinical symptoms. Electrodiagnostic studies (EDX) are often performed to confirm the clinical diagnosis. Furthermore, EDX serve as an objective supplementary diagnostic to assess severity and effectiveness of therapeutic interventions. Frequently quoted disincentives to the use of EDX include expense, delay, inconvenience, and patient discomfort. The Boston CTS Questionnaire (BCTQ) is a validated questionnaire used to assess symptoms and function

over time. We sought to determine if there was correlation between EDX studies and Boston CTS Questionnaire scores in order to determine if the questionnaire would be a diagnostic tool to use when indicating someone for intervention

**Methods:** BCTQ were given to patients with suspected CTS based on clinical exam at an urban academic setting. Patient’s respective BCTQ scores were then compared to EDX study results. Patients were identified, based on their EDX results, as having “None/Mild,” “Mild to Moderate,” “Severe” CTS. All English-speaking patients 18 years old or older with a new CTS diagnosis were included. Patients were excluded if they had a preexisting diagnosis of CTS of either hand, did not complete the questionnaire, or if they did not obtain EDX studies.

**Results:** Among 84 patients, 50 completed the both the BCTQ and EDX. Six patients had incomplete EDX results and were excluded. Twenty-eight patients did not obtain an EDX. Age was not correlated with total score. Diabetic patients had a higher mean BCTQ when compared to non-diabetic patients (median of 42.0 versus 35.5). While, this observation may be suggestive, it is not statistically significant ( $p = 0.1162$ ). Analyses of other demographic variables do not show a statistical association or any suggested differences in total score. Lastly, while not statistically significant, the None/Mild and Mild to Moderate/Moderate EDX patients have higher median total scores (38.5 and 41.0, respectively) as compared to the Moderate to Severe/Severe patients (33.5). This same general trend is noted for the mean total scores.

**Discussion:** Higher scores on BCTQ do not correlate with EDX severity. While the None/Mild and Mild to Moderate/Moderate groups demonstrated higher median/mean BCTQ scores, it is unclear why the most severe CTS patients based on EDX had the lowest BCTQ scores. This highlights the need of further studies to find a more convenient, cost-effective and less invasive diagnostic tool to assess the severity of CTS.

## 10:00 James Bennett – “Reoperation in Patients with Cerebral Palsy After Spinal Fusion: Incidence, Reasons, and Impact on HRQoL”

James T. Bennett, MD, Amer F. Samdani, MD, Joshua M. Pahys, MD, Baron S. Lonner, MD, Peter O. Newton, MD, Firoz Miyanji, MD, Suken A. Shah, MD, Burt Yaszay, MD, Paul D. Sponseller, MD, Patrick J. Cahill, MD, Harms Study Group, Steven W. Hwang, MD

**Summary:** Patients with cerebral palsy (CP) undergoing spinal fusion experience a high rate of reoperation, although this has not been previously quantified. This report seeks to establish rate and major reasons for reoperation in this population. We report a 13.9% reoperation rate with 7.1% due to infection and 6.8% instrumentation failure. Patients with lower percent correction were at highest risk. Reoperation impacted HRQoL scores.

**Hypothesis:** The reoperation rate in patients with CP is high and lowers HRQoL scores.

**Design:** Retrospective review of a prospective data set.

**Introduction:** Patients with cerebral palsy (CP) undergoing spinal fusion experience a high rate of reoperation, although this has not been previously quantified. This report seeks to establish a rate, major reasons, and effect of reoperation on HRQoL, and explore potential risk factors.

**Methods:** A prospectively collected multicenter database was retrospectively reviewed to identify consecutive patients with CP who had undergone spinal fusion with a minimum 2-year follow-up. We compared patients who underwent reoperation (Y) versus those who did not (N) with respect to preoperative, intraoperative, and postoperative factors.

**Results:** A total of 251 patients were identified with an average of  $2.3 \pm 0.6$  years follow-up. 35 patients (13.9%) underwent a total of 37 reoperations. Of the 35 patients reoperated, 18 (7.1%) were for infection and 17 (6.8%) were instrumentation related. The majority of infections were deep (17/18). Of the 17 instrumentation related reoperations, the majority were for loosening (13.5%), prominence (13.5%), followed by junctional kyphosis (8.1%), broken instrumentation (5.4%), and pseudarthrosis (5.4%). The patients with lower percent correction of the major curve were at highest risk for a reoperation ( $Y=54.3\%$  correction versus  $N=63.6\%$  correction,  $p=0.02$ ). Patients who underwent an unplanned

return to the OR had longer hospitalizations ( $Y=19.5$  days versus  $N=10.7$  days,  $p<0.01$ , Table 1). These patients had lower comfort and emotions CPCHILD domain scores at 2 years after surgery ( $p=0.04$ ), with a trend toward lower personal care scores at 2 years ( $p=0.08$ ).

**Conclusions:** At an average of 28 months  $\pm$  6.7 months postop, spinal fusion for patients with CP have a significant rate of reoperation (13.9%), which impacts HRQoL and hospital length of stay. Infection, proximal junctional kyphosis, and instrumentation prominence/loosening are the most common reasons for reoperation.

**Table 1:**

	Yes (n=35)	No (n=216)	p value
Age at Surgery $\pm$ SD (years)	14.4 $\pm$ 2.9	13.7 $\pm$ 2.6	0.15
Females N (%)	14 (40.0)	105 (48.6)	0.47
<b>Primary Indication For Surgery</b>			
Scoliosis N (%)	29 (82.9)	200 (92.6)	0.10
Kyphosis N (%)	6 (17.1)	17 (7.9)	
<b>Major Cobb</b>			
Pre-op $\pm$ SD ( $^{\circ}$ )	83.9 $\pm$	82.2 $\pm$ 23.6	0.71
2 Year $\pm$ SD ( $^{\circ}$ )	32.3	29.8 $\pm$ 15.6	0.17
Percent Change $\pm$ SD (%)	33.9 $\pm$ 18.7	63.6 $\pm$ 16.8	<b>0.02</b>
	54.3 $\pm$ 40.0		
<b>Pelvic Obliquity</b>			
Pre-op $\pm$ SD ( $^{\circ}$ )	26.7 $\pm$	27.8 $\pm$ 15.7	0.73
2 Year $\pm$ SD ( $^{\circ}$ )	16.6	9.1 $\pm$ 8.9	0.68
	9.9 $\pm$ 9.5		
<b>Kyphosis (T5-T12)</b>			
Pre-op $\pm$ SD ( $^{\circ}$ )	42.2 $\pm$	36.3 $\pm$ 23.3	0.19
2 Year $\pm$ SD ( $^{\circ}$ )	23.1	21.9 $\pm$ 10.5	0.49
	23.3 $\pm$ 10.1		
<b>Lordosis (T12-S1)</b>			
Pre-op $\pm$ SD ( $^{\circ}$ )	28.5 $\pm$	41.0 $\pm$ 32.2	0.06
2 Year $\pm$ SD ( $^{\circ}$ )	30.6	54.5 $\pm$ 16.0	0.13
	49.7 $\pm$ 19.0		
Estimated Blood Loss $\pm$ SD (cc)	1934.7 $\pm$ 1500.4	1658.8 $\pm$ 1206.0	0.23
Surgical Time $\pm$ SD (minutes)	427.2 $\pm$ 179.2	388.7 $\pm$ 109.7	0.09
Hospital Length of Stay $\pm$ SD (days)	19.5 $\pm$ 17.6	10.7 $\pm$ 6.9	<b>&lt;0.01</b>
ICU Length of Stay $\pm$ SD (days)	6.3 $\pm$ 9.0	4.7 $\pm$ 5.3	0.15
Staged Procedure N (%)	4 (11.4)	21 (9.7)	0.77
Spastic CP N (%)	28 (80.0)	178 (82.4)	0.37

## 10:15 Katharine Harper – “Hospital Discharge Instructions for Orthopaedic Trauma Patients – an Opportunity for Improved Care”

Katharine D Harper, Jeffrey Wera, Holly Jordan, Jaquelyn Kakalecik, Frederick Ramsey, Saqib Rehman

**Introduction:** Inadequate health literacy and poor comprehension has been identified as being particularly prevalent in orthopedic patients. Discharge instructions are typically lengthy and text-based, presenting an obstacle for patients in understanding information. The goal of this study is to evaluate the effect of enhanced discharge instructions on comprehension in orthopedic trauma patients treated with surgery following a fracture.

**Methods:** A prospective cohort control study conducted from June 2016 to May 2017. Patients were provided either standard of care discharge instructions or enhanced instructions. They were then given a survey at their 2-week follow up appointment to test their knowledge of their medical care. All inpatient orthopedic trauma surgical patients were considered. Exclusion criteria included: multiple fractures, poly trauma, outpatient management of injury, non-English speaking, traumatic brain injury, revision surgeries and lack of follow up. Final evaluation had 50 control and 53 intervention patients.

**Results:** Patients who completed higher levels of education got more questions correct regardless of the intervention. Patients who received enhanced instructions got more questions correct overall, were more likely to know their weight-bearing status and how their fracture was fixed. Enhanced instructions resulted in no difference in knowledge regarding which bone they broke, DVT prophylaxis, healing time or allowed range of motion.

**Discussion:** Our study shows improved understanding and retention of post-operative instructions in patients who receive enhanced instructions with illustrations. With patients having a better understanding of their post-operative instructions, namely their weight bearing status, we hope to decrease our non-compliance and improve patient satisfaction.

## 10:30 John Jennings – “Orthopaedic Surgical Attire Influences Patient Perceptions in an Urban, Inpatient Setting”

John D Jennings, Angelica Pinniti, Jacquelyn Kakelecik, Christopher Haydel

**Background:** Previous work has established that overall patient perceptions and first impressions can be influenced by the attire of their treating physician. Despite an attempt to identify a specific dress code as preferential, the data is conflicted based upon the subspecialty, practice setting, and global location. We have previously established that outpatient orthopedic patients generally prefer their surgeon in a white coat or scrubs and with this study aimed to elucidate patient preferences in the inpatient setting.

**Methods:** In this prospective study, 93 inpatients at a single Level 1, urban teaching hospital completed a three-part questionnaire. Demographic data was obtained for each patient including age, gender, education level, employment status, relationship status, and insurance status. The second component of the survey, the participant viewed ten images, five of a male surgeon and five of a female surgeon wearing a white coat over formal attire(WF), a white coat over scrubs(WS), scrubs alone(SA), business attire(BA), and casual attire(CA). They rated each image on a five-level Likert scale. Participants were asked how confident, trustworthy, safe, caring, and smart the surgeon appeared, how well the surgery would go, and how willing they would be to discuss personal information with the pictured surgeon. The participant ranked all images from most to least confident in the third part of the survey. The surveys were scored using a five-level Likert scale and a Friedman test was used to detect statistical significance when comparing all attires. For multiple pairwise comparisons, a Bonferroni correction was applied.

**Results:** With regards to patient confidence, there was no significant difference for male surgeons between WF, WS, and SA( $p=1$ ). Each of these, however, were preferred to BA and CA ( $p<0.01$ ).

Overall the order of preference for male surgeons was WF, WS, SA, BA, and CA( $p<0.01$ ). For female surgeons, there was likewise equal preference between WF, WS, and SA( $p=1.0$ ). All three were generally preferred to CA and BA ( $p<0.01$ ) except for when SA was ranked against BA ( $p=1.0$ ). Overall the order of preference for female surgeons was WS, WF, SA, BA, then CA( $p<0.01$ ). Importantly there was no difference for male or female surgeons in any category when comparing WF, WS, and SA.

**Discussion:** In the inpatient setting of an urban level one trauma center there were minor variations in patient perceptions based on the gender of the pictured surgeon, however, participants consistently ranked WF, WS, and SA as preferred attire. This is somewhat consistent with our previously published work in the outpatient setting, with an even greater preference for attire with scrubs. We hypothesize these perceptions are attributed to this attire meeting patient's expectations for how they believe a doctor should appear. Given recent concern for physician-spread hospital infection, this may lend support to WS or SA attire in the inpatient setting.

### **10:45 John Jennings – “Debridement of Dorsal Hand Abscesses in the Operating Room does not Improve Outcomes”**

John D. Jennings, Colin M Vroome, Shiv Gandhi, Joseph J Thoder

**Introduction:** The most common site for hand infections is over the dorsal surface and is secondary to some traumatic mechanism. There is, however, no evidence to date to support either formal debridement in the operating room or a simple bedside procedure. The benefits of bedside procedures include decreased hospital costs, decreased time and staff required, and, particularly for sick patients, the ability to avoid general anesthesia. We hypothesize that formal debridement in the operating room does not improve patient outcomes and therefore does not

justify forgoing the aforementioned benefits of a bedside procedure.

**Methods:** After obtaining IRB approval, a retrospective chart review was conducted for patients presenting to our level-one trauma center with a dorsal hand abscess. Information obtained included demographics, whether the initial debridement was performed at the bedside or in the operating room, as well as the organism, number of trips to the operating room, and repeat hospitalizations.

**Results:** During the one-year retrospective collection period 27 patients had a dorsal hand debridement in the operating room whereas 23 patients had undergone bedside debridement as their primary procedure and a paired t-test was used for comparisons. The number of trips to the operating room was significantly less in the bedside debridement group ( $p=0.03$ ), as was the average length of hospital stay ( $p=0.04$ ). Staphylococcus aureus was the most common organism in both groups, with no statistical difference in MRSA isolation. There was no difference in hospital readmissions, duration of symptoms prior to debridement, age, gender, or comorbidities. Size of abscess on presentation was not significant, although this was poorly documented in the records.

**Conclusions:** Bedside debridement of dorsal hand abscesses may result in less overall trips to the operating room and less overall hospital days. While selection bias may influence these results, an initial attempt at bedside debridement may be safe and cost-efficient as a first-line attempt at treating dorsal hand infections.

### **11:00 John Jennings – “Human Immunodeficiency Virus may Impair Distal Radius Fracture Healing”**



John D. Jennings, Jeffrey Wera, Justin Ly, Saqib Rehman

**Introduction:** Distal radius fractures constitute the most common injury in orthopaedics. Well-established radiographic parameters guide management and surgery is chosen for patients with unacceptable angulation or comminution. The Philadelphia Department of Health estimated the general prevalence of HIV/AIDS in Philadelphia in 2014 to be 1,277.5 cases per 100,000, or 1.277%. Previous research has demonstrated that both HIV, and the antiretroviral medications taken by patients with HIV alter the body's response to a fracture. The clinical correlation with these studies is still under debate, however. The purpose of this study is to determine if HIV infection clinically impairs fracture healing in patients treated surgically for distal radius fractures.

**Methods:** A 10-year retrospective chart review was conducted for patients meeting our inclusion criteria of age over 18 years, operative treatment of their distal radius fracture, and active HIV infection at the time of surgery. Patients treated nonoperatively, those without follow-up of at least 6 months, or inadequate records were excluded.

**Results:** From 874 patients with distal radius fractures, those with HIV and operative treatment accounted for 14 (1.6%). After 3 patients were excluded for inadequate follow-up or incomplete documentation, 11 patients were identified who met our inclusion criteria. One patient had a nonunion requiring further surgery (9.1%), one patient developed complex regional pain syndrome. Incidence of nonunion was statistically significant compared with historical controls ( $p < 0.01$ ). There were no cases of infection or wound complications.

**Discussion:** While the number of patients in this preliminary study limits our statistical conclusions, the prevalence of HIV in our series is in line with that reported by the CDC. The incidence of nonunion was significantly greater than historical control patients, suggesting a potential clinical correlation with previous studies in the laboratory which may indicate impaired bone healing in patients with HIV.

Future multi-center studies are needed to further investigate this correlation.

### **11:15 William Smith – “Patient Satisfaction in the Preoperative Period: Preparing for Hand Surgery”**

William R. Smith, Jeffrey Wera, Robert Takei, Greg Gallant, Fred Liss, Pedro Beredjikian, Moody Kwok

**Introduction:** The potential impact of the number and type of preoperative encounters on satisfaction rates prior to elective surgical procedures is unclear, specifically scheduling and medical clearance encounters.

**Methods:** Questionnaires investigating satisfaction with the preoperative process were collected for 200 patients presenting for elective hand surgery. The number of telephone, surgeon and medical clearance encounters were recorded and satisfaction was determined for each type based on a 4-category Likert scale. All patients 18 years or older were included, while only patients providing incomplete questionnaires were excluded. Outcome data was assessed for associations between different encounter totals or types and satisfaction rates.

**Results:** Among 200 patients, 197 completed the questionnaire and were included. Overall satisfaction with the preoperative process was 92.9%, with only 3% of patients dissatisfied. There was a significant association between satisfaction and the number of telephone and total encounters. Satisfaction fell below 90% after 4 or more telephone calls (66.6%,  $p = 0.005$ ) and 5 or more total encounters (80%,  $p = 0.008$ ). When considered individually, there was no significant association between satisfaction and the number of surgeon ( $p = 0.267$ ) or medical office encounters ( $p = 0.087$ ), or a patient's perceived health status ( $p = 0.14$ ).

**Discussion:** Greater than 3 telephone or 4 total encounters significantly decreases patient satisfaction, while surgeon and medical office visits are not associated with satisfaction rates when considered individually. This suggests the number, not the type, of preoperative encounters impact satisfaction and highlight the importance of efficient communication between patients and providers.