



## **Department of Surgery** WESTERN UNIVERSITY

# 22<sup>nd</sup> DR. ROBERT ZHONG ANNUAL RESEARCH DAY

Wednesday, June 17, 2026  
Darryl J. King Student Life Centre  
King's University College

### **Dr. Robert Zhong Lecture**

**"Closing the Quality Gap – 10 years of Surgical QI in Ontario"**

**Dr. Timothy Jackson, MD, MPH, FRCSC, FACS**

Division Head and Peter A. Crossgrove Chair in General Surgery, University Health Network

Associate Professor, University of Toronto

Provincial Clinical Quality Lead, Ontario Surgical Quality Improvement Network, Ontario Health

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**PROGRAM AT A GLANCE****Department of Surgery Annual Research Day 2026**

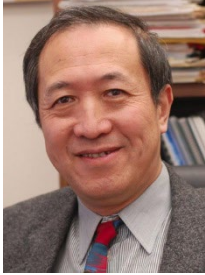
King's University College

Wednesday, June 17, 2026

7:00 AM	Registration and Coffee
7:30 AM	Poster Session
9:00 AM	Opening Remarks: Dr. Emil Schemitsch, Chair/Head, Department of Surgery, Dr. John Yoo, Dean, Schulich School of Medicine & Dentistry
9:15 AM	Division Award Winning Resident/Fellow Research Papers
10:35 AM	MSc in Surgery Best Colloquium Presentation
10:45 AM	BREAK
11:00 AM	Dr. Robert Zhong Keynote Address Dr. Timothy Jackson
11:45 AM	LUNCH
12:30 PM	Faculty Node Presentations
1:45 PM	Panel Discussion – From Ideas to Impact: Building and Scaling Surgical QI Projects
2:30 PM	Awards & Closing Remarks: Dr. Emil Schemitsch

## BIOGRAPHY OF DR. ROBERT ZHONG

The Robert Zhong Department of Surgery Research Day was named in honour of Dr. Robert Zhong, a brilliant scientist and colleague who passed away in 2006.



Dr. Robert Z. Zhong was born in Shanghai, China on January 16, 1946. He graduated from Shanghai No 1 Medical University and was then assigned by the government to work as a general surgeon in a community hospital. Dr. Zhong attended a seminar led by Dr. Sun Lee – considered to be the founding father of experimental microsurgery – and whom he would later credit to be one of the most important mentors of his life. Dr. Zhong arrived in Canada first as a research fellow under the supervision of Drs. John Duff and Calvin Stiller in 1984. His persistence and vision led to a full-time appointment in microsurgical animal models that would be applied in human transplantation clinical practice.

Recognizing that molecular biology and transplant immunology were critical to the future of transplantation, Dr. Zhong began his study of these fields in Canada to become one of the world's leading experts in transplantation and microsurgery. He went on to become a Tier One Canada Research Chair in Transplantation and Experimental Surgery in 2004 and was appointed a full Professor in the Departments of Surgery, Pathology, and Microbiology & Immunology at The University of Western Ontario. Dr. Zhong was a scientist at the Robarts Research Institute; Director of the Microsurgery Laboratory at LHSC; and a scientist at the Lawson Health Research Institute.

Dr. Zhong's influence into the fields of transplantation and microsurgery were profound and far-reaching. He was Past President of the International Society of Experimental Microsurgery; a member of the Canadian Society of Transplantation, American Society of Transplantation; and the American Society of Transplant Surgeons. Dr. Zhong was awarded the Lifetime Achievement Award by the Canadian Society of Transplantation posthumously in 2007.

Dr. Zhong published over 180 peer-reviewed publications and achieved millions of dollars in research grant funding. He supervised more than 70 graduate students and fellows and trained over 70 microsurgeons worldwide during his 21-year career at Western. His superb leadership and vision were recognized as having created an internationally renowned program in experimental transplantation. A brilliant scholar, teacher, and mentor, Dr. Zhong is also remembered as a man of great humility, kindness, and respect.

Dr. Robert Zhen Zhong passed away in London, Ontario on September 8, 2006.

<sup>1</sup>Zhong T. (2007), Dr. Robert Zhen Zhong: A tribute by his daughter. *Microsurgery*, 27:214-215.

**POSTER ABSTRACTS: ICES / BIG DATA****Presenter: Rayyan Mirdad****Implant Survival Following Total Joint Arthroplasty in Solid Organ Transplant Recipients:  
A Population-Based Matched Cohort Study**

R. Mirdad, E. Dawson, T. Al-Jabri, E. Schemitsch

Division of Orthopaedic Surgery

**INTRODUCTION:** Advances in solid organ transplantation (SOT) have improved long-term survival, resulting in a growing population of transplant recipients presenting for total joint arthroplasty (TJA). These patients are traditionally considered to have a higher risk profile due to immunosuppression, medical comorbidity and organ specific vulnerabilities; however, contemporary data on implant-related outcomes remain limited and inconsistent. We evaluated reoperation and revision following primary TJA in patients with prior SOT using a population-based matched cohort.

**METHODS:** This was a retrospective cohort study of adult patients in Ontario, Canada, who underwent TJA for osteoarthritis between 2003 and 2023. We identified patients with a history of SOT within 10-years prior to TJA using linked administrative databases (Ontario Health Insurance Plan and Discharge Abstract Database). The primary outcome was any reoperation within five years of TJA. Our secondary outcome was revision within five years. 393 transplant patients were propensity score matched to 3,888 controls. Outcomes were compared using chi-square tests, and Cox proportional hazards models were used to evaluate the association between SOT and time to reoperation or revision, with censoring for death and loss to follow-up.

**RESULTS:** Before matching, transplant patients were younger, more often male, and more likely to have comorbidities, live further from hospital, and be treated at a teaching hospital. The 5-year reoperation rate was 4.1% for patients with SOT and 3.6% in non-transplant patients ( $p=0.65$ ) and the revision rate was 2.8% and 2.2%, respectively ( $p=0.43$ ). We found no significant difference in risk of joint related reoperation (HR:1.16; CI 0.69 to 1.94) or revision (HR:1.33; CI 0.71 to 2.50) for patients with SOT compared to controls.

**CONCLUSION:** In this study, prior SOT was not associated with increased risk of revision or reoperation following TJA. These findings suggest that, in the modern era, carefully selected transplant recipients can achieve comparable implant-related outcomes, potentially reflecting advances in multidisciplinary care and perioperative optimisation.

**Presenter: Sukhmeet Sachal**

**The Macroeconomic Burden of Hand Injuries in Canada and the World: 2009-2023**

S. Sachal, Z. Zhou, T. Quaife, S. Chambers, D. Ross, S. Pripotnev

Division of Plastic & Reconstructive Surgery

**INTRODUCTION:** Hand injuries are among the most common traumatic presentations, yet their broader economic impact remains poorly quantified. This study evaluates the macroeconomic burden of hand injuries globally and in Canada, identifying key injury subtypes and demographic groups driving loss.

**HYPOTHESIS:** Hand injuries impose a substantial and increasing macroeconomic burden, with disproportionate impacts from specific injury subtypes and working-age populations.

**METHODS:** Disability estimates from the Global Burden of Disease 2023 study were linked with World Bank GDP data to estimate the Value of Lost Welfare (VLW) from 2009–2023 using income-adjusted value-of-statistical-life-year functions. Analyses were conducted globally and for Canada, stratified by injury subtype, age, and sex. Economic burden was expressed in absolute values and as percent of GDP.

**RESULTS:** Globally, VLW attributable to hand injuries increased by 95% from 2009–2023 (4.9% annually,  $p < 0.05$ ), with the steepest rise between 2021–2023. Thumb amputations generated 9–10% greater burden than finger amputations, while distal hand injuries produced lower losses. Males and adults aged 20–59 accounted for most of the global burden. In Canada, VLW increased by 75% (4.1% annually,  $p < 0.05$ ). Thumb amputations generated a 2.5-fold higher burden than finger amputations, while distal hand fractures produced 42% lower burden. Men experienced a 1.6-fold higher burden than women, with working-age adults contributing the largest share.

**CONCLUSION:** Hand injuries impose a substantial and growing macroeconomic burden. The disproportionate impact of thumb amputations and working-age populations highlights the need for timely access to specialized surgical management to reduce productivity losses.

**Presenter: Dhuvaraha Srikrishnaraj**

**Demographic and Clinical Factors Associated with Same-Day Discharge Following Elective Ventral Hernia Repairs: A NSQIP Analysis**

D. Srikrishnaraj, U. Abbas, A. Safar, J. Hawel, C. Schlachta, A. Elnahas

Division of General Surgery

**INTRODUCTION:** There is limited data on predictors of same-day discharge (SDD) following ventral hernia repair (VHR). The primary objective of this study was to evaluate demographic and clinical factors associated with SDD among adults undergoing elective VHR, including primary and incisional repairs. The secondary objective was to compare 30-day outcomes between patients discharged the same day (length of stay [LOS] = 0) and those with multiple-day discharge (MDD; LOS > 0).

**HYPOTHESIS:** We hypothesized that SDD is more likely in patients with fewer comorbidities and lower perioperative risk, and that SDD is not associated with worse 30-day postoperative outcomes compared to MDD.

**METHODS:** A retrospective cohort study was conducted using the NSQIP database (2011–2021). Elective VHR cases were identified using ICD-9/10 and CPT codes. Variables included demographics, comorbidities, and functional status. Outcomes were 30-day complications, readmission, reoperation, and mortality. Multivariate logistic regression was used to adjust for clinically relevant confounders.

**RESULTS:** SDD was more common among males ( $p < 0.001$ ) and less likely in patients with BMI  $\geq 30$ , smoking history, non-independent functional status, and ASA class  $\geq 3$  ( $p < 0.001$ ). Comorbidities including congestive heart failure, hypertension, COPD, steroid use, bleeding disorders, disseminated cancer, and ascites were associated with lower SDD rates. SDD was associated with significantly lower rates of 30-day complications, reoperation, readmission, and mortality ( $p < 0.001$ ). After adjustment, MDD remained associated with higher odds of complications (OR 1.27), reoperation (OR 1.26), and readmission (OR 2.42).

**CONCLUSION:** SDD following elective VHR appears safe in appropriately selected patients and is associated with improved short-term outcomes.

**Presenter: Mitchell Thom**

## **Hip Arthroscopy Leads to Increased Risk of Total Hip Arthroplasty Failure and Increased Resource Allocation in Younger Total Hip Arthroplasty Patients**

M. Thom, L. Benaroch, J. McClure, B. Welk, B. Carter, B. Lanting, R. Degen

Division of Orthopaedic Surgery

**BACKGROUND:** Hip arthroscopy (HA) rates continue to increase; however, many patients will develop hip osteoarthritis necessitating total hip arthroplasty (THA). Presently, there is limited, conflicting literature on the correlation between a preceding HA and subsequent THA outcomes.

**HYPOTHESIS:** Prior HA will increase subsequent rates of revision THA in young THA patients (40-65 years old).

**METHODS:** The ICES was employed to perform a retrospective study of Ontario residents who underwent primary THA for osteoarthritis (2002–2023). Exposure was prior ipsilateral HA, subcategorized as recent or remote (<5 or >5 years pre-THA). Outcomes included THA revision, 30-day emergency department (ED) visit, readmission, major complication, hospital length of stay (LOS), 1-year costs, outpatient orthopedic visits, mortality, and chronic opioid use. Multivariable logistic regression was used to evaluate the influence of prior HA on outcomes.

**RESULTS:** Of 85,814 primary THA identified, 5,642 (6.6%) underwent prior HA. 1,215 patients received HA <5 years before index THA. Prior HA was associated with higher revision risk (4.9% vs 3.3%); Thirty-day ED visits, readmissions, and major complications were similar after adjustment. Prior HA patients had greater pre-THA resource utilization and associated costs, and greater 1-year post-THA costs and number of outpatient visits. Chronic opioid use was more prevalent with prior HA and independently increased odds of ED visit, readmission, major complication, postoperative visits, and 1-year costs, post-THA (all  $p < 0.001$ ).

**CONCLUSION:** In adults 40–65 years, prior HA is linked to increased risk of all-cause revision after THA, healthcare utilization, and costs, with equivalent short-term complication and readmission rates.

## POSTER ABSTRACTS: FUNDAMENTAL SCIENCES AND SURGICAL INNOVATION

**Presenter: Serina Chahal**

### **Circular RNA ZMIZ1 Overexpression Drives Melanoma Progression and Anti-tumour Immune Dysregulation**

S. Chahal, K. Vytlingam, A. Greasley, P. Jose, X. Zheng

Division of Cardiac Surgery, Department of Microbiology & Immunology, Department of Pathology and Laboratory Medicine

**INTRODUCTION:** Melanoma is a skin cancer that originates in melanocytes and is becoming increasingly prevalent in adults. Despite an increased push for UV-protective measures over the past decade, the non-responsiveness and resistance to standard treatments have resulted in an increased incidence of melanoma world-wide. Recently, circular RNA's have emerged as key regulators of cancer cell activity, and growing evidence supports their involvement in tumorigenesis, metastasis, and immune evasion.

**STUDY OBJECTIVE:** Our study examines the role of circular RNA ZMIZ1 (circZMIZ1) in immune regulation in a melanoma cancer context.

**METHODS:** A B16-F10 murine melanoma stable cell line overexpressing circZMIZ1 was used. Overexpressing cells were subject to various treatments to measure cell proliferation, migration, and death, in addition to co-culture with C57BL/6 syngeneic immune cells to determine their immunosuppressive effect. Finally, the effect of circZMIZ1 overexpression on anti-tumour immunity was tested *in vivo* using a mouse model.

**RESULTS:** *In vitro*, circZMIZ1 overexpression increased melanoma cell proliferation compared to control B16-F10 cells. Looking at immune regulation, co-culture with circZMIZ1-overexpressing melanoma cells retained dendritic cells in an immature state and promoted CD8+ T cell exhaustion. *In vivo*, circZMIZ1-overexpressing tumours showed increased tumour burden and CD8+ T cell apoptosis. *Ex vivo*, reduced T cell responses during antigen re-challenge were also observed in conjunction with the retention of dendritic cells in an immature state.

**CONCLUSION:** Together, these findings suggest that circZMIZ1 is a novel regulator of oncogenic activity and immune regulation in melanoma, highlighting its potential as a therapeutic target and prognostic biomarker.

**Presenter: Isabel Kannampuzha**

**Molecular Targets of Response to Radiotherapy and CFI-400945 in Triple Negative Breast Cancer**

I. Kannampuzha, A. Parsyan, A. Allan

Division of General Surgery and Department of Oncology

**INTRODUCTION:** Triple negative breast cancer (TNBC) is one of the most aggressive breast cancer subtypes, characterized by its propensity to develop treatment resistance, including radioresistance, and lack of established biomarkers. The identification of potential targets and biomarkers important for patient management and drug development is crucial. CFI-400945 (CFI), a selective inhibitor of Polo-Like Kinase 4, disrupts centriole duplication and induces genomic instability, a response shared with RT. Previous studies have demonstrated increased anti-proliferative effects with the combination of RT and CFI compared to the single agents. To better understand the mechanisms underlying this response, RNA-sequencing was used to identify potential targets of PLK4 inhibition and RT in TNBC.

**HYPOTHESIS:** Pharmacological inhibition of PLK4 will assert anticancer effects and synergize responses through regulation of cell fate pathways.

**METHODS:** Bulk transcriptomic analysis of RT- and/or CFI-treated MDA-MB-231 cells and TNBC patient-derived organoids (PDOs) identified differentially expressed genes. Selected targets were validated using RT-qPCR and immunoblotting. Due to enrichment of senescence-related genes, senescence-associated  $\beta$ -galactosidase assays were performed.

**RESULTS:** MDA-MB-231 RNA-sequencing data identified MMP1, ICAM1, IL1RL1, IL8 as top targets; these genes demonstrated increased expression in response to combination treatment. An increased number of senescence cells was observed when MDA-MB-231 cells were treated with the combination treatment. RNA-sequencing in TNBC PDO models revealed MCAM and TIMP3 as top targets and were also validated in three TNBC cell lines and PDOs.

**CONCLUSION:** These findings give insight into TNBC's response to the anticancer effects of RT and CFI combination treatment, laying groundwork for identifying potential novel biomarkers and drug targets.

**Presenter: Francesc Marcano**

**Pressure Reduction Evaluation Study of Simultaneous Release Using the FCR Approach.  
PRESSURE Study.**

F. Marcano-Fernandez, M. Campbell, D. Langhor, R. Grewal, A. Kadar

Division of Orthopaedic Surgery

**INTRODUCTION:** Distal radius fractures are frequently associated with median nerve compression at the wrist, yet there is no consensus on the role of concomitant carpal tunnel release (CTR). The flexor carpi radialis (FCR) approach may allow decompression without extending the surgical incision, but objective data comparing its effectiveness to standard open CTR are lacking.

**HYPOTHESIS:** CTR performed through the FCR approach achieves intracarpal canal pressure reduction equivalent to that of standard open CTR.

**METHODS:** A controlled cadaveric study was conducted using 12 fresh-frozen upper extremities (6 matched pairs). Within each pair, one limb was randomized to FCR approach and the contralateral limb to standard open CTR. Intracarpal canal pressure was measured using a balloon-tipped catheter and pressure transducer. Pressure mapping identified the site of maximal pressure, which was used for all measurements. Pressures were recorded in neutral position and during wrist flexion and extension before and after release. Paired comparisons were performed using the Wilcoxon signed-rank test.

**RESULTS:** Peak pressure occurred at the level of the hook of the hamate. Both techniques significantly reduced pressure in neutral position, with no difference between approaches; median pressure decrease was 91 mmHg for the FCR approach and 78.5 mmHg for the standard ( $p = 0.44$ ). This decrease in pressure was kept when the wrist was placed both in flexion and extension.

**CONCLUSION:** CTR through the FCR approach provides pressure reduction comparable to standard open CTR and may allow effective decompression without additional palmar incision.

**Presenter: Maria Mihele**

**Sodium Thiosulfate as a Therapeutic Strategy to Mitigate Heart Transplant Ischemia-Reperfusion Injury**

M. Mihele, A. Greasley, D. Nagpal, X. Zheng

Division of Cardiac Surgery and Department of Pathology & Laboratory Medicine

**INTRODUCTION:** Heart failure affects over 64 million people worldwide, and for patients with end-stage disease, heart transplantation remains the best treatment. Despite advances in organ preservation, ischemia-reperfusion injury (IRI) remains a major cause of graft dysfunction and ineligibility. Sodium thiosulfate (STS) is an FDA-approved compound with anti-apoptotic, anti-inflammatory, and antioxidant properties. Although STS has shown protection in several ischemic models, its role in heart transplant-associated IRI remains unknown.

**HYPOTHESIS:** We hypothesize that STS can protect cardiac grafts by reducing oxidative stress and apoptosis.

**METHODS:** To test STS *in vitro*, human cardiomyocytes (AC16 cells) underwent simulated IRI: 24-hour cold hypoxia (4°C, 0.5% O<sub>2</sub>) in University of Wisconsin (UW) solution followed by 24-hour reperfusion (37°C, 21% O<sub>2</sub>). STS was administered before, during hypoxia, and at reperfusion. Cell death was tracked using live-cell imaging and quantified with MTT assays. *In vivo*, a pilot-study evaluated STS in the preservation of mouse hearts during 24-hour cold ischemia; hearts then underwent syngeneic heterotopic transplant followed by histopathology.

**RESULTS:** *In vitro*, IRI experiments showed trends of higher cell viability and reduced cell death in 150  $\mu$  M STS-treated groups versus controls. TUNEL staining of UW+STS preserved heart grafts showed less apoptosis than those preserved only in UW.

**CONCLUSION:** Ongoing work will measure Annexin V/PI cell death via flow cytometry and assess apoptotic and inflammatory gene and protein expression during early reperfusion. Further *in vivo* work will evaluate graft function and histopathology at later timepoints. Overall, this study may provide a new therapeutic approach for reducing IRI in heart transplantation.

**Presenter: Alexandra Rocha**

**Prophylactic Contralateral Lateral Extra-Articular Tenodesis at the Time of ACL Reconstruction: Surgeon Equipoise, Barriers, and Trial Readiness**

A. Rocha, M. Free, R. Degen, D. Bryant, A. Getgood

Division of Orthopaedic Surgery

**INTRODUCTION:** Anterior cruciate ligament (ACL) reconstruction (ACLR) restores stability but does not eliminate the risk of subsequent injury, with contralateral ACL rupture occurring in up to 10–20% of high-risk patients. Lateral extra-articular tenodesis (LET) reduces graft failure when added to ACLR, however, its role as a prophylactic procedure in the contralateral, ACL-intact knee is unknown.

**HYPOTHESIS:** There is clinical equipoise among orthopaedic surgeons regarding prophylactic contralateral LET, with limited current acceptance but willingness to evaluate it in a clinical trial.

**METHODS:** A 25-item cross-sectional electronic survey was distributed to orthopaedic sports medicine surgeons from an international consensus meeting and a ACL research collaborative. The primary outcome was agreement with the feasibility of evaluating prophylactic contralateral LET in a clinical trial. Secondary outcomes included prior consideration, influencing factors, perceived barriers, and willingness to participate. Descriptive statistics were used.

**RESULTS:** Sixty-five surgeons responded. All were familiar with LET, and 98% currently use it during ACLR. Only 15% had previously considered prophylactic contralateral LET. Overall, 38% agreed that it would be reasonable to evaluate this strategy, while 62% were neutral or disagreed. Factors influencing consideration included knee hyperextension (73%), activity level (69%), ligamentous laxity (68%), and age (65%). Key barriers were patient willingness (91%), parent willingness (83%), insufficient evidence (78%), and ethical concerns (75%). Despite limited enthusiasm, 72% expressed willingness to participate in a clinical trial.

**CONCLUSION:** Orthopaedic surgeons demonstrate caution toward prophylactic contralateral LET, driven by ethical concerns and limited evidence. However, substantial willingness to participate in trials suggests clinical equipoise and supports prospective evaluation.

**Presenter: Yaser Tawfeeq**

### **Comparative Multiplanar Stability of First Carpometacarpal Joint Reconstruction Using a Novel Active-Motion Cadaveric Simulator**

Y.M. Tawfeeq, F. Al-Jahdali, F.L.H. Pereira, D.T. Axford, L.M. Ferreria, A. Kadar

Division of Orthopaedic Surgery

**INTRODUCTION:** Thumb carpometacarpal (CMC) osteoarthritis is commonly treated with trapeziectomy ± stabilization. While proximal–distal (PD) subsidence is the most frequently reported outcome, CMC biomechanics are inherently three-dimensional (3-D). Reconstructive constructs may differentially affect dorsal–volar (DV) and radial–ulnar (RU) stability during active motion, yet the multiplanar behavior of common reconstructions remains incompletely defined.

**HYPOTHESIS:** We hypothesized that EndoButton (EB) stabilization would provide the greatest resistance to CMC displacement following trapeziectomy due to its rigid trans–metacarpal (MC) tether. We expected trapeziectomy (Trap) alone to demonstrate the greatest multidirectional displacement, with suture-suspensionplasty (SSP) providing intermediate stability. We further hypothesized that EB constructs would exhibit the greatest RU deviation due to a mechanically altered fixation axis.

**METHODS:** Eight fresh-frozen cadaveric upper extremities (62 ffl 12 yrs) were mounted in a novel active-motion CMC simulator reproducing thumb opposition (OPP). Six tendons (FPL, FPB, EPL, EPB, APL, ADD) were tagged and routed to linear actuators to recreate physiologic force vectors. Electromagnetic sensors were placed in the distal phalanx, proximal phalanx, first MC, and radial styloid. Sequential testing was performed in five states: intact, destabilized (capsulectomy + ligamentous laxity), Trap, SSP (APL→FCR), and EB stabilization (MC1–MC2 suture tape with dual buttons). Three-dimensional displacement of the MC base relative to intact was quantified along PD, DV, and RU axes during standardized OPP cycles.

**RESULTS:** All conditions demonstrated significant displacement relative to intact ( $p \leq .011$ ) except destabilized ( $p \geq .145$ ). Trap resulted in significant dorsal and proximal migration of the first MC during OPP. SSP produced significantly less RU deviation compared with Trap and EB. EB constructs demonstrated greater off-axis displacement with increased volar and radial drift.

**CONCLUSION:** CMC reconstructions demonstrate distinct multiplanar biomechanical behavior during active thumb motion. SSP best preserved PD thumb height and demonstrated the most consistent 3-D stability. EB fixation resulted in greater non-physiologic off-axis displacement, emphasizing multiplanar analysis beyond PD subsidence.

**Presenter: Annie Wu**

**Laparoscopically Harvested Pedicled Omental Flap in Immediate Unilateral Breast Reconstruction: A Systematic Review of Surgical Techniques and Clinical Outcomes**

Annie Wu, Surabi Thirugnanasampanthar, Muriel Brackstone

Division of General Surgery

**BACKGROUND:** Although multiple autologous reconstructive options exist following oncologic breast surgery, each is limited by donor-site morbidity and prolonged recovery. The laparoscopically harvested pedicled omental flap (LHPOF) offers a minimally invasive alternative, using pliable, well-vascularized tissue to restore breast volume while minimizing donor-site complications. International studies have reported favorable aesthetic and functional outcomes with low complication rates; however, evidence remains limited and heterogeneous with respect to operative technique, outcome reporting, and follow-up. This systematic review aims to synthesize the literature on LHPOF in immediate unilateral breast reconstruction, with emphasis on operative technique, safety, and aesthetic outcomes.

**METHODS:** A systematic search of PubMed, Embase, Scopus, Web of Science, the Cochrane Library, and Google Scholar was conducted from database inception to November 2025. All study designs were eligible if they included patients undergoing immediate unilateral breast reconstruction with LHPOF. Two reviewers independently screened studies, extracted data, and assessed quality using Joanna Briggs Institute critical appraisal tools. Data synthesis was descriptive and narrative.

**RESULTS:** Preliminary screening identified 104 abstracts, with 7 studies included. Available evidence consists primarily of single-centre case series and cohort studies. Across studies, operative technique was relatively consistent, including preservation of the right gastroepiploic pedicle, laparoscopic omental harvest, and subcutaneous tunnelling to the breast. Reported rates of total flap loss were low, with successful intraoperative conversion to alternative autologous or implant-based reconstruction described when omental volume was inadequate. Studies also reported favorable aesthetic outcomes, with high patient and surgeon satisfaction and minimal donor-site morbidity.

**CONCLUSION:** Current evidence suggests LHPOF is a feasible minimally invasive option for immediate unilateral breast reconstruction. Its reproducible operative approach, low flap loss, and favorable aesthetic outcomes support further evaluation and potential adoption in North American practice.

## POSTER ABSTRACTS: PATIENT CENTERED RESEARCH

**Presenter: Tara Behtashi**

### **Buddy Taping Versus Splinting for Pediatric Volar Plate Injuries: Multisite Equivalence Observational Study (Preliminary Data)**

K. Zhang, T. Behtashi, K. Garland

Division of Plastic & Reconstructive Surgery

**INTRODUCTION:** Hand fractures are the most common fractures among Canadian children, with volar plate injuries being the most common reason for referral to plastic surgery. These injuries are typically treated non-operatively in the absence of any other complicating factors. Non-operative management of volar plate injuries includes both buddy taping and splinting. Following the previous pilot study, this multisite equivalence observational study is aimed to compare recovery outcomes across different treatment groups to help achieve evidence-based treatment consensus.

**HYPOTHESIS:** We hypothesize that there is no statistically significant difference between treatment groups for primary outcomes of range of motion (ROM) and pain.

**METHODS:** This study compared ROM and pain for different treatment groups (Group One: two-weeks splint and two-weeks buddy tape, Group Two: one-week splint and three-weeks buddy tape, Group Three: four-weeks buddy tape) across Vancouver and London. Outcome measures were assessed at the initial visit in the clinic and four-weeks post-injury for ROM and pain.

**RESULTS:** There were 26 participants from Vancouver and 8 from London: 10 in Group One, 13 in Group Two, 11 in Group Three, predominantly right-handed, without dislocations, with fractures, and less than 10% joint involvement. At initial assessment, statistically significant differences ( $p < 0.05$ ) were found between treatment groups for distal interphalangeal joint active and passive flexion, pain at rest, and pain with movement. At follow-up, statistically significant differences were not found between or within groups.

**CONCLUSION:** Preliminary findings for range of motion and pain demonstrated statistically significant differences at initial assessment but these differences disappeared by follow-up. So far, the evidence suggests that at a longer, over four-week timepoint, the non-operative treatment options appear to be equivalent in active/passive ROM and pain. We are continuing recruitment across sites for this study to further elucidate relationships between non-operative treatment modalities for pediatric volar plate injuries.

**Presenter: Lee Benaroch**

**Robotic-Assisted Versus Conventional Revision Total Knee Arthroplasty: A Matched Cohort Analysis**

LR. Benaroch, M. Ross, A. Shirzad, L. Somerville, JL. Howard, BA. Lanting

Division of Orthopaedic Surgery

**INTRODUCTION:** Robotic-assisted total knee arthroplasty has demonstrated improved alignment accuracy in primary procedures; however, its role in revision total knee arthroplasty (rTKA) remains poorly defined. Given the technical complexity of rTKA, robotic assistance may offer advantages in component positioning and soft tissue balancing.

**HYPOTHESIS:** Robotic-assisted rTKA would demonstrate comparable or improved clinical, radiographic, and economic outcomes compared to conventional rTKA without increasing perioperative resource utilization.

**METHODS:** A retrospective matched cohort study was conducted from 2022 to 2024 at a tertiary academic center. Patients undergoing rTKA were matched 1:1 based on revision procedure type, age (ff15 years), body mass index (ff15 kg/m<sup>2</sup>), and sex. Outcomes included operative metrics, length of stay, coronal alignment using the Coronal Plane Alignment of the Knee (CPAK) classification, 90-day complications, emergency department visits, readmissions, and inpatient and 90-day healthcare costs.

**RESULTS:** Seventy-four patients were included (37 per group), with similar baseline characteristics. Robotic-assisted rTKA demonstrated longer operative time (134.4 vs 120.7 minutes,  $p = 0.024$ ), with no differences in total operating room time, post-anesthesia care unit duration, or length of stay. Postoperative CPAK distributions were comparable, although a greater proportion of robotic cases maintained their preoperative phenotype (32.4% vs 16.2%,  $p = 0.176$ ). Ninety-day complications, emergency visits, readmissions, and costs were similar between cohorts.

**CONCLUSION:** Robotic-assisted rTKA demonstrated comparable short-term clinical, radiographic, and economic outcomes despite increased operative time. These findings support robotic assistance as a safe and cost-neutral strategy in complex revision knee arthroplasty, with potential technical advantages that warrant further investigation.

**Presenter: Valera Castanov**

**The Use of Electrodiagnostic Studies for Refining Indications and Measuring Outcomes Following Supercharged End-to-Side Anterior Interosseous to Ulnar Nerve Transfers**

V. Castanov, J. Mansouri, N. Wong, E. A. Bateman, D. Ross, T. Miller, J. Larocerie-Salgado, S. Pripotnev

Division of Plastic & Reconstructive Surgery

**INTRODUCTION:** Recovery of intrinsic hand function after proximal ulnar nerve injury or advanced compressive neuropathy is limited by prolonged regeneration distance and motor end-plate degeneration. The supercharged end-to-side (SETS) anterior interosseous nerve (AIN) to ulnar motor nerve transfer augments distal reinnervation, but its mechanism and optimal selection criteria remain unclear.

**HYPOTHESIS:** Dynamic electromyography (EMG) can demonstrate donor AIN contribution after SETS transfer, and preoperative electrodiagnostic (EDX) findings can predict postoperative reinnervation.

**METHODS:** We performed a retrospective cohort study of patients undergoing SETS AIN-to-ulnar motor nerve transfer (2014–2024) with  $\geq 6$  months follow-up and pre- and postoperative EDX. Outcomes included intrinsic muscle strength (BMRC), compound motor action potential (CMAP) amplitudes, and EMG evidence of nascent motor unit recruitment. Dynamic EMG during resisted forearm pronation was used to preferentially activate the donor AIN.

**RESULTS:** Ninety-three patients (mean age 62.6 years; mean follow-up 16.4 months) were included. Nascent motor unit potentials were identified in 78% of patients, and 73% demonstrated increased recruitment during resisted pronation, supporting donor-mediated reinnervation. Mean time to BMRC grade  $\geq 3$  intrinsic strength was 10–11 months. Preoperative fibrillation potentials and positive sharp waves were associated with greater likelihood of reinnervation, while diabetes and polyneuropathy were associated with reduced electrophysiologic recovery. CMAP amplitudes showed modest improvement.

**CONCLUSION:** SETS AIN-to-ulnar motor nerve transfer enables intrinsic muscle recovery with physiologic evidence of donor contribution. Dynamic EMG and preoperative EDX refine patient selection and outcome assessment, supporting a physiology-based approach to ulnar nerve reconstruction.

**Presenter: Stefano Cioffi**

**Capturing Workload and Performances in Acute Care Surgery (ACS) Through a Dedicated Registry**

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Division of General Surgery

**INTRODUCTION:** The true burden of care in Acute Care Surgery (ACS) extends far beyond operative activity. A dedicated registry can capture the true workload and help with quality metrics evaluation using a specific set of key performance indicators (KPIs). We compared the workload and performance of our ACS service across two sites, with and without protected daily operating room (OR) time.

**HYPOTHESIS:** Capturing both operative and non-operative encounters would better characterize ACS workload and assess the impact of protected OR access on performance.

**METHODS:** We conducted a retrospective study on all adult EGS patients admitted from January 1 and December 31, 2023. The KPI used as quality metrics for the comparison and performance evaluation were morbidity, mortality, failure-to-rescue, reoperation, readmission, length of stay (LOS), index cholecystectomy rates, and use of the Water-Soluble Contrast Challenge (WSCC) for small bowel obstruction.

**RESULTS:** A total of 4,105 patients were assessed: 1,908 at the non-protected OR site and 2,197 at the protected OR site. Nearly half of them were managed non-operatively and as consults. Major complications, mortality, failure-to-rescue, reoperation, and readmission were comparable. Protected OR access was associated with shorter LOS, particularly in uncomplicated biliary and low-complexity EGS conditions. Index cholecystectomy rates exceeded 85% at both sites. WSCC utilization was high but greater at the non-protected OR site (88% vs 73%,  $p < 0.01$ ).

**CONCLUSION:** A dedicated registry captures the full spectrum of operative and non-operative EGS care. Protected daytime OR access improves efficiency for low-complexity conditions without compromising outcomes and supports registry-based quality monitoring

**Presenter: Ehab Ergsous**

**Rates of Post-Operative Complications in Hirschsprung Disease: A Study by the Canadian Consortium for Research in Pediatric Surgery (CanCORPS) with Suggested Management-Based Stricture Classification**

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Division of Paediatric Surgery

**INTRODUCTION:** Morbidity and mortality following surgery for Hirschsprung disease (HD) vary widely in the literature and largely emanate from single center studies. We conducted a population-based study of postoperative complication rates in Canadian children.

**HYPOTHESIS:** We hypothesize that the rates of post-operative complications, such as stricture, anastomotic leak, and Hirschsprung-associated enterocolitis (HAEC) will be consistent with the rates reported in the literature. Additionally, we hypothesize that post-operative complications will be more common in younger age-groups.

**METHODS:** A multi-centre, retrospective review of children with HD from six Canadian Children's hospitals was performed. Data was collected between 2010 and 2022. Patients were included if they had at least six months of follow-up.

**RESULTS:** The study cohort included 227 patients. The median age at diagnosis was 1 week (interquartile range [IQR]:1-2) and 81.0% were male. The median age at time of pull-through was two months (IQR:1-7). The most common surgical approach was laparoscopic (63.2%), with the remaining procedures being open (25.5%), and transanal (11.3%). The rate of reoperation was 31.3%, of which 63.4% were minor procedures and 36.6% were major procedures. The rate of readmission was 41.4%, with the most common reason being HAEC (30.0%). Surgery-specific complications occurred in 15.0% of patients. These included stricture at 12-weeks (6.2%), anastomotic leak (0.9%), and HAEC (17.2%). Complication rates did not differ between patients who underwent surgery before or after one month of age.

**CONCLUSION:** In this Canadian population-based study, significant rates of reoperation and readmission were found, despite overall low rates of complications of HAEC, stricture and leak. A new management-based classification of stricture is proposed to aid in stratification of patients. Prospective studies will aim to validate this approach and provide more meaningful rates of postoperative complications following pull-through for HD.

**Presenter: Yueyang Li**

**A Single Center Experience of Short Term Post-Operative Outcomes of CO2 Insufflation Assisted Lobectomy (CVATS)**

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Division of Thoracic Surgery

**INTRODUCTION:** Thoracoscopic surgery is the standard of care for patients requiring lobectomy. However, there remains significant variation in the practice of thoracoscopic surgery between institutions including the use of CO2 insufflation intraoperatively. Insufflation causes derangements in postoperative blood gasses but has not been linked to adverse clinical outcomes such as ICU admission. We looked at post-operative outcomes of patients undergoing thoracoscopic surgery for primary lung cancer and compared the patients who received intraoperative insufflation (CVATS) to those that did not (VATS).

**HYPOTHESIS:** The use of CO2 insufflation on thoracoscopic lobectomy does not increase High-Grade Adverse Events (Grade > 3) including 30-day mortality, respiratory-related ICU admission, 30-day readmission, and 48-hour surgical re-exploration.

**METHODS:** A retrospective analysis was conducted on patients undergoing pulmonary lobectomy via CVATS or traditional VATS (2012– 2017). To ensure balanced comparison, a propensity score matched (PSM) analysis created a 1:1 cohort (n=142). The primary endpoint was a composite of High-Grade Adverse Events (Grade> 3), including 30-day mortality, respiratory-related ICU admission, 30-day readmission, and 48-hour surgical re-exploration. Secondary outcomes included operative duration and oncologic quality.

**RESULTS:**

- **Safety Profile:** No significant difference in high-grade adverse events was observed between groups (16.8% C-VATS vs. 19.7% VATS).
- **Statistical Analysis:** Multivariate regression (Adjusted OR 0.91; 95% CI [0.45, 1.85]; p=0.79) and PSM models (Matched OR 0.67; 95% CI [0.27, 1.62]; p=0.37) confirmed that CO2 insufflation did not increase morbidity.
- **Surgical Metrics:** C-VATS was associated with longer operative times (178.1 vs. 152.7 min, p<0.001) and higher conversion rates (24.8% vs. 11.8%, p=0.027). However, these did not adversely affect hospital length of stay or oncologic quality.

**CONCLUSION:** Postoperative outcomes were not significantly different between the VATS and CVATS groups. Our limited sample size may not be wholly representative of the effects of insufflation on postoperative outcomes and further research is needed to elucidate the effects.

**Presenter: Jonathan Lin**

**Systematic Review and Meta-Analyses of Spinal Fusion Rate: Static Versus Dynamic Plates with Bone Grafts in 1-, 2- and 3-level Anterior Cervical Decompression and Fusion (ACDF) Procedures**

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Division of Orthopaedic Surgery

**INTRODUCTION:** The extent to which static (S-) or dynamic (D-) plate design influences fusion success in anterior cervical discectomy and fusion (ACDF) remains unclear. This study compares fusion rates across plate designs.

**HYPOTHESIS:** D-plates will have higher fusion rates than S-plates in ACDF procedures as they promote more motion and loading.

**METHODS:** MEDLINE,

Embase and Scopus were searched following a registered protocol (PROSPERO: CRD420251007076). Included studies reported radiographic fusion in adult 1- to 3-level ACDFs with S-, or D-plates (translational (D-T); rotational (D-R); hybrid (D-H)) using bone graft and  $\geq 6$  months follow-up. Fusion from single-arm studies were pooled using a binomial-normal GLMM, and comparative studies were synthesized with random-effects models. Descriptive data were stratified by plate type, subtype, and no. of levels fused.

**RESULTS:** 12 studies (4 prospective, 5 low-quality, 7 very low-quality) were included. Pooled meta-analysis found a non-significant 3% lower fusion likelihood with D-plates, whereas single-arm analyses indicated higher fusion rates with D-plates (97%) vs. S-plates (91%). Fusion rate is influenced by D-plate subtype (D-T: 96%; D-R: 93%, D-H: 83%); and number of levels fused for D-plates (single-level: 94%, multi-level: 86%) but not S-plates (single-level: 90%, multi-level: 91%).

**CONCLUSION:** Plated ACDF achieves high fusion success. No consistent difference between S-plate vs. D-plate fusion rates was observed due to confounding from variability in D-plate subtypes. Caution may be required with D-plates for multi-level fusions and D-H plate designs. Detailed reporting and improved study quality is recommended to determine the true influence of plate design on fusion rate.

**Presenter: Mark Mackie**

**Liposomal Bupivacaine for Postoperative Pain Management in Adolescent Idiopathic Scoliosis Patients Undergoing Posterior Spinal Fusion: A Systematic Review and Meta-Analysis**

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Division of Orthopaedic Surgery

**BACKGROUND:** Liposomal bupivacaine (LB) is an emerging opioid-sparing local analgesic adjunct in multimodal analgesia regimens for adolescent idiopathic scoliosis (AIS) patients undergoing posterior spinal fusion (PSF). This systematic review and meta-analysis evaluates the efficacy of LB in reducing opioid consumption, hospital length of stay (LOS), and pain scores in the AIS-PSF population.

**METHODS:** A systematic search of five major databases was conducted using a predetermined search strategy to identify studies reporting the use of LB in AIS-PSF. Demographic and surgical characteristics, multimodal analgesia regimens, LB administration route, opioid consumption, LOS, and pain scores were extracted from the selected studies.

**RESULTS:** Eight retrospective articles (n=1559) met inclusion criteria. LB was associated with a statistically significant decrease in opioid consumption by 25.7 mg (95% confidence interval (CI), -44.04 to -7.36; p = 0.006, I<sup>2</sup> = 93%) total morphine equivalents and LOS by 0.39 days (95% CI, -0.67 to -0.12; p = 0.005, I<sup>2</sup> = 89%) in a pooled analysis. Select studies reported lower pain scores with LB, whereas most found no difference, and none showed inferior pain control with LB.

**CONCLUSION:** The use of LB may reduce opioid requirements and shorten hospital stay while maintaining effective and equivalent analgesia in AIS patients undergoing PSF. The extensive surgical exposure and high postoperative opioid needs in this population may make AIS patients particularly responsive to LB. Further multicentre, prospective, randomized investigations are required to better elucidate the optimal pain and opioid reduction profile of LB in this patient population.

**Presenter: Gavin Raner**

**Effect of Suture Material on Postoperative NAC Widening: A Randomized Clinical Trial (The NAC Trial)**

G. Raner, K. AlGhanim, A. Grant, S. Appleton, V. Tapias-Pedraza, J. Stein, C. Symonette, T. DeLyzer

Division of Plastic & Reconstructive Surgery

**INTRODUCTION:** Nipple-areolar complex (NAC) widening after circumareolar breast surgery is a common source of patient dissatisfaction and is correctable only through additional surgery. Despite its negative impact on patient outcomes, NAC widening remains poorly characterized. One theoretical contributing factor that has yet to be thoroughly investigated is the suture material used to close the circumareolar incision – dissolving versus non-dissolving.

**HYPOTHESIS:** One suture material is superior in minimalizing postoperative NAC widening.

**METHODS:** This randomized clinical trial compares three commonly used suture types: Monocryl (dissolving, knotted), Prolene (non-dissolving, knotted), and Stratafix (dissolving, knotless). Target recruitment is n=150 breasts by power calculation, with interim analysis planned at n=50. Eligible participants are those age ≥16 undergoing breast surgery involving a first-time circumareolar incision, excluding nipple grafts. The primary outcomes are horizontal and vertical NAC diameters measured intraoperatively and at 2 weeks, 6 weeks, 3 months, and 6 months postoperatively. Secondary outcomes include NAC complications such as infection, necrosis, dehiscence, etc. At 6 months, both patient and surgeon will complete a qualitative scar assessment.

**RESULTS:** Recruitment is ongoing and 29 patients have enrolled so far, n=12 Monocryl, n=10 Prolene, and n=7 Stratafix. Eleven have completed the 6-month follow-up period; 1 was lost to follow-up, and 2 were removed from the study due to requiring repeat breast surgery before the end of the study period. Currently, no suture has shown a statistically significant effect on NAC width, height, or area compared to the others. All sutures scored comparably on scar questionnaire outcomes.

**CONCLUSION:** As the first randomized study examining this complication, this study's findings are expected to generate strong evidence to guide suture selection and improve postoperative cosmetic outcomes in circumareolar breast surgery.

**Presenter: Alexander Valerio**

**Non-Invasive Ven-la-on and High-Flow Nasal Cannula in Pa-ents with Blunt Chest Trauma: A Systema-c Review of Morbidity Outcomes**

A Valerio, S Steven, A Makish, F Priestap, I Ball, NParry, R Hilsden, J Pace, B Mo?at, K Vogt, A Nikouline

Division of General Surgery

**INTRODUCTION:** Respiratory failure is common in adult patients with blunt chest trauma and contributes to significant morbidity and mortality. High-flow nasal cannula (HFNC) and noninvasive ventilation (NIV) are increasingly used to support oxygenation and ventilation, with uncertain effectiveness.

**HYPOTHESIS:** We hypothesized that using HFNC and NIV in a protocolized fashion post-blunt chest trauma in adult patients is effective in preventing respiratory failure.

**METHODS:** We conducted a systematic review of randomized and observational studies evaluating HFNC or NIV in adult patients with blunt thoracic trauma, reviewing abstracts and full texts in duplicate for eligibility and inclusion. The primary outcome was intubation rate; secondary outcomes included mortality and length of stay. Study characteristics, intervention details, and outcomes were extracted and risk of bias was assessed.

**RESULTS:** A total of 1,028 abstracts were screened. Five randomized controlled trials and five observation studies met inclusion criteria, enrolling over 17,500 patients across seven countries between 2004 and 2025. There was substantial clinical and methodological heterogeneity across studies. Intubation rates were consistently lower in patients receiving HFNC or NIV compared with standard oxygen therapy (0-31% compared to 10-38%), especially when these interventions are initiated early. Mortality was low overall (generally <5%).

**CONCLUSION:** HFNC and NIV appear safe and effective for reducing intubation in adult patients with blunt chest trauma. Despite heterogeneity and a predominance of observational data, the consistency of benefit underscores the need for a multicentre randomized trial to define optimal patient selection, timing and modality of noninvasive respiratory support in this population.

## POSTER ABSTRACTS: QUALITY IMPROVEMENT

**Presenter:** Hayton Chui

### Reducing Missed Doses of Venous Thromboembolism Prophylaxis in Trauma: A Quality Improvement Study

H. Chui, A. Makish, L. Bigelow, M. Melling, F. Priestap, E. Tang, T. Zwiep, K. Vogt, B. Moffat

Division of General Surgery

**INTRODUCTION:** Trauma patients are at high risk of venous thromboembolism (VTE). Prophylaxis with low-molecular-weight heparin is standard, and missed doses are associated with increased VTE events. Review at London Health Sciences Centre (LHSC) found one-third of trauma patients missed  $\geq 1$  dose.

**HYPOTHESIS:** Standardizing VTE prophylaxis (VTEp) administration time and clarifying anticoagulation-holding guidance would reduce missed doses among trauma inpatients.

**METHODS:** All trauma inpatients ( $\geq 18$  years) admitted to the LHSC for  $\geq 48$ h with pharmacologic VTEp order between January 2023 and December 2025 were included. Missed-dose data for VTEp and reasons for non-administration were extracted from electronic medical records. Missed doses percentages were calculated based on total patients or ordered doses. After a root cause analysis, trauma-related electronic order sets were reviewed to avoid inappropriate holding of anticoagulation, and VTEp timing was changed from 1000 to 2200 in June 2025.

**RESULTS:** Across all study years, the most common reasons for missed doses were “Not Appropriate at this Time” (36.4–40.1%) and “Patient Refused” (26.1–31.2%). Following VTEp timing change, the proportion of patients with  $\geq 1$  missed dose decreased from 24.9% to 21.4%. Similarly, non-administered VTEp doses decreased from 5.1% to 4.0% post-intervention. Additionally, 101 trauma-related order sets with inconsistent holding instructions were identified and are undergoing revision.

**CONCLUSION:** Early post-intervention data demonstrates a modest reduction in missed VTEp doses; however, rates remain higher than desired. Given the recency of interventions, a new post-intervention baseline may not have been reached. High rates to perceived inappropriateness and patient refusal highlight ongoing opportunities for improvement.

**Presenter: Sarah Hunt**

**Optimizing Emergency Department Management of Upper Extremity Infections Among Patients with Housing Insecurity and Substance Use at LHSC: A Quality Improvement Initiative**

S. Hunt, J. Roy, P. Patton, S. Chambers

Division of Plastic & Reconstructive Surgery

**INTRODUCTION:** Upper extremity infections carry significant risk of morbidity and loss of function. Patients with housing insecurity and substance use have poorer outcomes.

**HYPOTHESIS:** Patients with housing insecurity or substance use were more likely to leave against medical advice (LAMA), return to the emergency department (ED), have polymicrobial infections that include MRSA, and be less compliant with follow-up.

**METHODS:** A retrospective chart review of adult patients (18 years) with visit(s) to London Health Sciences Centre ED between November 1, 2024-2025, with upper extremity infections identified by ICD-10 codes was completed. Data including documented substance use and/or housing instability, wound cultures, referrals, follow-up attendance, and acute management was recorded. Descriptive statistics and odds ratios were calculated.

**RESULTS:** Half (48%) of all infections were among patients with housing insecurity or substance use. One in 10 patients left without being seen. One-third of wound cultures were polymicrobial and 51% contained MRSA. Most (83%) antibiotics covered causative organisms. Over 60% of prescriptions were filled. Patients followed up with Cellulitis Clinic (69%) more than Plastics Clinic (47%) and Hand & Upper Limb Clinic (36%). One in four patients returned to the ED. Social Work and Addictions consultation was limited. Patients with substance use and housing insecurity were more likely to LAMA or return to the ED and less likely to attend follow-up.

**CONCLUSION:** Upper extremity infections disproportionately affect patients with housing instability and substance use. Improvements that can be implemented include prescribing antibiotics that cover MRSA, encouraging consultation in the ED, and expanding social work and addictions support.

**Presenter: Nellie Krougly**

**Reducing Organ Transplant Case Length Through a Radiology Pathway Optimization: A Single-Centre Quality Improvement Initiative**

N. Krougly, C. Zhang, M. Slessarev, J. Basmaji, J. Taylor, N. Paul, J. E. Tang

Division of General Surgery

**INTRODUCTION:** Organ transplantation is life-saving for patients with end-stage organ failure. Case length, defined as time from donor consent to recipient surgery, has been steadily rising across Canadian Institutions<sup>1</sup>. A full process map of the donation and transplantation pathway was developed with key stakeholders<sup>2</sup>. CT imaging turnaround time was identified as a modifiable source of delay in the pre-operative workup.

**HYPOTHESIS:** To reduce organ transplant case lengths at LHSC by 30% by December 2026, beginning with optimizing CT workflow.

**METHODS:** Baseline CT turnaround times, defined as time from order entry to finalized radiologist report, and time-of-day ordering patterns were analyzed. A standardized reporting template for transplant-related CTs was co-developed with our Specialists in Organ and Tissue Donation and radiology clinicians. Turnaround targets were established: scans performed before 22:00 finalized by 23:00; scans performed after 22:00 finalized by 08:00 the following morning. Both interventions were implemented in January 2026.

**RESULTS:** Forty-four CT scans from 2024-2025 donors were analyzed pre-intervention. Median baseline turnaround time was 209.5 minutes (mean 437.2 minutes), with 70% compliance with both turnaround targets. Preliminary post-intervention data (n=4) show 75% turnaround compliance, 100% order entry citing organ donation as indication, and 75% radiology template utilization. Full results are anticipated prior to the conference.

**CONCLUSION:** CT imaging turnaround is a modifiable contributor to transplant case length. Standardized reporting and protocolized order entry are feasible initial interventions. Future efforts will focus on scan prioritization and timing optimization to sustain reductions in overall case duration.

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**Presenter: Rachel Peet**

## **Reducing Low-Value Bloodwork After Colorectal Surgery: A Triple Bottom Line Approach to Sustainable Surgical Care**

R. Peet, J. Vandenheuvel, T. Zwiep

Division of General Surgery

**INTRODUCTION:** Routine post-operative laboratory tests after colorectal surgery are rarely abnormal or clinically actionable. Despite this, routine bloodwork is embedded in many postoperative order sets. Unnecessary bloodwork increases resource use, environmental impact, and negative patient-centered outcomes.

**AIM:** To reduce unnecessary post-operative bloodwork by 50% for elective colorectal surgery patients within 1 year.

**METHODS:** After completing a root cause analysis, colorectal Enhanced Recovery After Surgery (ERAS) order sets were modified to include routine morning bloodwork on post-operative day one only. Quantity of bloodwork complete, estimated carbon dioxide (CO<sub>2</sub>) emissions and cost were assessed pre- and post- implementation through the hospital electronic medical record. Balancing measures were obtained from the National Surgical Quality Improvement Program (NSQIP) registry including length of stay, readmission rate, anastomotic leak and reoperation rates. A post-implementation feedback survey was distributed.

**RESULTS:** Streamlining of colorectal ERAS order sets reduced per-patient laboratory testing by more than 20%, translating to an annual cost savings of \$3367, 56.4 kg reduction in CO<sub>2</sub> emission and 13.8 staff hours saved on venipuncture procedures. Preliminary postimplementation survey results indicate some persistent variability in ordering practices driven by trainee fear of missed complications.

**CONCLUSION:** Targeted optimization of colorectal ERAS order sets resulted in greater than 20% decrease in quantity of bloodwork complete, number of phlebotomies, cost and CO<sub>2</sub> emissions for patients undergoing elective colorectal surgery. These findings support high-value, environmentally sustainable perioperative care and highlight the importance of addressing cultural drivers of over-ordering to sustain this practice.

**Presenter: Rosemary Stanoev**

**Opioid Withdrawal in Hospitalized Trauma Patients: a Quality Improvement Initiative**

R. Stanoev, K. Vogt, B. Moffat, A. Makish, F. Priestap

Division of General Surgery

**INTRODUCTION:** Opioid use disorder (OUD) is highly prevalent among trauma patients and is associated with increased risk of “leaving against medical advice” (LAMA), morbidity, and one-year mortality. In 2022, the LHSC Trauma Program introduced a standardized Powerplan to improve management of opioid withdrawal.

**HYPOTHESIS:** Implementation of a standardized opioid withdrawal Powerplan will increase addictions medicine consultations.

**METHODS:** Adult trauma patients with OUD admitted to our Lead Trauma Centre pre- (December 2021 – September 2022) and post-intervention (December 2023 – November 2025) were included. The main outcome was addictions medicine consultations. Process measures included: rates of LAMA, Powerplan initiation, and return to emergency department (ED). Naloxone administration was a balancing measure. Fisher’s exact test and SPC control charts were used for analysis.

**RESULTS:** Sixty-one patients with OUD were identified: 22 (36.1%) pre-intervention, and 39 (63.9%) post-intervention. The Powerplan was utilized for 25 patients (64.1%). Patients were predominantly male (80.3%), with a mean age of 39.7 years (SD = 10.2), and 54.1% had no fixed address. The most common injury mechanism was motor vehicle collision (47.5%), with mean injury severity score of 13.2 (SD = 7.7). Addictions medicine consultations were significantly increased post-intervention (84% vs 19.4%,  $p < 0.0001$ ). Powerplan usage increased rates of opioid agonist therapy initiation (53.8% vs. 5.9,  $p = 0.003$ ). LAMA rates (19.7%,  $p = 0.546$ ) and return to ED (24.6%,  $p = 0.783$ ), were similar between groups. No patients required naloxone.

**CONCLUSION:** Management of opioid withdrawal in trauma patients is safe and improves engagement with addictions medicine services and initiation of opioid agonist therapy.

**Presenter: Jennifer Wong**

**Office-Based Versus Operating Room Circumcision: A Comparative Cost Analysis**

J. Wong, J. Campbell

Division of Urology

**INTRODUCTION:** Circumcision is a commonly performed urologic procedure that may be undertaken in either an office setting using local anesthesia or in the operating room under general anesthesia. This study compares the direct procedural costs of office-based versus operating room circumcision.

**HYPOTHESIS:** We hypothesized that office-based circumcision performed under local anesthesia would be associated with significantly lower procedural costs compared to circumcision performed in the operating room.

**METHODS:** A retrospective cost analysis was conducted of patients undergoing elective circumcision by a single urologist at a single institution between April 1, 2023 and September 30, 2025. Operating room costs were derived from facility fees, supplies, personnel, and perioperative care. Office-based costs were estimated by excluding operating room–specific expenditures from total operating room costs. Surgeon and anesthesiologist billing fees were not included. Demographic and clinical characteristics were collected to assess group comparability. The primary outcome was total procedural cost.

**RESULTS:** A total of 110 circumcisions were included, with 60 performed in the operating room and 50 in the office. Mean patient age was similar between groups. Mean cost per case was \$2,957 in the operating room versus \$1,400 in the office, representing savings exceeding \$1,500 per case. Thirty-day return visits occurred in 5.6% of operating room patients and 10.2% of office patients. Complications were predominantly Clavien-Dindo grade I–II, with one grade IIIb complication in the office group.

**CONCLUSION:** Office-based circumcision is a safe and cost-effective alternative to operating room procedures, offering substantial cost savings and improved operating room resource utilization.

**Presenter: Kathy Zhang**

**Environmental Impact and Cost Associated with Surgical Field Preparation for Cleft Lip & Palate Repair: A Quality Improvement Project**

K. Zhang, T. Behtashi, K. Garland

Division of Plastic & Reconstructive Surgery

**INTRODUCTION:** Perioperative preparation is a standard surgical practice to reduce risks of surgical site infections (SSIs), yet not all organisms lead to SSIs. This is further complicated by the symbiotic commensal microbiome of the oral mucosa. There is evidence suggesting reduced prep for procedures in the mouth can reduce waste without compromising outcomes.

**AIM/HYPOTHESIS:** The aim was to reduce the cost from cleft lip/palate repairs locally by 10% this year via six months of reducing the amount of excess consumable material used for surgical field preparation. We hypothesize that the aim can be achieved without significant adverse effects for patients.

**METHODS:** The QI change was implemented in July 2025. Outcomes reviewed and calculated included consumables cost and environmental impact (via an economic input-output life-cycle assessment approach). Process and balancing measures were reviewed for six-month periods before the implemented change (i.e. standard prep from January-June 2025) and after (i.e. reduced prep from July-December 2025).

**RESULTS:** Twenty-five patients were in the standard prep group, 15 patients in the reduced prep group. There were no immediate or one-month follow-up SSIs reported following the change. Total cost in 2025 was \$7958.30 (\$5363.75 from January-June, \$2594.55 from July-December). Changes from standard to reduced prep led to \$41.58 savings per case. Estimated annual impact via standard prep was 3175.20 kgCO<sub>2</sub>e versus 2944.50 kgCO<sub>2</sub>e for reduced prep.

**CONCLUSION:** Total savings this year was 7.3% compared to a case-equivalent year of entirely standard prep. A full year of reduced prep is projected to be 19.4% in savings compared to a full year of standard prep. Although the aim of 10% in savings was not achieved for the calendar year of 2025, the PDSA cycle from this QI demonstrated an effective change of cost savings and environmental impact without compromising patient safety and outcomes. The evidence and implications are meaningful for resource management in large-scale global CL/P missions where cost, procurement, and space are crucial constraints to mission success.

## POSTER ABSTRACTS: SURGICAL EDUCATION

**Presenter:** Khalifa AlGhanim

### **Meta Smart-Glasses for Surgical Feedback and Evaluation: A New Era in Surgical Training**

K. AlGhanim, K. Zhang, J. Wong, J. Stein

Division of Plastic & Reconstructive Surgery

**BACKGROUND:** Operative feedback remains one of the weakest links in surgical training—often subjective, delayed, and limited by real-time observation. While entrustable professional activities (EPAs) provide structured assessment, they lack objective visual reference to technical performance. Wearable point-of-view (POV) video capture using Meta smart-glasses offers a low-cost, convenient solution and potential paradigm shift by enabling time-anchored, reviewable assessment of operative technique.

**HYPOTHESIS:** Wearable POV video assessment using Meta smart-glasses provides concordant evaluation with traditional in-person assessment while improving feedback specificity, objectivity, and educational value.

**METHODS:** A prospective feasibility pilot was conducted in reduction mammoplasty cases (n=10) performed by plastic surgery residents (PGY2–5). IRB exemption was obtained. Residents wore Meta smart-glasses during pre-operative markings and intra-operative steps. Attending surgeons completed standardized rubric-based assessments (EPAs) on the Elentra platform. Video segments were anonymized and reviewed within 72 hours by blinded faculty. Primary outcomes included feasibility and concordance between live and video-based assessments. Secondary outcomes included feedback quality, timeliness, and perceived educational value.

**RESULTS:** Interim analysis demonstrates seamless integration of wearable technology into operative workflow with consistent high-quality video capture across key procedural steps. All recorded cases underwent dual assessment within 72 hours. Early comparison shows strong agreement between in-person and video-based scoring across technical domains. Video review enabled more granular, time-specific feedback, identifying technical nuances not consistently captured during live assessment. No workflow disruptions, technical failures, or privacy concerns were observed.

**CONCLUSION:** Wearable technology-based evaluation is feasible, reliable, and enhances feedback specificity. This approach represents a shift toward objective, video-supported surgical training, with potential for AI-assisted feedback and broader implementation across surgical education.



**Presenter: Maddy Dusick**

**Through their Lens: Capturing the Experiences of Surgeon Mothers Using Photovoice**

**Methodology**

M. Dusick, C. Gaudet, J. Davidson, A. De Luca, N. Seemann

Division of Paediatric Surgery

**INTRODUCTION:** Surgical training and early career inevitably coincide with optimal family building years. Known barriers to motherhood for surgeons include unclear policies and pressure to return to work early. This qualitative study aimed to further elucidate surgeon mothers' experiences within surgical culture.

**HYPOTHESIS:** Unique barriers exist for surgeons pursuing motherhood, complicating pursuit of both goals.

**METHODS:** This study utilized photovoice methodology, a unique research tool allowing participants to tell their stories visually. Surgeons submitted photos capturing their lives as surgeon mothers, then completed interviews reflecting on these images. Data were analyzed using a reflexive thematic approach.

**RESULTS:** Eleven surgeons across subspecialties participated. The first theme captured tension between surgeon and mother identities. Participants felt the demands of each role often conflicted, despite the mutually beneficial traits developed in each. This tension prompted a reorganization of values and an acceptance that being a surgeon mother requires compromise. The second theme highlighted a broader surgical culture not conducive to motherhood, experienced both implicitly and explicitly. Participants described unsupportive leadership and colleagues, reflecting a rigid surgical culture resistant to their needs. The third theme was resistance to this unsupportive culture, which rendered their identities tenuous. Participants rejected the notion that being a surgeon and a mother were unreconcilable, leading to a reflexive turn to mentorship.

**CONCLUSION:** This study offers new insight into how surgeon mothers have navigated two identities in a culture not originally designed for them. This has resulted in compromise but also deepened empathy and mentoring for future surgeon mothers.

## ABSTRACTS FOR AWARD WINNING RESIDENT/FELLOW RESEARCH PAPERS

### Presenter: Mathieu Rheault-Henry

Division of Cardiac Surgery

#### Clinical Impact of Surgical Urgency on Mitral Valve Repair Outcomes: Real-World Insights from the MITRACURE International Registry

M. Rheault-Henry, M.W. A. Chu, D. Messika-Zeitoun, J. Dreyfus for the MITRACURE investigators.

**BACKGROUND:** Mitral valve (MV) repair is the preferred surgical treatment for mitral regurgitation (MR) when feasible. However, many patients present under urgent or emergent conditions, and the impact of surgical urgency on MV repair feasibility and early outcomes remains incompletely defined. We sought to evaluate the association between surgical urgency and clinical outcomes using a large international registry.

**METHODS:** MITRACURE is a retrospective multicentre observational registry including 3,653 adult patients undergoing first-time isolated or combined MV surgery for MR across 40 centres in Canada and France in 2019. Patients were stratified by Society of Thoracic Surgeons urgency definitions as elective, urgent, or emergent/salvage. The primary outcome included in-hospital mortality. Secondary outcomes included hospital length of stay, major complications, MV repair success and conversion to valve replacement

**RESULTS:** 3,012 patients underwent elective surgery, 459 urgent surgery, and 182 emergent surgery. Increasing urgency was associated with lower MV repair rates (66.6%, 42.6%, and 31.3%), higher conversion to replacement (6.5%, 12.2%, and 14.9%), higher mortality (3.3%, 10.2%, and 15.9%), and more major complications (23.4%, 42.7%, and 54.9%). This stepwise risk gradient persisted across age strata and within both myxomatous and non-myxomatous disease. After adjustment, emergent surgery remained independently associated with mortality and major complications, whereas urgent surgery was not. MV repair was independently protective for mortality and major complications. The impact of urgency was most pronounced in degenerative MR.

**CONCLUSION:** In this large international cohort, nearly one in five patients underwent non-elective MV surgery. Surgical urgency was strongly associated with lower repair rates and worse in-hospital outcomes, while MV repair remained protective. These findings highlight the importance of early referral and timely elective intervention in patients with MR to optimize repair feasibility and improve clinical outcomes.

**Presenter: Dyanna Melo**

Division of General Surgery

**The Implementation of a Standardized Clinical Pathway for The Management Of Retained Hemothorax After Discharge**

D. Melo, D. Cui, M. Ahmed, L. Allen, A. Makish, F. Priestap, B. Moffat, N. Parry, R. Malthaner, R. Nayak, K. Vogt

**BACKGROUND:** Retained and/or recurrent hemothorax (RH) after thoracic injury increases the risk of complications such as fibrothorax, empyema, or pneumonia. Data on post-discharge RH incidence is scarce. This study evaluated a standardized clinical pathway for managing RH after discharge in the trauma follow-up clinic.

**METHODS:** We conducted a prospective cohort study included all patients with thoracic trauma presenting to follow-up trauma clinic (June 2024 - August 2025). A pleural volume score based on chest x-rays and clinical symptoms guided management. Primary outcomes included RH incidence, intervention rates, and complications.

**RESULTS:** Of the 247 enrolled patients, only 1 required operative management during index admission. At follow-up, 67 (27.1%) had RH, though only 8 (11.9%) were symptomatic. Sixty-two patients (92.5% of RH cases) were managed with observation. Five patients (7.5% of RH cases) required chest tube reinsertion and readmission (median 4.5 days). No patients required tPA or surgery, and no complications (empyema, fibrothorax, pneumonia) occurred.

**CONCLUSION:** The current study represents the first attempt to examine the incidence of RH and impact of implementing a standardized clinical pathway for patients with RH after hospital discharge. Despite a high incidence of post-discharge RH, the majority of patients were successfully managed without intervention. Our study supports the use of a standardized clinical pathway to facilitate safe outpatient observation for the management of RH. Current guidelines may overestimate the need for invasive intervention in post-discharge RH.

**Presenter: Alexandra Rocha**

Division of Orthopaedic Surgery

**Kinetics and Kinematics on Cadaveric Native ACL Following Lateral Extra-Articular Tenodesis**

A. Rocha, C. Hewison, M. Free, R. Willing, R. Degen, D. Bryant, A. Getgood

**INTRODUCTION:** Anterior cruciate ligament (ACL) injuries remain a devastating knee injury, with ACL reconstruction (ACLR) failure rates of 10% for ipsilateral graft rupture and up to 20% for contralateral tears. Lateral extra-articular tenodesis (LET) reduces rotatory laxity and graft failure in high-risk populations. However, its potential prophylactic role in protecting the contralateral ACL remains unknown. No prior studies have evaluated the biomechanical effect of LET on an intact ACL.

**HYPOTHESIS:** This cadaveric study will provide proof-of-concept data on the influence of LET in ACL-intact knees.

**METHODS:** Ten paired fresh-frozen cadaveric knees were randomized to undergo either a modified Lemaire or modified Ellison LET. Specimens were tested in three states: native ACL-intact knee, post-LET, and post-ACL transection with LET reversal. Knees were mounted on a joint motion simulator and tested at 0°, 30°, 60°, and 90° of flexion under various force and torques. Outcomes included anterior translation, internal rotation displacement, ACL force, and ACL torque.

**RESULTS:** Post-LET knees demonstrated either no increase in constraint or reduced loading compared to native knees. Internal rotation displacement was reduced in the Lemaire group at multiple flexion angles. ACL force during anterior loading was reduced following both LET techniques, with more consistent reductions seen in the Lemaire group. ACL torque during internal rotation and combined loading was also reduced. Reversal testing confirmed expected load reduction, validating the model.

**CONCLUSION:** LET demonstrated an ACL offloading effect in intact knees, supporting its biomechanical plausibility as a prophylactic strategy. Further in vivo research is required before clinical application.

**Presenter: William Berecz**

Division of Paediatric Surgery

**The Morning Huddle: Introducing a Multidisciplinary Morning Huddle to Improve OR Efficiency Using a Triple Bottom Line Lens**

W. Berecz, C. Henshaw, J. Vandenheuval, J. Davidson, A. Chowdhury, T. Antrobus, J. Strychowsky, J. Lam

**INTRODUCTION:** Currently, there is no formal morning huddle or standardized pre-operative briefing in the pediatric surgery operating rooms (ORs). This can contribute to preventable issues related to instrument delays, team readiness, logistical concerns, and avoidable resource waste. The purpose of this project was to improve the rate of first-case on-time starts by developing and implementing a formal, multidisciplinary, morning huddle within paediatric surgery.

**METHODS:** The goal of this quality improvement project was to improve first-case on-time starts by 20% in paediatric surgery ORs within 6 months (August 2026). Baseline data was collected from April 2025 to January 2026. Provider feedback surveys were sent out in January 2026. The first iteration of the standardized huddle was implemented in February 2026. In-person audits are currently ongoing.

**RESULTS:** Baseline data showed that only 63.4% of paediatric ORs began on time, with the most common reasons for late starts included: anesthesia delay (34.5%), surgeon unavailable (23.3%), patient factors (16.2%), and hospital resource issues (19.0%). Survey results showed that 54.3% of perioperative staff felt that a morning huddle had no/slight value in helping to reduce first-case late starts. Despite the hesitation around morning huddles, our post-implementation audits have shown a 15.6% improvement in the rate of on-time starts (current rate: 79.0%), with the rate of late starts in February at 17.0% and March at 25% across paediatric ORs.

**CONCLUSION:** Despite the skepticism around its benefit, the implementation of a standardized huddle appears to improve the rate of late starts. Our team will continue to adapt and refine our morning huddle protocol to sustain our initial improvements.

**Presenter: Sasha Létourneau**

Division of Plastic &amp; Reconstructive Surgery

**Earlier Intervention Leads to Improved Electrodiagnostic Outcomes in Patients Undergoing Anterior Interosseous Nerve to Ulnar Motor Branch Transfer: A Single-Centre 10-Year Retrospective Cohort Study**

S. Létourneau, S. Park, J. Larocerie-Salgado, E.A. Bateman, T. Miller, D. Ross, S. Pripotnev

**PURPOSE:** End-to-side anterior interosseous nerve to ulnar motor nerve transfer (AIN-to-UMNT) is widely used as an adjunct in the management of severe ulnar neuropathy.<sup>1</sup> Nerve transfer timing is important as irreversible motor end plate degeneration occurs within 12-18 months of denervation.<sup>2,3</sup> Given prior evidence suggesting ulnar nerve decompression and AIN-to-UMNT within 12 months provides superior clinical recovery,<sup>4</sup> this retrospective cohort study aimed to investigate the impact of pre-operative symptom duration on electrodiagnostic and clinical recovery.

**METHODS:** We reviewed all patients undergoing AIN-to-UMNT at a single centre from 2013 to 2023. We included patients with pre- and post-operative electrodiagnostic studies at  $\geq 6$ -month follow-up. We collected demographic and surgical characteristics and electrodiagnostic and clinical data. Patients were stratified into acute ( $\leq 12$  months) and chronic ( $> 12$  months) groups defined by time from symptom onset to surgery. Clinical and electrodiagnostic recovery outcomes were compared between groups using descriptive and statistical analysis.

**RESULTS:** Among 117 AIN-to-UMNT patients included, 42 (35.8%) underwent AIN-to-UMNT within 12 months (Table 1). Demographic and surgical characteristics were similar between groups, except for significant differences in symptoms duration and neuropathy etiology, with the acute group demonstrating a higher proportion with a traumatic etiology. Although the acute group demonstrated significantly lower ADM CMAP amplitudes pre-operatively, they had significantly greater recovery at all post-operative timepoints. A similar, although non-significant, trend was seen in FDI. Groups did not differ significantly in terms of proportion of patients with nascent motor units at any post-operative time point. Clinically, there was no significant difference in terms of the proportion of patients with anti-gravity muscle strength pre-operatively or at any follow-up timepoint.

**CONCLUSION:** Electrodiagnostic but not muscle strength outcomes of AIN-to-UMNT are superior when surgery is performed within 12 months of symptom onset.

**Table 1:** Patient demographic and surgical characteristics stratified based on symptom duration

		Acute ( $\leq 12$ months)		Chronic ( $> 12$ months)		p-value*
		n	%	n	%	
Patients		42	100	75	100	-
Injury Type	Compressive	14	57.1	53	89.5	<b>&lt;0.001**</b>
	Inflammatory	2	4.8	0	0.0	
	Post-traumatic	15	38.1	8	7.5	
	Hereditary	0	0.0	3	3.0	
	Multifactorial	11		11		
Symptom Duration (months, mean $\pm$ SD)		7.8 $\pm$ 2.7		39.3 $\pm$ 33.0		<b>&lt;0.05*</b>
Mean follow-up duration (months, mean $\pm$ SD)		16.1 $\pm$ 5.8		14.9 $\pm$ 7.2		>0.05*
Age (years, mean $\pm$ SD)		59.3 $\pm$ 16.9		61.5 $\pm$ 11.6		>0.05*
Body Mass Index (mean $\pm$ SD)		28.9 $\pm$ 5.2		30.2 $\pm$ 6.6		0.42*
Sex (male)		31	73.8	56	74.7	>0.05**
Dominant Hand Affected		26	63.4	46	61.3	>0.05**
Smoking		7	16.7	22	29.3	>0.05**
Hypothyroidism		8	19.0	9	12.0	>0.05**
Diabetes Mellitus		10	23.8	25	33.3	>0.05**
History of Diabetic Polyneuropathy		3	7.1	11	14.7	>0.05**
Transposition Performed		30	71.4	63	85.1	>0.05**
Guyon's Canal Release		30	71.4	41	54.7	>0.05**
Tourniquet time (minutes, mean $\pm$ SD)		78.5 $\pm$ 100.4		93.2 $\pm$ 26.5		>0.05*

SD: standard deviation

\*Mann-Whitney U-test; \*\*Chi-square test or Fisher's Exact Test

**Table 2:** Pre-operative and post-operative electrodiagnostic and clinical outcomes at 6-month, 12-month and 18-month follow-up for adductor digiti minimi and first dorsal interosseus stratified by symptom duration

		Abductor Digiti Minimi		First Dorsal Interosseus	
Symptom Duration		Acute	Chronic	Acute	Chronic
Mean pre-operative CMAP amplitude (mV)	Mean	1.3*	2.3	1.2	1.7
	SD	± 2.2	± 2.6	± 1.1	± 2.4
Mean CMAP amplitude change at 6-month follow-up (mV)	Mean	0.2*	-0.5	0.3	-0.1
	SD	± 1.5	± 1.2	± 1.5	± 1.4
Mean CMAP amplitude change at 12-month follow-up (mV)	Mean	1.0*	-0.3	0.5	0.2
	SD	± 2.2	± 1.5	± 1.5	± 2.8
Mean CMAP amplitude change at 18-month follow-up (mV)	Mean	2.5*	0.3	1.8	0.1
	SD	± 3.2	± 1.7	± 2.3	± 1.9
Proportion (%) of patients with anti-gravity (BMRC ≥3) muscle strength	Pre-operatively	22.2**	58.3	27.0	42.9
	6-month follow-up	37.9	42.9	41.1	40.7
	12-month follow-up	64.0	75.7	55.6	59.0
	18-month follow-up	84.2	80.0	68.4	70.6

CMAP: compound muscle action potential; mV: millivolts; SD: standard deviation; BMRC: British Medical Research Council

\*Mann-Whitney U-test, p<0.05

\*\*Chi-square test, p<0.05

**Presenter: Ge Shi**

Division of Thoracic Surgery

**Mastering Difficult Thoracic Exposure: Six-Year Experience of Canada's First Dedicated Wet Anatomy Lab Curriculum for Thoracic Surgery Trainees (TS-DiSEC)**

G. Shi, T. Beveridge, M. Qiabi

**INTRODUCTION:** Thoracic surgery training relies largely on graduated intraoperative responsibility to achieve operative competency. Consequently, trainees may complete residency with limited exposure to uncommon but critical procedures such as proximal pulmonary artery control and Pancoast tumor resection. Simulation-based education, particularly cadaveric laboratories, offers a high-fidelity environment for deliberate practice. However, no longitudinal cadaveric thoracic surgery curriculum dedicated to difficult surgical exposure has previously been described in Canada. To address this gap, we developed the Thoracic Surgery Difficult Surgical Exposure Course (TSDiSEC) and report our six-year experience evaluating its educational impact.

**HYPOTHESIS:** A dedicated cadaveric surgical exposure course improves trainee confidence and perceived competence in complex thoracic procedures.

**METHODS:** TS-DiSEC was conducted biannually from 2020–2025. Post-lab evaluations assessed demographics, baseline exposure, and perceived educational value. Comfort levels before and after the lab were measured (Likert-scale) and compared using Wilcoxon signed-rank testing. Descriptive statistics summarized survey responses and qualitative comments.

**RESULTS:** Sixteen evaluations were collected. Baseline exposure to complex thoracic approaches was minimal. Trainees demonstrated improved confidence, knowledge, and technical ability across 12 surgical exposures, with statistically significant improvements in comfort performing 6 procedures ( $p < 0.05$ ). Eighty-one percent felt the course required no modifications, and 94% strongly agreed it was a valuable training tool. Learners described the lab as realistic, level-appropriate, and recommended it to peers.

**CONCLUSION:** TS-DiSEC is the first longitudinal cadaveric thoracic surgery curriculum in Canada. It demonstrated measurable improvements in trainee confidence and perceived competence, and represents an effective adjunct to traditional thoracic surgery training.

**Presenter: Heather Rotz**

Division of Urology

**Cost Comparison of Reusable and Disposable Flexible Ureteroscopes at a Canadian Academic Centre**

H. Rotz, J. Denstedt

**BACKGROUND:** Flexible ureteroscopy is a high-volume urologic procedure increasingly performed using either reusable or single-use disposable digital ureteroscopes. While clinical outcomes between devices appear equivalent, the relative cost-effectiveness of reusable versus disposable scopes remains uncertain and may depend heavily on institutional factors such as case volume, repair burden, and reprocessing infrastructure.

**OBJECTIVE:** To compare the cost of reusable and disposable flexible ureteroscopes at a Canadian academic centre and identify the major drivers of cost.

**METHODS:** A micro-cost analysis was performed using institutional data from St. Joseph's Hospital, London, Ontario. Ureteroscopy case volumes were obtained from administrative records. Acquisition costs for reusable ureteroscopes, image processing equipment, sterilization infrastructure, reprocessing disposables, labor, and repairs were obtained from hospital procurement and maintenance data. Costs were amortized over the expected lifespan of equipment. Disposable scope pricing was obtained from current institutional purchasing data. Sensitivity analyses were performed evaluating the effect of scope durability on cost per case.

**RESULTS:** In 2025, 642 ureteroscopy cases were performed. The reusable fleet consisted of 10 digital ureteroscopes with an average repair frequency of 0.9 repairs per scope per year, corresponding to approximately 64 uses between repairs. Estimated reusable scope lifespan was 464 cases before retirement. Total modeled cost per case for reusable scopes was approximately \$285 compared to \$550 per case for disposable scopes. Repair costs were the dominant contributor to reusable scope cost, accounting for approximately \$163 per case. Sensitivity analysis demonstrated that reusable scope costs increased substantially as durability worsened, with cost equivalence to disposable scopes occurring at approximately 21 uses between repairs.

**CONCLUSION:** At our institution, reusable digital ureteroscopes appear substantially more cost-effective than disposable alternatives. Cost-effectiveness was highly dependent on procedural volume and scope durability, with repair frequency representing the major driver of cost. A hybrid strategy using disposable scopes selectively for high-risk or complex cases may further optimize overall cost efficiency.

**Presenter: Rudra Pandya**

Division of Vascular Surgery

**Anatomic Sex Differences in Acute Type B Aortic Dissection**

A. Ahmed, R. Pandya, O. Scallan, J. Landau, S. Smith, L. Dubois, A. Power, A. Duncan

**INTRODUCTION:** Sex differences in morbidity and mortality are well-established in Type-A aortic dissections, but sex-based literature on Type-B aortic dissection (TBAD) remains scarce. Per current SVS/STS guidelines, high risk anatomic features of TBAD inform decision-making for management. This study investigates sex related differences in anatomic features of TBAD.

**METHODS:** This is a single-centre retrospective-cohort study of all patients presenting with acute TBAD at our institution from 2002–2022. Data included computed tomography angiogram (CTA) from patient's initial presentation evaluated using TeraRecon software. Sex differences were characterized using univariate statistics to evaluate anatomic differences. Data collection included dissection complications, in-hospital mortality and 5-year mortality.

**RESULTS:** A total of 156 patients were included. Fewer females experienced TBAD (n=57 vs. n=99), but no significant sex differences were seen in age and presenting features. Comorbidities were similar. Anatomically, females were more likely to have a DeBakey IIIa morphology (female 45%, male 11%,  $p<0.001$ ), less entry tears (female 1[1-2], male 2[1-3],  $p<0.001$ ), shorter false lumen length (cm, female 25.5[15.0-33.8], male 1[0-3],  $p=0.002$ ). Men had more high-risk imaging findings per SVS/STS classification, i.e. higher likelihood of maximum tear length  $>1$  cm (female 21%, male 37%,  $p=0.035$ ), but no significant differences were found in maximal aortic diameter or radiographic malperfusion. On follow up (months, overall 20 [12 – 478]), there were no significant differences in interval aortic growth, dissection propagation or false lumen thrombosis, and rates of operative (re)intervention and long-term mortality were comparable between sexes.

**CONCLUSION:** Anatomic differences in acute TBAD exist between males and females, with males presenting with more extensive dissections and higher-risk imaging features. Based on this review, females have anatomically favourable TBAD compared to males, and any sex-based differences in TBAD outcomes should not be attributed to anatomic differences.

## MSc IN SURGERY COLLOQUIUM PRESENTATION

**Presenter: Ali Alsayegh**

Division of Orthopaedic Surgery

### Ergonomics of TKA in Learners

**BACKGROUND:** Total knee arthroplasty (TKA) imposes sustained musculoskeletal demands on the operating surgeon and is a recognised source of work-related injury in orthopaedic surgery. CAS was rapidly adopted and widely assumed to ease this physical burden, yet its ergonomic effect has been studied almost exclusively in attending surgeons using small and methodologically heterogeneous samples. The experience of surgical trainees, who perform much of the operative work during training, remains uncharacterised. This study compared the physical and cognitive ergonomic load of computer-assisted (CAS) and conventional TKA (cTKA) in orthopaedic fellows and residents.

**METHODS:** In a prospective, observational cohort at a single academic arthroplasty centre, 49 primary TKA procedures performed by 11 surgical learners (7 fellows, 4 residents) were instrumented across four platforms (cTKA, n = 23; VELYS, n = 15; ROSA, n = 7; CORI, n = 4). Wearable inertial measurement units quantified postural exposure through the SenzOne composite score, repetitive strain index (RSI) body-region scores, and Rapid Upper Limb Assessment (RULA) zone-time distributions. The NASA Task Load Index (NASA-TLX) and Nordic Musculoskeletal Questionnaire (NMQ) captured perceived workload and musculoskeletal symptoms, respectively. Operative time was decomposed into discrete procedural phases. Non-parametric tests were applied throughout with Benjamini–Hochberg correction; cluster-aware mixed-effects models were fitted for the four primary outcomes.

**RESULTS:** Musculoskeletal discomfort was common: 79% of cases reported symptoms at one or more sites, most often the lower back (33%). CAS and cTKA did not differ in SenzOne composite score, RSI body-region exposure, RULA postural risk, or total NASA-TLX cognitive workload at the composite level, and total surgical time was equivalent (CAS median 77 vs cTKA 76 min,  $P = .82$ ). CAS cases were faster during bone cutting (median 14.5 vs 22.0 min,  $P < .001$ ,  $r = 0.67$ ) and trialling (32.0 vs 40.0 min,  $P = .029$ ), but these savings were offset by the CAS-only digitisation phase (median 12.0 min), leaving total operative time unchanged. On the VELYS platform specifically, learners reported significantly better self-rated performance and lower Temporal Demand compared with cTKA. Platform identity did not predict any primary outcome in cluster-aware mixed-effects models. Operator-related factors were the dominant sources of variance: baseline stress predicted intraoperative cognitive workload ( $\rho = +0.78$ ,  $P = .005$ ) and accumulated experience was inversely associated with back-region loading ( $\rho = -0.63$ ,  $P = .04$ ). Between-learner clustering accounted for 40% of variance in perceived workload and 10–13% in objective strain composites.

**CONCLUSION:** CAS did not reduce the physical or cognitive ergonomic burden of TKA for surgical trainees at the composite level, but redistributed operative effort across phases rather

than eliminating it. VELYS demonstrated advantages in cutting speed and self-rated performance, with a suggestive reduction in Temporal Demand. Ergonomic load was more strongly determined by the individual learner, their training stage, body dimensions, and pre-operative cognitive state than by surgical platform. These findings are observational and hypothesis-generating; the platform contrast is confounded with supervising-surgeon identity and the cohort is drawn from a single centre.

## DEPARTMENT OF SURGERY NODE PRESENTATIONS

### ICES/Big Data:

Farhad Ghasemi

**Seeking Opportunities to Improve Care in Hormone-Receptor Positive Breast Cancer Using Large Datasets**

### Fundamental Sciences & Surgical Innovation:

Matthew Teeter

**Beg, Borrow, and Scan: An Interdisciplinary Model for Surgical Research**

### Patient Centered Research:

Rahul Nayak

**Prevention of Post-Operative Urinary Retention After Thoracic Surgery (PrePOURTS): A Double-Blind Phase 2 Feasibility Randomized Controlled Trial.**

### Surgical Education:

Juan Glinka

**The Road to Proficiency: Construct Validation of a Laparoscopic Whipple Reconstruction Assessment Tool**

### Quality Improvement:

Elaine Tang

**SPARTA: Single Dose Ceftriaxone to Prevent Early VAP in Intubated TBI Patients**

## PANEL DISCUSSION

### From Ideas to Impact: Building and Scaling QI Projects

Panelists: Dr. Supriya Singh, Dr. Jennifer Lam, Dr. Elaine Tang, Dr. Timothy Jackson, and Dr. Terry Zwiep.

**THE ROBERT ZHONG LECTURE:****Closing the Quality Gap – 10 Years of Surgical QI in Ontario****Timothy Jackson, MD, MPH, FRCSC, FACS**

Provincial Surgical Quality Lead, Ontario Surgical Quality Improvement Network  
 Division Head and Peter A. Crossgrove Chair in General Surgery, University Health Network  
 Associate Professor, University of Toronto



Dr. Jackson completed his medical school and general surgery residency at McMaster University. He received a Master of Public Health from Harvard University and is a graduate of the Harvard Advanced Laparoscopic Surgery Fellowship at the Massachusetts General Hospital in Boston. His clinical focus is in bariatric and upper gastrointestinal surgery. Dr. Jackson's research interests are surgical quality improvement and minimally invasive surgery. At Ontario Health, he is the Provincial Surgical Quality Lead for the Ontario Surgical Quality Improvement Network. He is the Division Head and Peter A. Crossgrove Chair in General Surgery at University Health Network and an Associate Professor at the University of Toronto.

**Previous Robert Zhong Lecturers:**

- |      |                                                                                                                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2025 | <p><b>Mohit Bhandari</b>, O.Ont, C.M. MD, PhD, FRCSC<br/>         Distinguished University Professor and Chair<br/>         Senior Tier Canada Research Chair<br/>         Editor-In-Chief, The Journal of Bone and Joint Surgery</p>  |
| 2024 | <p><b>Jason Frank</b>, MD, MA(ED), FRCPC, FAOA(HON)<br/>         Clinician-Educator, Professor, Department of Emergency Medicine;<br/>         Founding Director, Centre for Innovation in Medical Education, University of Ottawa</p> |
| 2023 | <p><b>Victor Yang</b>, MD, PhD, FRCSC, FACS<br/>         Professor of Neurosurgery, Medical Imaging, Orthopedic Surgery, and<br/>         Medical Biophysics, Western University</p>                                                   |
| 2022 | <p><b>Najma Ahmed</b>, MD, PhD, FRCSC, FACS<br/>         Professor and Vice Chair of Education, Department of Surgery at<br/>         University of Toronto and Professor of Surgery</p>                                               |

- 2021 **Chad Ball**, MD, MSc, FRCSC, FACS  
Associate Professor of Surgery and Oncology, University of Calgary  
Hepatobiliary, Pancreas, Trauma and Acute Care Surgery, Foothills  
Medical Centre
- 2019 **Toni Zhong**, MD, FRCS, MHS  
Associate Professor in the Department of Surgery and the inaugural  
Belinda Stronach Chair in Breast Cancer Reconstruction at University  
Health Network (UHN)
- 2018 **David Urbach**, MD, MSc, Chief of Surgery and Director of Perioperative  
Services at Women's College Hospital, and Professor of Surgery and  
Health Policy, Management and Evaluation at The University of Toronto
- 2017 **Clifford Ko**, MD, MS, MSHS, FACS, FASCRS, Director National Surgical  
Quality Improvement Program and Division of Research and Optimal  
Patient Care, American College of Surgeons
- 2016 **Marston W. Linehan**, MD, Surgeon-in-Chief, National Institutes of Health
- 2015 **Ivar Mendez** MD, PhD, FRCSC, FACS, DSc(hon), FCAHS
- 2014 **Jonathan Meakins**, retired McGill Professor and Chair of McGill's  
Department of Surgery, former surgeon-in-Chief of the MUHC and  
current director of the MUHC Heritage Centre
- 2013 **Jeremy Nicholson**, Head of the Department of Surgery & Cancer at  
Imperial College in London University, UK.
- 2012 **Garth Warnock**, C.N. Woodward Professor, Head of the Department of  
Surgery, University of British Columbia, Co-Director, Ike Barber Human  
Islet Transplant Laboratory and British Columbia Islet Transplant  
Program
- 2011 **Amitai Ziv**, Deputy Director, Chaim Sheba Medical Center; Director,  
Israel Center for Medical Simulation, Tel-Hashomer, Israel
- 2010 **John Monson**, Chief of Colorectal Surgery, Vice-chair, Department of  
Surgery The University of Rochester, Rochester, New York
- 2009 **Anthony Atala**, Professor and Chair of Urology, Director of Regenerative  
Medicine, Wake Forest University School of Medicine
- 2008 **Richard M. Satava**, Professor of Surgery, University of Washington
- 2007 **James Shapiro**, Wyeth-Ayerst Canada/CIHR Clinical Research Chair in  
Transplantation, Director, Clinical Islet Transplant Program, University of  
Alberta