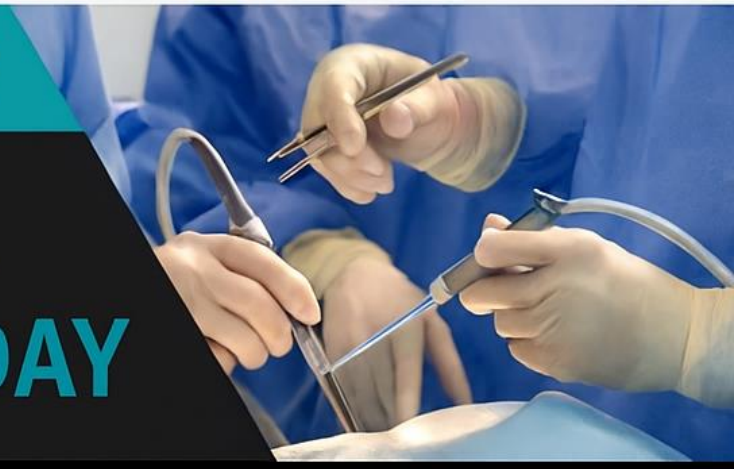
Jacobs School of Medicine
and Biomedical Sciences
University at Buffalo

Department of Surgery



21st ANNUAL RESEARCH DAY

THURSDAY, MAY 15, 2025

Steven D. Schwaitzberg, MD
Distinguished Professor
and Chairman

W. Alan Guo, MD,PhD
Clinical Professor

Jacobs School of Medicine and Biomedical Sciences
University at Buffalo

The 21st Annual UB Department of Surgery Research Day, 2025

Welcome to the 21st Annual University at Buffalo Department of Surgery Research Day. This day represents an opportunity for all members of the medical community to get a bird's-eye view of the research efforts taking place in the University at Buffalo Department of Surgery. The Department of Surgery Research Day is our annual celebration of the scientific advancements achieved by our faculty, fellows, residents, and students. Over the past several years, our Research Day has become much more than a mere celebration; it has become an opportunity for the faculty and residents to strengthen existing partnerships and establish new collaborations across the clinical and academic realm. There are three cornerstones of academic medicine: clinical expertise, scientific discovery, and clinical teaching. These goals are interdependent. Clinical expertise relies on both scientific discovery and clinical teaching, while scientific discovery, in turn, can be informed by clinical experience. Our Research Day promotes and celebrates these types of exchanges. This year we have a total of 61 abstracts, which include 12 formal oral presentations, 8 quick-shot presentations, 18 poster presentations and 23 digital posters. These abstracts include research that was conducted by the Department of Surgery medical students, residents, fellows and faculty at all sites, including Buffalo General Medical Center, Erie County Medical Center, Roswell Park Comprehensive Cancer Center, John R. Oishei Children's Hospital, Millard Fillmore Suburban Hospital and the VA Medical Center. Research is an important part of our academic mission. We are making progress developing a strong research base. The faculty at the Department of Surgery at SUNY Buffalo is committed to research in their own careers and to help fellows and residents develop as surgeon-scientists through support and mentorship. Our faculty members continue to sit on prestigious editorial boards of national journals, hold extramural funding from national agencies, as well as funding from health care industries. In this rich academic and collaborative environment, we are committed to developing future leaders in academic surgery and clinical practice. We hope you enjoy the 21st Annual University at Buffalo Department of Surgery Research Day, as we take the challenge of improving the quality of life for patients by embracing both basic science research and clinical outcomes to tailor new directions in translational research.

Steven D. Schwaitzberg, MD
Distinguished Professor and Chairman of Surgery

Weidun Alan Guo, MD, PhD
Clinical Professor of Surgery

Jacobs School of Medicine and Biomedical Sciences
University at Buffalo

21st Annual Department of Surgery Research Day
May 15th, 2025

Jacobs School of Medicine & Biomedical Sciences

AGENDA

6:45am – 7:45am
Grand Rounds: Guest lecturer, Quan-Yang Duh, MD, FACS, Chief, Section of Endocrine Surgery and Professor, Department of Surgery
University of California, San Francisco

Topic: "Technological Advances in Endocrine Surgery"

8:00am – 9:00am
Poster Session & Breakfast
(2nd Floor atrium, outside of M&T Aud)

9:05am – 10:20am
Full Length Podium Presentations #1-6
(M&T Aud, Room 2120A)

10:20am – 10:30am
Break

10:30am – 11:45am
Full Length Podium Presentations #7-12
(M&T Aud, Room 2120A)

11:45am – 12:00pm
Break

12:00pm – 12:40pm
Quick Shot Podium Presentations #1-8
(M&T Aud, Room 2120A)

12:45pm – 2:00pm
Luncheon & Awards
(1st Floor, Active Learning Center)

Jacobs School of Medicine and Biomedical Sciences
University at Buffalo

Moderated Poster Presentations

Moderated Poster Presentations

Group 1 – Poster professor: Csaba Gajdos, MD, FACS

1. **"Effect of Interstitial-Photodynamic Therapy (I-PDT) on Tumor Growth and Recurrence in Preclinical Breast Cancer Models"**
   Kohei Chida, MD, Emily Oakley-Gawrys, MS, PhD, Christopher Lawson, BS, Amber McKenery, MS, Craig M. Brackett, PhD, John M.L. Ebos, PhD, Kenichi Hakamada, PhD, Gal Shafirstein, DSc, MSc, BSc, Kazuaki Takabe, MD, PhD

2. **"Does Peritumoral Lidocaine Injection Prevent Lung Metastases and Improve Survival? A Preclinical Mouse Study"**
   Kohei Chida, MD, Raider Rodriguez, Amber McKenery, MS, John M.L. Ebos, PhD, Kenichi Hakamada, PhD, Arin Bhattacharjee, PhD, Kazuaki Takabe, MD, PhD

3. **"Efficacy of Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy for Appendiceal Goblet Cell Carcinoma with Peritoneal Disease"**
   Elizabeth J. Olecki* MD, MScR, Richard Erali, Olivia Martin, Sarah M. McIntyre, Shalana O'Brien, Gary N. Mann, Joseph J. Skitzki

4. **"Unraveling the True Burden of Postoperative Pancreatic Fistula: An Analysis Using the National Surgical Quality Improvement Program (NSQIP) Database"**
   Faisal Jehan, MD, Maureen Brady, PA-C, Moshim Kukar, MD, FACS

5. **"Minimally Invasive Surgical Techniques in the Treatment of Complex Pediatric Surgical Disease Over Time and Associated Outcomes"**
   John M. Woodward, Patricia Corujo Avila, Melanie Tacher Otero, Lindsey Caines, Krystle Bittner, Katherine Foote, Rhys Mendel, Michael LaRock, Walker Black, Owen Cordaro, Andrew B. Nordin, Carroll M. Harmon, P. Benson Ham III

Moderated Poster Presentations

Group 2 – Poster professor: Carroll Harmon, MD, PhD

6. **"Glucagon-like peptide-1 Receptor Agonist Use is Associated with Improved Non-small Cell Lung Cancer Outcomes After Surgery"**
   Akhil Goud Pachimatla, Megha Pendyala, Sai Yendamuri

7. **"Predicting post-operative cardiac intensive care unit length of stay in congenital heart surgery"**
   Alyssa Tutunjian, MD, MS, MPH, Kimberlee Gauvreau, ScD, Megan Srokose, BSN, RN, Jean Connor, PhD, RN, John Mayer Jr, MD, Meena Nathan, MD, MPH

8. **"Utility of Nodify Blood-based Biomarker for Reclassification of Lung Nodule Malignancy Risk"**
   Kaity H. Tung, MD, Alyssa Tutunjian, MD, Sujay Sreenivasan, MD, Muhammad Awan, MD, Brian Quaranto, MD, Yaron Perry, MD, FACS

9. **"Postoperative infection after anterior versus lateral lumbar Interbody fusion: A systematic review and meta-analysis of 2147 patients**"
   Ali M.A. Khan BS, Mohamed A.R. Soliman MD MSc PhD, Alexander O. Aguirre MD, Hendrick Francois BS, Umar Masood ScM, Megan D. Malueg BS, Asham Khan MD, Elizabeth Nyabuto MD, John Pollina MD, Jeffery P. Mullin MD MBA

10. **"A Retrospective Review of Abstracts Submitted to the ACS Quality and Safety Conference - IS QI Feasible at Any Scale?"**
    By Geoffrey Hobika MD, Alison Whalen MD, Macrae Kozody BS, Stacy Brethauer MD, FASMBS, Clifford Ko MD. MS. MSHS. FACS. FACRS.

Moderated Poster Presentations

Group 3 – Poster professor: Hasan Dosluoglu, MD

11. **"Racial variations in total joint arthroplasty in western new york: a retrospective review"**
    Lutnick E MD, Barkevich D BS, Barbarino J MS, Essien I BA, **Geiger J BS**, Bousleiman J BA, Hennig M BS, Richards R BS, Johnson E BA, Listopadzki T MD, Stegemann A MD

12. **"Time to Wound Closure in Lower Extremity Fasciotomy: A Retrospective Review"**
    Danil Chernov, BS, Ellen Lutnick, MD, Jamie Bousleiman, BS[1], Mohamed Bah, BS , Ryan Riley, DO, Nader D. Nader, MD, PhD, Christopher Mutty, MD

13. **"Impact of body mass index on outcomes following meniscectomy: a retrospective cohort study"**
    Fuller SI, MD; Dougherty J, BA; Wong D, BS; Lutnick E, MD; Bousleiman J, BA; Haider MN, MD; DelPrince C, MD

14. **"Predicting Morbidity and Mortality in Geriatric Trauma"**
    Authors: Danil Chernov MA1 , Madelyn Hoffman BS1 , Marcy Bubar Jordan, PhD2 ,Jeffrey Jordan MD, PhD1, 2

Moderated Poster Presentations

Group 4 – Poster professor: Peter Kim, MD, PhD

15. **"Anesthesia Choices and Postoperative Outcomes in Cesarean sections: A Multivariate Analysis of 42,897 Cases"**
    Sharan I. Prasad[1], BS (Medical Student), Deepshikha Kewlani[1], BS (Medical Student), Shreyas Prasad[2], BS (Medical Student), Adam Abbas[1], BS (Medical Student), Nader D. Nader[1], MD, PhD

16. **"Comparative Analysis of Large Language Models for the Autonomous Prediction of Trauma Triage Level"**
    B Quaranto MD, E Moore MD, K Tung MD, G Miletsky BS, H Ferrari MS, M Chopko MD

17. **"Introducing a novel financial navigation program for cancer patients in Nigeria: A Pilot Survey of Stakeholders"**
    Frankie I. Uwechue MD, MBA;Emmanuel O. Uduigwome MBB; Norah N. Zaza MD; Amir H. Sohail MD, MSc; Segun Afolaranmi MBBS, MSc; Zainab Adegbite MPH; Chinenye Iwuji BM, PhD; Chukwumere Nwogu MD PhD; Bindiya Sadarangani BS; Funmilola O. Wuraola MBBS; Olusegun I. Alatise MBBS; Kristina Diaz MSN, RN; Juliet S. Lumati MD, MPH

18. **"Development of a Novel Computer Vision Model for Signal Optimization Using Visible and Near-Infrared Fluorescence (NIRF) Imaging in Laparoscopic Cholecystectomy"**
    Brian R. Quaranto MD, Kaity Tung MD, Ascharya Balaji, Emily Hannah, Gabriela Miletsky, Joshua Marek, Brendan Fox, Garrett Skinner MD, Gene Yang MD, Shinil K. Shah DO, Carroll M. Harmon MD PhD, P. Ben Ham MD MS, Steven D. Schwaitzberg MD, Peter C.W. Kim MD PhD

M1. **Effect of Interstitial-Photodynamic Therapy (I-PDT) on Tumor Growth and Recurrence in Preclinical Breast Cancer Models**

Kohei Chida, MD[1,2], Emily Oakley-Gawrys, MS, PhD[3], Christopher Lawson, BS[3], Amber McKenery, MS[4], Craig M. Brackett, PhD[3], John M.L. Ebos, PhD[4], Kenichi Hakamada, PhD[2], Gal Shafirstein, DSc, MSc, BSc[3], Kazuaki Takabe, MD, PhD[1,5]

[1]Department of Surgical Oncology, Roswell Park Comprehensive Cancer Center
[2]Department of Gastroenterological Surgery, Hirosaki University Graduate School of Medicine
[3]Department of Cell Stress Biology, Photodynamic Therapy Center, Roswell Park Comprehensive Cancer Center
[4]Department of Cancer Genetics and Genomics, Roswell Park Comprehensive Cancer Center
[5]Department of Surgery, Jacobs School of Medicine and Biomedical Sciences

Introduction: Local therapies such as surgical removal are known to cure early-stage breast cancer (BC). Multiple new modalities have been tested to improve local tumor control, but none have become the standard of care due to various limitations. Photodynamic therapy (PDT), which destroys cancer cells by activating a photosensitizer with light, which causes tumor cell death through the production of reactive oxygen species while also stimulating an immune response with minimal adverse effects. Interstitial PDT (I-PDT) delivers light deep into the tissue by inserting a light fiber through a translucent catheter directly into the target tumor volume allowing for localized tumor ablation while minimizing damage to superficial tissues such as the skin. Here, we investigated the effects of I-PDT on BC growth and recurrence using multiple murine BC models.

Methods: Four syngeneic murine BC models tagged with luciferase were used: TS/A-luc (immune checkpoint inhibitor (ICI)-nonresponsive, ER+ BC), E0771-luc (ICI partially responsive, TNBC), EMT6-luc (ICI responsive, TNBC), and EMT-PTR (cell line with acquired resistance to PD-L1 inhibitors, TNBC). Tumor cells were inoculated into the #2 mammary fat pad of 6–8-week-old female mice. I-PDT was performed using Visudyne® (2 mg/kg) and 689-nm laser light (ML7710, Modulight) when tumors reached 8 mm in size. “Cure” was defined as the absence of detectable tumors by caliper measurement and bioluminescence 60 days after treatment.

Results: Response to I-PDT was assessed across murine BC models with varying ER expression and ICI responsiveness to evaluate its impact on tumor growth delay, recurrence, and cure rates. TS/A-luc (ICI-nonresponsive, ER+ BC) showed initial tumor growth delay in all 6 mice (6/6), but 5 out of 6 experienced local recurrence, leading to a low cure rate of 16.7% (1/6). Similarly, E0771-luc (ICI partially responsive, TNBC) exhibited tumor growth delay in only 3 out of 6 mice, and all initially responsive tumors recurred, resulting in a 0% cure rate. In contrast, EMT6-luc (ICI-responsive, TNBC) tumors exhibited a stronger response to I-PDT, with tumor growth delay in all 5 mice and a cure rate of 60% (3/5). Notably, EMT6-PTR (PD-L1 inhibitor-resistant TNBC) also responded favorably to I-PDT, demonstrating tumor growth delay in all 4 mice and a cure rate of 75% (3/4).

Conclusion: Our study demonstrated that I-PDT effectively delayed tumor growth in multiple murine BC models, with a greater impact observed in ICI responsive tumors. Further studies are needed to explore the mechanisms underlying I-PDT’s effects on tumor recurrence and immune response and to determine its potential as a standalone or combinatorial therapy for BC treatment.

M2. Does Peritumoral Lidocaine Injection Prevent Lung Metastases and Improve Survival? A Preclinical Mouse Study

Kohei Chida, MD[1,2], Raider Rodriguez[3], Amber McKenery, MS[4], John M.L. Ebos, PhD[4], Kenichi Hakamada, PhD[2], Arin Bhattacharjee, PhD[3], Kazuaki Takabe, MD, PhD[1,5]

[1]Department of Surgical Oncology, Roswell Park Comprehensive Cancer Center
[2]Department of Gastroenterological Surgery, Hirosaki University Graduate School of Medicine
[3]Department of Pharmacology and Toxicology, Jacobs School of Medicine & Biomedical Sciences
[4]Department of Cancer Genetics and Genomics, Roswell Park Comprehensive Cancer Center
[5]Department of Surgery, Jacobs School of Medicine and Biomedical Sciences

Introduction: A recent randomized clinical trial suggested that peritumoral lidocaine injection prior to breast cancer resection improves survival. Many have not adopted this approach in their practice due to few validations. We hypothesized that lidocaine injection suppresses lung metastasis and improves survival.

Methods: Three murine breast cancer models were used, (1) "Double-tumor": E0771-luc cells inoculated in two subcutaneous sites with one tumor resected with or without lidocaine and another monitored. (2) "Spontaneous lung metastasis": highly metastatic 4T1-luc cells inoculated orthotopically, resected with or without lidocaine, and lung metastases and survival were monitored. (3) "Experimental metastasis": E0771-luc cells inoculated subcutaneously and injected via tail vein simultaneously, followed by primary tumor resection with or without lidocaine. Lung metastasis and survival were monitored.

Results: "Double-tumor" model demonstrated that peritumoral lidocaine prior to removal temporarily suppressed the second tumor's growth but had no long-term effect. In the "Spontaneous lung metastasis" model, three of five mice without lidocaine developed lung metastases and died, while only one of five in the lidocaine group did. Interestingly, "Spontaneous lung metastasis" model using E0771-luc cells did not generate any lung metastasis regardless of lidocaine injection prior to removal of the tumor. On the other hand, "Experimental metastasis" model using E0771-luc cells showed that four of five mice without lidocaine developed lung tumors and died, whereas none in the lidocaine group did, and all survived beyond 90 days.

Conclusion: Our findings suggest that peritumoral lidocaine injection prior to primary tumor resection suppresses lung metastasis, particularly during early metastatic spread process.

M3. Efficacy of Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy for Appendiceal Goblet Cell Carcinoma with Peritoneal Disease

Elizabeth J. Olecki, MD, MScR, Richard Erali, Olivia Martin, Sarah M. McIntyre, Shalana O'Brien, Gary N. Mann, Joseph J. Skitzki

Department of Surgical Oncology, Roswell Park Comprehensive Cancer Center

Background: Appendiceal Goblet cell carcinoma (GC) are rare malignancies regarded as aggressive tumors with proclivity to spread to the peritoneum. The literature regarding optimal treatment of GC with peritoneal disease is limited. Given the propensity for peritoneal spread, cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (CRS/HIPEC) may be a favorable treatment modality. This study compares patient with adenocarcinoma of the appendix (AA) with appendiceal GC with peritoneal disease treated with CRS/HIPEC.

Methods: A single-institution, prospectively collected database of all patients undergoing CRS/HIPEC was retrospectively reviewed from 2003-2021 for all patients with a diagnosis of appendiceal peritoneal disease. Patients with peritoneal disease from appendiceal GC versus AA treated with CRS/HIPEC were compared. Bivariable comparison using Chi-square and survival analysis using Kaplan-Meijer were used to compare those with and without GC. Cure rate was defined as no recurrence of disease and survival greater than 5 years from CRS/HIPEC.

Results: The study included 106 patients including 26 (24.5%) with GC. Patients with GC undergoing CRS/HIPEC were similar to those with AA in terms of sex, race, and age ($p>0.05$). Complete cytoreduction was achieved at similar rates when comparing those with GC and AA (61.5% vs 58.8%, $p=0.46$). Extent of surgical resection required was similar with no difference in rates of visceral resection ($p=0.42$), number of anastomoses ($p=0.18$), and rate of ostomy creation ($p=0.26$). The rate of postoperative complications was similar (GC 38.5%, AA 41.3%, $p=0.80$). Rate of recurrence was lower in patient with GC compared to AA (30.8% vs 63.8%, $p=0.003$). No patients with GC underwent repeat CRS/HIPEC while 6.3% (5) patients with AA had second CRS/HIPEC. Median overall survival (OS) was 51.5 months for those with GC and 49.0 months in those with AA ($p=0.30$) (Figure 1). The cure rate for patients with GC was 26.9% compared to 20% of patients with AA ($p=0.46$)

Conclusion: Despite the rarity and aggressive biology of GC, with careful patient selection and treatment with CRS/HIPEC, short-term and long-term survival outcomes can be similar to treatment of carcinomatosis from AA.

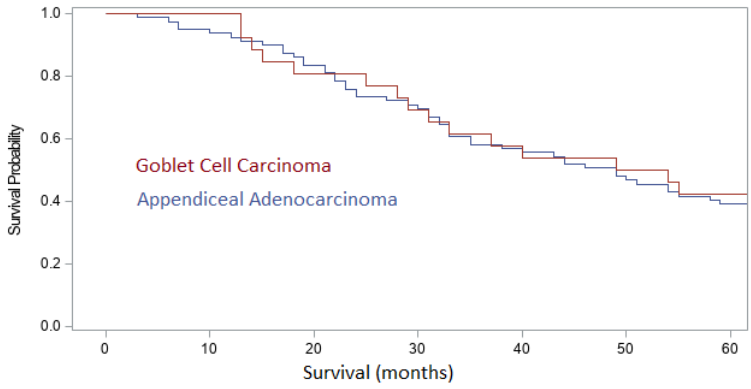


Figure 1. Kaplan-Meijer curves of overall survival appendiceal goblet cell carcinoma vs. adenocarcinoma

M4. Unraveling the True Burden of Postoperative Pancreatic Fistula: An Analysis Using the National Surgical Quality Improvement Program (NSQIP) Database

Faisal Jehan, MD, Maureen Brady, PA-C, Moshim Kukar, MD, FACS.

Division of Surgical Oncology, Roswell Park Comprehensive Cancer Center.

Background: Postoperative pancreatic fistula (POPF) remains the most concerning complication following distal pancreatectomy (DP). This study aims to evaluate the downstream complications associated with clinically relevant POPF (CR-POPF) and assess its overall impact on postoperative outcomes.

Methods: We conducted a retrospective cohort study using the 2019-2022 NSQIP Pancreas Participant User File (PUF). All patients who underwent distal pancreatectomy (DP) were included. Patients were stratified into two groups: those who developed clinically relevant POPF (Grade B/C) and those who did not. Primary outcome measure was postoperative morbidity, including delayed gastric emptying (DGE), postoperative acute pancreatitis (POAP), pneumonia, sepsis, septic shock, post-pancreatectomy hemorrhage (PPH), and thromboembolic events (PE/DVT). Secondary outcomes: Need for unplanned intubation, unplanned return to the operating room (OR), unplanned readmission, transfusion requirements, and mortality. Multivariable logistic regression was performed to control for confounders.

Results: A total of 7,082 patients underwent DP during the study period, with a mean age of 62 ± 14 years, and 46% were male. Clinically relevant POPF occurred in 943 (13.3%) patients. Compared to those without POPF, patients with CR-POPF had significantly higher rates of delayed gastric emptying (17.6% vs. 3.4%, $p < 0.01$), pneumonia (8.1% vs. 2.2%, $p < 0.01$), and unplanned intubation (3.7% vs. 1.2%, $p < 0.01$) without a difference in postoperative acute pancreatitis (14.5% vs. 14%, $p = 0.98$). Thromboembolic complications were also more common, with higher rates of pulmonary embolism (3.2% vs. 1.3%, $p = 0.01$) and deep vein thrombosis (5.7% vs. 1.6%, $p < 0.01$). Post-pancreatectomy hemorrhage was observed in 5.8% of patients with CR-POPF compared to 1.6% in those without POPF ($p < 0.01$), while bleeding requiring transfusion occurred in 15.6% vs. 10.6% ($p = 0.01$). Infectious complications were more frequent in the CR-POPF group, with higher rates of sepsis (16.4% vs. 1.9%, $p < 0.01$) and septic shock (3.6% vs. 0.8%, $p < 0.01$). Patients with CR-POPF were also more likely to require unplanned return to the OR (7.3% vs. 2.5%, $p < 0.01$) and had significantly higher unplanned readmission rates (47.6% vs. 10.4%, $p < 0.01$). Despite these complications, there was no significant difference in mortality between the two groups (1% vs. 0.7%, $p = 0.76$). On multivariable analysis, CR-POPF was associated with significantly increased odds of pulmonary complications (OR 2.98, 95% CI 2.35–3.78, $p < 0.01$), venous thromboembolism (OR 2.45, 95% CI 1.89–3.19, $p < 0.01$), and delayed gastric emptying (OR 6.12, 95% CI 4.86–7.71, $p < 0.01$). Infectious complications, including sepsis and septic shock, were also significantly higher in the CR-POPF group (OR 9.84, 95% CI 7.68–12.61, $p < 0.01$). Additionally, patients with CR-POPF had increased odds of unplanned return to the OR (OR 3.12, 95% CI 2.45–3.98, $p < 0.01$) and unplanned readmission (OR 8.21, 95% CI 7.01–9.63, $p < 0.01$).

Conclusion: Clinically relevant POPF (Grade B/C) following distal pancreatectomy is associated with significant postoperative morbidity, including increased rates of infectious, thromboembolic, pulmonary, and hemorrhagic complications, as well as higher rates of unplanned interventions and readmissions.
Despite these complications, mortality was not significantly impacted. These findings highlight the substantial clinical burden of POPF and emphasize the need for improved prevention and management strategies to mitigate its downstream effects.

M5. Minimally Invasive Surgical Techniques in the Treatment of Complex Pediatric Surgical Disease Over Time and Associated Outcomes

John M. Woodward, Patricia Corujo Avila, Melanie Tacher Otero, Lindsey Caines, Krystle Bittner, Katherine Foote, Rhys Mendel, Michael LaRock, Walker Black, Owen Cordaro, Andrew B. Nordin, Carroll M. Harmon, P. Benson Ham III

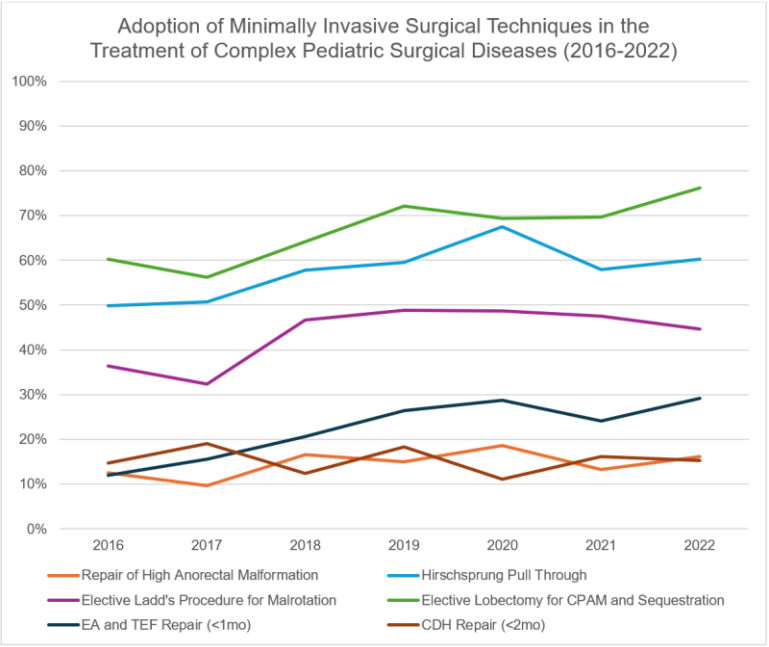
Division of Pediatric Surgery, Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY

Background: The outcome benefit of minimally invasive surgery (MIS) for rare and technically complex pediatric operations is debated. We aimed to assess outcome differences between MIS and open approaches for multiple complex pediatric operations and document MIS utilization over time.

Methods: NSQIP-P registry data identified patients 2016-2022 who underwent (1) elective lobectomy for CPAM/sequestration; (2) pull-through procedures for Hirschsprung disease; (3) elective Ladd's procedure; (4) esophageal atresia and tracheoesophageal fistula (EA/TEF) repair; (5) congenital diaphragmatic hernia (CDH) repair and (6) high anorectal malformation (ARM) repair. MIS approaches were compared to open. Annual rate of MIS use was determined and outcomes compared with significance defined at $p<0.05$.

Results: Patients undergoing MIS for elective lobectomy (n=1483), EA/TEF (n=1189), and Ladd's procedure (n=982) had decreased LOS ($p<0.05$). Pull-through procedures (n=2279) had decreased wound infections ($p=0.046$), and Ladd's procedure had decreased re-intubations ($p=0.034$) and transfusions ($p<0.001$) without other outcome differences ($p>0.05$); while CDH and high ARM had mixed outcomes compared to open. MIS utilization significantly increased for elective lobectomy (60.3%->76.2%, $p<0.001$), pull-through procedures (49.8%->60.2%, $p<0.001$), elective Ladd's procedure (36.4%->44.7%, $p=0.028$), and EA/TEF repair (12.0%->29.1%, $p<0.001$) while CDH, and high ARM repair did not change (Figure 1).

Figure 1:



Conclusion: Minimally invasive approaches for elective lobectomy for CPAM/sequestration, pull through procedures, elective Ladd's procedure, and EA/TEF repair had improved outcomes compared to open with increasing MIS utilization over time, while CDH repair and High ARM did not. This highlights surgeon selectivity in adopting MIS where patient outcomes are optimized.

M6. Glucagon-like peptide-1 Receptor Agonist Use is Associated with Improved Non-small Cell Lung Cancer Outcomes After Surgery

Akhil Goud Pachimatla[1], Megha Pendyala[2], Sai Yendamuri[3]

Department of Thoracic Surgery, Roswell Park Comprehensive Cancer Center

1- Post-doctoral researcher, Roswell Park Comprehensive Cancer Center
2- Presenting author – Williamsville East High school student, Anticipated Diploma: June 2026

Introduction:
The growing utilization of glucagon-like peptide-1 receptor agonists (GLP-1 RAs) for treating obesity and diabetes mellitus has raised interest in their potential anti-cancer properties. In non-small cell lung cancer (NSCLC), visceral obesity is a key driver of chronic inflammation and impaired anti-tumor immune responses, contributing to reduced immunotherapy efficacy and worse clinical outcomes. Given the ability of GLP-1 RAs to facilitate weight loss and modify visceral fat distribution, we aimed to study their effect on clinical outcomes after lung cancer resection.

Methods:
The study included overweight and obese patients (BMI ≥ 25) with histologically confirmed NSCLC who underwent lung cancer resection between 2015 and 2024. They were considered to have concomitant GLP1ra use if prescribed for >6 months during the period between resection and any event. Clinical data, recurrence-free survival (RFS), and overall survival (OS) were extracted from the tumor registry. OS was calculated from surgery until last contact or death, and RFS from surgery until the first recurrence, or the last contact or death if no recurrence occurred.

Results:
Total of 1,721 patients underwent NSCLC resection at our institution between 2015 and 2024. Out of the eligible 1177 patients, 71 patients were prescribed GLP-1RA. The mean BMI of the overweight/obese cohort at the time of resection was 30.93. The patients who received GLP-1RA had significantly higher mean BMI than those who did not (35.07 vs 30.6; p = 0.001). A multivariable model including age, sex, race, stage, smoking status, histology, and GLP-1RA use as co-variables, showed GLP-1RA use is associated with improved PFS (HR = 0.42, 95% Confidence interval (CI) = 0.17 – 1.02, p = 0.028) (Figure 1A). Univariate and similar multivariable analyses failed to demonstrate a significant impact of GLP-1RA on OS in these patients (Figure 1B).

Conclusions:
GLP-1RAs enhance lung cancer-specific clinical outcomes in obese and overweight patients. Our findings demonstrate the need for further studies investigating the involved pathways and prospective clinical trials.

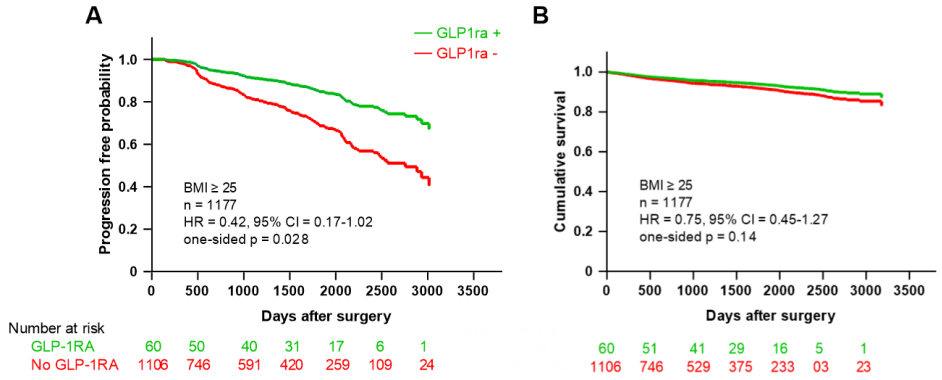


Figure 1. Recurrence-free survival **(A)** and overall survival **(B)** in overweight and obese patients who underwent resection for NSCLC and received GLP-1 RA

M7. PREDICTING POST-OPERATIVE CARDIAC INTENSIVE CARE UNIT LENGTH OF STAY IN CONGENITAL HEART SURGERY

Alyssa Tutunjian, MD, MS, MPH[1], Kimberlee Gauvreau, ScD[2], Megan Srokose, BSN, RN[2], Jean Connor, PhD, RN[2,] John Mayer Jr, MD[2], Meena Nathan, MD, MPH[2]

[1]General Surgery Resident, University at Buffalo; [2]Cardiac Surgery, Boston Children's Hospital

Background: Post-operative length of stay (pLOS) is a widely leveraged tool to understand hospital quality as well as resource utilization. Pediatric intensive care unit beds are a particularly valuable resource. We aim to identify critical patient and perioperative risk factors and develop a model to predict post-operative length of stay (pLOS) in the cardiac intensive care unit (CICU) in those undergoing cardiac surgery for congenital heart disease.

Methods: This was a single institutional, retrospective review of all patients who underwent cardiac surgery for CHD, discharged between January 2016 and December 2023. CICU pLOS was summarized by patient, pre-operative, and intra-operative characteristics (median [interquartile range]). Generalized linear models with gamma distribution and log link were used to evaluate associations with CICU pLOS; estimated coefficients were exponentiated. Factors which were statistically significant at the 0.01 level and which improved the Akaike information criterion were included in a multivariable model.

Results: Among 7,464 patients who underwent congenital heart surgery, median CICU pLOS was 3 days [IQR 1, 7]. 2.6% of patients (194/7,464) died prior to discharge. Median CICU pLOS (days) was longer in younger patients, ≤30 days old, 8 [IQR 5, 16], patients with lower weight at surgery (<2.5 kg) (12 [6, 37]), any non-cardiac anatomic anomaly (4 [2, 12]), pre-operative ventilatory support (11 [6, 27]), and preoperative mechanical circulatory support (13 [8, 37]). Patients with a STAT mortality category of 5 (13 [7, 31]) and a RACHS-1 risk category of 6 (18 [11, 44]) also showed longer median CICU pLOS (all $p<0.001$). In multivariable analysis, sternum left open after the index operation (coefficient 2.27), patients age ≥ 30 days old with preoperative ventilation (2.40), cardiopulmonary bypass (CPB) time ≥ 240 minutes (2.56), weight <2.5 kg (3.03), and certain operative classifications (Fontan (3.04), Super Glenn (2.80), shunts (2.39), Biventricular conversion (2.35)), heterotaxy (1.60), and emergent/salvage cases (1.68) were significantly associated with longer pLOS.

Conclusion: Patient characteristics, including preoperative age and weight, and operative factors, including CPB time, operation classification, and if the sternum was left open, were predictive of longer CICU pLOS. These factors are important to consider when making clinical decisions and understanding CICU utilization.

M8. Utility of Nodify Blood-based Biomarker for Reclassification of Lung Nodule Malignancy Risk

Kaity H. Tung, MD[1], Alyssa Tutunjian, MD[1], Sujay Sreenivasan, MD[1], Muhammad Awan, MD[1], Brian Quaranto, MD[1], Yaron Perry, MD, FACS[1, 2]

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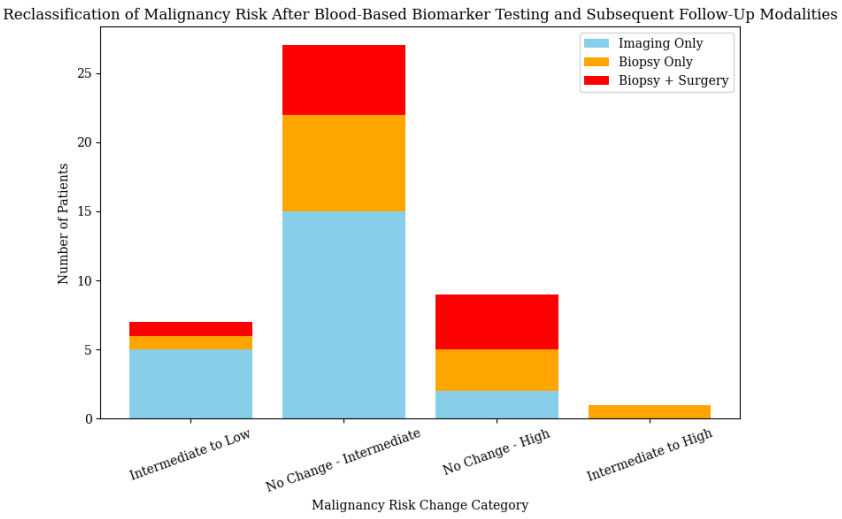
Background: Early diagnosis of lung cancer is associated with improved prognosis. Patients with incidental pulmonary nodules often undergo invasive procedures when up to 95% of these are benign. Nodify CDT and XL2 (Biodesix, Boulder, CO) are blood-based biomarker tests to improve assessment of lung malignancy risk. Here, we present our center's clinical experience.

Methods: We conducted a retrospective review of patients who underwent Nodify testing at our institution in 2024. Descriptive statistics and multivariate analysis were conducted to assess risk reclassification and to study the association between pre-test malignancy risk with subsequent surveillance or invasive diagnostic procedures.

Results: A total of 44 patients underwent Nodify testing during a 7-month period. The average patient age was 70 years old. 84% were current or former smokers with an average 48 pack-year history. The average nodule size was 16 mm. The average malignancy risk based on the Mayo Clinic calculator was 46%. After testing, 14% were reclassified from intermediate (5-65%) to low risk (<5%). One patient was reclassified to high (> 65%) from intermediate risk. 50% of patients underwent invasive procedures, including biopsy or surgery. Association between pre- and post-Nodify malignancy risk and subsequent workup modality is presented (Figure 1).

Conclusion: 67% of reclassified patients from intermediate to low risk did not undergo invasive workup. One patient who underwent subsequent endobronchial biopsy then surgery was found to have stage 1A right upper lobe adenocarcinoma. Nodify biomarker panel may add additional information during shared decision-making, but more data is needed to assess its accuracy.
Presenter: Kaity Tung (Resident)

Figure 1. Reclassification of Malignancy Risk After Blood-Based Biomarker Testing and Subsequent Follow-Up Modalities.



M9. Postoperative infection after anterior versus lateral lumbar Interbody fusion: A systematic review and meta-analysis of 2147 patients

Ali M.A. Khan BS, Mohamed A.R. Soliman MD MSc PhD, Alexander O. Aguirre MD, Hendrick Francois BS, Umar Masood ScM, Megan D. Malueg BS, Asham Khan MD, Elizabeth Nyabuto MD, John Pollina MD, Jeffery P. Mullin MD MBA

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Background And Objective: Postoperative infections are one of the most common complications of any surgery. Anterior Lumbar Interbody Fusion (ALIF) and Lateral Lumbar Interbody fusion (LLIF) are both commonly performed spinal fusion procedures. To our knowledge, this is the first study to exclusively evaluate the risk of postoperative infection in ALIF versus LLIF.

Methods: A search of the literature was completed using the PubMed and Embase databases until May 2023 with adherence to the PRISMA guidelines. Studies were included if they directly compared the postoperative infection after ALIF and LLIF. Pooled weighted odds ratios were calculated, and the result of the common effect model was reported.

Results: We included a total of 8 studies which had a direct comparison of 694 patients who underwent ALIF and 1453 patients who underwent LLIF. Postoperative infection was reported in 28(4.0%) of ALIF cases while postoperative infection was reported in 24 (1.7%) of LLIF cases. There was no significant difference in the risk of wound infection between the ALIF and LLIF reported through the common effect model (odds ratio, 1.10; 95% confidence interval, 0.60-2.01; I^2=9%; P=.36).

Conclusion: This systematic review and meta-analysis demonstrates that there are no significant differences in postoperative infection rates between the ALIF and LLIF patients.

M10. A Retrospective Review of Abstracts Submitted to the ACS Quality and Safety Conference - IS QI Feasible at Any Scale?

Geoffrey Hobika MD.[1,2,*] Alison Whalen MD.[3,*] Macrae Kozody BS[1,+]. Stacy Brethauer MD, FASMBS.[3] Clifford Ko MD. MS. MSHS. FACS. FACRS.[2,4]

University at Buffalo, 2. American College of Surgeons, 3. The Ohio State University, 4. UCLA, * Resident, + Medical Student

Introduction: Quality improvement (QI) is a core competency in surgery, mandated by the ACGME and ABS, and essential for certification maintenance and Medicare/Medicaid participation. Despite this, clinical staff often struggle to design and implement effective QI projects. The ACS Quality and Safety Conference provides a platform for healthcare professionals to share advancements in surgical quality and patient safety. This study examines key components of successful QI projects and strategies for frontline clinical staff to engage in QI with minimal resources.

Methods: A retrospective review analyzed abstracts from the ACS Quality and Safety Conference (2018-2023), excluding research and program evaluations. Three authors conducted intercoder reliability checks before independently coding abstracts based on STEEEP domains, clinical personnel involvement, SMART goals, intervention scale and strength, specialty, and setting. Themes were identified through inductive coding and refined via thematic analysis. SAS was used for statistical analysis, and R for figure generation.

Analysis: Descriptive statistics provided an overview of QI projects. **Table 1** summarizes intervention phases, quality domains, and project scale/setting. **Table 2** focuses on small-scale projects, detailing intervention phases, quality domains, and top five themes.

Results: Of 2,063 accepted projects, 611 were QI-focused. Most targeted the postoperative phase (31.8%), safety (37.3%), and efficacy (33.7%) domains. The majority were medium/small in scale (95%) and academic-based (85.4%). Small-scale projects followed similar trends, with **surgical site infections** being the most common theme (16.2%).

Conclusion: QI can be effectively implemented at small and medium scales without extensive institutional backing, demonstrating the feasibility of low-resource interventions.

Table 1: Summary of Key Categorical Variables

Distribution of Quality Domain, Setting, Intervention Phase of Care, and Scale

Variable	Percentage (%)
Intervention Phase of Care	
Intra-Op	8.2
Other (Trauma, Radiology, Non-Operative)	17.2
Peri-Op (Pre, Intra, Post)	19.1
Post-Op	31.8
Pre-Op	21.8
Unspecified	2.0
Quality Domain	
Effective	33.7
Efficient	12.4
Equitable	0.5
Patient Centered	8.5
Safe	37.3
Timely	7.5
Scale	
Large (Multi-Center, National Database)	5.1
Medium (Single Department, Institution)	58.5
Small (Single Units/Clinic/Service Line)	36.5
Setting	
Academic	85.4
Community	11.0
Unknown	1.5
Va/Military	2.1

Note: Percentages calculated based on all available data.

Table 2: Summary of Small-Scale Projects

Phase of Care, Quality Domains, and Top 5 Themes

Variable	Percentage (%)
Intervention Phase of Care	
Intra-Op	7.7
Other (trauma, radiology, non-operative)	19.8
Peri-Op (pre, intra, post)	18.5
Post-Op	34.7
Pre-Op	15.8
Unspecified	3.6
Quality Domains	
Effective	38.3
Efficient	8.1
Equitable	0.9
Patient Centered	11.3
Safe	35.1
Timely	6.3
Top 5 Themes	
SSI	16.2
Care Standardization (Including ERAS)	13.1
Readmissions	9.9
Communication	7.2
Opioids	5.0

Note: Percentages for all sections are relative to small-scale projects. The 'Top 5 Themes' percentages reflect their frequency among all themes in small-scale projects.

M11. RACIAL VARIATIONS IN TOTAL JOINT ARTHROPLASTY IN WESTERN NEW YORK: A RETROSPECTIVE REVIEW

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Department of Orthopaedics, University at Buffalo

Background: The process of total joint arthroplasty (TJA) has been theorized to be inequitably administered across races (Ibrahim, 2009) (Centers… Prevention, 2009), despite there being no difference in clinical appropriateness established between white and non-white populations (Ang, 2009). Our study aims to quantify disparities in total joint arthroplasty (TJA) utilization and outcomes in Erie County, NY.

Methods: Retrospective review included patients who received total joint arthroplasty between January 2018-December 2021 by one orthopaedic practice in Erie County, NY. Patient information including patient reported outcome measures (PROMs) were collected. Social determinants of health data were extrapolated from zip-code level data from the U.S. Census Bureau and American Community Data Survey, 5-year Estimates 2018-2022.

Results: Our cohort (n 6,974) was not racially representative of the general population ($p<0.001$). Demographics are cited in Table 1, Table 2. Median household income was higher (74,842.75 ± 20,374.69 vs. 70,044, $p<0.001$), poverty rate lower (11.48 ± 8.28 vs. 13.2, $p<0.001$), Bachelor's degree attainment lower (34.82 ± 13.51 vs. 37.7, $p<0.001$), and percent without healthcare lower (2.87 ± 2.25 vs. 3.3, $p<0.001$) than the average population. Preoperatively, white patients had higher Euro-QOL, GPH, and GMH scores ($p<0.001$); black scored lower ($p<0.001$) compared to other races. White had more improvement in GMH postoperatively ($p=0.0292$) compared to other races, while black had no difference in postoperative improvement ($p=0.178$). Preoperative VAS-Function scores were not different; postoperative improvements were higher for white ($p <0.001$), and lower for black patients ($p=0.009$). Preoperative VAS-Pain was lower for white ($p <0.001$), with less improvement postoperatively (p 0.002), and higher for black ($p <0.001$), with more improvement postoperatively ($p=0.0331$). Postoperative HOOS-Jr improved more for white patients ($p=0.00723$). Preoperative KOOS-Jr was higher for white ($p <0.001$), and lower for black ($p <0.001$), without significance in improvements. Across poverty status, low poverty patients scored higher preoperatively on Euro-QOL, GMH. Other scores were not significant preoperatively.

Conclusion: All scores showed improvements postoperatively, without significant differences. We conclude there exists racial disparities in TJA utilization in our described patient population, with correlative PROM differences.

M12. Time to Wound Closure in Lower Extremity Fasciotomy: A Retrospective Review

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Background: Acute compartment syndrome is a rare but feared complication of lower extremity trauma, addressed by fasciotomy either through a single or dual incision approach. While various techniques of fasciotomy closure are described in the literature, there is no direct comparison of wound closure by fasciotomy approach. This study compares wound closure rates in single vs. dual incision fasciotomy, to better include this potentially morbid factor in the decision for approach to fasciotomy of the lower leg.
Methods: Retrospective review was performed of all adult patients treated with lower leg fasciotomy at one Level 1 center from January 1, 2012-December 31, 2022 by CPT 27892. Patient demographics, clinical, and surgical data were collected, including time to fasciotomy closure, and closure techniques utilized. P <0.05 was considered significant.
Results: 149 patient charts were screened; 101 met inclusion criteria with complete records. Of those that met inclusion criteria, patients were 83.2% male, mean age 40.17±16.61 years, 60.4% White; 28.7% Black, BMI 29.22±6.33. Length of stay was 12.61±9.43 days, with 43 (42.6%) discharged to rehab and 52 (51.5%) discharged home. There were two cases of inpatient mortality (2.0%). 19.8% were smokers. Comorbidities are outlined in Table 1. Most common mechanisms were blunt trauma (71.3%), including fall (20.8%), MCC (12.9%), pedestrian struck (6.9%), and MVC (5.0%). GSW accounted for 22.8% of cases. Inciting incident was a fracture in 46.5% of cases, and vascular injury in 16.8% of cases. Median injury severity score (ISS) was 6.0±8.16. 15 (14.8%) of patients presented as Priority 1 Trauma activation, 31 (30.7%) presented as Priority 2. 8 patients underwent amputation prior to wound closure. Mean time to closure of the overall cohort was 9.83±10.16 (Figure 1). Time to closure was shorter for those treated with single incision than those treated with dual incision, although this was not significant (single = 7.00±6.45 days; dual = 10.31±10.60 days). Patients were additionally stratified based on wound management strategy at time of fasciotomy (wound vac n = 34, shoelace technique n = 12, packing n = 37, other n = 6). Mean closure with wound vac was 9.29±10.34 days, shoelace technique was 7.36±3.75 days, packing was 10.94±10.56 days and other 6±5.24 days (Figure 2). 38.2% of those treated with wound vac, 16.7% of those treated with shoelace technique, 67.6% of those treated with packing, and 33.3% treated with other required skin grafting for closure (p = 0.007). There were two wound related infections noted, which were not significantly associated with wound management strategy at time of fasciotomy. No specific patient factors were associated with time to closure on linear analysis. Early vs. late closure was then defined based on the median time to closure of the overall cohort (6 days) for nominal analysis. There were no patient demographic factors or comorbidities significantly associated with early vs. late closure. Skin grafting was significantly associated with delayed closure (30.2% vs. 69.8%, p = 0.026). On univariate analysis, increasing hospital length of stay (9.25±4.66 days vs. 13.64±8.68 days, p = 0.003) and ISS (7.20±4.84 vs. 10.79±9.76, p = 0.028) were associated with delayed closure. ISS was the only factor significantly associated with delayed closure on multivariate analysis (p = 0.05).

Table 1:	
Comorbidities	
Smoking	20 (19.8%)
Hypertension	14 (13.9)
Diabetes	5 (5.0%)
Coronary artery disease	2 (2.0%)
Psychiatric	4 (4.0%)
Substance abuse	1 (1.0%)

Figure 1: Time from fasciotomy to wound closure.

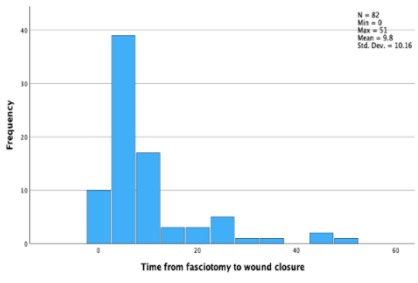
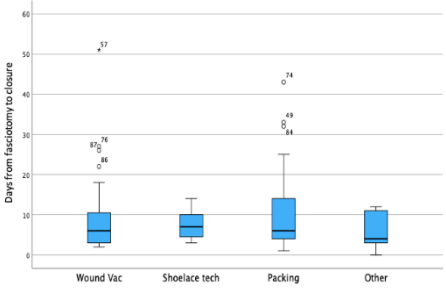


Figure 2: Time from fasciotomy to wound closure per primary wound management.



Conclusion: Our study preliminarily found a trend towards increasing time to closure in patients treated with dual vs. single incision fasciotomy for lower leg compartment syndrome. Wound management at time of fasciotomy significantly favored wound vac or shoelace technique over packing, which was associated with increased likelihood of skin grafting for definitive closure and delayed closure. ISS was predictive of delayed closure. Limitations include that this analysis does not account for dual incision fasciotomy that could be closed partially by primary intention and partially with skin grafting. Further studies will be required to fully describe patient factors that may predispose to risk of delayed closure or complications in the setting of lower extremity fasciotomy.

M13. IMPACT OF BODY MASS INDEX ON OUTCOMES FOLLOWING MENISCECTOMY: A RETROSPECTIVE COHORT STUDY

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Background: Meniscectomy are among the most common orthopedic procedures, yet the influence of body mass index (BMI) on recovery remains underexplored. Patient-reported outcomes, such as the Knee Injury and Osteoarthritis Outcome Score (KOOS), offer valuable insights into recovery trajectories and functional improvements. This study investigates the relationship between BMI and KOOS outcomes in meniscus surgery patients.

Methods: A retrospective review was conducted of adult patients (≥18 years) who underwent meniscectomy between January 2001 and December 2020, screened by CPT code (29880-29882). Patients with at least six months of follow-up were included. BMI was categorized as <25 kg/m², 25-30 kg/m², and >30 kg/m². KOOS subscales (Pain, Symptoms, Sports/Recreation, Quality of Life, and Activities of Daily Living) were analyzed using regression models adjusted for demographic and clinical variables.

Results: 1686 patients underwent meniscectomy during the study period (age 48.43±15.31 years; 59.1% male, BMI 30.34±6.18). Of these, 693 had patient reported outcomes available from at least 12 months of follow-up. Preoperative KOOS sub-scales are outlined in Table 1. Table 2 demonstrates the correlation between KOOS sub-scales and patient preoperative BMI both preoperatively and at 1 year of follow-up. Higher BMI was significantly associated with worse KOOS scores pre-operatively and at follow-up. Additionally, higher BMI was associated with a lack of improvement on KOOS postoperatively. The effect size, while statistically significant, was modest, highlighting a consistent, yet clinically moderate, impact of BMI on recovery. The substantial sample size (n = 693) provided robust power for these associations.

Conclusion: BMI is a significant predictor of worse patient-reported outcomes both pre- and post-operatively in patients undergoing meniscectomy procedures. Our findings additionally emphasize higher BMI as negatively impacting patient's improvement after surgery; however, the effect size suggests other factors may play a more dominant role. These results advocate for tailored pre- and post-operative management strategies and further research to elucidate the interplay between BMI and meniscectomy outcomes.

Table 1: Preoperative PROM for meniscectomy procedures

Sub-scale	*Mean*	*Standard Deviation*
KOOS Daily Living	55.26	20.98
KOOS Pain	49.43	18.81
KOOS PS	47.11	16.72
KOOS Quality of Life	25.40	19.41
KOOS Sports andR ecreational Activities	28.91	24.58
KOOS Symptoms	52.30	18.08
KOOS JR	51.49	14.58

Table 2: PROM Correlation to BMI (preop vs. 1-year follow up)

Sub-scales	*BMI correlation*	*Preop:*	*1-year FU*
KOOS Daily Living	Pearson Correlation	-.260**	-.218**
	Sig. (2-tailed)	**<.001**	**<.001**
	N	1671	644
KOOS Pain	Pearson Correlation	-.244**	-.173**
	Sig. (2-tailed)	**<.001**	**<.001**
	N	1672	647
KOOS PS	Pearson Correlation	.210**	.203**
	Sig. (2-tailed)	**<.001**	**<.001**
	N	1629	634
KOOS Quality of Life	Pearson Correlation	-.166**	-.167**
	Sig. (2-tailed)	**<.001**	**<.001**
	N	1672	642
KOOS Sports and Recreational Activities	Pearson Correlation	-.146**	-.199**
	Sig. (2-tailed)	**<.001**	**<.001**
	N	1671	642

M14. Predicting Morbidity and Mortality in Geriatric Trauma

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Background: Trauma in older adults (age ≥65) is an increasingly critical public health concern due to demographic shifts and greater life expectancy.
According to the U.S. Centers for Disease Control and Prevention, falls remain the leading cause of injury-related morbidity and mortality among older adults, accounting for nearly three million emergency department visits annually. Decreased physiologic reserve, multiple comorbidities, and polypharmacy can complicate both initial presentation and subsequent hospital course in this population. Therefore, identifying factors which predict higher rates of complications or increased risks of major hospital events in this susceptible population may facilitate the improvement of care, decreasing morbidity, mortality and health-care related expenditures.

Methods: We reviewed the American College of Surgeons' Trauma Quality Improvement Program (TQIP) Benchmark Report for Fall 2024 to examine the risk profile of the geriatric trauma population (age ≥65) at Erie County Medical Center. The TQIP Benchmark report contains all trauma patients aged ≥16 admitted to our Level I trauma center between April 2023 and March 2024 who met the TQIP inclusion criteria, in comparison to TQIP national benchmarks and sub cohort averages. Risk-adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated by TQIP national logistic models. Based on this risk profile, we subsequently queried the ECMC Trauma Registry for all geriatric trauma patients (age ≥65) admitted to ECMC trauma center from 2010-2024 to more thoroughly examine the risk factors that contribute to morbidity and mortality in geriatric trauma patients.

Results: Of the 1,616 TQIP-eligible admissions at our center, 712 (44.1%) involved geriatric patients. Falls were the most common mechanism of injury (77.7%), aligning closely with national data (~78.7%). Initial injury assessments (e.g, Injury Severity Score, Systolic Blood Pressure, Glasgow Coma Scale) were comparable to national benchmarks, However, our geriatric patients exhibited elevated rates of major hospital events (OR 2.23; 95% CI 1.71–2.90), placing them in the highest outlier decile. While overall mortality for this cohort was not statistically different from national benchmarks (OR 1.17; 95% CI 0.89–1.54, decile 8), several in-hospital complications exceeded TQIP averages. Notably, the major hospital events rate (e.g., unplanned ICU admissions, unplanned return to the OR, ventilatorassociated pneumonia, and other severe complications) placed the geriatric population in the highest outlier category (OR 2.23; 95% CI 1.71–2.90, decile 10). Unplanned ICU admissions reached 5.6% versus 3.6% in the TQIP average, and unplanned returns to the operating room were 2.1% compared with 1.2% nationally. Pressure ulcers (4.9% vs. 0.8% TQIP average) and delirium (11.8% vs. 3.8%) were also significantly elevated, mirroring the broader upward trend in major hospital events. Additional insights from cohort-level analyses revealed high rates of comorbidities— 42.4% had three or more pre-existing conditions—potentially contributing to longer median lengths of stay (7 days vs. 6 in TQIP) and increased complication risk. Logistic regression analysis of data from the ECMC Trauma Registry is underway to examine patient factors (including demographics, pre-existing conditions, co-morbidities, and mechanism of injury) associated with primary outcome measures of morbidity (complications) and mortality. Secondary outcomes including hospital length of stay, ICU admission, ICU length of stay, ventilator days and discharge disposition will also be analyzed. These analyses will allow the generation of odds ratios which we will be utilized to calculate aggregate weights for each factor to develop a scoring system to help guide clinical decision making.

Conclusions: Although injury severity at presentation was generally moderate among the geriatric population, these patients experienced disproportionately high complication rates, particularly unplanned critical care interventions and hospitalacquired conditions. These findings underscore the importance of generating targeted protocols to mitigate the risk of complications and mortality in our geriatric trauma population. The creation of a scoring system to guide clinical decision making is the first of multiple quality improvement initiatives to improve outcomes in this vulnerable and rapidly growing patient population.

M15. Anesthesia Choices and Postoperative Outcomes in Cesarean sections: A Multivariate Analysis of 42,897 Cases

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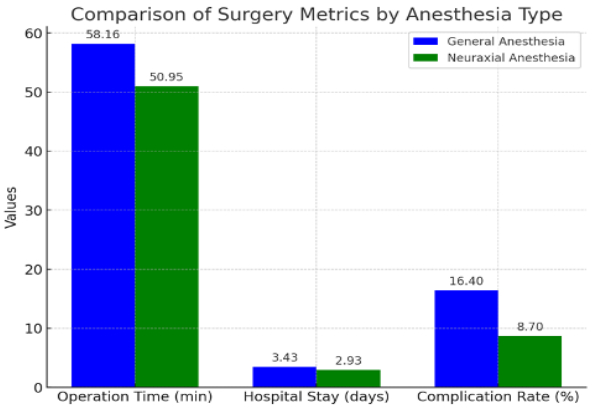
Background: The use of general anesthesia (GA) for cesarean deliveries in the U.S. has declined from 76% in the 1980s to 5.8% today, with higher rates in emergencies and university hospitals (1). This shift is due to the benefits of neuraxial anesthesia (NA), including reduced blood loss, lower transfusion rates, better pain control, and fewer complications. However, GA remains necessary in emergencies, contraindications to NA, and maternal preference (2). Understanding the factors influencing anesthesia choice is essential for optimizing maternal and neonatal outcomes. This study examines 42,897 C-sections to compare baseline characteristics and outcomes between GA and NA.

Methods: The National Surgical Quality Improvement Project (NSQIP) database was queried for cesarean sections (code 59510) from 2019 to 2021. Anesthesia type (GA or NA) was analyzed across ethnicities and complications. Patient characteristics included race, age, BMI, dyspnea, smoking status, heart failure, hypertension, kidney disease, and bleeding disorders. Outcomes assessed were postoperative complications, blood transfusions, operation time, hospital stay, and 30-day mortality. Two-sided t-tests compared GA and NA patients, while multivariable logistic regression adjusted for confounders like age, BMI, race, and comorbidities. Statistical analysis was conducted using SPSS.

Results: 42,897 C-sections from 2019 to 2021 were analyzed, with a mean patient age of 30.7 years. Non-Caucasians were more likely to receive GA (6.2%) than Caucasians (4.6%). GA was linked to longer operation times (58 vs. 51 minutes, $p<0.05$) and extended hospital stays (3.4 vs. 2.9 days, $p<0.05$). The GA group was 73 times more likely to die within 30 days ($p<0.001$) and 89% more likely to develop post-surgical complications (16.4% vs. 8.7%, OR = 1.89, 1.71-2.08, $P<0.001$). Multivariate analysis showed no difference in complications when adjusting anesthesia type for demographics or pre-existing conditions.



Discussion: The study suggests that higher adverse event rates and 30-day mortality associated with general anesthesia (GA) in C-sections are largely influenced by confounding factors. Non-Caucasian patients were more likely to receive GA, indicating potential disparities in anesthetic choice. While unadjusted analyses showed nearly double the complication risk with GA, multivariate analysis suggests patient demographics and pre-existing conditions play a significant role. However, the 73-fold increase in 30-day mortality highlights the potential risks of GA. These findings support prioritizing neuraxial anesthesia when feasible while ensuring anesthetic choice is individualized based on patient needs and procedural factors.

M16. Comparative Analysis of Large Language Models for the Autonomous Prediction of Trauma Triage Level

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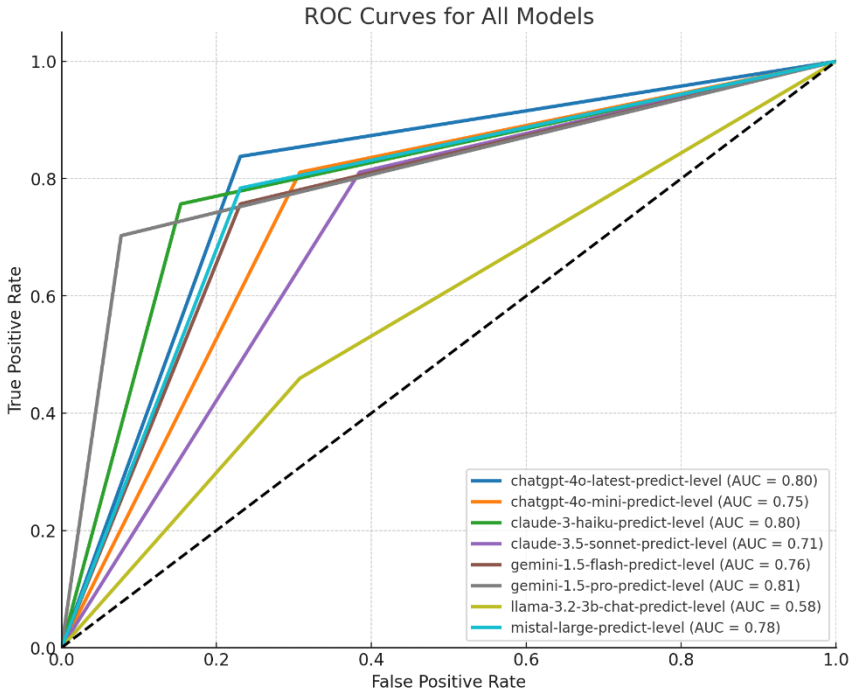
Department of Surgery, SUNY at Buffalo Jacobs School of Medicine and Biomedical Sciences

Background: Triaging incoming trauma victims accurately is an essential task for effective trauma services delivery. We hypothesize that large language models (LLMs) can accurately predict triage level when prompted with a trauma scenario and will present a cost-effective solution for trauma services activation notifications.

Methods: 50 simulated scenarios were extracted from trauma educational materials and scored by surgeons according to the ACS Committee on Trauma activation criteria. A structured prompt for the LLM queries was engineered to generate predicted trauma activation level and a summary of the encounter. Unify.ai was used to simultaneously route prompts to eight different LLMs to compare performance. The performance of each LLM was assessed by calculating the precision, accuracy, recall, and F1 scores by comparison of LLM predictions to the human-scored ground-truth.

Results: All tested LLMs were capable of generating reliable trauma triage level predictions but with varying performance; ChatGPT-4o-Latest achieved the highest F1 score (0.766), while LLaMA-3.2-3B-Chat had the lowest (0.506). Figure 1 visualizes LLM performance in identifying Level 1 trauma activations with receiver operator characteristic curves, demonstrating the trade-off between true positive rate and false positive rate for each model.

Conclusions: The 8 tested LLMs are capable of predicting trauma triage levels without additional training, potentiating a cost-effective solution to improve trauma care. However, work will be needed to finetune models to perform at acceptable levels to function clinically.



M17. Introducing a novel financial navigation program for cancer patients in Nigeria: A Pilot Survey of Stakeholders

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Background
Increasingly, evidence points to the efficacy of financial navigation (FN) in mitigating the risk of financial catastrophe (FC) in cancer patients. Nigerian cancer patients are particularly susceptible to FC. Here, we assess the feasibility of implementing a FN program at two cancer centers in Southwestern Nigeria. Findings will inform a prospective trial investigating the impact of FN on cancer care in Nigeria.

Methods
This cross-sectional study used a fourteen-question survey to assess the perceptions of stakeholders at the Lakeshore Cancer Center (LCC) and Obafemi Awolowo University Teaching Hospital Complex (OAUTHC) on the feasibility of implementing a FN program for patients undergoing breast and colorectal cancer care. Survey questions were generated using the RE-AIM framework. All staff involved in patient care, including healthcare providers, researchers, and support staff were considered stakeholders and invited to complete the survey. All responses received were included in the results. Survey findings were reported using descriptive analysis.

Results
Twenty-eight stakeholders responded, with most being physicians (60.7%). Most (85-89%) liked the idea and approved of the use of financial navigators (FNs) in cancer treatment. Over 75% believed that assigning FNs to these patients was suitable, fitting, and applicable. Almost half (43%) did not agree that FNs seemed easy to use.

Conclusion
There is a perception deficit in the ease of use of FNs in the care of breast and colorectal cancer patients at two major cancer centers in Nigeria. Further research will focus on identifying the reasons underlying this perception deficit and designing FN strategies appropriate for the Nigerian context.

M18. Development of a Novel Computer Vision Model for Signal Optimization Using Visible and Near-Infrared Fluorescence (NIRF) Imaging in Laparoscopic Cholecystectomy

Brian R. Quaranto MD[1], Kaity Tung MD[1], Ascharya Balaji[1], Emily Hannah[1], Gabriela Miletsky[1], Joshua Marek[1], Brendan Fox[1], Garrett Skinner MD[1], Gene Yang MD[1], Shinil K. Shah DO[2], Carroll M. Harmon MD PhD[1], P. Ben Ham MD MS[1], Steven D. Schwaitzberg MD[1], Peter C.W. Kim MD PhD[1]

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Background

Achieving the critical view of safety and visualizing the extrahepatic bile ducts (EHBD) using NIRF improves patient safety and surgeon confidence in laparoscopic cholecystectomy (LC). Obtaining ideal NIRF signals in EHBD, however, is often limited by high background noise despite efforts to optimize dose and timing. Various artificial intelligence approaches have emerged for anatomical segmentation in LC but remain limited to white light imaging (WLI). Herein, we report a novel computer vision model trained with both WLI and NIRF imaging aimed at enhancing the EHBD signal-to-background ratio during LC.

Methods

A multi-institution adult and pediatric LC video database was curated from 2019 to 2024 (n = 853). Short videos with both WLI and NIRF use were identified and sampled at 2 frames per second. EHBD, liver, and instruments in both WLI and NIRF were labeled, resulting in a dataset with 3,717 labeled images. Using Roboflow, a computer vision instance segmentation model was then trained with YOLOv11.

Figure 1a: Comparison of Computer Vision Model Performance Metrics for Anatomical Segmentation in LC

Study	Model	Dataset	mAP (%)	Precision (%)	Recall (%)
Our Model: Quaranto et. al (2024)	YOLOv11	Custom Annotated **(WLI + ICG)**	81.1	84.1	74.9
Alabi et al. (2024)	Mask R-CNN	CholecInstanceSeg (WLI only)	62.0	65.0	60.0
Tashtoush et al. (2024)	YOLOv8	Custom Annotated (WLI only)	86.0	85.4	Not reported
Alkhamaiseh et al. (2023)	U-Net with Auto-Encoder	Custom Annotated (WLI only)	74.7	93.9	92.0
Yang et al. (2024)	CPPN	Custom Annotated (WLI only)	85.5	Not reported	Not reported
Madani et al. (2022)	U-Net CNN	Custom Annotated (WLI only)	71.0	83.0	80.0

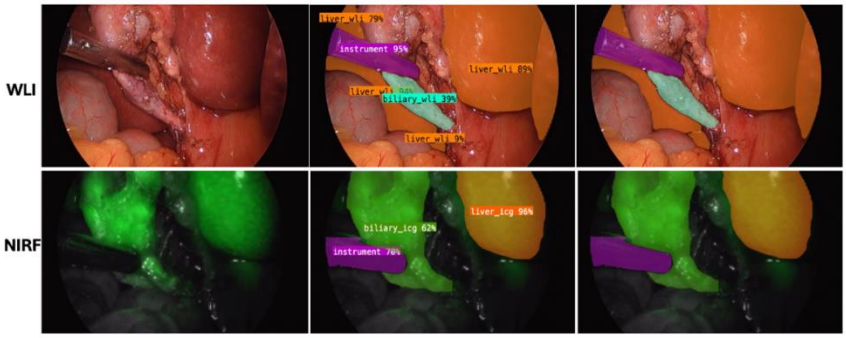
Results

Model performance was assessed after 169 training epochs, demonstrating a mean Average Precision (mAP) of 81.1%, Precision of 84.1%, and Recall of 74.9%. We demonstrate overall model performance comparable to the published literature (Figure 1a) and highlight its unique ability to effectively segment structures in both WLI and NIRF conditions (Figure 1b).

Conclusion

We present the first model capable of reliably identifying anatomy during LC in both WLI and NIRF imaging conditions. This approach can enhance signal visualization by reducing background noise and lays the foundation for achieving NIRF benefits without requiring pharmacological agents.

Figure 1b: Demonstrating Our Model Output in Varying Lighting Conditions



Jacobs School of Medicine and Biomedical Sciences
University at Buffalo

Unmoderated Poster Presentations

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1. **"Does Immune Cell Composition Influence Pathological Complete Response in Breast Cancer? A Comparison of IHC and PAM50 Subtypes"**
   Kohei Chida, Nan An, Takeru Kayahara, Shuliang Yu, John M. L. Ebos, Kenichi Hakamada, Li Yan, Kazuaki Takabe

2. **"Is it Gossip or Feedback? Surgical Attendings' Perceptions of Gossip within Residency"**
   Joseph C L'Huillier, John M Woodward, Sarah Lund, Connie Y Gan, Rebecca Moreci, Caitlin Silvestri, Riley Brian, Jorge G Zarate Rodriguez, Joshua Roshal, Bobbie Ann Adair White

3. "**Computer Vision Enhanced Near-Infrared Fluorescence Cholangiography: Towards Clearer Intraoperative Imaging for Precision in Laparoscopic Cholecystectomy"**
   Brian R. Quaranto MD, Garrett Skinner MD, Kaity Tung MD, Emily Hannah, Ascharya Balaji, Joshua Marek, Gabriela Miletsky, Gene Yang MD, Shinil K. Shah DO, Carroll M. Harmon MD PhD, P. Ben Ham MD MS[1], Steven D. Schwaitzberg MD, Peter C.W. Kim MD PhD

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5. **"Surgeon Attitudes on Consent Discussions for Laparoscopic Cholecystectomy and Video Recorded Consents: A Multicenter Survey"**
   John M. Woodward; Cara Jones; Joseph C. L'Huillier; Sarah Lund; Justine Broecker; Nicole Santucci; Noosha Deravi; Maya Hunt; Steven D. Schwaitzberg; Clarice A. Cooper

6. **"Primary vs Secondary Healing of Muscle Flaps for Groin Wound Reconstruction: A Single Institution Experience"**
   Katherine Kozlowski BS, Callista Zaronias BS, Cody Fowler MD, Brielle Raine MD, Clinton Morrison MD

7. **"How Omitting Axillary Lymph Node Dissection Affects Adjuvant Abemaciclib Eligibility in HR+/HER2− Breast Cancer with Positive Sentinel Lymph Nodes"**
   Kei Kawashima, Mahato Sasamoto, Masanori Oshi, Akimitsu Yamada, Kazutaka Narui, Itaru Endo, Kazuaki Takabe

8. **"Trends and Outcomes of Thoracoscopic Esophageal Atresia and Tracheoesophageal Fistula Repair 2016-2022"**
   John M. Woodward, Owen Cordaro, Aaron Orellana, Lindsey Caines, Krystle Bittner, Patricia Corujo Avila, Katherine Foote, Rhys Mendel, Michael LaRock, Carroll M Harmon, P. Benson Ham III

9. **"Twist and Shout, but Don't Take it Out: An Analysis of Pediatric Surgeons' Practices for Ovarian Torsion from 2016-2022"**
   John M. Woodward, Katherine Foote, Melanie Tacher Otero, Krystle Bittner, Patricia Corujo Avila, Katherine Foote, Medjie Chery, Walker Black, Michaael LaRock, Owen Cordaro, Rhys Mendel, Andrew Nordin, Peter Kim, Carroll M. Harmon, P. Benson Ham III

10. **"Non-Visualized Appendix on Ultrasound: A Retrospective Analysis of Follow Up Cross Sectional Imaging and Clinical Pediatric Appendicitis Scoring"**
John M. Woodward, Stephanie Brierley, Aaron Orellana, Patricia Corujo Avila, Rhys Mendel, Walker Black, Owen Cordaro, Krystle Bittner, Mike LaRock, Katherine Foote, Andrew B. Nordin, Carroll M. Harmon, P. Benson Ham III

11. **"The Impact of ACS Verification Programs: A Systematic Review"**
Geoffrey Hobika MD. Sarah Remer MD. Connor Ullery BS. Arielle Grieco MPH PhD. Frank Opelka MD FACS. Mark E Cohen PhD. Clifford Ko, MD MS MSHS FACS.

12. **"A Retrospective Review of a Post-Operative Pyloromyotomy Scheduled Feeding Protocol"**
John M. Woodward, Patricia Corujo Avila, Lindsey Caines, Krystle Bittner, Medjie Chery, Michael LaRock, Rhys Mendel, Katherine Foote, Walker Black, Owen Cordaro, Andrew B. Nordin, Carroll M. Harmon, P. Benson Ham III

13. **"Establishing A Surgical Esophageal Function Testing Lab In An Underserved Area: Early Outcomes And Patient Benefits"**
Sara M Jensen, MD; Abigail Bennett, DO; Peter Muscarella, II, MD, FACS; Steven D Schwaitzberg, MD, FACS

14. **"Ophthalmology Consultation and Outcomes in Orbital Fracture Management: A Retrospective Analysis"**
Katherine Kozlowski BS, Jason Degiovanni MD, Cynthia Nguyen BS, Andre Rafizadeh MD1, Jordan Frey MD

15. **"Open vs. Closed Patella Fractures: A Retrospective Cohort"**
Emilie Harley**,** Idem Essien BA, Ellen Lutnick MD, Ryan Riley DO, Karim Belal, Christopher Mutty MD

16. **"Effect of Cannabis Use on Postoperative Opiate Requirements After Long Bone Fracture"**
Katherine K, MS; Jacob M, MS; Siderah P, MS; Ellen L, MD

17. **"Effect Of Body Mass Index On Primary Anterior Cruciate Ligament Reconstruction Outcomes: A Retrospective Review"**
Fuller SI, MD; Wong D, BS; Dougherty J, BA; Lutnick E, MD; Bousleiman J, BA; Haider MN, MD; DelPrince C, MD

18. **"Effect Of Covid-19 On Orthopedic Injuries Due To Assault"**
Michael Toledano MPH, Rhys Mendel BS, Thomas Ryan BS, Alexandra Wadhwani MA, Dominik Kucharski BS, Grayson Pawlowski MA, Ellen Lutnick MD

19. **"Using Interviews of Lay Caregivers to Identify Modifications to a Single Website for Kidney Transplant Access"**
Niaya Jackson BS, Matthew Handmacher MD, Anne Solbu PhD, Maria Keller PhD, Liise K. Kayler MD MS

20. **"Disparities In Orthopaedic Clinic Care: A Retrospective Review"**
Ellen Lutnick MD, Alexandra Wadhwani MA, Rhys Mendel BS, Thomas Ryan BS, Jamie Bousleiman BA, Joseph Barbarino MS, Michael Toledano MPH, Andrew Stegemann DO

21. **"The Use of Xenografts in Extremity Reconstruction: A Literature Review"**
Ariel Harsinay, Kelly Andrien, Suhaib Azam

22. **“A Novel Approach to Atypical Periprosthetic Femoral Fractures with Stem Breakage”**
Nicholas Frappa, DPT, MS; Danil Chernov, MA; Matthew G. Alben, DO; Alexander Kovacs, MD; Sean Martin, MD; Evgeny Dyskin, MD, PhD

23. **“GLP-1 and its role in glycogen production: a narrative review”**
Joseph Lotosky, Xavier Jean, Anungoo Altankhuyag, Saqib Khan, Ashley Bernotas, Alan Posner and Panayotis K. Thanos

U1. Does Immune Cell Composition Influence Pathological Complete Response in Breast Cancer? A Comparison of IHC and PAM50 Subtypes

Kohei Chida[1,2,#], Nan An[3,#], Takeru Kayahara,[4] Shuliang Yu[3], John M. L. Ebos[5], Kenichi Hakamada[2], Li Yan[3], Kazuaki Takabe[1,6]

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Background: Our group previously reported that immune cells associated with pathological complete response (pCR) differ among breast cancer (BC) subtypes defined by immunohistochemistry (IHC). Given that PAM50, a molecular-based classification, better captures tumor heterogeneity, we hypothesized that infiltrating immune cells that associate with pCR are different between IHC and molecularly defined PAM50 subtypes.

Methods: A systematic review of GEO datasets for cohorts treated with anthracycline-based neoadjuvant chemotherapy (NAC) identified 24 cohorts reporting IHC subtypes and 19 cohorts where PAM50 was calculated. To assess pCR-immune cell associations, CIBERSORT algorithm was used to estimate immune cell composition, and odds ratios were pooled using random-effects meta-analysis.

Results: Follicular helper T cells were linked to pCR in TNBC and Basal subtype. γδT cells were associated with pCR in ER+/HER2+ and HER2+ (IHC, PAM50) but not in LumA/LumB. Tregs were associated with residual disease (RD) only in LumB. Memory B cells were associated with pCR in LumA, while naïve B cells were linked to RD in LumB. Plasma cells were associated with pCR in ER+/HER2+ and LumB but RD in HER2+ (IHC). Resting NK cells were linked to RD in ER+/HER2+ and in HER2+ (IHC, PAM50) but not in LumA/LumB. M1 macrophages were associated with pCR in ER+/HER2+ and TNBC but not in Basal subtype. M2 macrophages was associated with RD in ER+/HER2+ but not in LumA/LumB.

Conclusions: Our analysis identified key immune cell types associated with treatment response and revealed distinct immune cell differences between IHC and PAM50 subtypes in relation to pCR in BC.

U2. Is it Gossip or Feedback? Surgical Attendings' Perceptions of Gossip within Residency

Joseph C L'Huillier[a] (Resident), John M Woodward[a] (Resident), Sarah Lund[b], Connie Y Gan[cd], Rebecca Moreci[ef], Caitlin Silvestri[e], Riley Brian[f], Jorge G Zarate Rodriguez[g], Joshua Roshal[hi], Bobbie Ann Adair White[j]

Departments of Surgery at the University at Buffalo[a], Mayo Clinic[b], Oregon Health & Science University[c], Stanford[d], Louisiana State University[e], University of Michigan[f], New York Presbyterian/Columbia University[e], University of California San Francisco[f], Washington University in St. Louis[g], University of Texas Medical Branch[h], Brigham and Women's Hospital[i], Baylor Scott and White[j]

Background: Gossip—evaluative talk about an absent third party—exists in surgical residency programs. Attending surgeons may engage in gossip to provide residents with feedback on performance, which may contribute to bias. Nevertheless, the perspectives of attending surgeons on gossip has not been studied.
Methods: In this qualitative study, semi-structured interviews about gossip in surgical training were conducted with attending surgeons. Eighteen surgery attendings associated with 7 surgical training programs were interviewed. We performed a reflexive thematic analysis of transcripts with a grounded theory approach to describe attendings' perceptions of their role in gossip within surgical residency.
Results: Six themes were developed: 1) Attendings typically view gossip with a negative lens; thus, well-intended conversations about resident performance that meet the academic definition of gossip are not perceived as gossip; 2) Gossip can damage attendings' reputations as surgeons and educators; 3) Mitigating the negative impacts of gossip by maintaining accurate and objective standards of honest communication is hard; 4) Attendings express concerns about hearing other attendings' impressions of residents prior to formulating their own opinion; 5) The surgical hierarchy restricts the volume and content of gossip that reaches attendings, which may limit their knowledge of program culture; and 6) It is very difficult to mitigate gossip at the program level. Ultimately, attendings utilize gossip (e.g. triangulating their experience) with the goal of providing residents feedback (Figure).

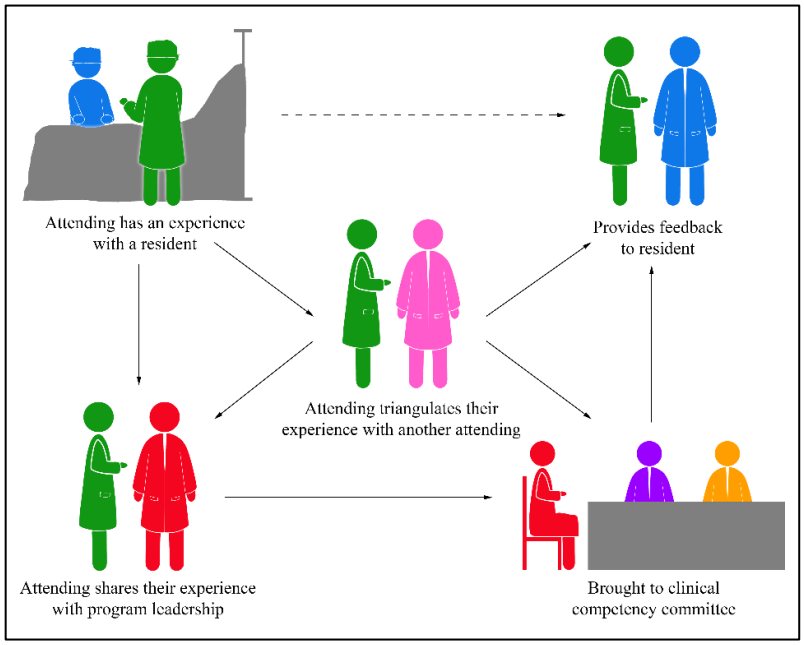

Figure: Concept model showing the interplay between attending gossip and feedback in surgical residency. Dashed line represents the only mode of feedback that does not involve gossip.

Conclusion: Defining important conversations about resident performance as gossip should not discourage these critically important conversations but rather underscore the importance of combating harmful gossip through 3 behaviors: 1) committing to objective communication; 2) limiting or reframing information about resident performance that is shared with attendings who have yet to formulate their own opinions; and 3) regulating gossip in particular high-stakes microenvironments (e.g. the operating room).

U3. Computer Vision Enhanced Near-Infrared Fluorescence Cholangiography: Towards Clearer Intraoperative Imaging for Precision in Laparoscopic Cholecystectomy

Brian R. Quaranto MD[1], Garrett Skinner MD[1], Kaity Tung MD[1], Emily Hannah[1], Ascharya Balaji[1], Joshua Marek[1], Gabriela Miletsky[1], Gene Yang MD[1], Shinil K. Shah DO[2], Carroll M. Harmon MD PhD[1], P. Ben Ham MD MS[1], Steven D. Schwaitzberg MD[1], Peter C.W. Kim MD PhD[1]

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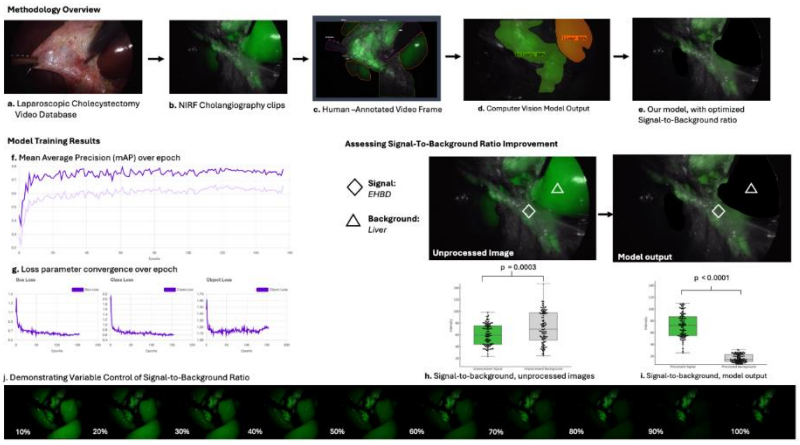
Background: Despite the advantage of displaying enhanced extrahepatic biliary duct (EHBD) signals over white light imaging, the use and interpretation of indocyanine green (ICG)-based near-infrared fluorescence (NIRF) imaging remain highly subjective, variable, and suboptimal due to the background ICG noise in the liver. We hypothesize that improving the signal-to-background ratio (SBR) during NIRF cholangiography by use of a computer vision algorithm trained to suppress the hepatic parenchymal signals will facilitate visualization of the critical structures in the hepatocystic triangle, thus improving surgeon visual perception and ultimately increasing safety.
Methods: A multi-institution laparoscopic cholecystectomy (LC) video database was curated from 2019 to 2024 (n = 853) (Figure 1a). Video sequences with NIRF use were identified, resulting in 331 unique clips which were sampled at 2 frames per second (Figure 1b). Roboflow was used for manual instance segmentation labeling of three classes: EHBD, liver, and instruments (Figure 1c). These human-labeled images were augmented using rotation, shear, blur, noise, saturation, and brightness variation resulting in a dataset with 2,321 labeled images. A computer vision instance segmentation model was then trained with YOLOv11 using the COCOs-seg checkpoint (Figure 1d, 1e). To test the visual impact of our computer vision model, we analyzed the SBR (as defined by signal intensity divided by background intensity) using ImageJ via quantification of the color intensity of the EHBD (signal) and liver (background) before and after our computer vision model was applied on n =100 unique images.
Results: *Computer Vision Model Performance*: After training for 156 epochs, model performance was assessed. Performance evaluation showed reliable object detection and classification, with high precision indicating few false positives and balanced recall reflecting comprehensive identification across classes (mean Average Precision [mAP]: 78.0%, Precision: 80.7%, Recall: 73.3%) (Figure 1f). Loss parameters were optimized to 0.63 for box loss, 0.62 for class loss, and 1.182 for object loss, underscoring the model's effective convergence across key segmentation tasks (Figure 1g). *SBR Assessment*: Unprocessed images demonstrated a mean SBR of 0.83 +/- 0.67, suggesting limited intensity difference between signal and background. Processing these images using our model significantly improved the mean SBR to 4.46 +/- 3.06, (t=-6.35, $p<0.0001$) (Figure 1h, 1i). We demonstrate variable control of the SBR via alpha channel manipulation of the background mask during model inference, which can be adjusted for user preference (Figure 1j).
Conclusions & Future Directions: We demonstrate the development of a computer vision model aimed specifically at improving SBR during NIRF cholangiography in LC.



U4. Publish or Perish: How Long Does it Take for Residents to Get a Manuscript Accepted?

Joseph C L'Huillier[a] (Resident), John M Woodward[a] (Resident), Jorge G Zarate Rodriguez[b], Riley Brian[c], Rebecca Moreci[d], Justine Broecker[c], Rajika Jindani[e], Connie Y Gan[f], Ariana Nasseh[b], Michael Kochis[g], Joshua Roshal[h], Tejas Sathe[i], Colleen McDermott[j], Darian Hoagland[k], Caitlin Silvestri[i], Sarah Lund[l]

Departments of Surgery at the University at Buffalo[a], Washington University in St. Louis[b], University of California San Francisco[c], Louisiana State University[d], Montefiore Medical Center[e], Oregon Health & Science University[f], Massachusetts General Hospital[g], University of Texas Medical Branch[h], Columbia University[i], University of Utah[j], Beth Israel Deaconess Medical Center[k], Mayo Clinic[l]

Background: Publications are a key metric of research productivity. Manuscripts often require multiple submissions prior to acceptance. However, the average trainee's understanding of this process is unknown. Therefore, we aimed to analyze trends in submission timelines for ultimately accepted manuscripts and compare timelines between surgical education and non-surgical education publications.

Methods: Members of the Collaboration of Surgical Education Fellows (CoSEF), a multi-institutional group of surgical trainees with an academic interest in surgical education, submitted data regarding the timelines of their published manuscripts. Surgical education manuscripts were compared to non-surgical education manuscripts. Medians and IQRs were reported.

Results: We included 152 manuscripts from 16 researchers (median=7/researcher) from 13 residency programs. The most common study design was a retrospective cohort study (53%, n=65) and half were about surgical education (50%, n=76). Time from first submission to acceptance was 122 days (IQR 73-189), of which 19 days (IQR 5-52) were with the author undergoing revisions and 93 days (IQR 53-128) were with the journal undergoing review. Manuscripts were submitted 2 times (IQR 2-3) to 1 journal (IQR 1-2). There were no differences in time metrics between surgical education and non-surgical education projects (Table).

Time metric, median (IQR)	Surgical Education (n = 76)	Non-Surgical Education (n = 55)	*p*-value
First submission to acceptance (days)	130 (73-189)	117 (77-181)	0.83
Number of total submissions to acceptance	2 (2-3)	2 (1-3)	0.61
Number of unique journal submissions to acceptance	1 (1-2)	1 (1-2)	0.11
Days with author (undergoing revisions) since first submission	28 (7-57)	17 (0-51)	0.77
Days with journal (undergoing review) since first submission	95 (57-128)	92 (52-138)	0.85

Table: Differences in time metrics between surgical education and non-surgical education research projects.

Conclusion: Our experience suggests that resident researchers can anticipate submitting a manuscript 2-3 times to 1-2 journals over 3-6 months to secure an acceptance, regardless of research topic. Articles spend twice as long undergoing review as they do revisions between reviews. The editorial review process for surgical education manuscripts is no longer than that for manuscripts on other topics. Shortening journal review times and incentivizing reviewers would speed the publication process.

U5. Surgeon Attitudes on Consent Discussions for Laparoscopic Cholecystectomy and Video Recorded Consents: A Multicenter Survey

John M. Woodward; Cara Jones; Joseph C. L'Huillier; Sarah Lund; Justine Broecker; Nicole Santucci; Noosha Deravi; Maya Hunt; Steven D. Schwaitzberg; Clarice A. Cooper

Department of Surgery, Jacobs School of Medicine and Biomedical Sciences

Background: Informed consent for laparoscopic cholecystectomy occurs everyday, however limited consensus on what should be included in this discussion exists. We aim to capture surgeon attitudes regarding: what should be included in consent discussions, video recording consents, and impacts of common bile duct (CBD) injury.
Methods: A multi-institutional survey was developed assessing surgeons' perceptions regarding the importance of discussing various risks associated with laparoscopic cholecystectomy for symptomatic cholelithiasis, and self-reported frequency discussing each risk. Survey distribution occurred at Washington University (St. Louis), UCSF, UTSW, Mayo-Florida, Mayo-Rochester, MedStar Georgetown, Indiana Health and through X posts amplified by SAGES to their followers. Responses outside the United States were excluded. Chi-square/fisher's exact testing was performed on yes/no and Likert-style questions comparing individuals with and without a prior CBD injury. Thematic analysis was performed on open-ended responses.
Results: Overall, 87 responses were analyzed. The most important risks to discuss (Median "Very Important") included conversion to open, bile leak, impact of prior abdominal surgery and CBD injury (Table 1). Of respondents, 31% reported a previous CBD injury, with 14% of surgeons reporting CBD injuries undergoing subsequent legal proceedings. Respondents with a CBD injury both assigned increased importance to, and discussed more frequently, additional risks compared to surgeons without a CBD injury ($p<0.05$). Overall, 71% of patients with a CBD injury and 52% of surgeons without a CBD injury ($p=0.082$) were willing to record their consent discussion and provide it to patients to review prior to surgery. Those who opted against recording were concerned about potential legal ramifications.
Conclusion: This study works toward developing consensus on risks to include in consent discussions for laparoscopic cholecystectomy. Conversion to open, common bile duct (CBD) injury, and bile leak are consistently discussed, while other risks (stroke/cardiac event/death) are infrequently addressed by surgeons. Prior CBD injury increases the number of risks discussed by a surgeon and the importance assigned to them. The goal of consent discussions is patient comprehension. Video-recordings of a patient's consent made available for their review is proposed to improve their understanding; a majority (60%) of surgeons are comfortable with this, however others are concerned about legal ramifications. The consent process needs to continue to evolve through consensus to provide greater clarity, consistency, and transparency for the benefit of patients and surgeons alike.

Figure 1: Assigned importance of discussing different consent elements

Median Importance	Consent Elements
Not Important	Additional Port Placement
Moderately Unimportant	Pneumonia, DVT/PE, Stroke, MI, Out of Pocket Expense
Neutral	Hepaticojejunostomy, Drain Placement, Chronic Pain, Incisional Hernia, Hematoma, Death
Moderately Important	Bleeding Requiring Transfusion, Subtotal Cholecystectomy, Bowel Injury, Post-op Hospital Stay, ERCP, Skin Infection, Abdominal Infection, No Symptom Relief, Post Cholecystectomy Syndrome, Impact of Comorbidities
Very Important	Conversion to Open, Bile Leak, CBD Injury, Impact of Prior Abdominal Surgery

U6. Primary vs Secondary Healing of Muscle Flaps for Groin Wound Reconstruction: A Single Institution Experience

Katherine Kozlowski BS1 , Callista Zaronias BS2 , Cody Fowler MD 2 , Brielle Raine MD 2 , Clinton Morrison MD 2

1Department of Plastic and Reconstructive Surgery, Jacobs School of Medicine and Biomedical Sciences 2Department of Plastic and Reconstructive Surgery, University of Rochester School of Medicine

Background: Groin wounds are a common yet challenging surgical problem. The groin region contains critical structures including the femoral vessels and, in some cases, synthetic graft material from vascular surgery. Open wounds in this region are often reconstructed using muscle flaps from the thigh or abdomen. Following flap inset, the skin may be closed primarily or left to heal by secondary intention. Currently, there is no published literature comparing the outcomes of each closure type. This study aims to compare outcomes of flap-based groin reconstruction between primary closure vs. healing by secondary intention.

Methods: A retrospective review of patients diagnosed with groin wounds and treated with reconstructive muscle flaps by plastic surgeons at a single institution between January 2012 and December 2023 was conducted. Demographics, baseline characteristics, operative details, and postoperative outcomes were collected. Patients were excluded if they lacked adequate follow-up data or deceased before wound healing was achieved. Descriptive statistics were used to summarize patient and operative characteristics. Chi-square, Fisher's Exact Tests, and regression analyses were completed to identify relationships between predictor variables and outcomes where appropriate.

Results: 57 patients met inclusion criteria for this study. The majority were male (n=34, 59.7%) with an average age of 62.6 years. Rectus femoris (n=47) and sartorius (n=9) flaps were most used. 34 (59.6%) patients underwent primary closure while 23 (40.4%) underwent secondary closure. Type of flap, pre-existing medical conditions, smoking status, and synthetic material in the wound did not predict the type of closure ($p>0.05$). All individuals who had prior groin reconstruction underwent primary closure (n=7). There were no significant predictors of postoperative groin infection, bleeding, or donor site complications. In the primary closure cohort, eight patients (22.8%) had wound dehiscence, four of whom required additional surgery. Overall, eight (22.8%) primary closure patients required additional procedures. In the secondary closure cohort, five (21.7%) required an unplanned additional procedure and two (8.6%) underwent planned skin grafting. Rates of additional procedures were comparable across cohorts ($p=0.561$).

Conclusion: Overall, outcomes were similar for both primary closure and secondary intention healing after groin wound reconstruction with muscle flap. Pre-existing patient factors like smoking status, comorbidities, or previously placed synthetic material in the wound should not impact the decision whether to close primarily. Importantly, there were no significant predictors of postoperative complications and rates of additional surgeries between cohorts. This study supports primarily closing groin flaps when able, as it may reduce cost and wound care burden. Presenter: Katherine Kozlowski, MS

U7. How Omitting Axillary Lymph Node Dissection Affects Adjuvant Abemaciclib Eligibility in HR+/HER2− Breast Cancer with Positive Sentinel Lymph Nodes

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Background: The MonarchE trial demonstrated the additional benefit of abemaciclib as an adjuvant endocrine therapy for high-risk patients with hormone receptor (HR)-positive HER2-negative breast cancer. Meanwhile, the ACOSOG Z0011 trial established the omission of axillary lymph-node dissection (ALND) as a standard practice in certain patients with positive sentinel lymph-node biopsy (SNB). However, as the MonarchE eligibility criteria include the presence of four or more lymph-node metastases, omitting ALND may hinder the assessment of abemaciclib eligibility in some cases.

Methods: The study population consisted of patients with clinically node-negative, HR-positive, HER2-negative breast cancer who underwent SNB at our institution between January 2008 and December 2021. The proportion of patients meeting the MonarchE cohort1 criteria, and the potential impact of ALND omission on abemaciclib eligibility were assessed.

Results: Among the 1537 patients, 189 underwent SNB followed by ALND due to the presence of one or more positive sentinel nodes. Of these, 69 (36.5%) were eligible for abemaciclib. Eligibility was uncertain without ALND in 138 patients. Among the 138 patients, 124 were candidates for ALND omission, including 11 who were found to have four or more metastatic lymph nodes after completing ALND.

Conclusion: A few cases were identified in which abemaciclib eligibility was not properly determined due to ALND omission. This suggests that omitting ALND following SNB, when two of fewer positive nodes are detected, may not significantly impact the determination of abemaciclib eligibility.

U8. Trends and Outcomes of Thoracoscopic Esophageal Atresia and Tracheoesophageal Fistula Repair 2016-2022

John M. Woodward, Owen Cordaro, Aaron Orellana, Lindsey Caines, Krystle Bittner, Patricia Corujo Avila, Katherine Foote, Rhys Mendel, Michael LaRock, Carroll M Harmon, P. Benson Ham III

Division of Pediatric Surgery, Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY

Background: Thoracoscopic repair of esophageal atresia (EA) and tracheoesophageal fistula (TEF) is a technically demanding operation with limited working space. Prior analysis on this population found increased reoperation rates for the MIS cohort, however this was on an older dataset. Thoracoscopic operations have decreased complications with increased surgeon volume. We hypothesize that the rate of thoracoscopic repair of EA with TEF over time has increased, and that there is no difference in reoperation between the thoracoscopic and open approaches.

Methods: NSQIP-P was used to identify patients <30 days with EA and TEF who underwent repair of both defects from 2016-2022. Patients were divided into cohorts (1) thoracoscopic/thoracoscopic converted to open and (2) open repair. 1:1 propensity score matching was performed using age, weight, sex, race, cardiac risk factors and ASA class. The primary outcome of interest was reoperation. Pre and post-match comparison between cohorts utilized X^2, Fisher's exact, and Wilcoxon-rank sum tests.

Results: Overall, 1,188 patients were identified. Thoracoscopic repair increased from 2016 (12.0%) to 2022 (29.4%) (p=0.001). After matching 149 patients were in each cohort. While thoracoscopic patients had longer operative times (218 vs. 186 min, p<0.001) there was no difference in organ space infection (indicative of anastomotic leak), related reoperations, any reoperations, or any other outcome variables (Table 1).

Conclusion: Thoracoscopic repair of esophageal atresia with tracheoesophageal fistula has increased to roughly 30% of repairs and is while it is associated with longer OR times unlike prior analyses there is no longer an association with increased reoperations in the MIS cohort. This analysis affirms the short-term safety of thoracoscopic repair of EA and TEF with increasing frequency.

Table 1: Post-match outcomes analysis between MIS and Open repair of EA & TEF patients

Post-Operative Outcomes	MIS: n = 149	Open: n = 149	p-value
Operative Time, min	218.22 (81.82)	186.15 (73.55)	<0.001
Days from Operation to Discharge	17.54 (9.49)	18.62 (9.22)	0.109
Organ Space SSI	3 (2.0%)	2 (1.3%)	1.000
Unplanned Intubation	6 (4.0%)	11 (7.4%)	0.318
Transfusion	7 (4.7%)	14 (9.4%)	0.173
Readmission 30-d	8 (5.4%)	4 (2.7%)	0.378
Reoperation 30-d	9 (6.0%)	10 (6.7%)	1.000
Reop Related	9 (6.0%)	10 (6.7%)	1.000
Reintervention	4 (2.7%)	8 (5.4%)	0.378
Mortality 30-d	0 (0.0%)	0 (0.0%)	-

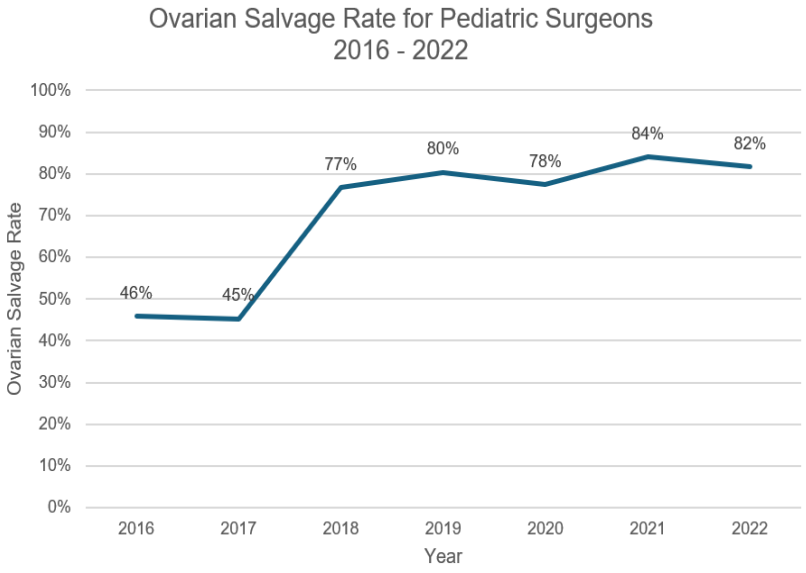
U9. Twist and Shout, but Don't Take it Out: An Analysis of Pediatric Surgeons' Practices for Ovarian Torsion from 2016-2022

John M. Woodward, Katherine Foote, Melanie Tacher Otero, Krystle Bittner, Patricia Corujo Avila, Katherine Foote, Medjie Chery, Walker Black, Michaael LaRock, Owen Cordaro, Rhys Mendel, Andrew Nordin, Peter Kim, Carroll M. Harmon, P. Benson Ham III

Division of Pediatric Surgery, Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY

Background: Ovarian salvage for ovarian torsion has become the standard of care, based on the 2018 APSA outcomes and evidence-based practice committee recommendations; however, the literature reviewing pediatric surgeons and ovarian salvage is still limited. We hypothesized that ovarian salvage performed by pediatric general surgeons has increased over time with equivalent or improved outcomes compared to oophorectomy.

Methods: The National Surgical Quality Improvement Program-Pediatric (NSQIP-P) database was used to identify patients from 2016 – 2022 who were <18 years old, diagnosed with ovarian torsion, and operated on by pediatric surgeons. Patients were categorized into ovarian salvage [surgery on ovary without oophorectomy] and ovarian excision [oophorectomy] based on CPT codes. Exclusion criteria included: fallopian tube torsion alone and surgical excision of ovary as part of oncologic resection. Cohorts were compared utilizing X^2, Fisher's exact, and T-tests, with significance was defined at $p<0.05$.



Results: A total of 1993 pediatric patients met criteria for analysis. In 2016, pediatric general surgeons salvaged the ovary 46% of the time, increasing to 77% in 2018, and to 82% by 2022 (Figure 1). Patients who underwent salvage compared to excision were older (11.97 yr vs 9.60 yr, $p<0.001$) and more likely to have a lower ASA class (ASA 1: 42.1% vs 40.0%, $p=0.005$). Ovarian salvage procedures were shorter than oophorectomies (59.45 min vs. 73.90 min, $p<0.001$). Both cohorts had equivalent outcomes of post-operative wound infection rates ($p>0.4$), readmission (1.6% vs.1.1%, $p=0.516$), and reoperation (1.4% vs 1.1%, $p=0.817$). There was no 30-day mortality.

Conclusion: Pediatric surgeons, in accordance with practice committee recommendations, have increased their rate of ovarian salvage for ovarian torsion to over 80% of cases with lower operative times and equivalent outcomes compared to oophorectomy. These findings highlight the importance and impact of associated publications, presentations, and organizational evidence-based guidelines demonstrating the need for improvement, including by APSA committees.
Presenter: John M. Woodward (Resident) or UB Medical Student

U10. Non-Visualized Appendix on Ultrasound: A Retrospective Analysis of Follow Up Cross Sectional Imaging and Clinical Pediatric Appendicitis Scoring

John M. Woodward, Stephanie Brierley, Aaron Orellana, Patricia Corujo Avila, Rhys Mendel, Walker Black, Owen Cordaro, Krystle Bittner, Mike LaRock, Katherine Foote, Andrew B. Nordin, Carroll M. Harmon, P. Benson Ham III

Division of Pediatric Surgery, Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY

Background:
Appendix visualization on ultrasound can allow prompt evaluation without radiation for pediatric patients. Our institution recently experienced considerable ultrasound technician turnover and high rates of non-visualized appendixes. This study aims to determine clinical pathways for these patients, hypothesizing clinical scoring could help determine need for follow-up imaging.

Methods:
A retrospective review was conducted of suspected appendicitis cases presenting to our ED who received a right lower quadrant (RLQ) ultrasound (2022-2023). Patients with a non-visualized appendix were included. Patients with pediatric surgery consults were stratified by PAS (Pediatric Appendicitis Score): 1-3, 4-6, and 7-10. Analysis included X^2, Fisher's, T-Tests and ANOVA with $p<0.05$.

Results:
Overall, 848 RLQ ultrasounds were performed from 2022 to 2023, with 430 non-visualized appendixes (50.1%). Of non-visualized patients, 87 had pediatric surgery consults (20.2%), and 10 underwent appendectomy (2.3%); however, three (30.0%) were pathologically negative for appendicitis. Patients with consults received CT (54.0%), MRI (16.1%) or no further imaging (29.9%) for additional workup with time to antibiotic administration or discharge at 196 min (no imaging) vs. 452 min (cross-sectional imaging)($p<0.001$). All appendectomies with positive pathology had a PAS score of 7-10 pre-operatively. No non-visualized patient returned to the ED within 30-days with missed appendicitis.

Conclusion:
For patients with a non-visualized appendix, the PAS can help determine which patients are appropriate for further evaluation, as no patient with a score below 7 resulted in confirmed appendicitis. Further assessment can elicit the ability of this strategy to avoid further imaging.

U11. The Impact of ACS Verification Programs: A Systematic Review

Geoffrey Hobika MD [1,2*] Sarah Remer MD.[2,3*] Connor Ullery BS.[1+] Arielle Grieco MPH PhD.[2] Frank Opelka MD FACS.[2] Mark E Cohen PhD.[2] Clifford Ko, MD MS MSHS FACS.[2]

1. University at Buffalo, 2. American College of Surgeons, 3. Loyola University, 4. UCLA, * Resident, + Medical Student.

Introduction: The American College of Surgeons (ACS) verification programs improve surgical care quality by standardizing structures and processes across hospitals. Despite decades of study and implementation, a comprehensive review of their effects on surgical quality has not been published. This systematic review evaluates the association between ACS verification and the STEEEP quality domains (Safety, Timeliness, Effectiveness, Efficiency, Equity, and Patient-Centeredness).

Methods: A systematic literature review was performed via PubMed (Figure 1), identifying all articles pertaining to ACS verification and quality measurement. Inclusion criteria required articles to compare ACS-verified hospitals to non-verified hospitals or to conduct pre-post analysis within verified centers. Two independent reviewers screened studies and performed reliability checks. Outcomes were categorized using the STEEEP framework (Figure 2).

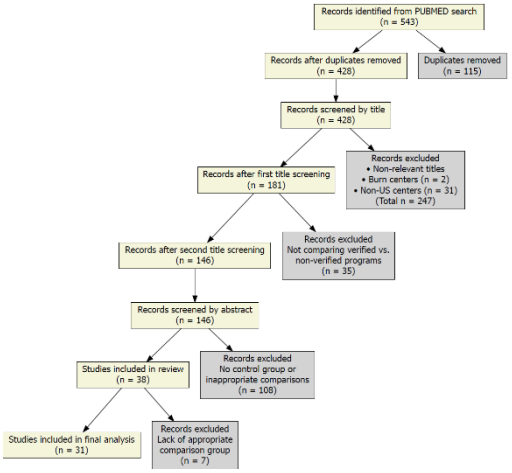


Figure 1 – PRISMA Diagram

Analysis: Each study was mined for its inclusion of quality domains, and whether verification was associated with changes in those domains. Measures were categorized and counted within each domain, with results stratified by positive, neutral, or negative associations.

Results: A total of 543 articles were identified. After screening, 31 articles were included in the final review. When measured, verification was found to be associated with improvements in Safety (59.1%), Timeliness (54.5%), Efficacy (75.0%), Efficiency (42.9%), Equity (100%), and Patient-Centeredness (83.3%) (Table 1).

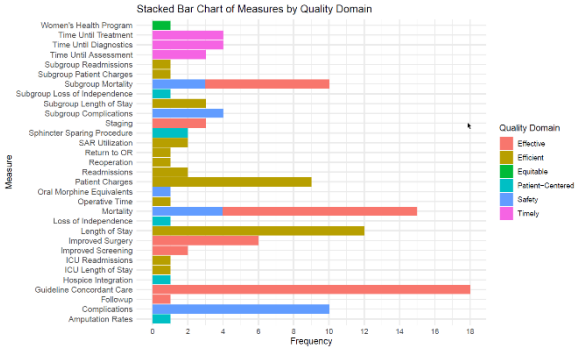


Figure 2 – Measures by Quality Domain

Conclusion: ACS Verification programs were associated with improvements across multiple quality domains, reinforcing their importance in improving surgical care. Future research and program evaluations should focus on standardizing equity reporting and assessing the closure of gaps in care.

Domain	Improved	No Change	Worsened	N =
Safety	59.10%	36.40%	4.50%	22
Timeliness	54.50%	36.40%	9.10%	11
Effectiveness	75.00%	22.90%	2.10%	48
Efficiency	42.90%	42.90%	14.30%	35
Equity	100.00%	0.00%	0.00%	1
Patient Centered	83.30%	16.70%	0.00%	6

Table 1 – Distribution of Measured Changes Stratified by Quality Domain

U12. A Retrospective Review of a Post-Operative Pyloromyotomy Scheduled Feeding Protocol

John M. Woodward, Patricia Corujo Avila, Lindsey Caines, Krystle Bittner, Medjie Chery, Michael LaRock, Rhys Mendel, Katherine Foote, Walker Black, Owen Cordaro, Andrew B. Nordin, Carroll M. Harmon, P. Benson Ham III

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Background: Post-pyloromyotomy feeding protocols have been controversial. Our institution has used a scheduled protocol with quicker advancements than other published protocols. We hypothesize our protocol will decrease postoperative emesis rates and have similar discharge times to published Ad Lib data.

Methods: Retrospective single-institution review (2018-2024) identified infants with hypertrophic pyloric stenosis undergoing laparoscopic repair who received our standard postoperative protocol: NPO x 4 hours, then 30ml feed advancement q3 hours until goal feeds tolerated 3x in a row for discharge. Emesis resulted in repeating the previous step (e.g. emesis at 60mls, then repeat 30ml next feed). Preoperative, intraoperative, and outcome data were collected and compared to the published data.

Results: Overall, 157 patients met inclusion. Our patients had postoperative emesis rates of 47.8% (n=75), with median time to full feeds of 22.8 hours and time to discharge of 27.5 hours. Ten patients returned to the ED (6.4%) and four were readmitted (2.5%); three related to emesis and one for surgical site infection. Recently published data reported an ad lib feeding protocol resulted in time to full feeds of 10.7 hours and time to discharge of 21.6 hours with a 47% emesis rate and 4.8% return to ED/readmission.

Conclusion: In comparing our institutional protocol to published ad lib data, we have similarly high post-operative emesis rates, longer time to full feeds and discharge, and a higher return to ED/Readmission rate. We are recommending against the use of this protocol, and plan to transition to an ad-lib feeding protocol.

U13. ESTABLISHING A SURGICAL ESOPHAGEAL FUNCTION TESTING LAB IN AN UNDERSERVED AREA: EARLY OUTCOMES AND PATIENT BENEFITS

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[1]Niagara Falls Memorial Medical Center; [2]Univeristy at Buffalo

Background: Esophageal function testing (EFT) offers objective data crucial for diagnosing and planning treatment in patients with gastrointestinal symptoms suggestive of foregut disease. Typically, EFT is conducted at large tertiary centers, overseen by gastroenterologists. However, access to this specialized testing is often limited for patients in community settings, particularly those facing geographic or socioeconomic barriers. This study aimed to assess the initial outcomes of patients who underwent Bravo pH probe analysis and high-resolution esophageal motility (HREM) testing at a surgical center within a small community program.

Study design: This retrospective review analyzed patients who underwent high-resolution esophageal motility (HREM) and/or Bravo pH probe testing for foregut symptoms at a community-based gastrointestinal (GI) surgery program between 2022 and 2024. Data on patient demographics, referring specialty, presenting symptoms, test results, and outcomes were gathered from the electronic medical record (EMR).

Results: Between 2022 and 2024, 59 patients underwent esophageal function testing: 57.6% had both HREM and Bravo pH testing, 32.2% had only HREM, and 10.2% had only Bravo. Presenting symptoms were heartburn (71.1%), dysphagia (59.3%), nausea/vomiting (30.5%), regurgitation (25.4%), and atypical chest pain (11.8%).

The group consisted of 42 females (71.2%) and 17 males (28.8%), with an average age of 51.9 and a BMI of 30.8. Most patients (69.5%) were referred by primary care providers, other referrals were made by gastroenterologists (20.3%), general surgeons (6.8%), pulmonologists (1.7%), and otolaryngologists (1.7%). Acid-reducing medications were already in use by 81.3% of the patients.

Bravo pH testing showed pathological acid exposure (DeMeester score >14.7) in 35.6% of patients. HREM results included normal esophagus (27%), hiatal hernia (18.2%), esophagogastric junction (EGJ) outflow obstruction (16.4%), and other motility disorders such as ineffective motility (9.1%), distal esophageal spasm (5.5%), and achalasia (3.6%).

Out of the 52 patients with documented follow-up, 30.7% underwent surgical or endoscopic intervention, which included laparoscopic Nissen fundoplication, laparoscopic paraesophageal hernia repair with partial fundoplication, endoscopic botox injection, revision of jejunojejunostomy with small bowel resection, Heller myotomy with anterior fundoplication, revision of gastrojejunostomy anastomosis with vagotomy, and Toupet fundoplication.

Conclusion: Surgeons at community-based centers can establish comprehensive EFT programs that facilitate the management of patients locally without the barriers associated with referral to tertiary centers.

U14. Ophthalmology Consultation and Outcomes in Orbital Fracture Management: A Retrospective Analysis

Katherine Kozlowski BS1 , Jason Degiovanni MD1 , Cynthia Nguyen BS1 , Andre Rafizadeh MD1 , Jordan Frey MD1

1Department of Plastic and Reconstructive Surgery, University at Buffalo Jacobs School of Medicine and Biomedical Sciences

Background: Various medical specialties are involved in evaluating and treating orbital trauma, though the specialty consulted may vary based on institutional protocols. Improper assessment or delays in diagnosis can lead to poor outcomes given the complex nature of these injuries and surrounding anatomy. Much existing literature assessing interventions and outcomes associated with orbital fractures does not highlight the specialties involved or only includes one specialty. This study evaluates the impact of ophthalmology consultation on treatment patterns, revision rates, and outcomes in orbital fracture management.

Methods: A retrospective chart review for all orbital fracture consultations at a single institution between January 2014 and May 2024 was completed. Data capturing demographic information, pre-existing medical conditions, mechanism of injury (MOI), presenting symptoms, diagnoses (ICD-10: S02.XX), surgical interventions, and persistent symptoms were collected. Patients lacking adequate follow-up data were excluded. Descriptive statistics summarized patient and injury characteristics. Odds ratios (OR) with 95% confidence intervals (CI) were computed using logistic regression analyses. Categorical variables were compared using Chi-square or Fisher's exact tests when appropriate.

Results: 318 orbital fracture consultations were identified; 86 cases (64M, 21F, 1 unspecified; mean age=48.3 y) were ultimately included for analysis. The most frequent MOI were falls (35.0%) and assault (25.0%). Ophthalmology (n=38) and plastic surgery (n=32) were most frequently consulted, but otolaryngology and oral and maxillofacial surgery (OMFS) had the highest surgical intervention rates (52.2% and 50.0%, respectively). Patients presenting with diplopia (48.1%; p=0.005) and eye movement limitations (37.9%; p <0.001) most frequently underwent surgery. No significant differences were found between specialties and time to surgery, presenting symptoms, or fracture types. Only two individuals had surgery on the same day they presented to the emergency department. Those operated on by ophthalmology (n=3) had no revision procedures. No statistically significant association existed between index surgeon and persistent symptoms or revision rates.

Conclusion: While ophthalmology was the most frequently consulted specialty for orbital fractures, outcomes and surgical decisions related more to presenting symptoms than the consulting or treating specialty. This highlights the need for standardized assessment and consultation protocols to enhance workflow efficiency and optimize patient care.

U15. Open vs. Closed Patella Fractures: A Retrospective Cohort

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Background: This study aims to describe patella fractures treated at one institution, including comparing treatment and outcomes of open vs. closed fractures.
Methods: Adult patients presenting to one American College of Surgeons Level 1 trauma hospital from 01/01/2001-12/31/2020 with patella fracture, screened by CPT code were retrospectively reviewed. Patients who expired prior to discharge were excluded. Demographic and clinical data were collected, and complication rates analyzed using SPSS version 29. Independent samples t-tests were performed, and regression analysis used to predict length of stay, complications, and return to OR. P-value <0.05 was significant.
Results: 451 patients met inclusion criteria (average age 51.34 years old, range 18-102 years). 159 (35.3%) were open fractures, and 292 (64.7%) were closed. Table 1 describes patient demographics. Among open fractures, those with psychiatric illness were less likely to be treated operatively (7.4% vs. 20.8%, p 0.038). Injury severity score was higher in closed fractures treated nonoperatively (8.61+/-7.73 vs. 12+/-8.49, p <0.001). Closed fractures treated operatively were more likely to have complications than those treated nonoperatively (p <0.001); rate of any complication did not vary significantly across open fractures treated operatively vs. nonoperatively (p 0.971), nor did overall complications between open vs. closed fractures (p 0.506). Nonunion, contracture/arthrofibrosis, failed hardware, patellar tendon rupture, and painful hardware were significantly higher in those patients treated operatively (Table 2). Time to return to the operating room (RTOR) was 375.03+/-764.9 days and varied significantly between open vs. closed fractures (30.82% vs. 16.26%, p <0.001). Antibiotic type in open fracture was not associated with RTOR (p 0.28); rate of complications was significant comparing antibiotic type (p 0.001).
Conclusion: Rates of open patella fractures may be higher than those previously reported. Complications did not vary comparing open vs. closed patella fractures; however, open fractures were more likely to RTOR.

Table 1: Demographics

	Open	Closed	Operative:	Nonoperative:
N	159 (35.3%)	292 (64.7%)	280 (62.1%)	171 (37.9%)
Age	38.97+/-15.59	58.09+/-19.4	46.99+/-18.7	58.47+/-20.87
Gender:				
Male	108 (67.9%)	151 (51.7%)	166 (59.3%)	93 (54.4%)
Female	51 (32.1%)	141 (48.3%)	114 (40.7%)	78 (45.6%)
Comorbidities:				
Smoker	60 (37.7%)	80 (27.4%)	95 (33.9%)	45 (26.3%)
Hypertension	24 (15.1%)	146 (50.0%)	98 (35.0%)	72 (42.1%)
Diabetes	10 (6.3%)	62 (21.2%)	41 (14.6%)	31 (18.1%)
Cardiovascular disease	2 (1.3%)	28 (9.6%)	16 (5.7%)	14 (8.2%)
Hypercholesterolemia	8 (5%)	43 (14.7%)	31 (11.1%)	20 (11.7%)
Obesity	14 (8.8%)	20 (6.8%)	21 (7.5%)	13 (7.6%)
Psychiatric Illness	15 (9.4%)	40 (13.7%)	29 (10.4%)	26 (15.2%)
Substance use	13 (8.2%)	24 (8.2%)	21 (7.5%)	16 (9.4%)
Injury Severity Score	12.75+/-8.38	10.32+/-8.29	10.49+/-8.05	12.3+/-8.83
Treatment:				
Operative	135 (84.9%)	145 (49.7%)		
Non-operative	24 (15.1%)	147 (50.3%)		
Length of stay	9.64+/-12.76	7.78+/-8.11	8.54+/-10.32	8.26+/-9.56
Closed Fracture			145 (51.8%)	147 (86%)
Open Fracture			135 (48.2%)	24 (14%)
Discharge disposition				
Acute rehab	42 (26.4%)	51 (17.5%)	53 (18.9%)	40 (23.5%)
AMA	4 (2.5%)	2 (0.7%)	5 (1.8%)	1 (0.6%)
Death	1 (0.6%)	3 (1.0%)	1 (0.4%)	3 (1.8%)
Home, no SVC	62 (39%)	100 (34.2%)	105 (37.5%)	57 (33.3%)
Home, with SVC	27 (17%)	34 (11.6%)	45 (16.1%)	16 (9.4%)
Inpatient psych	6 (3.8%)	5 (1.7%)	10 (3.6%)	1 (0.6%)
New SNF	1 (0.6%)	3 (1.0%)	4 (1.4%)	0 (0%)
Prison/Jail	1 (0.6%)	2 (0.7%)	1 (0.4%)	2 (1.2%)
SAR	14 (8.8%)	86 (29.5%)	53 (18.9%)	47 (27.5%)
Other	1 (0.6%)	4 (1.4%)	2 (0.7%)	3 (1.8%)
Mortality	1 (0.6%)	2 (1.0%)	1 (0.4%)	0 (0%)
Any complication:				
ROM:				
Good	72 (45.3%)	111 (38%)	132 (47.1%)	51 (29.8%)
Poor	30 (18.9%)	59 (20.2%)	56 (20%)	33 (19.3%)

Table 2: Complications

Table 2: Complications	Total	Open Fracture	Closed Fracture	P value	Operative	Nonoperative	P value
Any complication:	78	37	41	0.723	76	3	0.247
Nonunion	5	2	3	0.655	5	0	**0.025**
Superficial infection	3	2	1	0.563	3	0	0.083
Deep infection	6	4	2	0.414	4	1	0.18
Contracture/arthrofibrosis	17	9	8	0.808	15	2	**<.001**
DVT	1	1	0	0.317	1	0	0.317
Failed hardware	4	2	2	1	4	0	**0.045**
Patellar tendon rupture	4	2	2	1	4	0	**0.045**
Painful hardware	47	17	20	0.622	47	0	**<.001**
Wound healing complications	3	3	0	0.083	3	0	0.083

U16. Effect of Cannabis Use on Postoperative Opiate Requirements After Long Bone Fracture

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INTRODUCTION: This study aims to investigate differences in inpatient postoperative opioid use after surgical treatment of long bone fractures across patients individuals with and without self-reported cannabis use.

METHODS: A retrospective review of all long bone fractures between 2019-2021 at one ACS level 1 hospital included record of clinical data, substance use patterns, operative characteristics, complication rates, and postoperative opioid intake. Patients without long-bone fractures or those treated nonoperatively were excluded. All medication dosages were converted to morphine equivalent dose (MED) for analysis. Descriptive statistics were done to summarize patient and operative characteristics. Chi-square, Independent Samples t-tests, Regression analyses, and Nonparametric tests were completed to compare relationships between predictor variables and outcomes where appropriate.

RESULTS: 199 patients (83M, 115F; mean age 53.67 years) were eligible for inclusion. Fractured long bones included the femur (44.7%), tibia/fibula (39.7%), humerus (11.1%) and radius/ulna (4.5%). More than half (54.3%) of injuries were caused by home accidents or falls. The 30 individuals who self-reported cannabis use were significantly younger than those who did (39.1 vs 56.3 years; $Z= -4.23$; $p<0.001$) and were more often male (28.1% vs 11.6%; $\chi^2 =4.92$; $p=0.029$). Of the 29 individuals with other substance use disorders, 41.4% also used cannabis ($n=12$; $\chi^2=14.5$; $p<0.001$). 37.5% of humeral and 21.8% of tibia/fibula fractures occurred in cannabis users ($p>0.05$). Cannabis users received 13.5mg greater MED per day than non-users when controlling for age, BMI, gender, race, ethnicity, other substance use, and fracture location [95%CI (0.730, 1.370); $p=0.037$]; however, additionally controlling for medical comorbidities resulted in a smaller difference (8.5mg MED per day) which did not reach statistical significance ($p>0.05$).

DISCUSSION/CONCLUSION: Our study demonstrates that cannabis use may be a predictor for greater opioid requirements following surgical treatment of long bone fractures

U17. EFFECT OF BODY MASS INDEX ON PRIMARY ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION OUTCOMES: A RETROSPECTIVE REVIEW

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Background: Anterior cruciate ligament (ACL) reconstruction is a prevalent orthopedic procedure, and body mass index (BMI) has been suggested as a factor influencing recovery. Existing research primarily focuses on surgical techniques and graft choice, with limited exploration of the relationship between BMI and patient-reported outcomes. This study aims to bridge this gap by examining the association between BMI and Knee Injury and Osteoarthritis Outcome Score (KOOS) metrics pre-operatively and post-operatively.

Methods: A retrospective chart review was conducted of adult patients (≥18 years) who underwent ACL reconstruction between January 2001 and December 2020 screened by CPT code (29888). Patients with at least six months of follow-up were included. BMI was stratified into categories: <25 kg/m², 25-30 kg/m², and >30 kg/m². KOOS subscales (Pain, Symptoms, Sports/Recreation, Quality of Life, and Activities of Daily Living) were analyzed using regression models adjusted for graft type and demographic factors.

Results: 217 patients underwent ACL reconstruction during the study period (age 30.84±29; 44.2% male; BMI 27.16±5.70). Of these, 75 patients had patient reported outcomes available from at least 6 months of follow up. Preoperative KOOS sub-scales are outlined in Table 1. Table 2 demonstrates the correlation between KOOS sub-scales and patient preoperative BMI both preoperatively and at 6 months of follow up. Pre-operative KOOS scores were not significantly associated with BMI, aligning with expectations for an acute condition such as an ACL injury. However, at follow-up, higher BMI was significantly correlated with worse outcomes across multiple KOOS subscales. Patients with BMI >30 kg/m² additionally experienced less improvement in KOOS scores compared to patients with lower BMI. These findings remained significant after adjusting for confounding variables.

Conclusion: Higher BMI adversely affects functional recovery and patient-reported outcomes following ACL reconstruction, despite no pre-operative differences. These results underscore the importance of incorporating BMI into pre-surgical counseling and post-operative rehabilitation planning. Further research with larger cohorts is warranted to validate these findings and explore underlying mecha

Table 1: Preoperative PROM for ACL reconstruction

Sub-scale	*Mean*	*Standard Deviation*
KOOS Daily Living	67.79	23.93
KOOS Pain	62.96	22.49
KOOS PS	39.04	18.72
KOOS Quality of Life	29.88	21.37
KOOS Sports and Recreational Activities	38.05	29.89
KOOS Symptoms	59.79	19.81
KOOS JR	60.57	17.54

Table 2: PROM Correlation to BMI (preop vs. 6-month follow up)

Sub-scales	*BMI correlation*	*Preop:*	*6-month FU*
KOOS Daily Living	Pearson Correlation	-.121	-.398**
	Sig. (2-tailed)	.076	**<.001**
	N	215	72
KOOS Pain	Pearson Correlation	-.062	-.298*
	Sig. (2-tailed)	.366	**.011**
	N	215	72
KOOS PS	Pearson Correlation	.098	.404**
	Sig. (2-tailed)	.155	**<.001**
	N	213	72
KOOS Quality of Life	Pearson Correlation	-.204**	-.287*
	Sig. (2-tailed)	**.003**	**.014**
	N	215	72
	Pearson Correlation	-.101	-.451**

U18. EFFECT OF COVID-19 ON ORTHOPEDIC INJURIES DUE TO ASSAULT

Michael Toledano MPH, Rhys Mendel BS, Thomas Ryan BS, Alexandra Wadhwani MA, Dominik Kucharski BS, Grayson Pawlowski MA, Ellen Lutnick MD

Department of Orthopaedic Surgery, University at Buffalo

Background: This study aims to determine changes in the rates of orthopedic injuries before, during, and after the COVID-19 pandemic.

Methods: The National Electronic Injury Surveillance System (NEISS) hospital survey publicly available data was queried from 2000–2021, and summarized by fracture status, assault status, time-period relative to the COVID-19 pandemic (pre-: before 02/28/2020; during: 03/01/2020-01/28/2021; and after: 03/01/2021-onwards), and overall injury status. Pearson's chi-squared test and Fisher's exact test were used to assess categorical differences. A logistic regression model was applied to calculate odds ratios with 95% confidence intervals. All analyses and data visualizations were conducted using R (R Foundation for Statistical Computing, Vienna, Austria).

Results: 1,197,396 fractures were reported before, 63,906 during, and 61,784 after COVID-19. Location of fracture varied significantly across COVID timepoints (Table 1; $p < 0.001$). Mechanism of assault significantly increased across COVID-19 (5.8% pre-, 6.9% during, and 6.5% after COVID; $p < 0.001$), as well as violent intent (6.0% pre-, 7.2% during, 6.8% after; $p < 0.001$). Rates of assault perpetrated by a spouse/partner (6.8% pre-, 8.4% during, 7.0% after COVID) or a stranger (3.6% pre-, 4.0% during, 6.0% after COVID; $p < 0.001$) increased during COVID. Females were more at risk for assault resulting in fracture (39% pre-, 47% during, 46% after; $p < 0.001$). Patient demographics significantly varied, including increases in assault related fracture in Hispanic (7.7% pre-, 11% during, 11% after) and Black patients (14% pre-, 17% during, 19% after; $p < 0.001$). Age of those assaulted resulting in fracture was significant, increasing most in those 55-64 years old (8.6% vs. 11%) and 65-74 years old (6.8% vs. 10%; p value <0.001) comparing pre- vs. during COVID.

Conclusion: Our analysis highlights an increased risk of assault related fracture during COVID-19, specifically with risk to elderly female Hispanic or Black patients by a spouse/partner.

U19. Using Interviews of Lay Caregivers to Identify Modifications to a Single Website for Kidney Transplant Access

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Background: Websites are increasingly used to promote patients' kidney transplant (KT) navigation and living kidney donor search, but no website exists for caregivers to support KT-seekers. Our study aimed to assess caregivers' perceptions of the website in the *KidneyTIME* intervention to aid in future intervention refinements to meet caregivers' needs.

Methods: Individual interviews and post-interview surveys were conducted with 20 lay caregivers of KT-seekers after they viewed at least 6 videos on the website.

Results: Qualitative analysis resulted in 5 themes: (1) caregivers supported using the site to find information; (2) caregivers became more comfortable with living kidney donation; (3) caregivers were interested in sharing the content; (4) caregivers had varying preferences for other features that could support them; (5) forgetting may limit use of the website. Website acceptability ratings on 10 items were positive regarding appeal, usability, and helpfulness. Strongly supported additions to the site were connection with caregivers, donors, and patients, donor search samples, assistance, and funding, mobile app version, and supplemental reading.

Conclusion: The *KidneyTIME* website was well regarded by caregivers who recommended additional features. Future research should modify the website to address issues valued by caregivers and assess how this website within the context of the full digital intervention could supplement usual care to increase kidney transplant access

U20. DISPARITIES IN ORTHOPAEDIC CLINIC CARE: A RETROSPECTIVE REVIEW

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Background: Total joint arthroplasty including total hip (THA) and total knee arthroplasty (TKA) are the most frequently performed orthopedic surgeries in the US. Despite being one of the most successful elective surgeries in modern medicine, SDOH still significantly influence the access to and outcomes of TJA amongst various populations. In orthopedics, these disparities are associated with poorer health outcomes, including increased risk for infections, revision surgeries, mortality, and postoperative complications. Although prior studies have explored the relationship between SDOH and arthroplasty outcomes, there is limited data examining barriers to care that lead to delays to surgery.

Methods: Patients treated at one orthopaedic resident run clinic between January 2018-December 2021 for hip or knee arthritis/pain by ICD-10 codes were included. Information was collected via retrospective chart review. Patient characteristics were summarized by treatment and delay status. SDOH data were extrapolated from zip-code level data from the U.S. Census Bureau and American Community Data Survey, 5-yr Estimates 2018-2022. Summary statistics were compared with student's t-tests for continuous variables and Pearson's chi-squared test or Fisher's exact test for categorical variables depending on expected cell size. Statistical significance was set to 0.05 and two-tailed. Analyses were conducted using Microsoft Excel statistical software (Microsoft Corporation, Redmond, Washington, USA).

Results: Of 1116 patients (Table 1), race, gender and follow up varied significantly between those treated surgically vs. non-surgically. Conservative management varied, including injections (p 0.002), physical therapy ($p < 0.001$), and bracing (p 0.3, Table 1). 44 patients had documented delays in care (Table 1). Ethnicity varied across delay status (p 0.03). Of those treated non-surgically, average encounters were 2.7±2.9 with delay, and 2.4±1.8 without delay. Of those treated surgically, average encounters were 4.1±4.1 without delay, and 8.0±4.2 with delay ($p < 0.001$), and significance comparing delay status across race (0.03% vs. 0.04%, $p < 0.001$). White patients had significantly higher median household income, lower poverty, higher education, higher employment, and lower percentage without healthcare (Table 2). These differences were mirrored comparing high vs. low poverty patients (Table 2). Significantly more patients of low poverty status were treated surgically ($p < 0.001$), and more likely to have delays in care (p 0.01).

Conclusion: Race, ethnicity and poverty status play a role in delays in care and patient treatment.

U21. The Use of Xenografts in Extremity Reconstruction: A Literature Review

Ariel Harsinay, Kelly Andrien, Suhaib Azam

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Background: Xenografting, the transplantation of tissues or organs from one species to another, has emerged as a promising alternative to autografts, allografts, and synthetic grafts in extremity reconstruction. Although the concept dates back centuries, its clinical application has historically been limited by immune rejection. However, recent advancements in immunosuppressive therapies and genetic engineering have reignited interest in its potential medical applications. This study aims to evaluate the current literature on xenografting in extremity reconstruction.

Methods: A literature search of PubMed and EMBASE databases was conducted and a systematic review was performed in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Inclusion criteria consisted of clinical studies involving human participants where animal-based tissues were used for extremity reconstruction of soft tissue or cutaneous wounds. Studies were included if they solely described autologous or synthetic graft sources, reconstruction not limited to the extremities, vascular or bone reconstruction without soft tissue/wound reconstruction, and animal models.

Results: Forty-six records were retrieved for full-text review, with 13 reports meeting inclusion criteria. Of these reports, 5 assessed fish-skin (piscine) grafts, 5 studied porcine grafts, 2 studied ovine grafts, and 1 utilized bovine grafts. In total, 359 extremity wounds were repaired with xenografts across studies. Indications for extremity reconstruction included 192 diabetic ulcers (53.5%), 59 wounds with autoimmune etiology (16.4%), 44 vascular ulcers (12.3%), 29 wounds with iatrogenic causes (defects following Mohs surgery, radiation, or postoperative dehiscence) (8.1%), 19 wounds due to necrotizing fasciitis or other infectious etiology (5.3%), 12 wounds secondary to trauma (3.3%), 6 pressure ulcers (1.7%), 4 partial thickness burns (1.1%), and 3 gangrenous ulcers (0.83%). Of 5 studies assessing piscine grafts, two case reports and one case series (of 2 patients) showed successful healing in all patients, while two studies assessing grafts in 28 and 58 patients demonstrated complete healing in 23(82.1%) and 35(60.3%) patients, respectively. No infections were reported across studies. Among porcine grafts, three case reports and one case series of 7 patients showed successful wound healing in all patients without any infections. An additional case series examining 8 patients receiving porcine grafts demonstrated successful healing in 5 patients (62.5%), with 2 (25%) graft infections reported. A study of 130 ovine grafts showed complete granulation tissue formation in 113 (86.9%) patients with 17 being lost to follow-up, while complete wound closure was seen in all patients not lost to long-term follow up (76 patients). A study of 50 patients receiving ovine grafts demonstrated complete granulation in 47 (94%) patients and complete wound healing in 40 (80%) patients; both studies of ovine grafts did not report any infections. Lastly, one report of bovine grafts in 71 patients demonstrated successful wound healing in 30 patients (42.3%) with 10 patients experiencing infections (14.1%).

Conclusion: Xenografts remain a viable option in extremity reconstruction but are highly dependent on graft type, host response, and clinical application. While piscine and porcine xenografts have shown promise in soft tissue and wound healing, reports of bovine xenografts are more limited but appear to show lower efficacy with a greater risk of infection. While several studies reported the number of defects that were fully granulated and subsequently the percentage of those that fully healed, several studies failed to clarify their metrics of successful grafting, precluding the ability for meta-analyses. Further high-quality, controlled studies are needed to optimize graft selection, improve integration, and mitigate immune rejection.

U22. A Novel Approach to Atypical Periprosthetic Femoral Fractures with Stem Breakage

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Introduction: As the number of total hip arthroplasties (THA) continues to increase annually, periprosthetic femoral fractures (PFFs) have become a more common and significant complication. These fractures present a unique challenge due to the presence of the prosthetic implant, which may complicate the healing process. Atypical femur fractures (AFFs) are a subset of fractures that frequently occur with minimal trauma, often in patients who have been on prolonged bisphosphonate therapy. Although PFFs are excluded from the AFF definition, PFFs that otherwise meet the criteria have been termed atypical periprosthetic femoral fractures (APFFs). While APFFs are a growing area of interest, there is limited literature on their management, particularly when associated with femoral stem breakage. This case report presents the second reported instance of an APFF with femoral stem breakage, but uniquely, it is the first to involve the preservation of the proximal stem with isolated removal of the distal portion.

Methods: An 88-year-old female patient with multiple comorbidities, including osteoporosis and a history of right THA with a long cylindrical, fully porous-coated femoral stem, presented after a ground-level fall. Radiographic findings revealed a transverse subtrochanteric femoral fracture with stem breakage and lateral cortical thickening, characteristic of atypical femur fractures (AFFs) in patients on bisphosphonate therapy. Given the nature of the fracture and the patient's health status, surgical intervention focused on stabilizing the fracture while preserving the proximal portion of the femoral stem.

Results: The surgical approach involved the removal of the distal portion of the femoral stem with preservation of the well-fixed proximal stem. A long periprosthetic femoral plate with a trochanteric extension was applied, along with a cortical strut allograft for additional support. Six-month follow-up revealed no complications, with the patient reporting no discomfort and radiographs showing good bone healing and intact hardware.

Conclusion: This case is the second reported instance of an APFF with femoral stem breakage but uniquely the first that involves the isolated removal of the distal stem. This case highlights a novel surgical technique for managing complex APFFs and emphasizes the need for continued refinement in treatment protocols for patients with long-term bisphosphonate therapy.

U23. GLP-1 and its role in glycogen production: a narrative review

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Background: Glucagon-like peptide-1 (GLP-1) has emerged as a pivotal regulator in the management of glucose homeostasis, glycogen metabolism, and energy balance, positioning it as a critical therapeutic target for addressing obesity, metabolic syndrome, and type 2 diabetes mellitus (T2DM). GLP-1 receptor agonists (GLP-1RAs) have shown promise for improving glycemic control and reducing weight through appetite regulation, delayed gastric emptying, and energy expenditure modulation.

Methods: This narrative review utilized the PubMed database to identify relevant manuscripts in the matching our search criteria and focus of review. The focus of this review was to report on the effects of GLP-1 signaling on glycogen metabolism and total body energy expenditure as it relates to weight management, particularly in key tissues—pancreas, liver, skeletal muscle, and adipose tissue.

Results: In the pancreas, GLP-1 enhances insulin secretion and β-cell function. In the liver, it promotes glycogen synthesis via insulin-dependent and potential insulin-independent pathways, involving protein kinase B (AKT) and AMP-activated protein kinase (AMPK) signaling. Skeletal muscle benefits from GLP-1 through increased glucose uptake, AMPK activation, and mitochondrial function, facilitating glycogen storage. In adipose tissue, GLP-1 stimulates brown adipose tissue (BAT) thermogenesis and energy expenditure, contributing to weight loss.

Conclusion: The increase in energy expenditure, alongside enhanced glycogen metabolism, is a plausible mechanism for the weight loss observed with GLP-1RAs. Despite these advances, significant knowledge gaps remain, including the direct hepatic effects of GLP-1, the extent to which it modulates glycogen metabolism in vivo, and its impact on thermogenesis in humans. Future research focusing on both the tissue-specific actions of GLP-1 and its systemic role in energy homeostasis and metabolic regulation will be essential for optimizing its therapeutic potential.

Jacobs School of Medicine and Biomedical Sciences
University at Buffalo

Department of Surgery

Full Length Podium Presentations

Full Length Podium Presentations

1. 9:05 – 9:17am "**Expected Outcomes In Patients With CLTI Following Revascularization With Complete Follow Up"**
   Andrew Droney, DO, Dana Nielsen, MD, Mariel Rivero, MD, Brittany Montross, MD, Sikandar Khan, MBBS, Linda Harris, MD, Maciej Dryjski, MD, Hasan H. Dosluoglu, MD.

2. 9:17 – 9:29am **"Zero-Shot Performance Of Llava-Surg, A New Multimodal Large Language Model For Contextual Understanding Of General Surgical Procedures"**
   Garrett Skinner, Jiajie Li, Brian Quaranto, Shinil Shah, Gene Yang, Joshua Marek, Gabriela Miletsky, Erik Wilson, Steven Schwaitzberg, Jinjun Xiong, Peter Kim

3. 9:29 – 9:41am "**Randomized controlled trial of a self-guided mobile education-outreach intervention (*KidneyTIME*) to promote live kidney transplantation"**
   Matthew Handmacher MD, Naoru Koizmi PhD , Jing Nie PhD, Maria Keller PhD, Anne Solbu PhD, John Von Visger MD PhD, Renee B. Cadzow PhD, Thomas H. Feeley PhD, Liise K. Kayler MD, MS

4. 9:41 – 9:53am "**High PARP1 Expression is Associated with Proliferative Tumor Biology in Breast Cancer"**
   Farhad Ghasemi, Jun Arima, Kazuaki Takabe

5. 9:53 – 10:05am "**Machine Learning to Identify Predictors of Self-Inflicted Injury Among Older Adults"**
   Brandon Hsu, Joseph C L'Huillier, MD, MS, Shuangcheng Hua, MS, Jihnhee Yu, PhD, Weidun Alan Guo, MD, PhD, FACS

6. 10:05 – 10:17am **Quantifying The Effect of the Medicaid Expansion on Colon Cancer– A Measurable Difference?**
   Geoffrey Hobika MD. Bryan Palis MA. Kelley Chan MD. MS. Joseph Cotler PhD. Clifford Ko MD. MS. MSHS. FACS

   10:17 – 10:30am Break

7. 10:30 – 10:42am "**Evaluation Of Large Language Models (LLM) For Trauma Triage: A Performance Comparison Of LLM And Human Decision Making At A Level 1 Trauma Center**"
   Ascharya K Balaji BS, Brendan Fox BS, Brian Quaranto MD, Gene Yang MD, Andrew Nordin MD, P. Benson Ham III MD, MS, FACS, Fabiano Tiffany MPH, Carroll M. Harmon MD PhD, Steven Schwaitzberg MD and Peter Kim MD PhD FACS FRCSC.

8. 10:42 – 10:54am **"Perioperative Outcomes Following Whipple Procedure Between Flagship and Non-Flagship Hospitals in New York State"**
   John M. Woodward, MD; Ajay Myneni MBBS, PhD, MPH; Han Liu, MS; Miranda Berkebile, BS; Joseph L'Huillier, MD, MSHPE; Nader Nader, MD, PhD, FACC, FCCP; Katia Noyes, PhD, MPH; Csaba Gajdos, MD, FACS, FSSO

9. 10:54 – 11:06am "**Influence Of Surgical Expertise On Visual Gaze Patterns While Viewing Robotic Adrenalectomy"**
   Taylor Quinn, Joseph C L'Huillier, MD, John M Woodward, MD, Garrett C Skinner, MD, Gabriel Gazetta, MS, Cara B Jones, Soham S More, Jing Yang, PhD, Steven D Schwaitzberg, MD, Lora Cavuoto, PhD

10. 11:06 – 11:18am "**Mediastinalization of the Gastric Conduit by Pleural Closure in Robotic Ivor Lewis Esophagectomy: Short-Term Quality of Life Assessment"**
    Faisal Jehan, MD, Maureen Brady, PA-C, Moshim Kukar, MD, FACS.

11. 11:18 – 11:30am "**Defining "Expertise" on Oral, Case-Based Examinations Using Functional Near-infrared Spectroscopy"**
    Joseph C L'Huillier, MD, MS-HPEd, John Woodward, MD (Resident), Garrett Skinner, MD, Gabriel Gazetta, MS; Taylor Quinn, MS; Lora Cavuoto, PhD, Steven D. Schwaitzberg, MD, FACS

12. 11:30 – 11:42am "**Indocyanine Green (Icg) - Near-Infrared Fluorescence (Nirf) Use And Effects On Procedure Duration And Attaining The Critical View Of Safety In Laparoscopic Cholecystectomy"**
    Brian R. Quaranto MD, Garrett Skinner MD, Jiajie Li, Kaity Tung MD, Andrew Chang MD, Emily Hannah, Ascharya Balaji, Joshua Marek, Gabriela Miletsky, Shinil K. Shah DO, Gene Yang MD, Jinjun Xiong PhD, Carroll M. Harmon MD PhD, Steven D. Schwaitzberg MD, Peter C.W. Kim MD PhD

F1. Expected Outcomes In Patients With CLTI Following Revascularization With Complete Follow Up

Andrew Droney, DO, Dana Nielsen, MD, Mariel Rivero, MD, Brittany Montross, MD, Sikandar Khan, MBBS, Linda Harris, MD, Maciej Dryjski, MD, Hasan H. Dosluoglu, MD.

SUNY at Buffalo, Buffalo, NY

Objectives: Patients with chronic limb threatening ischemia (CLTI) are known to have a reduced life expectancy, and revascularization is chosen based on anatomic features as well as expected survival. However, the natural history of patients who have undergone revascularization based on a real-world, individualized approach to appropriate case and procedure selection has not been reported. The goal of this study is to assess the survival, amputation-free survival (AFS), MALE/Mortality-free survival following individualized revascularization in patients with CLTI with complete follow up and identify patients who are likely to survive longer.

Methods: All consecutive patients who had revascularization for CLTI between 1/2003-8/2020 for CLTI were included. Only the index limbs were included. All patients had complete follow up for at least 48 months or until death. In addition, patients who died within 0-47 months (Group I, N=479) were compared to those who died or were followed for 48-71 months (Group II, N=146) and 72-120 months (Group III, N=256). **Results:** A total of 881 patients were included, with 52.7±47.4 mo (range 0-245mo) follow-up. The 1mo, 48mo, 72mo and 120mo overall survival were 96.7%, 45±2%, 31±2% and 14±1%; AFS 95.1%, 39±2%, 27±2% and 13±1%; MALE/mortality-free survival 93.5%, 32±2%, 21±1% and 11±1%; Limb salvage 98.4%, 84±1%, 83±2% and 79±2% . Group II and III were younger, less likely to have CAD, DM, CKD, ESRD, CVD, and were more likely to be ambulatory compared to Group I (Table). Statin use was similar in Groups I and III, and higher in Group II, and Group III had more open revascularizations than other groups (P=0.035 III vs I and II). During last follow up, patients in Group I were less likely to have intact skin without an amputation (58.2%vs76.0%vs76.6%(P<0.001)).

Conclusions: Patients with CLTI represent a highly challenging group with over half expected to die within 4 years, however the other half will survive up to 10 years or more. Younger patients, despite higher smoking rates, have the potential for significant long-term survival and therefore merit consideration for more aggressive treatment.

Comorbidiities and clinical characteristics in Groups

	Group I (N=479)	Group II (N=146)	Group III (N=256)	
Age	75.0±10.1	70.7±9.3	65.5±9.4	<0.001
CAD	67%	59%	39%	<0.001
DM	63%	58%	50%	0.004
CKD/ESRD	45/11%	44/1%	17/0.3%	<0.001
Beta-blocker	62%	58%	52%	0.002
Statin	58%	68%	57%	0.053
Active smoker	25%	33%	52%	<0.001
Ambulatory	71%	88%	91%	<0.001
Open revasc	22%	24%	29%	0.035, III vs I and II

F2. ZERO-SHOT PERFORMANCE OF LLAVA-SURG, A NEW MULTIMODAL LARGE LANGUAGE MODEL FOR CONTEXTUAL UNDERSTANDING OF GENERAL SURGICAL PROCEDURES

Garrett Skinner, Jiajie Li, Brian Quaranto, Shinil Shah, Gene Yang, Joshua Marek, Gabriela Miletsky, Erik Wilson, Steven Schwaitzberg, Jinjun Xiong, Peter Kim

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BACKGROUND: Multi-modal large language models (MLLM), though pre-trained on non-medical visual and language data, can demonstrate an advanced contextual understanding of surgical procedures after model fine-tuning. We have previously reported a novel surgical MLLM, called LLaVA-Surg, which has the ability to answer open-ended questions about general surgical procedures, and has demonstrated higher-order reasoning and expert level deduction and planning. Herein, we systematically test and compare LLaVA-Surg's performance against state-of-the-art machine learning-based vision models and other early MLLMs.

METHODS: We designed LLaVA-Surg, a new MLLM based on the Video-ChatGPT network architecture, with a pre-trained language backbone from LLaVA-Med, and fine-tuned on our novel Surg-QA dataset. Surg-QA contains 102,000 question-answer pairs sourced from 44,000 short video clips with expert voiceover narration of over 2,200 surgical procedures. We then performed zero-shot surgical question-answer experiments on publicly available laparoscopic cholecystectomy datasets, CholecT80 for procedure phase recognition and CholecT45 for instrument-action-object triplet recognition.

RESULTS: We compared the performance of LLaVA-Surg against the state-of-the-art vision and language surgical artificial intelligence models, Random, CLIP, CLIP* (representing different variants of SurgVLP), and SurgVLP in accuracy in phase recognition and in recall for action triplets, benchmarked to the fully-supervised model representing the best possible learning results with human annotations. The weighted mean accuracy for phase recognition by LLaVA-Surg is 27.8, outperforming SurgVLP's 24.0, though our accuracy varies by phase. LLaVA-Surg outperforms the other models in overall weighted mean accuracy in procedural phase recognition and in overall weighted mean recall for surgical action triplets.

Phase Recognition Accuracy	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**Mean**
Fully-supervised	62.1	84.5	74.4	82.2	62.7	52.2	52.2	67.3
Random	5.6	0.3	4.7	3.4	6.5	1.0	4.4	1.8
CLIP	10.3	38.0	0	20.1	0.3	3.7	0.4	10.4
CLIP*	9.0	38.7	0	20.3	2.3	3.6	14.7	11.5
SurgVLP	30.9	58.2	11.6	11.9	34.5	6.0	15.5	24
LLaVA-Surg	**0**	**73.1**	**0.6**	**23**	**0**	**1.5**	**2.7**	**27.8**
Action Triplet Recognition Recall			***i***	***v***	***t***	***iv***	***it***	***ivt***
Fully-supervised			89.5	63.0	45.2	38.7	37.5	30.8
Random			22.7	14.9	10.9	5.0	4.3	3.2
CLIP			24.4	15.3	10.3	7.2	4.0	3.1
CLIP*			25.7	15.8	11.0	7.7	4.9	3.7
SurgVLP			32.6	22.8	17.1	10.8	8.6	7.0
LLaVA-Surg			**37.8**	**34.6**	**43.3**	**18.4**	**18.4**	**11.9**

Table 1: Comparison of LLaVA-Surg's zero-shot accuracy in recognizing surgical procedure phases (fully-supervised: Twinanda et. al., 2016) and recall on different combinations of the surgical triplets, *i* for instrument, *v* for action, and *t* for target object (fully supervised: Nwoye et. al., 2022).

CONCLUSIONS: Our novel surgical MLLM, LLaVA-Surg, demonstrates contextual understanding of general surgical procedures and outperforms state-of-the-art language-vision models by a large margin. Some zero-shot performances approach the level of fully supervised models.

F3. Randomized controlled trial of a self-guided mobile education-outreach intervention (*KidneyTIME*) to promote live kidney transplantation

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Background: Although it is well known that living-donor kidney transplantation (LDKT) is facilitated by education of patients and social network members, few interventions support accessible self-learning and patient-to-network outreach. This paper examined the effectiveness of a self-guided mobile education-outreach intervention (*KidneyTIME*) to improve LDKT cognition and behaviors.

Methods: An unblinded parallel-arm randomized trial was conducted at a single center with 422 adult referred KT-seekers assigned (1:1) to active control (usual care video) or *KidneyTIME* that offered a 13-minute core animated educational video, optional interactive webpage with shareable video content, and electronic links to the site at 3-week intervals for 12 months. Participants completed web-based surveys assessing LDKT knowledge, concerns, readiness, and behaviors at 4 timepoints. Medical record review assessed live kidney donor inquiry (primary outcome) at 12 months. Video usage was automatically recorded and survey supplemented. Analyses were intention-to-treat.

Results: Between April 2022 - July 2023, 871 KT-seekers were screened, of whom 422 (mean age 54 years; 57% male, 36% Black, 45% annual household income less than $30,000) were randomized to the *KidneyTIME* (n=212) or active control group (n=210). The study had high completion rates (92%) of the brief core education and the intervention arm had 74% continued usage. *KidneyTIME* participants had significantly higher LDKT knowledge (p=0.0021) and new KT-access behaviors (RR: 1.67, p=0.0038) over 12 months and readiness at month 1 (p=0.045) compared to the control group. The two groups did not differ in concerns, donor outreach behaviors, and living donor inquiries. Intervention acceptability scores were high. There was low statistical power for inquiries.

Conclusion: A simple mobile intervention self-administered by patients **(***KidneyTIME)* resulted in higher LDKT knowledge, initial readiness, and KT-access behaviors above usual care. Further studies must explore how technologies can help improve LDKT access.

F4. High PARP1 Expression is Associated with Proliferative Tumor Biology in Breast Cancer

Farhad Ghasemi, Jun Arima, Kazuaki Takabe

Department of Surgical Oncology, Roswell Park Comprehensive Cancer Center

Background: Poly [ADP-ribose] polymerase (PARP) 1 enzyme play a vital role in DNA repair mechanisms. PARP1 inhibitors are in clinical use due to synthetic lethality in homologous-recombination repair-deficient patients with germline BRCA1/2 mutations. Given that highly proliferative cancer requires excessive DNA replication thus repair, we hypothesized that PARP1 high expression is associated with aggressive tumor biology in primary breast cancer regardless of subtype.

Methods: The gene expression profile of the primary breast cancer from 6351 patients from 3 independent cohorts (TCGA, METABRIC and SCAN-B) were analyzed based on PARP1 expression. Transcriptomics data were analyzed in different subtypes of breast cancer were analyzed separately. PARP1 high vs low expression groups were divided by the median in each cohort.

Results: PARP1 expression varied significantly across breast cancer subtypes, with lower expression in hormone-receptor positive (HR+) samples. High PARP1 expression was linked to increased mutation burden, particularly in HR+ tumors. It also correlated with increased activity across multiple DNA repair pathways and increased cell proliferation, with enrichment in pathways related to the cell cycle. Additionally, high-PARP1 tumors exhibited greater immune cell infiltration, particularly in HR+ cases. In neoadjuvant chemotherapy studies, higher PARP1 expression was associated with higher pathologic complete response (pCR) rates in patients receiving chemotherapy, especially in HR+ subtype. However, PARP1 expression alone did not consistently correlate with survival outcomes across cohorts.

Conclusion: Expression of PARP1 gene is associated with aggressive cancer biology, especially in the HR+ subtype of breast cancer, and may serve as a biomarker for response to chemotherapy.

F5. Machine Learning to Identify Predictors of Self-Inflicted Injury Among Older Adults

Brandon Hsu[a] (High School Student), Joseph C L'Huillier, MD, MS-HPEd[b] (Resident), Shuangcheng Hua, MS[c], Jihnhee Yu, PhD[c], Weidun Alan Guo, MD, PhD, FACS[b]

Nichols School, Buffalo[a], Department of Surgery, University at Buffalo[b], Department of Biostatistics, University at Buffalo[c]

Background: Geriatric patients (age ≥ 65) are uniquely vulnerable to self-inflicted injury (SII). However, there is a dearth of data on relevant predictors of SII. We sought to determine clinical and socioeconomic factors that may predispose geriatric patients to SII.

Methods: Geriatric patients in the 2018-2022 trauma database were queried. Variables were compared between SII and non-SII groups. Random forest machine learning was used to identify factors associated with SII during three time periods: 1) pre-COVID (2018-2019), 2) during COVID (2020-2021), and 3) overall (2018-2021).

Results: Among 1,825,415 geriatric trauma patients, 6,480 (0.36%) sustained SII. SII patients were older (77 vs 74 years), more likely to be male (80% vs 44%), and had a higher in-hospital mortality (19% vs 4%, all p <0.001). Random Forest models revealed that younger age, mental health disorders, less frailty and insurance type were strong predictors of SII, regardless of COVID time period (Table).

Conclusion: SII in geriatric patients are associated with distinct demographic and clinical profiles but more significantly with mental disorder, substance use, and socioeconomic vulnerability. Beyond clinical factors, these underlying socioeconomic determinants play a pivotal role in geriatric SII. Addressing these disparities could potentially reduce SII burden and potentially improving geriatric well-being.

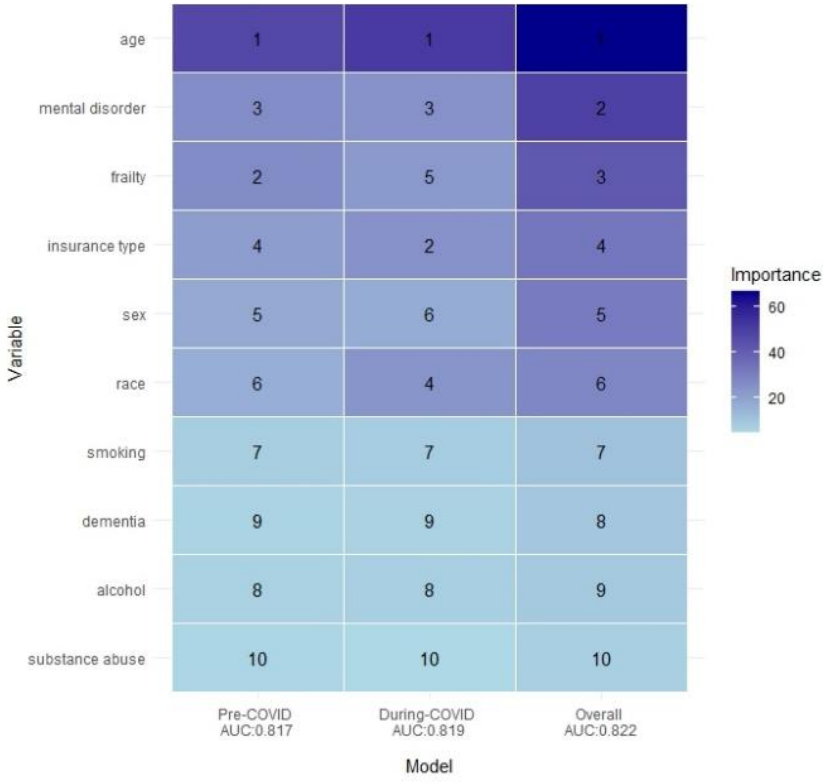

Table: The relative importance of ten variables in determining the likelihood of geriatric self-inflicted injury by time period.

F6. Quantifying The Effect of the Medicaid Expansion on Colon Cancer– A Measurable Difference?

Geoffrey Hobika MD[1,2,*] Bryan Palis MA.[2] Kelley Chan MD.[2,3,*] MS. Joseph Cotler PhD.[2] Clifford Ko MD. MS. MSHS. FACS

1. University at Buffalo, 2. American College of Surgeons, 3. Loyola University, * Resident

Introduction: Expanding Medicaid under the Affordable Care Act increased access to health insurance for people up to 138% of the federal poverty line. Prior research has demonstrated this expansion is associated with improved access to colon cancer screening, early diagnosis and survival. This study examines the impact of Medicaid expansion on metastatic colon cancer diagnoses, survival rates, and guideline-concordant care using causal inference techniques.

Methods: Data were obtained from the NCDB, an ACS-hosted registry capturing 73% of newly diagnosed cancer cases annually. This study focused on colon adenocarcinoma diagnosed between 2010 and 2022, excluding appendiceal, rectal, and rectosigmoid junction cancers. Patients with private, Medicare, or Military insurance were excluded. Primary outcomes of interest were state-level proportion of stage IV disease, five-year survival, and adherence to guideline-concordant care.

Analysis: A staggered Difference-in-Differences model was applied, controlling for state and time-fixed effects. The DiD model estimated changes in primary outcomes before and after Medicaid expansion (Figure 1). Statistical significance was assessed using 95% confidence intervals. Sensitivity analysis was conducted by expanding the analysis to patients of all insurance statuses.

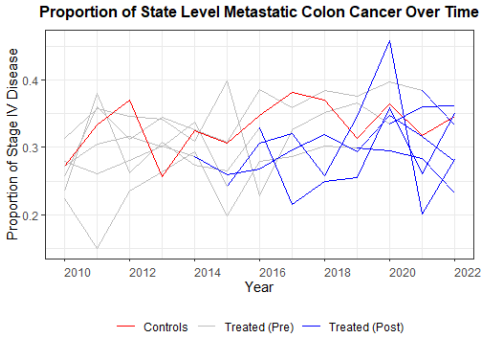

Figure 1: DiD Model for Proportion of State Level Metastatic Colon Cancer Over Time

Results: After data cleaning, 77,666 patients were included in the primary analysis. Medicaid expansion was associated with a 6% reduction in the proportion of metastatic colon cancer diagnoses (ATT = -0.061, CI [-.110, -.012]) **(Table 1)**. No statistical differences were observed between expansion and 5 year survival rates or adherence to guideline concordant care. Results lost significance during sensitivity analysis when expanded to the entire payor mix.

Table 1 – Average Treatment Effects of Medicaid Expansion on Primary Outcomes

Overall summary of ATT's based on event-study/dynamic aggregation:				
	ATT	Std. Error	95% Conf.	Upper
Average Stage IV Proportion	-0.0608	0.0249	-0.1095	-0.012
Average 5 Year Risk of Mortality	0.002	0.0087	-0.015	0.0191
Average Guideline Concordant Care	0.0225	0.0186	-0.0141	0.059

Conclusion: These findings suggest that Medicaid expansion was strongly associated with improved early detection of colon cancer among low-income patients and **may represent a causal link**. The lack of significant changes in survival and treatment quality is not necessarily surprising, given that it takes a substantial intervention to move the needle on mortality and that the guideline-concordant care variable primarily relates to surgical quality within NCDB. Future policy efforts should focus on protecting equitable access to cancer screening and treatment.

F7. Evaluation Of Large Language Models (LLM) For Trauma Triage: A Performance Comparison Of LLM And Human Decision Making At A Level 1 Trauma Center

Ascharya K Balaji BS (medical student), Brendan Fox BS, Brian Quaranto MD, Gene Yang MD, Andrew Nordin MD, P. Benson Ham III MD, MS, FACS, Fabiano Tiffany MPH, Carroll M. Harmon MD PhD, Steven Schwaitzberg MD and Peter Kim MD PhD FACS FRCSC.

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Introduction: Current trauma triage relies on verbal communication between Emergency Medical Centers (EMS) and trauma centers, leading to variability. Given advances in Large Language Models (LLMs), we sought to determine whether LLMs can improve triage accuracy compared to standard triage rates.

Methods: Deidentified trauma activations from a Level 1 pediatric trauma center (January 2023-2025) were encrypted and transcribed using "TaskConnect" and "WhisperAI." GPT-4o and LlaMa 3.2-3B were provided zero-shot prompts incorporating pediatric activation criteria. The National Expert Field Trauma Triage guidelines generated "essential" data for prospective comparison. Triage accuracy was assessed using the Cribari matrix, and Named Entity Recognition (NER) was employed for textual analysis.
Results: Of 410 trauma activations between 2023-2025, 144 voice reports (Level 1 and 2) were analyzed. Cases were excluded due to being level 3 trauma (n =131), no EMS notification (n= 61) and due to self-arrival (n = 26), transfers (n = 26) and trauma flight (n = 22). LLMs and humans have comparable performance (over-triage: χ^2 1.22 -3.45, p = 0.063-0.322; under-triage: χ^2 0.54-2.10, p = 0.147-0.462). Mean conversation length is (2.26 minutes +/- 0.84). Triage rates did not differ significantly with an 81% reduction in verbiage with "essential" data ($p < 0.001$). NER-based comparison of over and under-triage showed no significant difference between LLM and human triage rates (χ^2 58.85, p = 0.422, 0.75, 0.93, 0.60).

Conclusion: Preliminary findings suggest that LLMs like GPT-4o and Llama 3.2-3B can process EMS reports and generate trauma triage decisions with comparable accuracy to humans. Based on the NER analysis, humans rely more on BP and HR when mis-triage occurs with little consideration to mechanism of injury whereas AI relies more on mechanism of injury when mis-triage occurs suggesting it may lack the contextual understanding of injury severity. Identifying patterns of under-triage and over-triage may support AI-assisted triage augmentation and potentially improve trauma resource allocation and patient outcomes. Zero-shot prompting without fine-tuning may hinder LLMs from capturing nuanced domain expertise. With additional training, LLMs show promise to improve triage decisions and improve patient outcomes.

F8. Perioperative Outcomes Following Whipple Procedure Between Flagship and Non-Flagship Hospitals in New York State

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Department of Surgery, University at Buffalo, Buffalo NY

Background: Individual hospitals are rapidly consolidating into large healthcare systems. While evidence exists on volume-outcomes relationships for individual hospitals for complex surgical procedures, evidence on healthcare systems is lacking. We aim to compare outcomes for patients undergoing Whipple procedures between the highest volume (flagship) and lower volume (non-flagship) hospitals within a hospital system to examine how hospital systems impact surgical quality for highly specialized surgical care.

Methods: Utilizing New York State's (NYS) Planning and Research Cooperative System, we identified adult patients who underwent Whipple's procedure (2016-2019). Patients were categorized into two cohorts: Those treated in a flagship (highest volume within a system) or non-flagship hospital. Free standing hospitals and systems with fewer than 5 Whipple procedures annually at the 'flagship' hospital were excluded. 1:1 propensity score matching was performed on sex, race, and insurance status. Patient characteristics, unmatched & matched outcomes (30-day and 90-day) were compared between cohorts using univariate and multivariate analysis.

Results: Overall, 1633 patients were included: 1123 (68.8%) received care at flagship hospitals and 510 (31.2%) at non-flagship hospitals. Whipple procedures were performed in 36 systems (median hospitals per system: 3). Patients treated at flagship hospitals were more often white (65% vs. 40%, $p<0.01$) and less often Medicaid recipients (17% vs 30%, $p<0.01$) versus non-flagship hospitals. After matching, patients at flagship hospitals had lower 30-day transfusion rates (17% vs 29%, $p<0.01$), lower rates of anastomotic leak at 30-days (8.1% vs 12.6%, $p=0.02$) and 90-days (8.8% vs 13.4%, $p=0.02$) and overall a trend toward fewer postoperative complications at 30-days (51% vs 56%, $p=0.07$) and 90-days (53% vs 59%, $p=0.07$), with reduced length of stay (median: 8 d vs 10 d, $p<0.01$) compared to patients in non-flagship hospitals in the same system; there was no difference in 90-day readmission (19% vs 17%, $p=0.46$) or mortality (2% vs 1%, $p=0.22$).

Conclusion: Socially disadvantaged patients are more likely to undergo Whipple procedure in non-flagship hospitals in NYS. After controlling for patient selection, patients undergoing Whipple procedure at flagship hospitals experienced fewer complications and discharged sooner than patients receiving care at non-flagship hospitals in the same system. When planning a complex surgery like the Whipple procedure, patients should be referred to the highest volume Whipple procedure hospital within their healthcare system to optimize post-operative outcomes.

F9. INFLUENCE OF SURGICAL EXPERTISE ON VISUAL GAZE PATTERNS WHILE VIEWING ROBOTIC ADRENALECTOMY

Taylor Quinn[1], Joseph C L'Huillier, MD[2], John M Woodward, MD[2], Garrett C Skinner, MD[2], Gabriel Gazetta, MS[1], Cara B Jones[2], Soham S More[1], Jing Yang, PhD[1], Steven D Schwaitzberg, MD[2], Lora Cavuoto, PhD[1]

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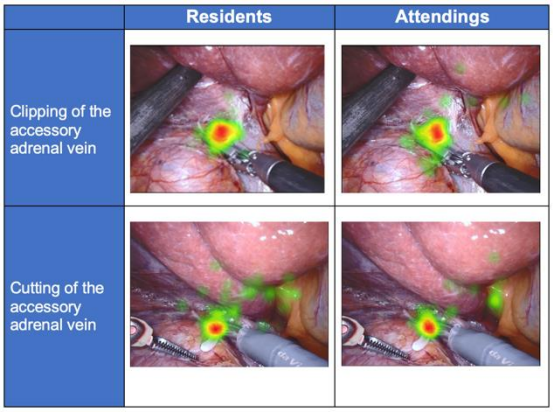
[2] Department of Surgery, Jacobs School of Medicine and Biomedical Sciences

Background: In order to quantify and further understand the visual perception differences between expert surgeons and trainees, we investigated the influence of surgical expertise on visual attention while watching a robotic adrenalectomy. We hypothesized that experienced surgeons would routinely scan the surgical field for critical structures in the periphery, while less experienced surgical trainees would primarily focus their gaze on the surgical instrument.

Methods: Fifteen surgeons (8 residents, 7 attendings) viewed a video of a robotic right adrenalectomy without knowing the case and were later asked to identify the case afterward. Eye-tracking data was collected using a screen-based tracker (Tobii Pro Fusion). The 10-minute edited video included critical steps of the procedure. Areas of interest (AOIs) were identified from the video and included critical steps when surgical instruments were in contact with tissue. Surgeons were grouped by experience level (attendings, residents) and case identification accuracy. Mann-Whitney U and Friedman tests were used for statistical analysis

Results: Our results indicate significant differences in fixation duration ($p=0.022$) and fixation count ($p<0.001$) across AOIs indicate that fixation varied by procedural step. Fixation duration on the AOIs was significantly longer for residents ($p=0.021$) during clipping of the accessory adrenal vein, while attendings demonstrated a broader gaze, dividing attention between the instrument and surrounding anatomy. The longest fixations occurred during cutting and clipping of the accessory adrenal vein, inferior vena cava (IVC) mobilization, and dissection off the IVC.



Case identification accuracy differed significantly between groups. Among the attendings, 5 out of 7 (71.4%) correctly identified the case, compared to only 2 out of 8 residents (25%). However, no significant variations in eye-tracking metrics were found based on identification accuracy.

Conclusion: Visual attention varied across procedural steps, influenced by AOI complexity and surgical expertise. Attendings showed broader fixation during more straightforward steps, such as clipping, while residents focused more narrowly on the instrument. This suggests that experienced attendings have a greater contextual visual understanding of the procedure. These findings enhance our understanding of the differences between less and more experienced surgeons and could be used to facilitate the training process.

F10. Mediastinalization of the Gastric Conduit by Pleural Closure in Robotic Ivor Lewis Esophagectomy: Short-Term Quality of Life Assessment

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Division of Surgical Oncology, Roswell Park Comprehensive Cancer Center.

Background: Esophagectomy for esophageal cancer is associated with a range of quality-of-life issues, including difficulties with eating, swallowing, and overall function. The final position of the gastric conduit in the chest can influence conduit emptying, dysphagia, and reflux symptoms. In this study, we present a novel technique of pleural closure over the gastric conduit during robotic Ivor Lewis esophagectomy to mediastinalize the conduit. We aim to assess the impact of this approach on clinical outcomes and short-term quality of life.

Methods: We conducted a prospective analysis of consecutive patients undergoing robotic esophagectomy for esophageal and gastroesophageal junction cancers, in which the gastric conduit was mediastinalized by pleural closure over the conduit in the chest. The primary outcome was the assessment of short-term quality of life using the validated Esophagus-Specific Quality of Life Questionnaire (QLQ-OES18). This questionnaire assessed domains of dysphagia, deglutition (pharyngeal swallowing), eating, reflux, pain and anxiety as well as single items like dry mouth, taste, trouble talking, trouble coughing. All questions were assessed on a 1-4 point Likert scale with a low score mean less dysfunction and better quality of life. Scores reported in mean with a standard deviation.

Results: A total of 26 patients were included in the study, with a mean age of 64 ± 8 years; 73% were male. All patients underwent a CT esophagogram on postoperative day 4 (POD4), which demonstrated a well-positioned gastric conduit in the mediastinum with rapid emptying into the abdomen. The anastomotic leak rate was 0%, and only one patient required reoperation for takedown of the wrap. All patients were started on a clear liquid diet on POD4. The median hospital length of stay was 6 days. There were no 30-day readmissions or 30-day mortality. The median time to quality-of-life assessment was 55 days. On the QLQ-OES18 questionnaire, patients reported improved quality of life, particularly in the domains of dysphagia (1.4 ± 0.5), deglutition (1.08 ± 0.3), trouble talking (1.02 ± 0.1), taste (1.1 ± 0.3), and trouble coughing (1.1 ± 0.4). In the eating domain, patients had no difficulty with liquids (1.3 ± 0.4), soft foods (1.4 ± 0.5), or solid foods (1.9 ± 0.6). Scores were moderate in the domains of pain (2.5 ± 0.7), anxiety (2.2 ± 0.8), and reflux (2.6 ± 0.6).

Conclusion: Mediastinalization of the gastric conduit by pleural closure in robotic Ivor Lewis esophagectomy is associated with excellent short-term clinical outcomes. Patients demonstrated significant improvements in quality of life, particularly in dysphagia and eating-related domains. This novel technique may offer a promising approach to improving some of the quality-of-life related issues in patients undergoing esophagectomy for esophageal and gastroesophageal junction cancers.

F11. Defining "Expertise" on Oral, Case-Based Examinations Using Functional Near-infrared Spectroscopy

Joseph C L'Huillier, MD, MS-HPEd[a] (Resident, Presenter), John Woodward, MD[a] (Resident), Garrett Skinner, MD[a] (Resident), Gabriel Gazetta, MS[b]; Taylor Quinn, MS[b]; Lora Cavuoto, PhD[ab]; Steven D. Schwaitzberg, MD, FACS[a]

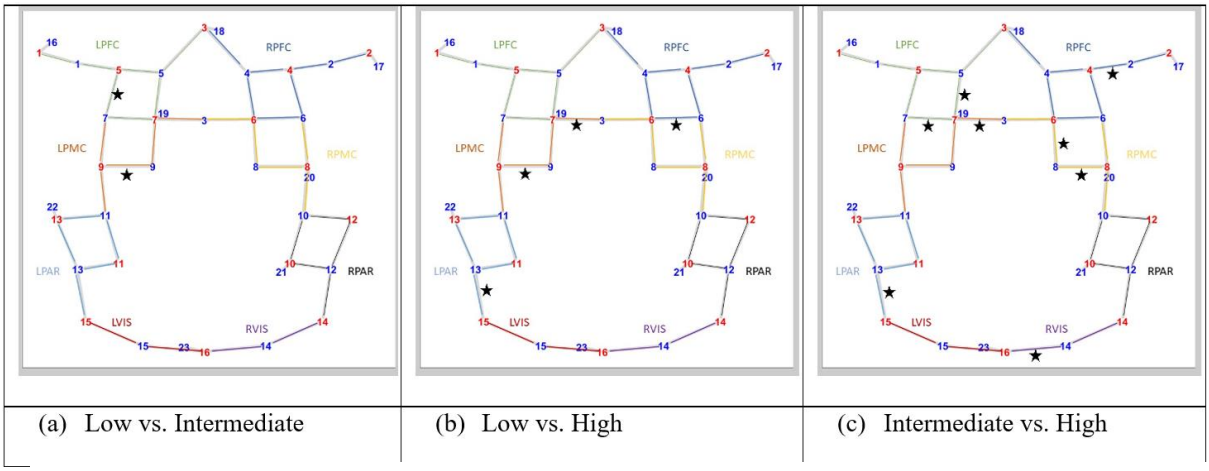
Department of Surgery, University at Buffalo[a], Department of Engineering, University at Buffalo[b]

Background: Many proficiency metrics in surgical education are subject to bias; more objective examinations are needed. We sought to deconstruct the decision-making of novice and expert surgeons during an oral, case-based examination to develop objective measures of proficiency.

Methods: Data collection took place at the 2024 SAGES Annual Meeting. Participants were categorized into three groups based on the number of laparoscopic cholecystectomy procedures they have performed (Low experience <100, Intermediate 100-999, and high experience ≥1000). Participants were presented with an oral, case-based examination (acute cholecystitis and choledocholithiasis). Participants were asked to walk through the scenario while functional near infrared spectroscopy (fNIRS) data were recorded from the prefrontal, sensorimotor, and occipital brain areas. The hemodynamic response based on changes in oxyhemoglobin (HbO) and deoxyhemoglobin concentrations were calculated. Group-level differences in HbO were evaluated using pairwise comparisons at the channel level.

Results: Thirty-six surgeons participated. Almost all participants requested an RUQ ultrasound (34 of 36) and described performing the laparoscopic cholecystectomy (35 of 36). Other actions that were described frequently included asking for the appropriate diagnostic test results (e.g., bilirubin), shooting an intraoperative cholangiogram, and clearing the stone. Actions that were taken less than half of the time included given antibiotics (14 of 36), asking for a pre-operative ERCP (12 of 36), and asking for MRCP (11 of 36). Only 3 of the 7 experts requested the ERCP and/or MRCP, and only 3 gave antibiotics. Figure 1 shows the channel-level differences in HbO between groups. The most differences were observed between the intermediate and high groups for channels in the prefrontal and primary motor cortex.

Conclusion: For an oral examination, management varied significantly. As we work to develop proficiency benchmarks for appropriate management of oral, case-based examinations, decisions by experts may reflect the wide-range of practice patterns. Nevertheless, functional neuroimaging data may help differentiate novices from experts on this cognitive task.



(a) Low vs. Intermediate (b) Low vs. High (c) Intermediate vs. High

Figure: Significant channel level differences in oxygenated hemoglobin between low, intermediate, and high experience. Black stars indicate significant differences. PFC=prefrontal cortex; PMC=premotor cortex; PAR=parietal cortex; VIS=visual cortex

F12. INDOCYANINE GREEN (ICG) - NEAR-INFRARED FLUORESCENCE (NIRF) USE AND EFFECTS ON PROCEDURE DURATION AND ATTAINING THE CRITICAL VIEW OF SAFETY IN LAPAROSCOPIC CHOLECYSTECTOMY

Brian R. Quaranto MD[1], Garrett Skinner MD[1], Jiajie Li[2], Kaity Tung MD[1], Andrew Chang MD[1], Emily Hannah[1], Ascharya Balaji[1], Joshua Marek[1], Gabriela Miletsky[1], Shinil K. Shah DO[3], Gene Yang MD[1], Jinjun Xiong PhD[2], Carroll M. Harmon MD PhD[1], Steven D. Schwaitzberg MD[1], Peter C.W. Kim MD PhD[1]

[1]Department of Surgery, Jacobs School of Medicine and Biomedical Sciences, State University of New York at Buffalo, Buffalo, NY, USA

[2]Department of Computer Science and Engineering, School of Engineering and Applied Sciences, State University of New York at Buffalo, Buffalo, NY, USA

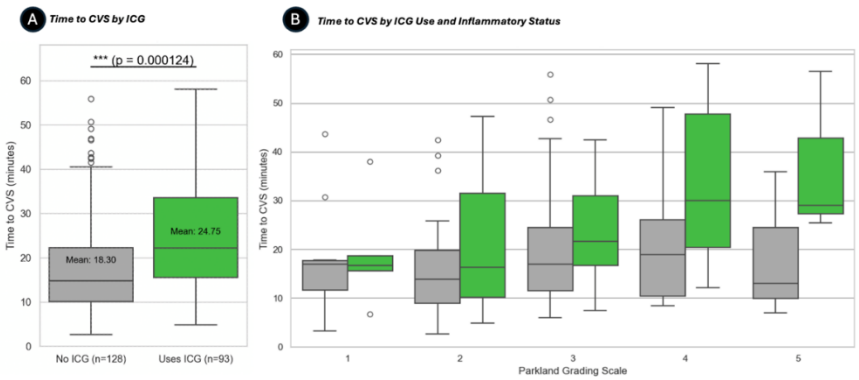
[3]Department of Surgery, McGovern Medical School, University of Texas Health Science Center at Houston, Houston, TX, USA

Introduction: Achieving the critical view of safety (CVS) and the use of NIRF for intraoperative cholangiography are a recommended safety technique and technology to mitigate bile duct injury. Routine use of ICG may be beneficial for consistency in technique, interpretation, facilitating dissection, and user confidence, particularly in a teaching context. However, the use of ICG-NIRF is purported to be highly subjective, inconvenient, and variable. Herein, we report initial findings on ICG-NIRF use in laparoscopic cholecystectomy at two large general surgery training programs based on video analysis metrics.

Methods: Laparoscopic cholecystectomy videos were collected under IRB at two university general surgery training programs from 2019 to 2024 with a total accrual of 853 cases. A total of 338 cases (39.6%) were randomly reviewed, resulting in 305 cases that were deemed to be complete cases. From these, 115 cases used ICG-NIRF and 189 cases did not use ICG-NIRF. These 305 cases then underwent manual video review for ICG-NIRF use, inflammatory state using the Parkland Grading Scale, achievement of the CVS, and timestamp abstraction of multiple key time points during the operation. An ANOVA model was used to assess time to achievement of the CVS by ICG use and inflammatory status.

Results: The CVS was achieved significantly more often in cases with ICG-NIRF use than cases without ICG-NIRF use (93/115 with versus 128/189 without, z=2.49, p=0.0126). Total dissection time length was significantly longer with ICG-NIRF use (29.37 min without vs. 39.12 min with, t=-3.93, p=0.0001). Time to achievement of the CVS was 18.3 minutes for cases without ICG-NIRF use and 24.8 minutes for cases with ICG-NIRF use. On average, ICG-NIRF use increased time to achievement to CVS by 6.5 minutes (P = 0.0001, Figure 1A). Inflammatory state as measured by Parkland grading scale (F=4.21, p=0.0027) and ICG-NIRF use (F=14.80, p=0.0002) were found to have independent significant effects on increased time to achieving the CVS, but their interaction was not significant (F=1.18, p=0.319, Figure 1B). Similarly, inflammatory state (F=2.47, p=0.046) and ICG-NIRF use were also found to have independent significant effects on increasing total dissection time (F=14.67, p=0.0002).

Conclusions: We report that the use of ICG-NIRF adds a statistically significant time duration to both the time to achieve the CVS and the total dissection time, when controlling for inflammation severity. Beyond surgeon confidence and satisfaction, the purported benefit of ICG-NIRF particularly in more severe inflammatory setting remains to be resolved.



Jacobs School of Medicine and Biomedical Sciences
University at Buffalo

Department of Surgery

Quick Shot Podium Presentations

Quick Shot Podium Presentations

1. 12:00 – 12:05pm "**Outcomes of Clinically Detected Stage III Melanoma Through Individualized Neoadjuvant (PRADO) Approach At a Single Institution"**
   Richard A Erali, MD MPH; Elizabeth Olecki, MD; Alicia Goldenberg, MD; Aleodor A Andrea, MD MBA; Shalana O'Brien, MD; John Kane, MD; Igor Puzanov, MD MSCI; Benjamin Switzer, DO MHSA MS; Joseph Skitzki, MD

2. 12:05 – 12:10pm "**Pulmonary Suffusion Refinements for Primary and Secondary Malignancy: Preliminary Analyses of Phase I Safety and Drug Delivery Data"**
   Todd Demmy, Samah Abdelhady, Garin Tomaszewski, Michael Petroziello, Omar Hasan, Mark Hennon, Elisabeth Dexter, Deepak Vadehra, Ajay Gupta, Anne Grand 'Maison, Grace Dy, Sai Yendamuri

3. 12:10 – 12:15pm "**Medical Students' Perspectives on Informed Consent in Surgical Practice: Ethical Considerations and Educational Implications"**
   Cara Jones, Theofano Zoumpou, John M. Woodward, Michael Shapiro, Steven D. Schwaitzberg, Daniel B. Jones

4. 12:15 – 12:20pm "**Pre-Operative Factors Influencing Negative Appendectomy: A Retrospective Analysis of Clinical Characteristics, Imaging and Admission Pathways"**
   John M. Woodward, Rhys Mendel, Melanie Tacher Otero, Mike LaRock, Krystle Bittner, Patricia Corujo Avila, Medjie Chery, Andrew Nordin, Peter Kim, Carroll M. Harmon, P. Benson Ham III

5. 12:20 – 12:25pm "**Association Between Facility Characteristics and Hospital Outcomes Among Children and Youth with Special Health Care Needs Following Physical Trauma"**
   Wanda Estinfort, PhD, MS, RN, BSN, Tiffany Fabiano, MS, CPNP, Hector Osei, MD, Andrew Nordin, MD, Douglas P. Landsittel, PhD, Denise F. Lillvis, PhD, MPA

6. 12:25 -12:30pm "**Computational Investigation of Interface Geometry and Material Selection within Biomimetic Osteochondral Scaffolds"**
   Eoin J. Devoy, BS, Robert H. Choe, DMD, PhD, John Osborne, BS, Mary Sherry, BS, John P. Fisher, PhD, Danil Chernov, MA, Nicholas Frappa, DPT, MS

7. 12:30 – 12:35pm "**Exploring Socioeconomic Disparities in Autologous Breast Reconstruction: A Geographic Analysis**"
   Katherine Kozlowski BS1 , Ariel Harsinay BS1 , Sarah Lewis BS1 , Joseph Ricottone BS1 , Jordan Frey MD1

8. 12:35 – 12:40pm "**Review of Results of Conversion of Sleeve Gastrectomy to Roux-En-Y Gastric Bypass in a Single Institution**"
   Alexandra Sima, MD, Daphine Musisi, MD, Joseph Pollichemi, MD, MBA, Taylor Riley, MD, Surjo Bandyopadhyay, Kelly Stahovic, Xavier Jean, MD, Ajay Myneni, PhD, MPH, Ekaterina Noyes, PhD, MPH, Gene Yang, MD, FACS, John L Butsch, MD, Alan R Posner, MD

Q1. Outcomes of Clinically Detected Stage III Melanoma Through Individualized Neoadjuvant (PRADO) Approach At a Single Institution

Richard A Erali, MD MPH; Elizabeth Olecki, MD; Alicia Goldenberg, MD; Aleodor A Andrea, MD MBA; Shalana O'Brien, MD; John Kane, MD; Igor Puzanov, MD MSCI; Benjamin Switzer, DO MHSA MS; Joseph Skitzki, MD

Background

Therapeutic lymph node dissection (TLND) and one year of adjuvant systemic therapy have historically been utilized for patients with clinically positive stage III melanoma. Recently, the PRADO trial demonstrated the safety and efficacy of de-escalating surgery and omitting adjuvant therapy in patients who achieve a major pathologic response (mPR) following neoadjuvant ipilimumab (ipi) and nivolumab (nivo). We provide outcomes of patients treated in a PRADO-style protocol at a single institution.

Methods

A prospectively maintained database of stage III melanoma patients treated in PRADO-style protocol at a single institution from 2023-2024 was reviewed. Patients included received two doses of neoadjuvant ipi (1mg/kg) and nivo (3mg/kg) followed by index lymph node (ILN) resection per PRADO protocol with at least one surveillance follow-up visit. Chi-squared and Wilcoxon analysis was performed for categorical and continuous variables, respectively.

Results

Twenty-five patients were included in the final analysis, including 13 (52%) patients who did not meet original PRADO inclusion criteria or follow the formal protocol. There were no differences in sex, site of ILN, pathologic class, and *BRAF* mutation status between patients who did and did not meet original PRADO inclusion criteria ($p>0.05$). Average age was 63 years, 9 (36%) patients were female, 8 (32%) unknown primaries, and 11 (44%) with recurrent disease. Grade ≥3 toxicities were observed in 3 (12%) patients and one (4%) death secondary to a treatment-related adverse event prior to ILN resection. Three (12%) patients did not undergo surgery (disease progression or death). Of the 22 patients who underwent ILN resection, 16 (72.7%) demonstrated mPR (≤ 10% viable tumor), 2 (9.1%) partial responses (pPR, > 10 and ≤ 50%) and 4 (18.2%) non-responders (pNR, > 50% viable tumor). Of the 6 patients who did not exhibit a mPR, 3 underwent subsequent TLND (1 with mPR on final pathology), 1 declined TLND, and 2 patients underwent lymph node dissection instead of ILN resection due to bulky/progressive disease. Two (9.1%) patients developed post-operative complications (grade 1 and 3). 5/6 (83.3%) patients without mPR received adjuvant nivo and 1/6 (16.7%) stopped treatment due to side effects. At a median follow-up of 6.2 months (1.2 – 18.2), all patients who underwent surgery have no evidence of recurrent disease.

Conclusions

A personalized approach based on pathologic assessment of the ILN following neoadjuvant ipi/nivo to guide stage III melanoma treatment is feasible and possible applications exist beyond the original PRADO study inclusion criteria. Longer-term follow-up is needed.

Q2. Pulmonary Suffusion Refinements for Primary and Secondary Malignancy: Preliminary Analyses of Phase I Safety and Drug Delivery Data

Todd Demmy[1], Samah Abdelhady[2], Garin Tomaszewski[3], Michael Petroziello[3], Omar Hasan[3], Mark Hennon[1], Elisabeth Dexter[1], Deepak Vadehra[4], Ajay Gupta[2], Anne Grand 'Maison[5], Grace Dy[2], Sai Yendamuri[1]

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4Department of Medicine Roswell Park Comprehensive Cancer Center, Buffalo, NY
5Erie County Medical Center, Buffalo, NY

Background: We sought to study our interim methodologic improvements and preliminary safety results for this less complex regional lung therapeutic technique.
Methods: Phase I (3+3 design)/Phase II partially randomized trial of lung suffusion. Eligibility evolved from oligometastatic lung cancer to resectable pulmonary metastases which currently are limited to sarcoma and colorectal cancer. Escalating doses of primary-specific regional chemotherapy (cisplatin, oxaliplatin, doxorubicin and gemcitabine) targeted 3-fold of systemic deliveries. Suffusion side was allocated randomly in bilateral disease cases. Performance status, PFTs and 99Tc differential lung scans established eligibility, assessed toxicity and 99Tc traced suffusion delivery for the last 23 cases.
Results: From 2008-2024, 29 ECOG 0-2 patients (10 male) aged 33-75 underwent unilateral VATS lung suffusion (14Rt/15Lt). A case aborted safely before suffusion (vascular occlusion intolerance). Two patients tolerated catheter-related adverse events. Following suffusion, VATS range 1-6 nodules underwent 14 sub-lobar and 8 lobar resections with two thoracotomy conversion to resect multiple lesions. Hospital stay was brief (1-3 days) except 3 day 5-7 discharges (2 thoracotomies and a possible transient doxorubicin-related lung injury). Adverse events (see Table) compared favorably to historic perfusion strategies, 90-day mortality was 0%, and post-suffusion systemic chemotherapy resumed without delay. Differential lung function was unaffected except for 3 treated side reductions >10% predicted (2 lobectomy). Despite fluoroscopic contrast confirmation and evidence of drug effect, 99Tc tracer location post suffusion was discordant in 9 patients possibly because of backwash of tracer and lung atelectasis during the initial tracer injection. Contrast "test" suffusion and optional PA snaring modifications have thus far successfully addressed discordance. The oxaliplatin phase 1 cohort completed and now is in Phase2.
Conclusion: With technical refinements, lung suffusion for several metastatic malignancies thus far appears clinically safe and tolerable. Further research is warranted to determine drug tolerances and to detect possible efficacy.

Drug	Primary Cancer Histology	Number of Patients	Adverse Event Grad			Possible DLT Attribution
			1-2	3 DLT	4 DLT	
Cisplatin	NSCLC	7	7	1		Catheter
	Sarcoma	2	2			
	Breast	1	1			
Doxorubicin	Sarcoma	4	4		1	Drug
Oxaliplatin	CRC	13	13	1		Catheter
Gemcitabine	CRC	2	2			

CRC – Colorectal Carcinoma; DLT – Dose Limiting Toxicity; NSCLC- Non-Small Cell Lung Cancer

Q3. Medical Students' Perspectives on Informed Consent in Surgical Practice: Ethical Considerations and Educational Implications

Cara Jones, Theofano Zoumpou, John M. Woodward, Michael Shapiro, Steven D. Schwaitzberg, Daniel B. Jones

Department of Surgery, Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY
Department of Surgery, Rutgers New Jersey Medical School, Newark, NJ

Background:
Informed consent for surgery is fundamental to ethical medical practice and, ideally, should ensure patient autonomy in decision-making. However, this same ethical standard is variably applied to medical students' involvement in patient care. This study explores medical students' perspectives on the ethics of informed consent relating to their involvement in the surgical care of patients.

Methods:
A multi-institutional survey was distributed among medical students at Rutgers New Jersey Medical School (Newark, NJ) and Jacobs School of Medicine (Buffalo, NY). The survey assessed students' opinions on informed consent, their involvement in patient care, and how their involvement should (or shouldn't) be discussed with patients.

Results:
Fifty-seven students completed the survey. Most reported receiving formal training in informed consent (69%) and medical ethics (82%). When asked about the purpose of informed consent, students assigned the highest importance to respecting patient autonomy. Medical students strongly agreed that a level of informed consent should be required for their involvement in both observation of and participation in care. The level of consent requested by students increased from "verbal permission" for obtaining a history (70%) to "verbal consent" for performing an invasive exam that another provider will have to repeat (63%).

Conclusion:
The study reveals the medical students' desire for clear communication and ethical consideration regarding their involvement in patient care. While students felt well-trained in informed consent and ethics, they prefer in-depth discussions with patients prior to their involvement in care to affirm that the patient understands medical student involvement serves an educational purpose and will likely need to be repeated by another provider. This study emphasizes the need for institutions to refine consent practices to meet the modern ethical standards held by students in healthcare and medical training.

Q4. Pre-Operative Factors Influencing Negative Appendectomy: A Retrospective Analysis of Clinical Characteristics, Imaging and Admission Pathways

John M. Woodward, Rhys Mendel, Melanie Tacher Otero, Mike LaRock, Krystle Bittner, Patricia Corujo Avila, Medjie Chery, Andrew Nordin, Peter Kim, Carroll M. Harmon, P. Benson Ham III

Division of Pediatric Surgery, Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY

Background: A normal appendix on pathology, known as a 'negative appendectomy' is a potential outcome of surgery for suspected appendicitis. While the overall incidence has decreased, it is not completely avoidable. Therefore, we utilized the NSQIP-P database to identify pre-operative risk factors of negative appendectomy.

Methods: NSQIP-P was used to identify patients <18 years who underwent an appendectomy for suspected acute appendicitis (2016-2022). Patients with 'normal' pathology (negative appendectomy) were compared to patients with positive pathology. X^2, Fisher's exact, t-tests, and regression analysis were performed with $p<0.05$ considered significant.

Results: Overall, 126,631 appendectomies were performed for suspected acute appendicitis with 2,971 (2.3%) documented as negative on pathology. Negative appendectomy patients were more often younger (10.6y vs. 11.2y, $p<0.001$), female (48.5% vs. 39.5%, $p<0.001$), admitted from home/clinic bypassing the ED (6.5% vs. 4.8%, $p<0.001$), and had lower WBC (11.5 vs. 15.1, $p<0.001$); they were less likely to exhibit SIRS/sepsis (34.2% vs. 51.9%, $p<0.001$) and to undergo imaging prior to surgery (5.1% vs. 2.2%, $p<0.001$). Regression analysis identified female sex (OR 1.42), no imaging vs ultrasound (OR 1.96), and direct admit from home/clinic vs the ED (OR 1.37) as increasing likelihood of negative appendectomy; while increasing age, increasing, WBC and preoperative SIRS/sepsis decreased odds (Table 1).

Conclusion: Modifiable factors associated with negative appendectomy included direct admission from home/clinic bypassing emergency providers, and forgoing ultrasound (which doubled the odds of negative appendectomy). Therefore, unnecessary surgery may be minimized through optimization of the pre-operative workup of suspected appendicitis.

Table 1: Regression Analysis of Factors Influencing Negative Appendectomy

Negative Appendectomy	Odds Ratio (95% CI)	p-value
Age in Years	0.945 (0.930 – 0.961)	<0.001
Female Sex	1.424 (1.271 – 1.597)	<0.001
Preoperative SIRS, Sepsis, Shock	0.715 (0.629 – 0.813)	<0.001
WBC	0.875 (0.863 – 0.887)	<0.001
Imaging		<0.001
Ultrasound	1 (Reference)	
CT	0.775 (0.686 – 0.874)	<0.001
MRI	0.773 (0.544 – 1.091)	0.143
No imaging	1.955 (1.365 – 2.799)	<0.001
Admission Location*		<0.001
ER	1 (Reference)	
Home/Clinic	1.374 (1.168 – 1.615)	<0.001
Outside Hospital Admission	0.757 (0.552 – 1.037)	0.083

*Admission categories changed in 2022: Regression data for Admission was 2016-2021

Q5. Association Between Facility Characteristics and Hospital Outcomes Among Children and Youth with Special Health Care Needs Following Physical Trauma

Wanda Estinfort, PhD, MS, RN, BSN*[1], Tiffany Fabiano, MS, CPNP[2], Hector Osei, MD[2, 4], Andrew Nordin, MD[2,4], Douglas P. Landsittel, PhD[3], Denise F. Lillvis, PhD, MPA[1, 4]

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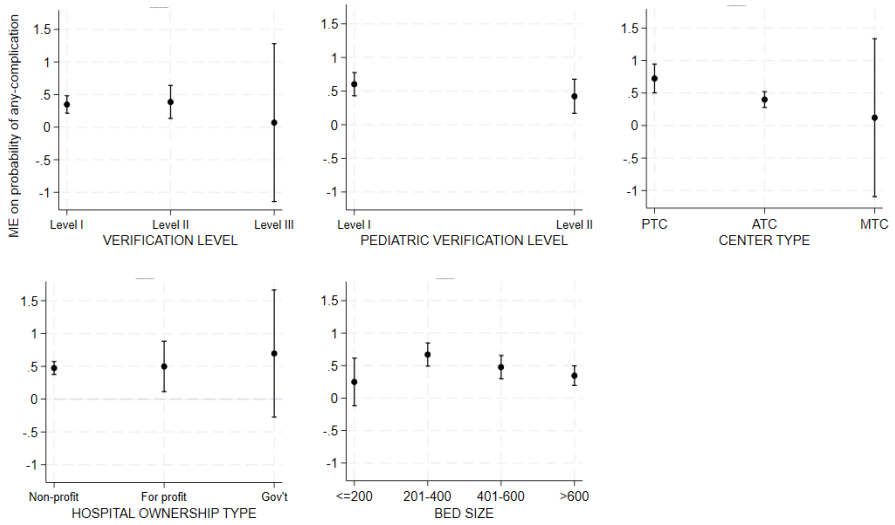
Background: Children and Youth with Special Health Care Needs (CYSHCN) have unique injury patterns and outcomes compared to other pediatric trauma patients. Evidence regarding trauma center characteristics' impact on outcomes is conflicting, and special health care needs status has not been examined. This study examines the interaction between trauma facility characteristics and Special Health Care Needs (SHCN) status and how this relates to hospital outcomes following physical trauma.

Methods: We analyzed the National Trauma Data Bank data for patients aged 1–18 years old from 2019–2022 (n = 492,713). We examined hospital outcomes such as any inpatient complications, unplanned ICU admission, ICU and hospital LOS and mortality. Mixed effects multivariable binary logistic and negative binomial regression models were used to estimate the interaction effects between facility characteristics and SHCN status on hospital outcomes adjusting for patient demographics, Injury Severity Score, and Glasgow Coma Score.

Results: CYSHCN encounters in level I and level II trauma centers exhibited a significantly greater likelihood of complications, longer ICU and hospital LOS, and a higher probability of mortality compared to encounters without SHCN ($p<0.001$). CYSHCN in Pediatric Trauma Centers and Adult Trauma Centers also showed greater likelihood of complications, unplanned ICU admissions, longer ICU and hospital LOS, and higher probability of mortality compared to non-SHCN encounters ($p<0.001$). CYSHCN in non-profit, for-profit, and larger hospitals have a greater likelihood of any complication, longer ICU and hospital LOS, and a higher probability of mortality ($p<0.001$).

Conclusion: CYSHCN encounters have higher risks of adverse hospital outcomes following trauma admission compared to non-SHCN encounters. These results highlight the importance of tailored healthcare approaches for CYSHCN within trauma care settings, emphasizing the need for specialized protocols and resources to optimize outcomes and mitigate risks in this vulnerable population.



Q6. Computational Investigation of Interface Geometry and Material Selection within Biomimetic Osteochondral Scaffolds

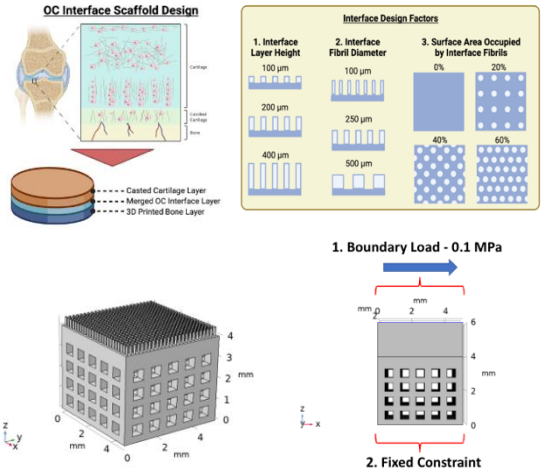
Eoin J. Devoy, BS,[1,2,3] Robert H. Choe, DMD, PhD, [2,3] John Osborne, BS,[2,3] Mary Sherry, BS,[2,3] John P. Fisher, PhD,[2,3] Danil Chernov, MA,[1] Nicholas Frappa, DPT, MS[1]

1. Jacobs School of Medicine and Biomedical Sciences, University at Buffalo, Buffalo, NY
2. Fischell Department of Bioengineering, University of Maryland, College Park, MD
3. Center for Engineering Complex Tissues, University of Maryland, College Park, MD

Background:
Articular cartilage degeneration leads to increased shear stress and impaired lubrication, impacting joint function. Current osteochondral repair strategies, such as autografts and allografts, often fail due to graft delamination. A strong bone-cartilage interface is crucial for tissue engineering scaffold success. This study utilizes computational modeling to investigate the role of interface geometry and material properties in improving shear strength and reducing displacement in biomimetic osteochondral scaffolds.

Methods:

- 3D computational model developed in COMSOL Multiphysics 6.0 to simulate shear stress
- Two material combinations used:
  - E-shell (bone-like material) + Silicone (cartilage-like material)
  - E-shell + Gelatin Methacrylate (GelMA)
- 28 interface patterns evaluated, varying:
  - Fibril percent occupancy
  - Fibril diameter
  - Fibril height
- Boundary conditions:
  - Fixed constraint at the base
  - Lateral shear force (0.1 MPa) applied to the top
  - Linear elastic material behavior assumed



Results:

- Silicone-based scaffolds exhibited better mechanical performance compared to GelMA-based scaffolds.
- Lower fibril occupancy, diameter, and height were associated with higher shear strength and lower displacement.
- von Mises stress distribution analysis demonstrated significant differences in scaffold deformation and shear stress between different interface geometries.
- A stiffness threshold effect suggests that material choice influences the impact of geometry modifications.

Conclusion:
The study highlights that interface geometry and material selection significantly influence scaffold mechanical behavior. The findings support the optimization of fibril parameters for improving scaffold strength. Future work will focus on fabricating these scaffolds using stereolithography printing and casting, followed by shear and compression testing. This research aims to improve clinical outcomes for patients with osteochondral defects by developing mechanically robust biomimetic scaffolds.

Q7. Exploring Socioeconomic Disparities in Autologous Breast Reconstruction: A Geographic Analysis

Katherine Kozlowski BS1 , Ariel Harsinay BS1 , Sarah Lewis BS1 , Joseph Ricottone BS1 , Jordan Frey MD1

1Department of Plastic and Reconstructive Surgery, University at Buffalo Jacobs School of Medicine and Biomedical Sciences

Background: Socioeconomic status has been observed to affect women's pursuit and candidacy for breast reconstruction; however, information on its effect on the outcomes of the surgery itself is limited. This study aims to determine if complication rates after autologous breast reconstruction differ between individuals who live in economically disadvantaged neighborhoods compared to those who live in more affluent regions in Western New York.

Methods: A retrospective review of all free-flap breast reconstructions between January 2012 and May 2024 was completed. Demographic, clinical, and perioperative data were collected. Area deprivation index (ADI) as defined by the University of Wisconsin School of Medicine and Public Health was used as an estimate of neighborhood socioeconomic status for each patient, with higher values indicating greater economic disadvantage. Descriptive statistics, Chi-square tests, Fisher's Exact Tests, regression analyses, and independent samples t-tests were done to evaluate trends and relationships between variables where appropriate.

Results: 244 flaps in 134 individuals were included in the study. On average, individuals who underwent surgery were economically disadvantaged based on state measures (mean state decile=8.2; SD=1.3), but this was not as pronounced on a national level [mean national percentile (NP)=64th; SD=21.8]. Patients experiencing any complication tended to live in more disadvantaged neighborhoods compared to those with higher socioeconomic status (mean NP=69th vs 60th, respectively; 95%CI [-0.769, -0.054]; p=0.024). For each unit increase in NP, the odds of experiencing a complication increased by 2.3% [OR=1.023; 95%CI (1.0, 1.05); p=0.04]. While 78.8% of observed cases of flap loss, embolic events, dehiscence, hematoma, seroma, and surgical site infection occurred in individuals with NP rankings above the 50th percentile, analysis of each complication individually did not reach significance. Nearly half (47%) of patients who returned to the OR within two weeks of surgery lived in areas with ADIs above the 75th NP. Tobacco use (p=0.036), hyperlipidemia (p=0.015), and hypertension (p=0.038) were associated with living in more disadvantaged areas. There were no significant associations between ADI and rates of diabetes, chronic kidney disease, autoimmune disease, depression, anxiety, obesity, marijuana use, or alcohol use. Thirty-day emergency department visits did not significantly differ based on ADI.

Conclusion: This study identified a link between living in more economically disadvantaged regions and higher complication rates following autologous breast reconstruction. Alongside systemic advocacy, our findings highlight a potential need to improve preoperative risk management or augment patient education and postoperative support in breast reconstruction patients to mitigate these observed disparities.

Q8. Review of Results of Conversion of Sleeve Gastrectomy to Roux-En-Y Gastric Bypass in a Single Institution

Alexandra Sima, MD, Daphine Musisi, MD, Joseph Pollichemi, MD, MBA, Taylor Riley, MD, Surjo Bandyopadhyay, Kelly Stahovic, Xavier Jean, MD, Ajay Myneni, PhD, MPH, Ekaterina Noyes, PhD, MPH, Gene Yang, MD, FACS, John L Butsch, MD, Alan R Posner, MD

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Background: Laparoscopic sleeve gastrectomy has become the most performed bariatric surgery in the United States. Despite its popularity, sleeve gastrectomy is not without complications, specifically insufficient weight loss, weight recidivism, worsening or new gastroesophageal reflux disease (GERD), and inadequate control of diabetes. These complications are indications for conversion to Roux-en-Y gastric bypass (RYGB). Our study will assess improvement in GERD symptoms and weight control in patients who underwent conversion from sleeve gastrectomy to RYGB.

Methods: Study protocols were approved by the IRB at the University at Buffalo. All adult patients of the Kaleida Health Weight Management Center who underwent gastric sleeve conversion to RYGB between 2013 and 2023 were included. For the first part of this study, retrospective chart reviews were performed to collect data regarding weight, BMI, GERD, and medication usage prior to gastric sleeve, post gastric sleeve, prior to RYGB, and post-RYGB. There were 147 patients included in the retrospective chart review, with 4 patients removed from the dataset due to insufficient data (n=144) for the GERD analysis and 52 patients removed from the dataset due to missing data and lost to follow up for the weight loss analysis (n = 95). The second part of the study consisted of a questionnaire administered via phone interview to evaluate weight, GERD, and perception of conversion to RYGB (n = 68). Bivariate analysis was utilized to examine differences in GERD symptoms, and weight control before and after RYGB was assessed using t-test or ANOVA and Chi-square tests.

Results: The incidence of GERD was assessed at the different timelines, demonstrating 50.69% participants having GERD pre-sleeve, 61.38% post-sleeve, 94.44% pre-bypass, and 54.86% post-bypass. Additional analysis showed that the RYGB demonstrated a higher GERD resolution rate (26.62% vs. 12.33%) and a lower persistence rate (55.40% vs. 79.45%) when comparing to sleeve gastrectomy. This difference was statistically different ($p< 0.01$). For the questionnaire, results demonstrated 84% of participants converted to RYGB to control reflux, 33% to control weight, and 4% to control diabetes. 55% of participants reported worsening reflux after sleeve compared with 15% after bypass, while 9% had resolution of reflux after sleeve compared with 45% after bypass (p-value < 0.01). Weight outcomes showed that 26% of sleeve patients and 21% of bypass patients had weight recidivism, while successful weight control was achieved in 35% of sleeve patients and 38% of bypass patients (p-value 0.09).

Conclusion: The study found that conversion to RYGB significantly improved reflux symptoms, with a higher resolution rate and lower persistence rate compared to gastric sleeve. It also found that sleeve gastrectomy exacerbates GERD, as seen in the post-operative increase in incidence. Additionally, while both surgeries showed similar rates of successful weight control, sleeve gastrectomy patients experienced more weight recidivism. These findings highlight the benefits of RYGB in managing reflux following gastric sleeve and maintaining long-term weight control