

Conference proceedings

Conference Proceedings: Southeastern Regional Society of Academic Emergency Medicine Meeting, 2025

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Keywords: Society of Academic Emergency Medicine Southeastern Regional Meeting 2025, Conference Proceedings

<https://doi.org/10.62186/001c.145042>

Academic Medicine & Surgery

The 2025 Society of Academic Emergency Medicine (SAEM) Southeastern Regional Meeting Research Forum showcased a peer-reviewed selection of over 50 emergency medicine research, innovations, and case reports presented in poster format. The event took place on July 12, 2025, in Orlando, Florida at the Student Union on the University of Central Florida campus.

Dr. Cassandra Bradby gave the SAEM introduction, and Dr. Sreeja Natesan delivered a breathtaking keynote address titled: “Shattering the Glass Ceiling: Bridging Opportunity Gaps in Academic Medicine.” We had over 50 research abstracts, judged by our esteemed panel of judges that included: Drs. Cassandra Bradby, Mary McLean, Tyler Moriarty, Christiaan Myburgh, Sreeja Natesan, Chrissy Van Dillen, Savithri-Chandana Veluri, Michelle Wallen and Brooks Wright.

Awards were presented to top submissions in four categories: High School student, College/Medical student, Resident, and Fellow/Faculty.

RESEARCH ABSTRACTS

1. BRANCHING OUT: A CASE OF HERPETIC KERATITIS

Daniel May, DO; Rodolfo Loureiro, MD; Haley Semos, PA; Shayne Gue, MD, FACEP, FAAEM

BayCare Health System / St. Joseph's Hospital- Emergency Medicine

BACKGROUND

Herpetic keratitis is a potentially vision-threatening condition caused by herpes simplex virus (HSV), often presenting with subtle or misdiagnosed symptoms. It is characterized by dendritic corneal lesions on fluorescein staining and requires early antiviral treatment to prevent complications.

Risk of recurrence, chronic inflammation, and corneal scarring make rapid diagnosis essential—especially in immunocompromised or autoimmune populations [1,2].

CASE PRESENTATION

A 33-year-old female with a history of systemic lupus erythematosus, chronic kidney disease (CKD), and hypertension presented to the emergency department with worsening right eye pain, photophobia, and decreased vision after being treated for presumed conjunctivitis with ofloxacin drops. Visual acuity was 20/200 in the right eye, and fluorescein staining revealed a classic dendritic corneal lesion. Her intraocular pressures were normal bilaterally, and ocular ultrasound was unremarkable. Laboratory evaluation showed leukocytosis and thrombocytopenia, consistent

RESEARCH ABSTRACT WINNERS

1ST PLACE RESIDENT PRESENTATION

Daniel May, DO – “Branching Out: A Case of Herpetic Keratitis”

2ND PLACE RESIDENT PRESENTATION

Brittany Nagel, MD – “Risk factors for confirmed rabies exposure”

3RD PLACE RESIDENT PRESENTATION

Michael Sencaj, DO – “Breaking the Loop: A Case of Magnet-Mediated Miracle”

1ST PLACE FACULTY/FELLOW PRESENTATION

Shelby Papa, EMT-P – “Implementing a public health training program addressing CPR, bleeding control, and opioid overdose reversal in high schools”

2ND PLACE FACULTY/FELLOW PRESENTATION

Ariana McFarland MD & Jessinia Cabrera MD – “Analysis of Hand Motion as an Objective Measure of Point-of-Care Ultrasound Procedural Guidance Competency”

3RD PLACE FACULTY/FELLOW PRESENTATION

Sandy Francois, MSc – “Compliance Strategies when Implementing Opt-Out HIV Screening in Pediatric Emergency Departments”

1ST PLACE COLLEGE/MEDICAL STUDENT PRESENTATION

Pallavi Avasarala – “Analysis of Unhoused Patient Care to Guide Street Medicine Interventions at Michigan Medicine”

2ND PLACE COLLEGE/MEDICAL STUDENT PRESENTATION

Rohit Mukherjee – “Characteristics of Tobacco Treatment Seeking Patients with and without Depression and/or Anxiety in New Jersey”

3RD PLACE COLLEGE/MEDICAL STUDENT PRESENTATION

Celeste Wilson – “Predictive Factors for ED Bounce-Back in Patients with Low-Risk Palpitations or Syncope”

1ST PLACE HIGH SCHOOL STUDENT PRESENTATION

Om Radadia – “Predictors of Renal Insufficiency and Postoperative Dialysis following Laparoscopic Cholecystectomy”

2ND PLACE HIGH SCHOOL STUDENT PRESENTATION

Samar Kaddoura – “Predictors of Stroke, Myocardial Infarction and Venous Thromboembolism Within 30 Days of Partial Mastectomy”

3RD PLACE HIGH SCHOOL STUDENT PRESENTATION

Pranay Gadikota – “Covariates Associated with Pulmonary Complications Including Unplanned Intubation After Total Knee Arthroplasty”

4TH PLACE HIGH SCHOOL STUDENT PRESENTATION

Shilpa Subramaniam – “Risk Factors for Dehiscence, Surgical Site, and Organ Space Infections within 30 Days of Partial Mastectomy”

5TH PLACE HIGH SCHOOL STUDENT PRESENTATION

Mehreen Mohammed – “Bending the Odds: Clinical Predictors of 30-Day Morbidity and Surgical Outcomes Following Total Knee Arthroplasty”

with chronic illness. The patient was initiated on intravenous acyclovir and admitted to the ED Observation Unit. Ophthalmology confirmed the diagnosis of herpetic keratitis and transitioned her to oral antivirals with adjunctive Polytrim drops to prevent bacterial superinfection. She was discharged with close outpatient follow-up.

DISCUSSION

This case highlights the importance of maintaining high clinical suspicion for herpetic keratitis in patients with persistent ocular symptoms, especially when risk factors like autoimmune disease or immunosuppression are present [3,4]. HSV keratitis may mimic benign conjunctivitis early in its course, but delays in diagnosis can lead to corneal scarring, vision loss, and recurrence. Fluorescein staining remains a critical bedside diagnostic tool. Prompt recogni-

tion and initiation of antiviral therapy in the ED can significantly alter the disease trajectory.

CONCLUSION

Emergency physicians must be vigilant in evaluating eye complaints, especially when symptoms persist despite initial treatment. Herpetic keratitis should be considered in high-risk populations to ensure timely ophthalmology consultation and management, preventing irreversible visual impairment.

2. RISK FACTORS FOR CONFIRMED RABIES EXPOSURE

Brittany Nagel, Kathryn Boswell, Brittney Barrabi, Chrissy VanDillen, Josef Thundiyl
Orlando Health

BACKGROUND

Approximately 60,000 individuals in the US receive PEP after suspected rabies exposures, with a few documented failures and less than 10 annual deaths. Only a small number of those who receive PEP have a confirmed exposure to rabies. The objective of this study is to identify risk factors associated with confirmed rabies exposure compared to unconfirmed exposures.

METHODS

This was a case control study which included all patients in a single hospital system who received rabies PEP over a 9 year period. Patients were excluded if they had a possible exposure but did not receive PEP. Hospital pharmacy records were used to obtain the cases. Two trained investigators used a standardized data extraction tool to record information about demographics, medical history, animal type, location of exposure, location of bite, time to PEP, and outcome. We used comparative statistics to determine differences between confirmed (CE) and unconfirmed exposures (UE).

RESULTS

We obtained 49 cases of rabies PEP administration, 5 of whom had a confirmed exposure (CE) to an infected animal. In comparing CE v UE, there was no difference in gender (60% v 63%), CE were younger (17.8 v 35.5 yrs), had more bites (2.6 v 1.5), and had a longer delay to receiving PEP (125 v 22.4 hours). Location of bite for CE v UE occurred at home (80% v 35%), at work (20% v 2.3%), in the neighborhood (0 v 20.5%), or at a park (0 v 13.6%). For CE v UE, there was more often no bite (40% v 9.1%), a bite to the face (20% v 4.5%), lower extremity (0 v 25%), or upper extremity (40% v 56%). CE were more likely to occur from a raccoon (60% v 6.8%), less likely from a dog (0 v 43%), and similar frequency for bats (20% v 25%) and cats (20% v 13.6%). All patients in this cohort received both vaccine and immunoglobulin and none died.

CONCLUSION

Rabies exposures and confirmatory testing are uncommon. Confirmed exposures are most likely to occur in younger patients, from a raccoon, at home, on the face, and sustain multiple bites. Confirmed exposure patients usually present later, however, vaccine and immunoglobulin administration within 10 days are associated with survival.

3. BREAKING THE LOOP: A CASE OF MAGNET-MEDIATED MIRACLE

Shayne Gue, MD, FACEP, FAAEM, Michael Sencaj, DO, Brooks Wright, DO

BayCare Health System / St. Joseph's Hospital- Emergency Medicine

BACKGROUND

Pacemaker-mediated tachycardia (PMT) is a reentrant dysrhythmia characterized by retrograde ventriculoatrial (VA) conduction that triggers atrial sensing, creating an “endless loop” of ventricular pacing. It most commonly occurs in patients with dual-chamber pacemakers and intact VA conduction, often precipitated by premature ventricular contractions or sinus node dysfunction [1,2]. Although well-described in electrophysiology literature, PMT remains underrecognized in the emergency setting. Prompt identification and treatment are crucial to avoid prolonged symptoms and unnecessary interventions.

CASE PRESENTATION

A 40-year-old male with a history of coronary artery disease, obesity, and recent dual-chamber pacemaker placement for sinus node dysfunction following myocardial infarction and torsades de pointes, presented to the emergency department with palpitations, diaphoresis, and a heart rate of 140 bpm. Electrocardiogram revealed a dual-paced rhythm with ventricular tracking, consistent with PMT. An emergency physician applied a magnet over the pacemaker, resulting in immediate resolution of the tachycardia and relief of symptoms. Following cardiology consultation, the magnet was removed, with atrial pacing resuming at a rate of 71 bpm. The patient remained asymptomatic during observation and was discharged with outpatient follow-up for device reprogramming.

DISCUSSION

This case underscores the importance of recognizing PMT in patients with pacemakers presenting with tachycardia. Magnet application is a simple, safe, and highly effective intervention that temporarily converts the device to asynchronous pacing, interrupting the arrhythmic loop. However, lack of familiarity with pacemaker functionality often leads to hesitation among staff and missed opportunities for rapid correction. Education on device troubleshooting—including magnet use—should be emphasized in emergency medicine training to close this knowledge gap [3-6].

CONCLUSION

Emergency physicians must be prepared to identify and manage pacemaker-related dysrhythmias, including PMT. Rapid recognition and confident use of a magnet can resolve PMT within seconds, improving patient outcomes and reducing unnecessary delays or escalations in care.

4. IMPLEMENTING A PUBLIC HEALTH TRAINING PROGRAM ADDRESSING CPR, BLEEDING CONTROL, AND OPIOID OVERDOSE REVERSAL IN HIGH SCHOOLS

Michelle Slawinski, Jazmin Soloman, Shelby Papa, Michael Lozano

Sunstar Paramedics & Pinellas County Government

Department of Safety and Emergency Services EMS & Fire Administration

BACKGROUND

Preventable deaths from mass shootings and opioid overdoses have increased nationwide, underscoring the need for effective bystander interventions to support local EMS responses. Immediate cardiopulmonary resuscitation (CPR), bleeding control, and naloxone administration have been shown to improve survival rates. However, most high school programs focus solely on training school staff, not students. The Triad of Life program was implemented to equip high school students with life-saving skills for health emergencies. This study evaluates the program's impact on student knowledge, confidence, and willingness to act in emergencies involving cardiac arrest, uncontrolled hemorrhage, or opioid overdose.

METHODS

High school administrators identified students and obtained parental consent for the Triad of Life program. Training was based on national and state curricula, delivered by adult or peer instructors, with peer instructors trained by a local EMS agency. Pre- and post-training surveys assessed knowledge, comfort levels, and self-reported likelihood of performing interventions. Nonparametric data were analyzed using the Wilcoxon signed-rank test to evaluate changes in knowledge across bystander interventions.

RESULTS

Between 2023 and 2024, 244 students completed the Triad of Life, with the average participant being in 10th grade. Of the post-surveys, 151 students (38%) were trained by peers and 91 (62%) by adults. Over 75% of students initially showed interest in all types of training, but most felt uncomfortable applying interventions ($M = 70\%$), especially hemorrhage control (61%). After training, 84% felt "somewhat likely" or "very likely" to perform CPR, 79% to control bleeding, and 80% to administer naloxone. Wilcoxon tests showed significant improvements in students' knowledge across all bystander interventions.

CONCLUSIONS

The Triad of Life Program, combining peer-led and adult-led training, significantly increased students' preparedness for health emergencies. Post-training, students reported improved knowledge, confidence, and likelihood of performing each intervention. These findings highlight the importance of life-saving skills and the value of teaching them in schools to better prepare students for emergencies. Future studies will explore the effectiveness of peer-led versus adult-led training and whether students apply the skills learned.

5. ANALYSIS OF HAND MOTION AS AN OBJECTIVE MEASURE OF POINT-OF-CARE ULTRASOUND PROCEDURAL GUIDANCE COMPETENCY

Jessinia Cabrera, MD, Ariana McFarland, MD, Carrie Walsh MD, Roger Dias, Nicole Duggan, Lindsay Walsh, Lachlan Driver, Rebecca Cashl, David Lee, Paulo Borges

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BACKGROUND

Currently, there is no standardization in Emergency Department (ED)-based Ultrasound-guided nerve blocks (UGNB) training, education, credentialing, or procedural quality assurance nationwide. This study aims to investigate potential objective measures of UGNB procedural competency using hand motion analysis extracted from machine learning videos.

METHODS

Novice and expert ED clinicians performed UGNB in a simulation-based setting. Participants were filmed using Go-Pro10 camera while performing three UGNBs (fascia iliaca compartment block, interscalene, transgluteal sciatic nerve block). Participants were simultaneously graded by two expert raters using an objective structured clinical examination (OSCE). Hand motion data were extracted from videos using the MediaPipe Hand Tracking computer vision software. Both the needle hand (NH) and probe hands (PH) were tracked for total path length, economy of movement, speed, jerk and smoothness. Differences between groups were tested using the Wilcoxon rank sum test, and correlations analysed using the Spearman rank test.

RESULTS

A total of 18 participants (11 novices and 7 experts) were included. Total OSCE scores demonstrated a statistically significant difference between groups: 28.2 (± 3.1) points for experts, and 15.9 (± 6.5) points for novices (p -value < 0.001). Hand motion analysis demonstrated that experts have shorter total path length PH (median 0.98 vs. 1.17, p -value = 0.01), a higher PH economy of movement (median 0.03 vs. 0.01, p -value < 0.001), and greater PH movement smoothness (median -14.3 vs. -31.06, p -value = 0.04) compared to novices. No statistically significant differences were found in the PH jerk and speed, nor any NH metric. PH economy of movement was associated with OSCE scores ($r = 0.32$, $P = 0.023$), and confidence level ($r = 0.47$, $p = 0.001$). PH total path length was associated with confidence level ($r = -0.33$, $p = 0.017$).

CONCLUSIONS

Video-based objective measures of hand motion during UGNB demonstrated discriminant validity to differentiate between novice and experts, demonstrating that these computer-based metrics may be a valid tool for competence

assessment. Developing objective competency measures will be vital as POCUS-based procedures disseminate more broadly across practitioners of different training levels and to non-traditional clinical spaces.

6. COMPLIANCE STRATEGIES WHEN IMPLEMENTING OPT-OUT HIV SCREENING IN PEDIATRIC EMERGENCY DEPARTMENTS

Sandy Francois, Lauren Middlebrooks, Melissa Cameron, Jordan Bryant, Bridget Wynn, Swaminathan Kandaswamy, Evan Orenstein, Andres Camacho-Gonzalez, Claudia Morris, Mark Griffiths

Sarah Thompson, Rebekah Carter, Kelly DeNaples, Sara Brown-Children's Healthcare of Atlanta

EMORY UNIVERSITY

BACKGROUND

The Centers for Disease Control and Prevention recommends HIV screening for all patients ≥ 13 years. Parts of Metro Atlanta have HIV positive rates at 8-times the national average with adolescents being the least likely group to know their HIV status. In July 2023, Children's Healthcare of Atlanta (Children's) progressively implemented opt-out HIV testing in its emergency departments (ED) for patients ≥ 13 years undergoing venipuncture at all 3 of their sites; HIV testing numbers nearly doubled. The objective is to assess strategies to improve staff compliance with the new implementation.

METHODS

Children's electronic medical record (EMR) EPIC was used to compare HIV testing volumes of 13–24-year-olds with various compliance strategies, 17 months pre- and post-clinical implementation. Compliance was defined as providers (physician/nurse) reading opt-out testing statements and percentage of eligible patients tested (PEPT). Strategies assessed: provider education, enhanced technology (EMR HIV screening status icon) and visual reminders (flyers, quarterly newsletters and computer stickers). Data was compared using descriptive statistics.

RESULTS

After 17 months, 4699 HIV tests were conducted and ten new adolescents living with HIV (ALHIV) were identified. At sites receiving visual reminders and one hour of education weekly for 17, 14 and 9 months, testing increased by 108%, 92% and 183% respectively. For enhanced technology, opt-out statement was read at a rate of 8%, 12% and 40% per site; the corresponding PEPT was 17%, 54% and 14%. In contrast to pre-implementation the PEPT increased by 92%, 94% and 175%.

CONCLUSIONS

Atlanta remains a hotspot for new HIV cases. Ten cases in 17 months highlights the importance of universal HIV testing of adolescents and reflects a public health crisis. Improving provider compliance with site specific interventions to ensure eligible patients are captured is imperative to support this initiative. ALHIV will likely be identified at an earlier stage of infection, facilitating timely access to medical care.

7. PREDICTORS OF RENAL INSUFFICIENCY AND POSTOPERATIVE DIALYSIS FOLLOWING LAPAROSCOPIC CHOLECYSTECTOMY

Om Radadia, Rakin Haq

Vista Ridge High School, Cedar Park, Texas; Brown University, Providence, Rhode Island

BACKGROUND

A Laparoscopic Cholecystectomy is a surgical procedure requiring gallbladder removal resulting from complications including cholecystitis, bile flow dysfunction and gallstones. Although the procedure remains minimally invasive, pre and perioperative complications can lead to renal insufficiency and failure. This study aims to complete a multivariate analysis on independent conditions leading to postoperative dialysis and renal insufficiencies during the surgical procedure using a national surgical database to extrapolate risk stratification.

METHODS

A cohort study using retrospective patient data was conducted through insights provided by the American College of Surgeons: National Surgical Quality Improvement Program (ACS-NSQIP) database. A query was created under the interval 2018 to 2022 for patients who underwent laparoscopic cholecystectomy recorded under CPT 47562.

Principal outcomes examine operative renal insufficiencies or failure requiring a postoperative dialysis with predictive variables in demographics (age and sex), comorbidities (e.g., diabetes), diagnostic laboratory values (e.g., preoperative blood urea nitrogen), ASA classification and operative characteristics. A statistical significance value of $p < 0.05$ was used in evaluation.

RESULTS

This analysis included 222456 patients in the cohort (31% male; median age 49).

In the univariate analysis for post-operative dialysis, significant individual variables with predictive capabilities were identified including renal failure ($p < 0.0001$), serum creatinine (PRCREAT; $p < 0.0001$), preoperative hematocrit ($p < 0.0001$) and ASA classification ($p < 0.00002$). In the multivariate analysis, we confirmed independent risk factors with age ($p < 0.0001$), ASA classification (4-3 $p < 0.0001$), serum creatinine ($p < 0.0001$), preoperative hematocrit

($p<0.0001$), medicated hypertension ($p<0.0081$), blood urea nitrogen ($p<0.0182$), ASA classification (3-2; $p<0.0219$) and diabetes ($p<0.0297$).

Completion of the multivariate analysis for renal insufficiency during laparoscopic cholecystectomy yielded statistically significant values including age ($p<0.0001$), ASA classification (3-2; $p<0.0001$), ASA classification (4-3; $p<0.0110$), operation time ($p<0.0001$), diabetes (no; $p<0.0001$), medicated hypertension (no; $p<0.0001$), serum creatine ($p<0.0011$), blood urea nitrogen content ($p<0.0001$) and hematocrit ($p<0.0001$).

CONCLUSIONS

This national cohort study found that the risk of postoperative dialysis following laparoscopic cholecystectomy is associated with higher age, lower ASA class, presence of diabetes, medical hypertension, renal failure, serum creatine and preoperative hematocrit. The study also established that the risk of renal insufficiency following the procedure showed increase with higher age, male sex, lower ASA class and higher operation time. These findings highlight the importance of preoperative conditions especially in older patients and with health conditions.

8. PREDICTORS OF STROKE, MYOCARDIAL INFARCTION AND VENOUS THROMBOEMBOLISM WITHIN 30 DAYS OF PARTIAL MASTECTOMY

Samar Kaddoura, Sofia Malik

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Partial mastectomy is often seen as a low-risk surgery for breast cancer. However, patients can still face rare but serious complications after the procedure, such as stroke, myocardial infarction (MI), and venous thromboembolism (VTE). While these events are uncommon, they can lead to serious health issues, longer hospital stays, delayed recovery, and higher healthcare costs. Because of their impact, it is important to identify factors that predict these complications to improve preoperative risk assessment and guide preventive strategies.

This study aimed to find independent preoperative and intraoperative risk factors that relate to the development of stroke, MI, and VTE within 30 days of a partial mastectomy. Researchers conducted a retrospective cohort analysis using data from the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) between 2018 and 2022. They identified patients who had a partial mastectomy using relevant Current Procedural Terminology (CPT) codes. This study consisted of a univariate analysis to find significant variables, followed by multivariate logistic regression to pinpoint independent predictors. They examined a wide range of factors, including demographic information, comorbidities like diabetes and cardiovascular disease, American Society of Anesthesiologists (ASA) class, functional status, body mass index (BMI), operative time, and preoperative laboratory results.

In a group of 81,318 patients, the incidence of postoperative stroke was 0.032%, MI was 0.034%, and VTE was

0.105%. The analysis showed that older age and higher ASA classification were common predictors of both stroke and MI. Diabetes was linked to a higher risk of stroke. For VTE, particularly pulmonary embolism, the strongest predictors were prolonged operative time and increased BMI. Additionally, patients with limited independence before surgery had significantly higher chances of experiencing thromboembolic complications.

9. COVARIATES ASSOCIATED WITH PULMONARY COMPLICATIONS INCLUDING UNPLANNED INTUBATION AFTER TOTAL KNEE ARTHROPLASTY

Pranay Gadikota, Vindhya Reddy

Buchholz High School, Gainesville, Florida; Apollo Institute of Medical Sciences and Research, Hyderabad, India

BACKGROUND

Total knee arthroplasty is widely regarded as a safe procedure. Yet pulmonary complications do occur sometimes, requiring unplanned intubation, creating difficulties with ventilator weaning, or resulting in pulmonary embolism. Our goal was to identify which risk factors most strongly predict these respiratory complications after TKA using the NSQIP database.

METHODS

We utilized the American College of Surgeons National Surgical Quality Improvement Program database, a comprehensive de-identified registry of surgical outcomes. Our analytical approach proceeded in two phases. Initially, we conducted univariate analyses to screen individual factors for associations with our three primary outcomes: unplanned reintubation, failure to wean from mechanical ventilation, and the development of pulmonary embolism.

Factors showing statistical significance in this preliminary screening then advanced to multivariate logistic regression modelling. Variables included patient demographics, such as age and sex, relevant comorbidities (such as diabetes, COPD, and congestive heart failure), functional status, key laboratory parameters (such as white blood cell and platelet counts), American Society of Anesthesiologists (ASA) classification, and anesthesia approach. Statistical significance was defined as $p<0.05$.

RESULTS

For unplanned reintubation, independent risk factors included:

- Advancing age ($p<0.0001$)
- ASA class (3 vs. 2: $p<0.0001$; 4 vs. 3: $p=0.0003$)
- History of COPD ($p<0.0001$)
- History of CHF ($p<0.0001$)
- General anesthesia ($p=0.0003$)
- Increased operative time ($p=0.0109$)
- Elevated preoperative WBC count ($p=0.0248$)

For failure to wean, independent risk factors included:

- Advancing age ($p<0.0001$)
- History of COPD ($p<0.0001$)
- History of CHF ($p=0.0002$)
- Elevated preoperative WBC count ($p<0.0001$)

For pulmonary embolism, independent risk factors included:

- Advancing age ($p<0.0001$)
- Higher BMI ($p<0.0001$)
- Elevated preoperative platelet count ($p<0.0001$)
- Increased operative time ($p=0.0002$)
- Female sex ($p=0.0187$)
- History of CHF ($p=0.0030$)
- Functional dependence ($p=0.0140$)
- ASA class (4 vs. 2: $p=0.0377$)

The strongest predictors across the three outcomes, in descending order, were age, ASA classification, history of COPD, and history of CHF.

CONCLUSIONS

Our study found that the risk of pulmonary complications following TKA was independently associated with older age, higher ASA class, and history COPD or CHF, increased operative time, and elevated preoperative WBC count. For pulmonary embolism, higher BMI, female sex, elevated platelet count, and functional dependence were also significant.

10. RISK FACTORS FOR DEHISCENCE, SURGICAL SITE, AND ORGAN SPACE INFECTIONS WITHIN 30 DAYS OF PARTIAL MASTECTOMY

Shilpa Subramaniam, Meghana Konda

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BACKGROUND

Partial mastectomy is a widely performed breast-conserving surgery for early-stage breast cancer. However, postoperative complications such as superficial surgical site infections (SSSI), deep incisional infections (DSSI), organ space infections (OSSI), and wound dehiscence remain concerns, as they increase morbidity, prolong recovery, and elevate healthcare costs. Given the global prevalence of breast cancer, even small improvements in surgical outcomes can significantly impact patient care. This study aims to identify key risk factors for postoperative complications within 30 days of partial mastectomy.

METHODS

Data were obtained from the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database from 2018 to 2022, identifying 81,318 patients who underwent partial mastectomy (CPT code 19301). Univariate analyses were used to identify associations between patient characteristics and complications. Variables with statistical significance ($p<0.05$) were included in multivariate

logistic regression to determine independent predictors of SSSI, DSSI, OSSI, and dehiscence.

RESULTS

Univariate analysis revealed that elevated BMI, increased operation time, and smoking were significantly associated with SSSI. OSSI was linked to elevated BMI, general anesthesia, and longer operation times. Dehiscence was associated with elevated BMI and prolonged operation time. DSSI did not show significant associations in univariate analysis.

Multivariate analysis identified elevated BMI and operation time as consistent predictors across multiple complications. Specifically, SSSI was independently predicted by BMI ($p<0.0001$), operation time ($p<0.0001$), smoking ($p<0.0001$), ASA class \3-2] ($p=0.0291$), and hypermedication ($p=0.0411$). DSSI was predicted by smoking ($p=0.0089$), ASA class \3-2] ($p=0.0280$), and BMI ($p=0.0361$). OSSI was significantly associated with BMI ($p<0.0001$), operation time ($p=0.0059$), general anesthesia ($p=0.0135$), steroid use ($p=0.0270$), and ASA class \3-2] ($p=0.0486$). Dehiscence was primarily associated with operation time ($p<0.0001$), BMI ($p=0.0029$), and disseminated cancer ($p=0.0203$).

CONCLUSIONS

Elevated BMI and prolonged operation time are the most consistent and significant predictors of postoperative complications following partial mastectomy. Additional modifiable factors such as smoking, steroid use, and ASA class also contribute to infection and wound healing risks. These findings emphasize the need for targeted preoperative interventions, such as weight optimization and smoking cessation, to reduce complications and improve outcomes for breast cancer patients undergoing partial mastectomy.

11. BENDING THE ODDS: CLINICAL PREDICTORS OF 30-DAY MORBIDITY AND SURGICAL OUTCOMES FOLLOWING TOTAL KNEE ARTHROPLASTY

Mehreen Mohammed, Meghana Konda

Granite Bay High, Granite Bay, California; Brown University, Providence, Rhode Island

BACKGROUND

Total knee arthroplasty (TKA) is a widely performed, cost-effective treatment for advanced osteoarthritis of the knee. Over 600,000 procedures are performed annually in the United States, with projections reaching 3.5 million by 2030. Despite high implant survivorship (>90% at 10–15 years post-operation), complications such as mortality, readmission, and reoperation remain predominant. Enhanced recovery after surgery (ERAS) protocols and diverse alignment techniques have improved outcomes. However, to address patient dissatisfaction and improve perioperative care, this study aimed to identify independent predictors of 30-day mortality, readmission, and reoperation.

METHODS

Data were extracted from the American College of Surgeons' NSQIP database (2018–2022). Adult patients undergoing elective primary TKA (n = 307,952) were included. Univariate and multivariate logistic regression were performed to assess associations between clinical variables and each post-surgical outcome.

RESULTS

Among 307,952 cases, there were 274 deaths, 8,550 readmissions, and 3,051 reoperations.

Top predictors of mortality included chronic renal failure (OR 16.4), ASA Class IV (5.3), functional dependence (3.25), ASA III (2.6), and PRBC transfusion (1.35). Top predictors of readmission included functional dependence (1.95), CHF (1.82), COPD (1.74), ASA IV (1.68), and ASA III (1.54). Top predictors of reoperation included chronic renal failure (2.42), ASA IV (1.78), CHF (1.63), COPD (1.49), and ASA III (1.39).

CONCLUSIONS

Systemic disease burden, functional status, and ASA class consistently predicted adverse outcomes. These findings support the integration of individualized risk stratification into preoperative planning and ERAS protocols to improve TKA outcomes.

12. ANALYSIS OF UNHOUSED PATIENT CARE TO GUIDE STREET MEDICINE INTERVENTIONS AT MICHIGAN MEDICINE

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BACKGROUND

Persons experiencing homelessness (PEH) are high utilizers of emergency departments (ED). In Washtenaw County (WC) 2000 people experience homelessness annually. There is limited data on PEH's utilization of ED services at Michigan Medicine (MMED). This information is important to understand local unmet healthcare needs and will inform services provided by Wolverine Street Medicine (WSM), a medical student-run organization. By addressing PEH's health needs, WSM may reduce ED visits and improve access to basic ambulatory care.

METHODS

This mixed methods study focuses on ambulatory sensitive conditions (ASC) in PEH at MMED. Analysis of twenty-six provider interviews, quantitative ED data from June 2023–2024, and retrospective chart reviews are included.

RESULTS

In 2023–2024, 2,738 PEH made 6,612 MMED visits; 260 (9.5%) were for ambulatory/ non-substance use conditions.

Most common presentations were respiratory and skin infections, cardiovascular and non-infectious respiratory conditions, and dental issues. Provider interviews highlighted lack of transportation, limited post-visit communication options, and insufficient primary and follow-up care contributing to ED visits. Chart Review analysis is ongoing.

CONCLUSIONS

This study explores ED utilization by PEH in one hospital. Approximately 10% of ED visits were for ASC that could be managed by primary care or other providers. Qualitative data reveal the need for flexible, patient centered interventions to reduce ED visits for ASC. Our findings provide insight into how WSM can leverage its limited resources to best serve PEH in WC. Results will be disseminated to local public health organizations, informing their work to further address PEH's health challenges.

13. CHARACTERISTICS OF TOBACCO TREATMENT SEEKING PATIENTS WITH AND WITHOUT DEPRESSION AND/OR ANXIETY IN NEW JERSEY

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BACKGROUND

Depression and anxiety are leading causes of disability worldwide. Though quitting improves mental and physical health and effective tobacco treatments are available, tobacco treatment utilization remains disproportionately low among patients with internalizing problems (depression and/or anxiety), particularly those with lower socioeconomic status (SES). Intensive and tailored tobacco treatment strategies are recommended; however, no formal protocols exist for cessation within this population. This study explores the characteristics of tobacco treatment seeking patients with and without depression and/or anxiety who were enrolled in 11 New Jersey-based community tobacco treatment programs to identify and inform these gaps.

METHODS

Program evaluation data from 2019–2022 included demographics, medical and psychiatric history, and tobacco use and cessation history.

After initial assessment, all patients received an individualized treatment plan from a tobacco treatment specialist including behavioral, nicotine replacement, or pharmacologic therapies (i.e. Varenicline, Bupropion). Pearson chi-square analysis for categorical variables and independent sample t-tests for continuous variables were used to examine associations.

RESULTS

Overall, 4,839 individuals seeking tobacco treatment across 11 sites were evaluated, including 3,213 patients without (66%) and 1,626 with depression and/or anxiety (34%).

Compared to individuals who use tobacco products without internalizing problems, patients with depression and/or anxiety were more likely to report current tobacco use, lower SES, being female, consuming more cigarettes per day, used more than one tobacco product, and smoked their first cigarette of the day within five minutes of waking ($p < 0.001$). Moreover, patients in the depression and/or anxiety group were less likely to attend their follow-up visit, and less likely to be quit at 4-week follow-up (16% vs. 21%) ($p < 0.001$).

CONCLUSIONS

Depression and/or anxiety are frequently reported among tobacco treatment seeking patients in the community setting, and cessation disparities persist across New Jersey. These findings highlight an emerging need for the development of informed guidelines for tobacco users with internalizing problems who were found to be less likely to follow-up, highly nicotine dependent, female, and of lower SES.

14. PREDICTIVE FACTORS FOR ED BOUNCE-BACK IN PATIENTS WITH LOW-RISK PALPITATIONS OR SYNCOPE

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BACKGROUND

Patients who present to the emergency department (ED) with low-risk palpitations or syncope are often discharged without confirmation of the underlying etiology, leading to “bounce-backs.” On ED discharge, our department offered these patients 14-day cardiac monitoring with the Ziopatch with aims to increase arrhythmia detection and expedite cardiology follow-up. We continued to notice a high bounce-back rate even amongst patients that received specialty follow up. Our objective was to determine the rate of ED bounce-back and identify associated factors.

METHODS

We included all patients who received cardiology follow-up through our Ziopatch program ($n=427$). Only including patients who received follow-up allowed us to analyze bounce-backs in a population who had received thorough evaluation both in the ED and outpatient. A “Bounce-Back” variable was created to encompass patients who returned to the ED within 30 days of initial visit. Descriptive statistics, chi-square testing, Fischer exact testing, and Mann Whitney testing were performed to determine what predictive factors characterize those who bounce-back. Binary logistic regression was used to assess the association between the Bounce-Back variable and other variables.

RESULTS

The rate of ED bounce-back was 22.2%. In evaluating predictive factors, we found that age, race, and gender were not associated with likelihood of bounce-back. Notably, the odds of bounce-back increased with each additional day it took for patients to receive cardiology follow-up ($p = 0.001$). Additionally, disadvantaged patients, defined by an Area Deprivation Index (ADI) score of >50 , were more likely to bounce back (58.51% vs 40.73%, $p = 0.002$). Patients diagnosed with SVT using Ziopatch had decreased odds of bounce-back ($p = 0.025$). There was no association between the presence of premature beats or arrhythmias and increased likelihood of ED bounce-back.

CONCLUSIONS

Identifying factors associated with bounce-backs provides key information to work towards mitigating this phenomenon in our patient population. It is critical to further explore why disadvantaged patients were more likely to bounce back and examine how we can improve patient care. Securing timely follow-up is an essential factor in reducing bounce-backs for patients experiencing palpitations and syncope, but high rates of bounce-back remain despite specialty follow-up.

15. DETERMINANTS OF DEHISCENCE, SURGICAL SITE, AND ORGAN SPACE INFECTIONS WITHIN 30 DAYS OF OPEN REDUCTION AND INTERNAL FIXATION OF THE FEMUR

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BACKGROUND

Open Reduction and Internal Fixation of the Femur (ORIF) is a highly invasive surgical procedure which carries risk for complications including wound dehiscence and postoperative surgical site infections. This study aims to identify significant predictors of wound dehiscence, superficial surgical site infection, organ/space surgical site infection, and deep wound surgical site infection within 30 days of ORIF.

METHODS

The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) data registry was used to collect data on significant independent risk factors associated with the complications of interest within 30 days of operation. The ACS NSQIP was filtered to examine the outcome of dehiscence, superficial space, deep space, and organ space infections following ORIF. The following variables were tested for significance: Age, Sex, BMI, ASA classification, Total operating time, Anesthesia type, Diabetes, Preoperative steroid use, Functional status, Dialysis, Cancer, Hypertensions requiring medication, Preoperative albumin, Preoperative platelets, and Preoperative WBC.

RESULTS

Significant independent predictors were found for each of the postoperative complications of interest. Significant independent predictors of superficial surgical site infection were found to be elevated body mass index ($p<0.0001$), a higher ASA classification ($p=0.0280$), and prolonged operating time ($p<0.0001$). Prolonged operating time ($p=0.0002$) was identified as an independent predictor of organ space surgical site infection. Elevated body mass index ($p<0.0001$) and prolonged operating time ($p<0.0001$) were found to be significantly associated with deep incisional surgical site infections. Elevated body mass index ($p=0.0004$) was identified as an independent predictor of wound dehiscence.

CONCLUSIONS

Elevated body mass index and prolonged operating time most consistently predicted the incidence of wound dehiscence and superficial, deep incisional, and organ space surgical site infections within 30 postoperative days of ORIF.

16. GEOGRAPHIC DISPARITIES IN GASTROINTESTINAL CANCER CARE: A NATIONWIDE SURVEY OF URBAN AND RURAL POPULATIONS IN THE UNITED STATES

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BACKGROUND

Gastrointestinal (GI) cancers are one of the most common groups of cancers and, unfortunately, also one of the most fatal. While early detection is continuing to increase the likelihood of complete remission, access to basic oncological care remains scarce across communities in the United States.

METHODS

Collecting data from 202 United States respondents through a web-based fourteen-question survey using Random Device Engagement (RDE), this study investigates distinctions between managing digestive cancers in urban, suburban, and rural settings. A total of 166 respondents reported an exposure to cancer, who were further analyzed utilizing Microsoft Excel and Microsoft Power BI.

RESULTS

We examined variables such as screening availability, treatment delays, transportation security, and care satisfaction, with results suggesting that rural areas are least satisfied with their care and experience the highest transportation insecurity, while urban areas similarly struggle with transportation but generally thrive in other areas. Those on Medicare and Medicaid also reported more barriers than those with private insurance. Overall, suburban residents consistently experienced better access to high-quality care.

CONCLUSIONS

These findings highlight the impact of socioeconomic and geographic factors on cancer treatment. Filling these gaps is essential to provide a more equitable GI cancer treatment system, particularly in underserved communities in rural and urban areas.

17. CHARACTERIZING EMS PROTOCOLS FOR BEHAVIORAL HEALTH EMERGENCIES IN FLORIDA: INSIGHTS FROM EMS CLINICIANS

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BACKGROUND

Behavioral health emergencies (BHEs) are a significant and unique challenge for emergency medical services (EMS), requiring tailored care to ensure patient and provider safety. Despite their increasing prevalence, protocols for managing BHEs vary across Florida, as each EMS agency's medical director is responsible for developing the agency's protocols. This study characterizes EMS clinicians' perspectives on and use of BHE protocols to identify gaps and opportunities to improve BHE care delivery.

METHODS

EMS providers attending the annual Florida Firefighter Health and Safety Conference in December 2024 were invited to complete a survey. Survey measures included assessments of EMS agency programs, policies, and practices for BHEs in addition to agency and respondent characteristics. Survey data was entered into REDCap and analyzed using SPSS software.

RESULTS

Across 65 respondents with an average of 25.3 years (± 9.3) of EMS experience, 39 unique Florida EMS agencies were represented. Of these agencies, 71.4% provided advanced life support (ALS) response and transport, 20.6% offered ALS response only, 7.9% provided basic life support, and 90.2% reported having a protocol for agitation. Among ALS agencies, 90.9% included pharmacologic sedation in their protocols, most commonly using ketamine and midazolam, while diazepam, lorazepam, and diphenhydramine were less frequent. Additionally, 44% required verbal de-escalation, of which 27.3% evaluated agitation using the Richmond Agitation-Sedation Scale. Alternative destinations were available at 14.3% of agencies, 66.7% of which accommodated behavioral health emergencies. Mental health-specific responders were present in 32.2% of jurisdictions, and 25.4% had suicidal ideation (SI) protocols, with 80% requiring patients with SI to be transported to an emergency department and 26.7% included safety planning. Continuing education on BHEs was offered by 69.5% of agencies.

CONCLUSION

This study highlights the variability in EMS protocols for managing BHEs in Florida, specifically in medication administration, de-escalation, evaluation of SI, and agitation. This emphasizes the need for consistent, evidence-based approaches to improve care and safety. Survey responses may reflect individual practices rather than official protocols.

18. QUALITY OF LIFE CHANGES IN BREAST CANCER SURVIVORS WHO UNDERWENT MASTECTOMY

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BACKGROUND

Breast cancer is one of the most common cancers among women in the US. 30 to 40 percent of breast cancer patients undergo mastectomy, and past research has shown its negative impacts on patient self-esteem. This study aims to provide a deeper understanding of the struggles of breast cancer survivors post-mastectomy in all aspects of their daily lives to encourage the provision of effective support.

METHODS

Data was collected through a 20-question, nationwide anonymous web survey. A total of 100 responses were collected from breast cancer survivors who underwent mastectomy.

RESULTS

Results indicate positive changes in patient health following recovery, with many survivors noting the development of new healthy habits. However, most participants also reported feeling less physically capable after treatment, resulting in a decreased ability to pursue hobbies and perform daily tasks. These physical limitations are linked to difficulty in survivors' abilities to advance in their careers, which may also be connected to increased financial burden during and after treatment. Many survey participants indicated feelings of isolation, which, along with lowered self-esteem post-surgery, contributes to decreased mental health, especially in female patients. Reconstructive surgery also plays a large role in survivors' quality of life, with participants who underwent breast reconstruction indicating greater satisfaction with their current lifestyles.

19. GLOBAL RESEARCH LANDSCAPE AND EMERGING THEMES IN ISCHEMIC STROKE THROMBECTOMY DEVICES: A BIBLIOMETRIC ANALYSIS

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BACKGROUND

Acute ischemic stroke can now be accurately and successfully treated with mechanical thrombectomy, especially in patients who have large-vessel occlusions. The global standard for treating strokes has changed over the last 20 years due to numerous contributions from clinical trials and research. It is necessary to assess research trends, networks of collaboration, and developing themes to help innovate.

METHODS

A bibliometric analysis was performed using the Web of Science Core Collection to gather publications from 1998 to 2025 related to thrombectomy in ischemic stroke. Data included authors, institutions, countries, citations, and keywords. Visual maps of institutional and country collaborations, keyword co-occurrence, and publication trends were generated using VOSviewer (version 1.6.20).

RESULTS

Global publication output increased significantly after 2010 for thrombectomies. The United States was the largest contributor, followed by Germany, China, and France. Leading institutions included the University of California, Los Angeles, Emory University, Mayo Clinic, and the University of California, San Francisco, alongside a few European and Asian countries. Frequently occurring keywords included "mechanical thrombectomy," "acute ischemic stroke," and "recanalization." This growth aligns with pivotal trial results and expanding clinical adoption of thrombectomy.

CONCLUSIONS

This study highlights the steady growth and global collaboration highlighting thrombectomy research in ischemic stroke. As thrombectomies are slowly becoming the standard of treatment for acute ischemic stroke, it is crucial to evaluate research trends and ongoing trials to help innovate existing research tools. Such advancements not only improve treatment but also reduce complications, ultimately increasing patient survival and enhancing stroke care outcomes.

20. VAPING RISKS IN YOUNG ADULTS

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BACKGROUND

Recent increases in adolescents' and young adults' usage of e-cigarettes indicate the necessity of evaluating the specific factors that perpetuate the appeal of vapes to these age groups, which are more vulnerable to the associated health consequences.

METHODS

A third-party platform distributed a survey to 100 respondents ($N=100$) above the age of 21 to assess vaping habits, respondents' current levels of knowledge regarding risks associated with vaping, and side effects following vape use. The purpose of this study was to assess vape users' personal experiences as well as to increase awareness about associated risks.

RESULTS

83% of respondents vaped daily, with stress relief being found as the most common motivator for starting and continuing to vape among respondents. A third of respondents also believed that vaping is less harmful than smoking, while a slight majority (54%) believed that vaping had a neutral or nonexistent effect on health. However, 53% of respondents experienced at least one change to their daily lifestyle since beginning to vape, and 83% reported at least one physical symptom following vaping.

CONCLUSIONS

Respondents demonstrated how external pressures, product appeal, and dependency motivated them to vape, even in cases where they were aware of the risks and experienced negative side effects. It is necessary to increase awareness regarding the health risks of vaping in order to not only prevent potential users from starting to vape, but to provide current users with informed reasons to stop vaping.

21. BIBLIOMETRIC ANALYSIS OF DUPILUMAB FOR ATOPIC DERMATITIS

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BACKGROUND

- Atopic dermatitis (AD) is a chronic, inflammatory skin disease that affects millions of individuals worldwide
- It is characterized by intense itching, dry skin, and eczematous lesions.
- AD is associated with immune dysregulation, specifically involving Type 2 helper T-cell (Th2) responses and cytokines including IL-4 and IL-13.
- The disease leads to a significant deterioration of life due to sleep disturbances, psychosocial stress, and increased risk of infections.
- Traditional therapies such as topical corticosteroids and immunosuppressants often provide restricted or unpredictable control of symptoms.
- Dupilumab, the first FDA-approved biologic for AD (2017), is a monoclonal antibody that targets the IL-4 receptor alpha subunit, inhibiting IL-4 and IL-13 signaling central to AD pathogenesis.

- Since its FDA approval, Dupilumab has revolutionized AD treatment, leading to an increase in clinical trials, real-world studies, and global research.

METHODS

- Conducted a literature search in Web of Science Core Collection using the keywords "Atopic Dermatitis" and "Dupilumab."
- Collected information on authors, countries, institutions, keywords, journals, and publication years.
- Performed a bibliometric analysis using VOSviewer.
- Visualized data as co-authorship networks, keyword co-occurrence maps, and publication trends by year.
- Inclusion criteria was limited to articles and reviews related to AD and Dupilumab, and English-language publications only.
- Created network and density maps to identify clusters of highly connected authors, countries, and terms.

RESULTS

Country Contributions:

1. The USA, Germany, France, Japan, and China were the top contributors to global research. Dense collaboration networks were observed between the USA and European countries, showing strong international partnerships.

Publication Trends:

3. A total of 3,026 publications on *atopic dermatitis* and *Dupilumab* were identified from 2013 to 2025. A stark increase in publications began in 2017, which collides with the FDA approval of Dupilumab. Peaked between 2021–2023.

KEYWORD CO-OCCURRENCE

Frequent terms included "atopic dermatitis," "Dupilumab," "biologics," "efficacy," and "quality of life."

6. Research clustered around:

1. Green cluster: Disease focus (AD, eczema, skin).
Red cluster: Clinical trials and outcomes (efficacy, placebo, safety).

Blue cluster: Patient-related themes (guidelines, quality of life, prevalence).

CONCLUSIONS

The United States, Germany, and Japan are the largest contributors, reflecting their high prevalence of AD, large patient populations, and significant investment in dermatology research. Germany, France, and other European countries show dense connections because of the European Medicines Agency (EMA) approval of Dupilumab and active participation in multicenter trials. A notable increase in publications began in 2017, aligning with the FDA approval of Dupilumab for moderate-to-severe AD. Subsequent years

(2018–2023) show a sustained rise in publications, reflecting:

1. Expansion of clinical trials evaluating Dupilumab's efficacy and safety. Exploration of Dupilumab in off-label indications and other type 2 inflammatory diseases (e.g., asthma). Increased focus on real-world evidence studies and long-term outcomes.
- Central keywords such as “*atopic dermatitis*”, “*Dupilumab*”, “*efficacy*”, and “*biologics*” reflect the primary focus on evaluating the clinical utility of Dupilumab as a transformative therapy.
- The presence of terms like “*abrocitinib*” and “*asthma*” suggests a growing interest in comparing Dupilumab with other emerging biologics and exploring its use across type 2 inflammatory diseases.

22. DETERMINING HIGH PREDICTORS OF RETURN OF SPONTANEOUS CIRCULATION (ROSC) IN NON-SHOCKABLE HEART RHYTHMS

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BACKGROUND

Non-shockable rhythms, specifically Pulseless Electrical Activity (PEA) and asystole, are heart rhythms that do not respond to electrical defibrillation. During an out-of-hospital case of non-shockable cardiac arrest, emergency medical team treatment often includes a multitude of variables, including the administration of drugs and the occurrence of cardiopulmonary resuscitation. However, it is difficult to determine which variable is most predictive of return of spontaneous circulation (ROSC), the resumption of a sustained heart rhythm. This study aims to identify which variables are most strongly predictive of ROSC.

METHODS

A subset of data involving cardiac arrest due to PEA/asystole was acquired from the Polk County Fire Rescue Cardiac Arrest Registry to Enhance Survival (CARES) database. This dataset included treatments such as epinephrine administration, CPR occurrence, and hypothermia care. Statistical analysis was conducted using the JMP statistical software, where logistic regression was run to determine which treatments were most strongly effective in returning a patient to ROSC.

RESULTS

Based on 1198 patients, the multivariate logistic regression analysis found sex, epinephrine administration, a witnessed arrest, and hypothermia care to be the variables most statistically significant in achieving ROSC, with p-values of 0.0224, 0.0117, $p < 0.0001$, and 0.0001, respectively. Additionally, these variables were also found to be signifi-

cant in sustaining ROSC, alongside time to first CPR with a p-value of 0.0003.

CONCLUSIONS

These findings indicate which variables are most predictive of ROSC and should be prioritized and accounted for during clinical care. Additionally, these results can help determine standard outcome measures and enhance local quality of care improvement efforts.

23. A BIBLIOMETRIC REVIEW: REVERSING ANTICOAGULATION IN INTRACEREBRAL HEMORRHAGES

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BACKGROUND

Bleeding diathesis, promoted by anticoagulant and antiplatelet therapies, commonly factors into the incidence of non-traumatic intracerebral hemorrhage (ICH); anticoagulation-associated ICH also results in poorer outcomes. Successful anticoagulation reversal establishes hemostasis and prevents hematoma expansion.

METHODS

1, 278 publications, comprising 1,268 journal publications and 10 book chapters, were analyzed through the VosViewer software in order to categorize and visualize comparative citation strength and co-authorship between different countries and organizations. All publications were sourced from the Web of Science database, and were published between the years 2015–2025.

RESULTS

Among countries, the USA, Germany, and England respectively led the number of publications produced and in citation strength. Among organizations, McMaster University, Harvard Medical School, and Massachusetts General Hospital respectively led the number of publications produced and in citation strength. An analysis of Web of Science topics found that the primary categories for publications included “Strokes” (18.0%), “Stroke Management” (16.4%), “Cardiac Arrhythmia” (47.8%), and “Atrial Fibrillation Management” (47.7%).

CONCLUSIONS

The distribution of publication years reflects steady rates of hemorrhagic stroke incidence, though overall stroke incidence has decreased. While higher-income countries were associated with higher publication rates and citation strengths, this is likely due to the application of anticoagulation treatments due to cardiac arrhythmias like atrial fibrillation, the rates of which are higher in higher-income countries.

24. PREDICTORS OF PULMONARY COMPLICATIONS INCLUDING UNPLANNED INTUBATION WITHIN 30 DAYS OF FEMORAL OPEN REDUCTION AND INTERNAL FIXATION

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BACKGROUND

Pulmonary complications, such as pneumonia, ventilator dependence, and unplanned intubation, can occur after femoral open reduction and internal fixation (ORIF). Blood clots caused by the broken femur can travel to the lungs, and the internal nailing used for the internal fixation can exacerbate pulmonary symptoms. This study aimed to identify predictors of pulmonary complications including unplanned intubation within 30 days of femoral open reduction and internal fixation, using the large NSQIP surgical database.

METHODS

This study used the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database, which is a de-identified registry that includes the surgical data from over 700 hospitals each year. The NSQIP database was queried for patients undergoing femoral open reduction and internal fixation. Multivariate logistic analysis models identified predictors for postoperative pneumonia, ventilator dependence >48 hours, and unplanned intubation. Predictors examined included demographics, comorbidities (COPD, CHF, renal failure), anesthesia type, ASA classification, and smoking status. Statistical significance was set at $p < 0.05$.

RESULTS

Significant independent predictors were found for all 3 pulmonary complications analysed for. Significant independent predictors for postoperative pneumonia included male sex ($p < 0.0001$), COPD ($p < 0.0001$), CHF ($p = 0.0015$), renal failure ($p < 0.0001$), higher ASA class ($p < 0.0001$), and current smoking ($p = 0.0099$). For ventilator dependence >48 hours, significant predictors were COPD ($p < 0.0001$), CHF ($p = 0.0067$), renal failure ($p < 0.0001$), higher ASA class ($p < 0.0001$), smoking ($p < 0.0001$), and epidural or spinal anesthesia compared to general anesthesia ($p = 0.0017$). For unplanned intubation, COPD ($p < 0.0001$), CHF ($p = 0.0015$), renal failure ($p < 0.0001$), and higher ASA class ($p < 0.0001$) were significant predictors.

CONCLUSIONS

In this database, higher ASA class, COPD, CHF, renal failure, male sex, and smoking were independently associated with increased risk of pulmonary complications after femoral ORIF. This information can help surgeons further understand the pulmonary risks in this procedure, watch

high risk patients closer, and help patients lower their risks of pulmonary complications through lifestyle changes, regarding variables like smoking, and drug interventions.

25. SPONTANEOUS PNEUMOTHORAX AS THE INITIAL PRESENTATION OF SJÖGREN'S-ASSOCIATED LYMPHOCYTIC INTERSTITIAL PNEUMONITIS IN A YOUNG FEMALE

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BACKGROUND

Lymphocytic interstitial pneumonitis (LIP) is a rare, benign lymphoproliferative disorder strongly associated with autoimmune conditions, particularly Sjögren's syndrome [1]. While LIP typically presents with progressive dyspnea, cough, or incidental imaging findings, spontaneous pneumothorax is an uncommon and underrecognized initial presentation [2]. Emergency physicians are often the first to encounter these atypical manifestations and play a critical role in initiating the diagnostic process.

CASE PRESENTATION

A 32-year-old Asian female with no known pulmonary history presented with acute-onset left-sided pleuritic chest pain, dyspnea, and nonproductive cough. She was afebrile, hemodynamically stable, and had no history of smoking, vaping, or trauma. Chest radiograph revealed a large left-sided spontaneous pneumothorax with near-complete lung collapse. After three unsuccessful thoracic vent attempts, Interventional Radiology placed a pigtail catheter with re-expansion of the lung. CT imaging demonstrated extensive bilateral thin-walled pulmonary cysts, fibrotic changes, and a large anterior mediastinal cystic mass. She remained hospitalized for recurrent pneumothoraces, ultimately requiring lobectomy. Rheumatologic evaluation revealed positive ANA and SSA-52/60 antibodies. Lung biopsy confirmed LIP with dense lymphoplasmacytic infiltration and alveolar septal thickening. The mediastinal mass was benign. She was referred for lung transplantation evaluation due to advanced structural damage.

DISCUSSION

This case underscores the need to consider autoimmune-associated interstitial lung diseases like LIP in young, non-smoking patients presenting with spontaneous pneumothorax. Although rare, recurrent pneumothoraces may be the first indication of an underlying lymphoproliferative or cystic lung process [3]. Histopathologic diagnosis is essential to distinguish LIP from other pulmonary lymphoid or neoplastic processes [1]. Early recognition in the ED can expedite multidisciplinary evaluation, avoid diagnostic delays, and guide long-term management planning—including transplant consideration in severe cases [4].

CONCLUSIONS

Spontaneous pneumothorax in young, otherwise healthy patients should prompt consideration of atypical causes, especially when radiographic findings suggest cystic lung disease. LIP, while rare, may present emergently, and emergency physicians are uniquely positioned to identify these patterns early, initiate appropriate workup, and coordinate care that impacts long-term outcomes.

26. FACTORS ASSOCIATED WITH MORTALITY, READMISSION, AND REOPERATION WITHIN 30 DAYS OF PARTIAL MASTECTOMY

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BACKGROUND

Partial mastectomy (lumpectomy) is a procedure for early-stage breast cancer, a treatment option offering generally favorable outcomes. However, certain patient and surgical factors may increase the risk of short-term complications. Thus, this study aims to identify predictors of 30-day mortality, reoperation, and hospital readmission in patients undergoing partial mastectomy in order to improve surgical quality.

METHODS

Through utilizing the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database, which collects surgical outcomes from over 700 hospitals each year, patients who underwent partial mastectomy were identified using CPT code 19301. A total of 81,313 female patients were analyzed. Outcomes included 30-day readmission, 30-day reoperation, and 30-day mortality. Univariate logistic regression identified significant variables ($p < 0.05$), which were then included in multivariate models.

RESULTS

Among the patients undergoing partial mastectomy, several preoperative factors were significantly associated with increased risk of adverse outcomes within 30 days. These included history of chronic obstructive pulmonary disease, smoking, steroid use, active cancer, and history of congestive heart failure for readmission, dialysis, and low preoperative albumin as univariate predictors for reoperation, with ASA class as a multivariate predictor. For mortality, the most significant predictors were the type of anesthesia and active cancer.

CONCLUSIONS

Short-term outcomes after partial mastectomy were strongly influenced by preoperative clinical factors. Patients with comorbidities such as cardiopulmonary disease, cancer, or renal dysfunction faced a higher risk for readmis-

sion, reoperation, and mortality. These findings highlight the importance of preoperative risk assessment and individualized surgical planning.

27. BEHIND THE SCALP: PREDICTORS OF WOUND DEHISCENCE AND WOUND INFECTION AFTER CRANIOTOMY — AN ANALYSIS OF 24,235 CASES

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BACKGROUND

Craniotomy is a widely performed surgery that enables surgeons to perform procedures such as removing tumors, repairing blood vessels, and relieving pressure caused by swelling. The procedure involves temporarily removing a bone flap, a section of the skull, to access the brain. Traditionally, following the brain surgery, the bone flap is reattached using screws and plates. Adjuvant therapies for tumor suppression, such as radiation, can irreversibly damage the scalp by causing fibrosis, compromising microcirculation, and reducing the reparative functions of epithelial cells, thus impairing wound healing. Such an effect increases the risk of dehiscence at the site of wound closure. Dehiscence occurs when there is a partial or total separation of previously approximated wound edges, due to a failure of proper wound healing. Surgical site infection (SSI) after craniotomy (SSI-CRAN) is a serious adverse event on account of the risk of surgical meningitis and the proximity of the wound to the central nervous system (CNS). SSIs have been associated with significant morbidity and prolonged hospital stay and are responsible for 29.6% of hospital readmissions following glioblastoma surgery.

METHODS

This study utilized the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database, a de-identified registry that includes surgical data from over 700 hospitals each year. The NSQIP database was queried for patients who underwent a craniotomy and who had experienced dehiscence and infection, which resulted in 24,235 cases from 2018 to 2022. Multivariate logistic analysis models were used to identify the predictors of wound dehiscence and wound infection in postoperative craniotomy. Predictors included age and preoperative steroid use for wound dehiscence, and functional status, steroid usage, and preoperative albumin levels for wound infection.

RESULTS

WOUND DEHISCENCE

Steroid Use: $p=0.00012$

- Odds Ratio=3.2740356
- Level 2: No; Level 1: Yes

Age: $p=0.00407$

- Odds Ratio=0.971698

WOUND INFECTION

Functional Status: $p=0.00008$

- Odds Ratio=3.6592834
- Level 2: Independent; Level 1: Partially Dependent
- Odds Ratio=7.9748634
- Level 2: Independent; Level 1: Totally Dependent

Steroid Use: $p=0.0129$

- Odds Ratio=1.8502578
- Level 2: No; Level 1: Yes

Days from Albumin Preoperative Labs to Operation:
 $p=0.03134$

- Odds Ratio=1.812728

ASA Class [4-Life Threat-3-Severe Disturb]: $p=0.0107$

- Level 2: 2-Mild Disturb; Level 1: 4-Life Threat
 - Odds Ratio=2.6324752

Level 2: 3-Severe Disturb; Level 1: 4-Life Threat

- Odds Ratio=1.8699008

CONCLUSIONS

This study uncovered key predictive factors of wound dehiscence and wound infection post craniotomy procedure. Key wound dehiscence predictors included age and pre-op steroid use, while wound infection predictors included functional status, steroid use, albumin levels, and ASA class (4 vs. 3 and 2). For wound dehiscence, as age increases, the likelihood of having wound dehiscence decreases. This likely occurred since older patients who elected for the procedure were deemed healthy enough to be selected for the procedure. Further proven by Figures 3, 4, and 5, indicating that ASA class, frailty index, and diabetes did not significantly affect the older patients. For wound infection, higher albumin was associated with a higher risk of infection. This likely occurred because higher albumin levels correlated with dehydration, metabolic syndrome, and a potential negative impact on cardiovascular health.

28. DETERMINANTS OF DEHISCENCE, SURGICAL SITE, AND ORGAN SPACE INFECTIONS WITHIN 30 DAYS OF TOTAL KNEE ARTHROPLASTY

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BACKGROUND

Complications with total knee arthroplasty (TKA) are not uncommon, with their causes often stemming from pre-existing health conditions and current physiological factors. Specifically, surgical outcome complications following TKA can lead to further health complications, hospitalization, and increased healthcare expenses.

This study intends to determine the threatening factors associated with these complications within 30 days of TKA, so as to assist prevention of patient pain, ensure mobility of the patient recovers to comparable levels of an average healthy person, and identify precautions healthcare workers can take.

METHODS

Data was pulled from the American College of Surgeons National Surgical Quality Improvement Program (NSQIP), citing de-identified surgical patient data from over 700 annually contributing hospitals. The data was filtered for patients undergoing TKA (CPT 27447) from 2018 to 2022.

An initial univariate analysis examined individual associations of determinants with surgical outcome complications following TKA. Determinants included age, sex, BMI, ASA class, operation time, type of anesthesia, diabetes, preoperative steroid use, functional status, dialysis, cancer, hypertension requiring medication, preoperative albumin levels, preoperative platelet count, and preoperative white blood cell (WBC) count. The most statistically significant results were used in a multivariate logistic regression model to determine independently significant predictors, adjusted for compounding factors. Every analysis utilized a two-tailed hypothesis with $\alpha = 0.05$.

RESULTS

The sample dataset included 307,952 patients. The patient demographic consists of about 60.7% females and a median age of 68. Analysis of patient data was conducted to determine relationships to surgical site infection (SSI), deep incisional surgical site infection (DISSI), organ space surgical site infection (OSSSI), and dehiscence.

UNIVARIATE ANALYSIS

The univariate analysis was conducted among the set of general clinical determinants, showing that the most significant individual risk factors associated with the outcomes of interest were, as listed diabetes, BMI, type of anesthesia used, sex, ASA class, operation time, smoking habits, functional status, preoperative WBC count, preoperative albumin levels, steroid use, hypertension, and preoperative platelet count.

Additionally, organ space surgical site infection was associated with age, while dehiscence was related to the presence of cancer and dialysis.

MULTIVARIATE ANALYSIS

From the multivariate analysis, all four types of surgical outcome complications had smoking, ASA class changing from 2 to 3, and general anesthesia usage as significant predictors.

However, differences between the complications were also observed. SSI was the only complication to have significant correlations with preoperative steroid usage and WBC count. DISSI was the only complication that did not have a significant relation with hypertension requiring medica-

tion. Dehiscence did not have statistically significant associations with sex, BMI, ASA class changing from 3 to 4, and operation time, unlike the other three complications.

CONCLUSIONS

This study finds that the threat of surgical outcome complications following TKA is related to smoking status, higher ASA class, and the use of general anesthesia across the major complications reviewed. Additionally, some complications had unique associations with cancer, dialysis, preoperative steroid usage, and preoperative WBC count. The results exemplify that preoperative assessments of significant factors and optimization of patient circumstances are necessary to reduce surgical outcome complications after TKA.

29. PREDICTORS OF PULMONARY COMPLICATIONS INCLUDING UNPLANNED INTUBATION WITHIN 30 DAYS OF CRANIOTOMY

Ethan Hyunh, Rakin Haq

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BACKGROUND

Craniotomy is a surgical procedure involving an incision and a potential partial skull resection to permit intracranial access for various neurophysiological pathologies. The procedure contains risks associated with postoperative pulmonary complications including pneumonia, unplanned intubation and failure to wean influenced by patient factors and surgical variables including comorbidities and operative time. Understanding these risks is important for developing improved surgical intervention strategies to avoid complications.

METHODS

This study analyzes data from the ACS National Surgical Quality Improvement Program (NSQIP) using a query between 2018 to 2022 under the CPT identifier 61510. A diverse set of variables including demographic characteristics, operative characteristics, ASA classification, comorbidities, and functional status were used in a univariate and multivariate analysis to observe significance in postoperative pulmonary outcomes. Statistical significance was set to $p < 0.05$.

RESULTS

In the multivariate analysis for Unplanned Intubation, we confirmed independent risk factors with age ($p < 0.00261$), sex ($p < 0.00001$), ASA class ($p < 0.00001$), smoking ($p < 0.02499$), CHF ($p < 0.03509$), and functional status ($p < 0.00015$). Completion of the multivariate analysis for pneumonia yielded statistically significant values, including sex ($p < 0.00001$), ASA class ($p < 0.00001$), COPD ($p < 0.00027$), smoking ($p < 0.00249$), steroid use (0.00025), CHF ($p < 0.00007$), and functional status (0.00023). Failure

to wean off ventilators revealed significance with sex ($p < 0.00258$), ASA class ($p < 0.00001$), anesthesia type ($p < 0.002$), CHF ($p < 0.0176$), and functional status ($p < 0.00001$).

CONCLUSIONS

This study reveals an increased reliance on assistive breathing technology and unplanned intubations in patients with more critical states including increased ASA class which proved to be the most significant and critical in increasing the odds of failure to wean. Age, a well-established risk factor in literature, was the greatest predictor for pneumonia possibly due to deteriorating respiratory functions with increased age.

30. THE 5-ITEM MODIFIED FRAILITY INDEX IS A PREDICTOR OF PULMONARY COMPLICATIONS IN TOTAL KNEE ARTHROPLASTY

Matthew Jarrell, Eric G. Yang

Jensen Beach High School, Stuart, Florida; Brown University, Providence, Rhode Island

BACKGROUND

The rate of Total Knee Arthroplasty is increasing globally due to an aging population. Identifying which patients are at higher risk of complications, particularly pulmonary complications, will help in proper patient selection and reduced morbidity. This study employs the Modified 5 item Frailty Index (mFI-5) which is a useful predictor.

METHODS

This is an analysis using data from the American College of Surgeons - National Surgical Quality Improvement Program in the years 2018-2022.

RESULTS

From the NSQIP database, de-identified information for $N = 308,109$ TKA patients (60.7% female; median age 68) was included in the study.

UNIVARIATE ANALYSIS

Univariate analysis showed that statistically significant relationships were seen between postoperative ventilator dependence, reintubation, pneumonia and the variables of mFI-5, age, ASA class, smoking habits, sex, preoperative steroid use, type of anesthesia used, and BMI.

MULTIVARIATE ANALYSIS

Postoperative Ventilator Dependence: 121 patients (0.039%):

- mFI-5

($p = 0.0012$ for 1-0, $p < 0.0001$ for 2-1 and 3-2, $p = 0.0126$ for 4-3)

- Age

(p = 0.0003)

- ASA class

(p = 0.0011 for 3–2)

Unplanned Intubation: 295 patients (0.096%):

- mFI-5

(p = 0.0009 for 1–0, p < 0.0001 for 2–1, p = 0.0234 for 3–2, p = 0.0005 for 4–3)

- ASA class

(p < 0.0001 for 4–3 & 3–2)

- Age

(p < 0.0001)

- Type of anesthesia used

(p = 0.0005 for Epidural/Spinal, p = 0.0002 for General) Pneumonia: 714 patients (0.23%):

- mFI-5

(p = 0.0104 for 1–0, p = 0.0164 for 4–3)

- Age

(p < 0.0001)

- ASA class

(p < 0.0001 for 4–3 & 3–2)

- Smoking habits

(p < 0.0001)

- Type of anesthesia used

(p < 0.0001 for Epidural/Spinal, p = 0.0095 for General)

- Preoperative steroid use

(p = 0.0023)

The RSquare for postoperative ventilator dependence was 0.0433, 0.0532 for postoperative intubation, and 0.0585 for pneumonia.

CONCLUSIONS

The mFI-5 is a concise and effective tool for identifying the patients who would be at high risk for postoperative complications, and can serve to provide appropriate patient centered information and perhaps lead to better planning and outcomes. There is a potential for reducing complications when patients are appropriately stratified.

31. GASTRIC ULTRASOUND FOR ASPIRATION RISK DETERMINATION (GUARD): SAFER SEDATION FOR PATIENTS ON GLP-1 RECEPTOR AGONISTS

Xinyi Jing

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BACKGROUND

There has been alarm in anesthesiology as small studies have associated GLP-1 receptor agonists (GLP-1RA) usage with residual gastric volumes and aspiration occurrences during anesthesia. Our QI project investigated the efficacy of gastric ultrasound (GUS) in predicting gastric volumes and aspiration in patients undergoing esophagogastroduodenoscopy (EGD) with moderate sedation for bariatric surgery assessment at Tampa General Hospital.

METHODS

Using GUS, we estimated residual gastric contents for bariatric patients undergoing sedation pre-EGD. We performed GUS on 84 patients and collected medical data, including GLP-1RA use. Suctioned volumes and aspiration were determined post-EGD by chart review. We tested for differences between patients with and without GLP-1RA use by independent samples t-tests and chi-square tests. Significance was at 0.05. Patients with Roux-en-Y gastric bypass and poor acoustic windows were excluded.

RESULTS

Among the 84 patients, 37 used GLP-1RA, and all fasted per guidelines. Most GLP-1RA patients (73%) received last doses over 3 months ago. We found no association between GUS volumes and GLP-1RA use. Two patients had volumes large enough to be “full stomachs,” one of which used GLP-1RA. GUS and endoscopy assessments concurred without false positives for full or empty stomachs.

CONCLUSIONS

Our results were limited by small sample size and variations in GLP-1RA use. Few patients actively took GLP-1RA, so we cannot conclude whether it affected gastric contents. We found GUS to be rapid and reliable in assessing gastric contents without being limited by body habitus. Studies are underway to further evaluate GLP-1RA aspiration risk and GUS in risk assessment.

32. A LEFTWARD SHIFT: RETHINKING THE OPTIMAL SITE FOR CHEST COMPRESSIONS

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BACKGROUND

American Heart Association (AHA) guidelines recommend mid-sternal chest compressions during CPR. However, recent studies have demonstrated that the AHA guidelines recommended location to perform CPR often misses the ideal area of maximal compression (iAMC) and may actually compress the left ventricular outflow tract (LVOT). This study aims to identify the optimal site for chest compressions during CPR using transthoracic echocardiography

(TTE), and to assess the spatial relationship between the ideal area of maximal compression and the LVOT.

METHODS

In this cross-sectional observational study, 79 hemodynamically stable adults from the emergency department underwent TTE. A standardized 2D grid was used to measure the horizontal and vertical distances of the iAMC and LVOT from the xiphoid process. Pearson's correlation coefficient assessed the relationship between the horizontal positions of the iAMC and LVOT.

RESULTS

The median age was 59 years (IQR 41–70). The iAMC was located 4 cm (IQR 3–5) from the sternum, while the LVOT was 1 cm (IQR 1–2) away. The LVOT was within 0–1 cm of the sternum in 58.4% of cases, compared to only 2.5% for the iAMC. A moderate positive correlation between the iAMC and LVOT positions was observed ($r = 0.528$; $p < 0.001$).

CONCLUSIONS

The iAMC is located approximately 4 cm left of the sternum, while the LVOT is closer to midline. Current AHA hand placement recommendations may compress the LVOT, impairing perfusion. Targeting the iAMC could improve CPR outcomes.

33. PATTERNS AND MOTIVATIONS BEHIND PRESCRIPTION DRUG MISUSE: A SUBTYPE-SPECIFIC ANALYSIS OF PAIN RELIEVERS, STIMULANTS, AND SEDATIVES IN THE U.S. POPULATION

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This project analyzes data from the 2023 National Survey on Drug Use and Health (NSDUH) to identify patterns and disparities in the misuse of prescription psychotherapeutic drugs, including stimulants, sedatives/tranquilizers, and pain relievers. Using nationally representative survey data, the study examined misuse prevalence by drug class, age group, and race/ethnicity, along with associated motivations and sources of misuse.

In 2023, approximately 14.4 million individuals aged 12 or older reported misuse of at least one class of prescription psychotherapeutic drugs. Prescription pain relievers were the most misused (8.6 million), followed by tranquilizers/sedatives (4.7 million) and stimulants (3.9 million). Young adults aged 18–25 had the highest rates of stimulant misuse (3.1%), likely driven by cognitive enhancement motives, while pain reliever misuse was most prevalent among adults aged 26 or older (3.2%), primarily to manage physical pain (70.9%). Additionally, 47% of pain relievers misused were obtained through prescriptions or stolen from health-care providers, while 39.1% were sourced from friends or relatives.

The study emphasizes the need for targeted public health strategies, including safer prescribing practices, patient education, and community-based interventions tailored to demographic risk profiles. As prescription drug misuse remains a significant contributor to the broader opioid and substance use crisis, understanding these nuanced patterns is essential for informing prevention and policy efforts.

34. CLINICAL PREDICTORS OF PNEUMONIA, UNPLANNED INTUBATION, AND VENTILATOR DEPENDENCE WITHIN 30 DAYS OF LAPAROSCOPIC CHOLECYSTECTOMY

Maya Lee, Ethan Nichols

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BACKGROUND

Although laparoscopic cholecystectomy (LC) is generally considered a low-risk procedure, certain postoperative complications, including pneumonia, unplanned intubation, and ventilator dependence, can result in significant morbidity, longer hospital stays, and elevated healthcare costs. This study aimed to identify clinical predictors of these three pulmonary outcomes within 30 days of LC using a large national surgical database.

METHODS

The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database was queried for patients undergoing laparoscopic cholecystectomy between 2018 and 2022. Multivariate nominal logistic regression models were constructed for three postoperative outcomes: pneumonia (OUPNEUMO), unplanned intubation (REINTUB), and ventilator dependence beyond 48 hours (FAILWEAN). Predictor variables included demographics, ASA classification, comorbidities (e.g., COPD, CHF, renal failure, preoperative pneumonia, lab values (e.g., white blood cell count), and functional status. Statistical significance was defined as $p < 0.05$.

RESULTS

PNEUMONIA

Out of 150,072 patients, 817 developed postoperative pneumonia. The strongest independent predictors were elevated preoperative white blood cell count (WBC; $p < 0.0001$, OR 1.073), higher ASA class ($p < 0.0001$), older age ($p < 0.0001$), and non-independent functional status ($p < 0.0001$, OR 2.54). Other significant predictors included steroid use, smoking, COPD, CHF, and renal failure. AUC = 0.819.

UNPLANNED INTUBATION

Among 156,931 patients, 124 had unplanned intubation. Independent predictors included ASA class ($p < 0.0001$), non-independent functional status ($p < 0.0001$, OR 2.92),

COPD ($p < 0.0001$), renal failure ($p = 0.0012$), older age ($p < 0.0001$), and elevated WBC ($p < 0.0001$). AUC = 0.8388.

VENTILATOR DEPENDENCE (>48 HRS)

Of 156,931 patients, 92 required prolonged ventilation. Predictors included ASA class ($p < 0.0001$), renal failure ($p < 0.0001$, OR 5.29), non-independent functional status ($p < 0.0001$, OR 2.78), COPD ($p = 0.0302$), CHF ($p = 0.0131$), and elevated WBC ($p < 0.0001$). AUC = 0.8674.

CONCLUSIONS

In this national surgical cohort, pneumonia, unplanned intubation, and prolonged ventilator dependence following laparoscopic cholecystectomy were significantly associated with elevated ASA class, functional dependence, renal failure, and systemic inflammation (WBC) [cite]. Non-independent functional status and preoperative comorbidities such as COPD and CHF emerged as strong predictors across outcomes. These findings underscore the importance of comprehensive preoperative assessment and may guide perioperative planning to mitigate postoperative pulmonary complications.

35. COMPARING THE PERFORMANCE OF RAMP TO JUMPSTART AT A SIMULATED DISASTER INVOLVING PEDIATRIC PATIENTS

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Tampa General Hospital

BACKGROUND

Primary triage at multiple casualty incidents (MCIs) must address pediatric victims. Historically, JumpSTART (jSTART) has been the most commonly used triage method. Rapid Assessment of Mentation and Pulse (RAMP) is a newer method that has not been evaluated in a pediatric population. We sought to compare the performance of RAMP and jSTART in a simulated disaster with multiple pediatric victims with a primary objective of comparing the accuracy and speed of the two methods.

METHODS

This simulation study evaluated the performance characteristics of two primary disaster triage methods when applied to pediatric victims in an MCI. The simulated patients included human actors wearing moulage (age 13 - 15) and low-fidelity mannequins (age ≤ 12) positioned in a darkened room with smoke and noise to mimic an active assailant event in a theater. There were two days of testing, one for jSTART (the legacy method) and the other for RAMP, with participants unaware of which method would be employed prior to arrival. Each testing day consisted of five iterations of responding to 30 simulated patients to be triaged. A convenience sample of up to three on-duty ALS fire/rescue units per session were assigned to respond by their department leadership. Each session began with a 30-minute

lecture on the triage method and was followed by the triage groups proceeding serially in 3-person teams through the simulation. The teams were observed by study staff as they moved through the testing space. Accuracy was defined as the participant correctly assigning the intended triage category to each patient. The frequency of accurate triage for each method was compared using Fisher's Exact test. The time to triage was calculated from first contact to assignment of triage categorization in seconds (s.) and was summarized as the median (IQR).

RESULTS

A total of 842 simulated interactions were evaluated. Primary triage was performed on 435 patients using RAMP and 407 patients using jSTART. The accuracy using RAMP 72.4% (315/435) was greater than that with jSTART 59.7% (243/407) (p -value < 0.001). The time to triage for RAMP (15 s. (8, 22)) was quicker than jSTART (24 s. (17,31) (p -value < 0.001).

CONCLUSIONS

These results indicated that RAMP is a more accurate and faster method of primary disaster triage compared to jSTART when applied to simulated pediatric patients. Limitations include the artificiality of the simulated environment.

36. DEVELOPMENTS IN GLP-1 AGONIST RESEARCH: A BIBLIOMETRIC REVIEW

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BACKGROUND

Glucagon-like peptide-1 (GLP-1): a gastrointestinal hormone that stimulates insulin release, delays gastric emptying, supplements appetite, and suppresses glucagon secretion. Glucagon-like peptide-1 receptor agonists (GLP-1 RAs): medications for type 2 diabetes and obesity. The drugs regulate the intake of insulin, blood sugar, and glucose levels for people with type 2 diabetes and sometimes obesity. In 2005 the FDA approved the first GLP-1RA Exenatide for type 2 diabetes. Over the past 2 decades, the number of articles regarding the GLP-1 has grown significantly. A Bibliometric analysis allows for a more comprehensive search of publications, and using software like VOSviewer, research patterns can be more clearly observed and identified through visual representations.

METHODS

Generated documents through Web of Science Database with key terms:

MUST include: "GLP-1"

Should include: "GLP-1RAs"

Should include: "Glucagon-like Peptide-1 Receptor Agonists"

Produced 9,006 documents and exported to VOSviewer as a "Tab Delimited File" to produce images on:

Countries
Authors
Keywords
Organizations

RESULTS

Countries:

- United States of America (2,979 documents; 23.0%)
 - 114,967 Citations
- People's Republic of China (1,248 documents; 9.6%)
- England (918 documents, 7.1%)

Authors:

- Jens Juul Holst (163 documents; 3.3%)
 - 3,355 Citations
 - University of Copenhagen Vice-Chairman
- Daniel J. Druker (104 documents; 2.1%)
- Michael Albrecht Nauck & Filip K. Knop (82 documents total; 3.4% total)

Organizations:

- The University of Copenhagen (438 documents; 3.5%)
 - Jens Juul Holst, Tina Vilsboll, & Filip K. Knop (316)
 - Denmark
- Novo Nordisk (334 documents; 2.7%)
 - Denmark
- Eli Lilly & Co. (325 documents; 2.6%)
 - United States of America

Keywords:

- glucagon-like peptide-1 (2,239 occurrences)
- liraglutide (1,165 occurrences)
- glycemic control (943 occurrences)

CONCLUSIONS

GLP-1 RAs serve as a promising solution to those who are diabetic or obese as they can be administered these agonists instead of going through invasive surgeries. Highlights the new possibilities that have been discovered with continued research on GLP-1 agonists and provides insight on where researchers may focus next. GLP-1 RAs have many other potential applications to treat various maladies (i.e. Nicotine addiction).

37. CLINICAL CORRELATES OF PNEUMONIA, UNPLANNED INTUBATION, AND VENTILATOR DEPENDENCE WITHIN 30 DAYS OF PARTIAL MASTECTOMY

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Brown University, Providence, Rhode Island

BACKGROUND

Mastectomy is a surgical procedure involving the removal of breast tissue, most commonly performed as a treatment for breast cancer. Although it is generally regarded as a low-risk operation, patients may still experience postoperative complications, including respiratory events. These complications such as pneumonia, unplanned intubation, and prolonged ventilator dependence can significantly impact recovery, increase healthcare utilization, and pose additional risks, particularly in patients with preexisting conditions or perioperative vulnerabilities. Understanding the incidence and predictors of these adverse outcomes is essential for improving surgical care and patient safety.

METHODS

A retrospective cohort analysis was conducted using ACS-NSQIP data from 2018 to 2022, identifying patients who underwent partial mastectomy (CPT 19301). Primary outcomes included 30-day postoperative pneumonia, unplanned intubation, and ventilator dependence >48 hours. Predictor variables included demographics, comorbidities, smoking status, functional and ASA status, anesthesia type, and operative time. Significance was set at $p < 0.05$.

RESULTS

In a cohort of 81,313 women undergoing mastectomy, key predictors of 30-day postoperative complications were identified. Age, COPD, steroid use, smoking, and reduced functional status significantly increased the risk of pneumonia, with age being the strongest predictor (FDR log-worth = 4.017, $p < 0.0001$). Steroid use and COPD were also strongly linked to unplanned intubation (OR = 7.74 and 5.30, respectively). Ventilator dependence was rare (0.01%) and not significantly associated with most variables.

CONCLUSIONS

Ultimately, the goal of this research is to help ensure that even routine surgeries like partial mastectomy are approached with a precision-medicine mindset, tailoring care based on patient-specific risk. By proactively identifying those at greatest risk of pneumonia, unplanned intubation, or prolonged ventilation, we can improve outcomes, shorten recovery, and reduce the burden of complications for breast cancer patients.

38. A RECURRING PRESENTATION OF NEUROMYELITIS OPTICA: A CASE REPORT

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BACKGROUND

Neuromyelitis optica (NMO) is a rare autoimmune disorder characterized by severe demyelination primarily affecting the optic nerves and spinal cord. Early recognition and diagnosis are crucial to prevent permanent neurological dam-

age and optimize treatment outcomes. We describe an elderly female patient with a history of NMO with complete visual blindness in her right eye.

CASE PRESENTATION

A 73-year-old female with a past medical history of neuromyelitis optica presented to the emergency department complaining of right eye complete visual blindness. She previously had an NMO flare-up back in November 2024 and since then has been experiencing “white clouds haziness” in her right eye. During this day, however, she has not been able to visualize anything through the right eye. Bedside ocular ultrasound demonstrated vitreous hemorrhage in the right eye. However, these findings on the ultrasound did not seem to fit her clinical picture with her complete vision loss in that right eye. Patient was admitted for ophthalmology and neurology evaluation. Brain MRI demonstrated acute right optic neuritis. The patient was treated with high-dose intravenous methylprednisolone for five days. Significant clinical improvement with her vision was noted during her hospital stay. Neurology planned on initiating Uplinza (Inebilizumab-Cdon) for immunotherapy.

DISCUSSION

This case highlights the importance of considering neuromyelitis optica in patients with acute demyelinating syndromes, particularly in the presence of recurrent symptoms. Prompt diagnosis and initiation of steroids and immunotherapy are essential to prevent irreversible neurological damage and improve patient outcomes.

39. RISK FACTORS FOR POST-OPERATIVE STROKE FOLLOWING TOTAL HIP ARTHROPLASTY

Bella Patel, Rakin Haq

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BACKGROUND

Post-operative stroke following a total hip arthroplasty (THA) is relatively uncommon, but remains a feared complication. This study completes both a univariate and multivariate analysis on independent conditions leading to postoperative stroke following THA.

METHODS

The American College of Surgeons: National Surgical Quality Improvement Program (ACS-NSQIP) database was queried for THA cases between 2017 to 2021 (CPT code 27130).

Demographic, comorbid, diagnostic and preoperative laboratory values were investigated to decipher predictors of postoperative stroke. A statistical significance value of $p < 0.05$ was used in evaluation.

RESULTS

This analysis included 199,960 patients. In the initial univariate analysis for postoperative stroke, significant variables were age ($p < 0.0001$), use of general anesthesia ($p = 0.0249$), diabetes ($p = 0.7481$), functional dependence ($p < 0.8556$), COPD ($p < 0.6589$), CHF ($p < 0.9748$), dialysis ($p = 0.1136$), elevated BMI ($p = 0.47487$), and Frailty index ($p = 0.8543$). Age ($p < 0.0001$) and having the THA under general anesthesia (0.0247) were the only significant variables that resulted from the multivariate regression. However, upon removal of the frailty index due to its overlap with functional status, smoking status ($p = 0.0210$), and operation time ($p = 0.0265$) became statistically significant in the multivariate model.

CONCLUSIONS

This national cohort study found that the risk of postoperative stroke following total hip arthroplasty is associated with older age and having the procedure under general anesthesia in both univariate and multivariate analysis. When the frailty index was removed from analysis (due to its conceptual overlap with functional status), postoperative stroke after THA was also associated with smoking status and the duration of the operation.

40. COVARIATES OF MORTALITY, READMISSION, AND REOPERATION WITHIN 30 DAYS OF FEMORAL FRACTURE REPAIR

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BACKGROUND

A femoral fracture repair is a surgically high-risk operation that can prompt hemodynamic instability, physiological stress, and major hemorrhage. The procedure often predisposes patients to postoperative mortality, reoperation, and readmission. This study aims to identify covariates of mortality, readmission, and reoperation within 30 days of femoral fracture repair from a large, nationally-representative surgical database. The results highlight statistically notable independent risk factors associated with the outcomes of interest to support preoperative planning and facilitate patient recovery.

METHODS

The study uses de-identified surgical patient data from over 700 annually contributing American hospitals collected through the American College of Surgeons National Surgical Quality Improvement Program (NSQIP). The data were collected from patients specifically undergoing a femoral fracture repair (CPT 27236) between 2018 and 2022.

An initial univariate analysis of clinically relevant predictors identified statistically significant individual associations between each predictor and the outcomes of inter-

est. Predictors used were age, sex, BMI, ASA class, operative time, smoking habits, type of anesthesia used, diabetes, functional status, dialysis, cancer, history of COPD, history of CHF, hypertension, preoperative acute kidney injury, preoperative steroids, preoperative albumin levels, and preoperative white blood cell count. Significant variables were used to create a multivariate logistic regression model to determine independently significant predictors, adjusted for compounding factors.

The included statistical analyses all included a two-tailed hypothesis with $\alpha = 0.05$.

RESULTS

The study included data from 63,734 total femoral fracture repair patients. Out of 63,734 patients, 9,499 patients experienced either death, readmission, or reoperation.

Using a univariate analysis, significant independent risk factors associated with mortality, readmission, and reoperation were noted to be preoperative albumin levels, ASA class, operation time, functional status, history of CHF, age, cancer, preoperative steroids, preoperative white blood cell count, sex, BMI, history of COPD, renal failure, hypertension, and smoking habits.

Out of 63,734 patients, 3,543 patients were reported as deceased. A subsequent multivariate logistic regression model showed that statistically significant independent predictors of mortality included, in descending order: increased age ($p < 0.0001$), ASA class 4 to 3 ($p < 0.0001$), ASA class 3 to 2 ($p < 0.0001$), decreased preoperative albumin level ($p < 0.0001$), not-independent function status ($p < 0.0001$), presence of cancer ($p < 0.0001$), male sex ($p < 0.0001$), decreased white blood cells ($p < 0.0001$), history of congestive heart failure ($p < 0.0001$), decreased BMI ($p < 0.0001$), history of COPD ($p < 0.0001$), and active renal failure ($p = 0.0006$).

Out of 63,734 patients, 4776 patients were readmitted to the emergency department. The same multivariate analysis, adjusted to analyze for readmission data, showed that the most notable factors for readmission following a femoral repair were, in order: ASA class 3 to 2 ($p < 0.0001$), decreased preoperative albumin level ($p < 0.0001$), history of COPD ($p < 0.0001$), presence of cancer ($p < 0.0001$), history of congestive heart failure ($p < 0.0001$), male sex ($p < 0.0001$), presence of diabetes ($p < 0.0001$), and use of general anesthesia ($p < 0.0001$).

Out of 63,734 patients, 1180 patients underwent reoperation. Statistically significant independent predictors of reoperation were, in descending order: decreased preoperative albumin level ($p < 0.0001$) and increased operation time ($p < 0.0001$).

CONCLUSIONS

Given the complexity of a femoral fracture repair, mortality, readmission, and reoperation are critically relevant patient outcomes that warrant thorough clinical investigation. This study investigates covariates of mortality, readmission, and reoperation within 30 days of femoral fracture repair. An initial univariate analysis determined preliminary associa-

tions between predictors such as BMI, preoperative albumin levels, and CHF. Using a multivariate logistic regression model, the predictors of mortality were further refined to the presence of cancer and decreased BMI. The most significant predictors of readmission included a history of COPD and the presence of diabetes, while the most significant predictors of reoperation were decreased preoperative albumin level and the use of general anesthesia. Overall, the outcome of interest with the most amount of significant predictors is mortality, with 12 significant predictors.

41. LEADING INDICATORS OF RENAL INSUFFICIENCY AND POSTOPERATIVE DIALYSIS FOLLOWING TOTAL KNEE ARTHROPLASTY

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BACKGROUND

Total knee arthroplasty (TKA) is one of the most commonly performed orthopedic procedures worldwide as it is highly effective in relieving pain and restoring function in patients with end-stage osteoarthritis and related degenerative joint conditions. However, TKA procedures are not executed without risk. Although rare, postoperative acute kidney injury (AKI) and dialysis are serious complications that can lead to increased morbidity, longer hospital stays, higher healthcare costs, and mortality. Even mild postoperative renal dysfunction has been associated with prolonged hospitalization and long-term renal decline.

METHODS

This study utilized a large, national surgical database to evaluate predictors of postoperative AKI and dialysis in patients undergoing primary TKA. Patient demographics, comorbidities (including chronic kidney disease, diabetes, and congestive heart failure), medication use like nonsteroidal anti-inflammatory drugs (NSAIDs) and angiotensin-converting enzyme (ACE) inhibitors, and operative variables were analyzed. Multivariate regression analysis was conducted to identify independent risk factors for renal complications following surgery.

RESULTS

Preliminary analysis identified several key predictors of postoperative renal insufficiency. Baseline chronic kidney disease, diabetes mellitus, congestive heart failure, prolonged operative times, and the use of nephrotoxic medications were significantly associated with increased risk of AKI and postoperative dialysis. These findings remained significant after adjusting for confounding variables.

CONCLUSIONS

Despite being relatively uncommon, postoperative AKI and dialysis in TKA patients are associated with worse clinical

outcomes. The identification of specific preoperative risk factors enables better perioperative risk stratification and supports targeted interventions to improve patient safety, particularly in the context of enhanced recovery protocols and outpatient arthroplasty. These results may help inform preoperative counseling, surgical planning, and the development of renal-protective strategies in high-risk orthopedic patients.

42. GLOBAL VISUALIZATION OF DOUBLE SEQUENTIAL DEFIBRILLATION; A BIBLIOMETRIC ANALYSIS

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BACKGROUND

Double sequential defibrillation (DSD) is an emerging technique used in cases of refractory ventricular fibrillation (VF) unresponsive to standard defibrillation. It involves delivering two rapid, consecutive shocks from separate defibrillators using two sets of pads placed in different vectors to maximize myocardial depolarization. Although clinical adoption has grown, evidence remains limited and heterogeneous. A bibliometric analysis offers insight into publication trends, research impact, and emerging themes in the evolving literature surrounding DSD.

METHODS

A bibliometric analysis was performed using the Web of Science Core Collection to assess publication trends and research impact related to double sequential defibrillation (DSD). A single search query was used to capture relevant literature: “double sequential defibrillation”. The search was limited to English-language publications from 1986 to 2025 and included various documents such as original articles, reviews, case reports, and clinical studies. Data including title, authors, keywords, citation count, journal, and publication year were extracted. VOSviewer (version 1.6.20; Leiden University, The Netherlands) was used to generate visual maps of keyword co-occurrence, authorship networks, predominant organizations, and countries to identify related research themes and contributors in the field.

RESULTS

Cheskes, Drennan, Turner, Dorian, and Morrison were the most prolific authors in DSD literature, indicating strong collaboration and influence. Canada and the United States emerged as dominant contributors, with international collaborations in Europe, Asia, and Australia. The University of Toronto emerges as a leading institution in DSD research, with close collaboration with other major centers such as Good Samaritan Hospital and Royal Melbourne Hospital, reflecting international institutional collaboration. Central themes such as “double sequential defibrillation,” “cardiac arrest,” and “survival” highlight DSD’s role in advanced resuscitative care. Emerging terms like “refrac-

tory ventricular fibrillation” and “hospital cardiac arrest” indicate increasing interest in DSD across diverse clinical. The number of publications have steadily increased over the past decade, peaking around 2019. This upward trend reflects growing interest and greater research in the field of advanced cardiac resuscitation.

CONCLUSIONS

This study highlights the growing body of literature on double sequential defibrillation, primarily produced by influential authors and institutions, particularly located within Canada and the United States. The upward trend in publications and the emergence of new keywords reflects increasing global interest of DSD in advanced cardiac resuscitation. Continued collaboration and research is essential to further emphasize its critical role and effectiveness in clinical practice.

43. EFFECTIVENESS OF AN ESCAPE ROOM ACTIVITY IN ENGAGING INDIVIDUAL LEARNERS AND TEACHING TRAUMA LEARNING OBJECTIVES

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BACKGROUND

Despite its reputation as an ideal clinical teaching modality, simulation faces many challenges impacting its effectiveness at delivering critical learning objectives. Under the resource and time constraints of a one-month emergency medicine clerkship, multiple learners may be forced to participate in a single simulation activity, challenging its ability to actively engage every participant effectively. Alternative experiential learning modalities should be explored. We designed an escape room activity to increase student engagement with trauma resuscitation learning objectives.

METHODS

Fourth-year medical students and physician assistant students rotating in a required emergency medicine clerkship at a single public medical school completed the escape room activity from December 2023 to July 2024. The activity replaced a simulation activity with identical learning objectives. It consisted of 10 puzzles based on Advanced Trauma Life Support, covering triage, airway, breathing, circulation, disability, exposure, medical decision-making, and patient handoff. Randomized teams of 4-6 rotators worked together to solve the puzzles, some of which could be completed independently while others required solutions to puzzles from a higher order of priority. Each student completed a post-activity survey of sixteen 5-point Likert scale questions and two open-ended questions to assess their perceptions of the activity.

RESULTS

All 79 rotators completed the activity and survey. Mean responses were positive, ranging from 4.59 to 4.78 (Agree to Strongly Agree). Specifically, students were satisfied with the activity (4.73, ± 0.61), believed it met the learning objective (4.72, ± 0.69), thought the activity was engaging (4.77, ± 0.62) and useful (4.76, ± 0.66), felt they participated in the event (4.78, ± 0.47), and preferred the Escape Room activity over didactics (4.71, ± 0.70) or other simulation activities (4.65, ± 0.74).

CONCLUSIONS

This study demonstrated that escape rooms can be an effective teaching modality for engaging participants and delivering trauma learning objectives. Future studies should directly compare knowledge retention and learner engagement in simulation vs escape room activities.

44. PREDICTORS OF ACUTE KIDNEY INJURY AND POSTOPERATIVE DIALYSIS FOLLOWING FEMORAL INTRAMEDULLARY SCREW FIXATION

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BACKGROUND

Femoral intramedullary screw fixation procedure is a surgical procedure to stabilize a fractured femur by inserting a metal rod into the canal of the bone with screws, the bone will heal and align itself. Acute kidney injury is a sudden loss of kidney function that occurs when the kidneys cannot clear waste from the body. Acute kidney injury (AKI) and postoperative dialysis are rare and threatening sequelae following femoral intramedullary screw fixation often linked with increased mortality and prolonged hospitalization. This study aims to identify predictors of AKI and postoperative dialysis in patient data pulled from a statistically large national surgical database. The results highlight significant risk factors to guide preoperative risk stratification and improve postoperative patient experience.

METHODS

The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database is a de-identified registry that includes yearly surgical data from over 700 hospitals. NSQIP data were filtered for femoral intramedullary screw fixation (CPT 27506) patients from 2018 to 2022.

The study examined several clinical predictors, including age, sex, BMI, ASA class, operation time, preoperative creatinine, type of anesthesia used, diabetes, smoking habits, hypertension, dialysis, preoperative AKI, preoperative blood urea nitrogen, and preoperative hematocrit levels. Univariate analyses were conducted to determine individual associations of predictors with AKI and postoperative

dialysis. Statistically significant predictors were then entered into a multivariate logistic regression model to identify independent risk factors while adjusting for confounding factors.

All associated statistical analyses employed a two-tailed test with a significance level of $\alpha = 0.05$.

RESULTS

The sample data included 63,734 total patients who underwent a femoral fracture repair.

The univariate analysis showed that the most significant individual risk factors associated with AKI and postoperative dialysis following femoral intramedullary screw fixation were renal failure, postoperative blood urea nitrogen levels, type of anesthesia used, hypertension, sex, age, preoperative hematocrit levels, ASA class, preoperative creatinine levels, diabetes, BMI, operation time, and smoking habits.

The multivariate logistic regression model further indicated that statistically significant independent predictors included, in descending order: renal failure ($p < 0.0001$), increased blood urea nitrogen ($p < 0.0001$), use of general anesthesia ($p < 0.001$), hypertension ($p < 0.0001$), male sex ($p < 0.0001$), increased age ($p < 0.001$), decreased preoperative hematocrit levels ($p < 0.001$), ASA class 3 vs 2 ($p = 0.0013$) ASA class 4 vs 3 ($p = 0.0229$), decreased preoperative creatinine levels ($p = 0.0026$), having diabetes ($p = 0.0038$), and increased BMI ($p = 0.0043$).

CONCLUSIONS

This investigation interprets factors predictive of AKI and postoperative dialysis after femoral intramedullary screw fixation through analysis of NSQIP data. With a preliminary univariate analysis, notable individual associations of predictors such as smoking habits, preoperative blood urea nitrogen levels, and sex with the outcomes of interest were documented. Subsequently, the multivariate logistic regression model refined the univariate analysis's results to the following independent risk factors: pre-existing renal insufficiency, increased blood urea nitrogen, general anesthesia, hypertension, male gender, elderly age, low preoperative hematocrit levels, and a higher ASA classification. Additionally, lower preoperative creatinine values and diabetes were also identified as risk factors in the analysis. Identification of these predictors is important to better risk-stratify patients and assist in clinical decision-making for reducing poor renal outcomes.

45. RISK STRATIFYING VARIABLES OF THROMBOTIC COMPLICATIONS WITHIN 30 DAYS OF FEMORAL FRACTURE REPAIR

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BACKGROUND

A femoral fracture repair is used to stabilize a broken femur with the use of screws, metal plates, and nails. Although the surgery is beneficial, there are chances of post-operative obstacles such as thrombotic complications. These complications can lead to far more serious health issues, which can increase the mortality rate and lead to a prolonged hospital stay. The goal of this study is to identify the key risk factors that can lead to thrombotic complications within 30 days of surgery, aiming to improve information for preventative care.

METHODS

The American College of Surgeons' National Surgical Quality Improvement Program (NSQIP) is a database consisting of information from over 700 hospitals every year. The analysis worked to identify independent variables that held a positive correlation with thrombotic complications within 30 days of performing femoral fracture repair. Variables that displayed a positive relationship with the development of blood clots were then combined and used in a multivariate analysis. This allowed for the most significant independent risk factor to be identified. Predictors that were tested included demographics (eg, age, sex, BMI), preoperative status (eg, ASA class), which is used to provide necessary care and predict risk [20]. Other factors include laboratory values (eg, PRINR, PRCREAT, PRALBUM, PRWBC), along with surgical and anesthetic factors.

RESULTS

The analysis evaluated 63,727 patients, both male and female, to identify what variables held positive correlations to risk and complications. The univariate analysis showed significant factors such as age increased risk by 4.9%, PRCREAT increasing risk by 14.6%, and PRINR decreasing risk by 53.6%.

The multivariate analysis showed diabetes increased risk by 39.2%, females are 19.3% less likely than males, DISCANCER increases chances by 176%, ASA class 3 is 99.2% more likely than 2 and class 4 is 84.9% more likely than 3, having no HXCHF decreases risk by 43.4% in comparison to having it and a patient with no RENAFail is 41.8% less likely than a patient who did.

CONCLUSIONS

This study identified several significant univariate and multivariate factors that contributed to thrombotic complications within 30 days of a femoral fracture repair. Significant univariate factors included age, elevated preoperative creatinine, and a lower preoperative INR. Multivariate factors included diabetes, higher ASA class, history of congestive heart failure, and history of cancer, all of which were shown to hold a much higher significance in determining the risk for complications. In contrast, factors that were shown to reduce risk were female sex, absence of renal failure, higher

preoperative INR, absence of renal failure, and absence of history of congestive heart failure.

46. BREAKING THE LOOP: A CASE OF MAGNET-MEDIATED MIRACLE

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BACKGROUND

Pacemaker-mediated tachycardia (PMT) is a reentrant dysrhythmia characterized by retrograde ventriculoatrial (VA) conduction that triggers atrial sensing, creating an "endless loop" of ventricular pacing. It most commonly occurs in patients with dual-chamber pacemakers and intact VA conduction, often precipitated by premature ventricular contractions or sinus node dysfunction [1,2]. Although well-described in electrophysiology literature, PMT remains underrecognized in the emergency setting. Prompt identification and treatment are crucial to avoid prolonged symptoms and unnecessary interventions.

CASE PRESENTATION

A 40-year-old male with a history of coronary artery disease, obesity, and recent dual-chamber pacemaker placement for sinus node dysfunction following myocardial infarction and torsades de pointes, presented to the emergency department with palpitations, diaphoresis, and a heart rate of 140 bpm. Electrocardiogram revealed a dual-paced rhythm with ventricular tracking, consistent with PMT. An emergency physician applied a magnet over the pacemaker, resulting in immediate resolution of the tachycardia and relief of symptoms. Following cardiology consultation, the magnet was removed, with atrial pacing resuming at a rate of 71 bpm. The patient remained asymptomatic during observation and was discharged with outpatient follow-up for device reprogramming.

DISCUSSION

This case underscores the importance of recognizing PMT in patients with pacemakers presenting with tachycardia. Magnet application is a simple, safe, and highly effective intervention that temporarily converts the device to asynchronous pacing, interrupting the arrhythmic loop. However, lack of familiarity with pacemaker functionality often leads to hesitation among staff and missed opportunities for rapid correction. Education on device troubleshooting—including magnet use—should be emphasized in emergency medicine training to close this knowledge gap [3-6].

CONCLUSIONS

Emergency physicians must be prepared to identify and manage pacemaker-related dysrhythmias, including PMT.

Rapid recognition and confident use of a magnet can resolve PMT within seconds, improving patient outcomes and reducing unnecessary delays or escalations in care.

47. UNCLOGGING THE POST-OP PIPELINE: PREDICTING THROMBOTIC EVENTS 30 DAYS AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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BACKGROUND

Laparoscopic cholecystectomy (LC), the gold standard for treating diseased gallbladders, ranks among the safest and most commonly performed surgical interventions. However, considerable debate persists regarding the optimal allocation of postoperative resources to prevent rare but potentially fatal complications such as thrombotic events. Due in part to inconsistent data on complication rates, current practices often either over-allocate resources to rare events (e.g. deep vein thrombosis, pulmonary embolism), or overlook them (e.g. stroke). To address these inefficiencies, this study aims to elucidate the prevalence and identify predictive factors of myocardial infarction, stroke, pulmonary embolism, and deep vein thrombosis within 30 days of LC. The findings can support personalized preventive strategies and optimize healthcare resource utilization, ultimately improving patient outcomes.

METHODS

The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database is a de-identified registry that includes surgical data from over 700 hospitals annually. The NSQIP database was queried to identify 222,456 patients who underwent laparoscopic cholecystectomy (CPT code 47562) between 2018 and 2022. Univariate logistic regression analyses were performed to identify associations between patient characteristics and thrombotic events. Variables demonstrating statistical significance were entered into multivariate logistic regression models for each event type. Four types of thrombotic events were studied: myocardial infarction, stroke, deep vein thrombosis, and pulmonary embolism. The patient characteristics analyzed were age, sex, BMI, ASA class, operative time, smoking, type of anesthesia, diabetes, functional status, dialysis or preoperative acute kidney injury, history of congestive heart failure, and cancer.

RESULTS

Prevalence:

Among 222,456 LC cases, 115 (0.052%) had stroke, 343 (0.154%) had DVT, 267 (0.120%) had PE, and 193 (0.087%) had MI.

UNIVARIATE ANALYSIS

MI was significantly associated with age, BMI, ASACLAS [3-2], history of congestive heart failure, pre-op creatinine levels (all $p < 0.05$).

Stroke was significantly associated with age, pre-op platelet levels, and diabetes (all $p < 0.05$).

PE was significantly associated with age, BMI, and operation time (all $p < 0.05$).

DVT was significantly associated with age, operation time, functional status, and pre-op INR (all $p < 0.05$).

MULTIVARIATE ANALYSIS

MI: ASA IV is 6.372 times more likely to have an MI than ASA II, and ASA III is 4.263 times more at risk than ASA II (all $p < 0.0001$). History of congestive heart failure is the next strongest predictor (OR 1.980), followed by pre-op INR (OR 1.291), pre-op creatinine (OR 1.206), age (OR 1.047), BMI (OR 0.960), pre-op platelet levels (OR 0.998), and operation time (OR 1.002).

Stroke: Diabetes emerged as the strongest predictor (OR 2.326), meaning a diabetic patient has 2.326 times the risk of stroke than a non-diabetic patient. The following factors in order of strength are: pre-op creatinine levels (OR 0.640), pre-op INR (OR 0.649), age (OR 1.064), BMI (OR 0.951), and pre-op platelet levels (0.995).

PE: The most significant predictor was pre-op INR (OR 1.375), followed by BMI (OR 1.035), pre-op creatinine levels (OR 1.029), age (OR 1.026), and operation time (OR 1.004).

DVT: ASACLAS (comparing class IV to class II) was the strongest predictor (OR 2.3551), followed by not-independent functional status (OR 2.127), pre-op INR (OR 1.354), pre-op creatinine levels (OR 1.110), age (OR 1.017), and operation time (1.004).

CONCLUSIONS

Thrombotic complications within 30 days of laparoscopic cholecystectomy are exceptionally uncommon (0.413%), yet distinct patient-level characteristics reliably identify those at increased risk. Advanced ASA class, congestive heart failure, and elevated preoperative INR and creatinine concentrate the hazard for myocardial infarction, while diabetes, low creatinine levels, and low preoperative INR dominate stroke risk. Elevated INR, obesity, and longer operations preferentially forecast pulmonary embolism, and a combination of high ASA class, loss of functional independence, high INR, and preoperative creatinine drives deep-vein thrombosis. These findings support a shift from blanket prophylaxis to targeted, data-driven prevention strategies. For example, intensified anticoagulation and cardiology co-management for ASA IV or CHF patients, strict glycemic control for diabetics, and early ambulation protocols for functionally dependent individuals. Embedding these predictors in peri-operative decision tools could curb unnecessary resource use, focus surveillance on the <1 % truly vulnerable cohort, and ultimately improve safety after this otherwise low-risk procedure.

48. RISK FACTORS ASSOCIATED WITH KRATOM DEATHS IN A SINGLE STATE

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BACKGROUND

Mitragynine (MTG), the active ingredient in kratom, a drug sold without regulation in the US has been implicated in many deaths. The concentration of MTG, drug interaction, and specific cause of death are uncertain. Risk factor identification may assist with appropriate warning labeling. The objective of this study is to identify risk factors and mechanism for death in patients with MTG exposure.

METHODS

We contacted each medical examiner (ME) office in the state of FL to obtain the ME records and autopsy reports over a 5-year period for all decedents with MTG identified as the cause of death. We excluded cases in which there was another more likely cause of death identified. Two trained personnel used a standardized data extraction tool to record information on demographics, medications, co-ingestions, medical history, serum levels of drugs, autopsy findings, location of death, and perimortem circumstances. We used descriptive statistics to identify trends amongst decedents and determined mean and ranges for MTG concentration in this population.

RESULTS

Forty cases of death by MTG were identified from the 9 out of 12 ME in FL who responded to our initial request. Four were excluded due to likely alternative causes of death. In the remaining subjects, 24(67%) were male, 32(89%) were white, mean BMI was 27.6, mean age was 39.8 years, and 35 cases were deemed to be accidental death. Mean MTG levels were 2234 ng/mL (range 12-6100). Postmortem toxicology revealed the presence of another medication or substance in 80.5% of cases including: 10 nicotine, 8 ethanol (median level 0.067 mg/dl), 4 cannabis, 2 methamphetamine, 11 benzodiazepines, and 31 with other prescription drugs. None of these patients had fentanyl, heroin, or morphine detected, but 3 had nontoxic concentrations of other narcotics. Autopsy findings were variable: 8 had signs of minor trauma (most commonly facial abrasions), none had tongue biting, 18 had cardiomegaly, 9 had coronary plaques, none had MI, 20 had pulmonary edema, 2 had aspiration, 18 had hepatomegaly, and 5 had cerebral edema. None of these physical findings were deemed to be the cause of death.

CONCLUSIONS

Although the mechanism remains uncertain, MTG deaths may be multifactorial. Subjects who died from kratom exposure were likely to be white males taking other medications, and have high concentrations of MTG.

49. CASE CONTROL STUDY OF PURE MITRAGYNE COMPARED TO POLYSUBSTANCE DEATHS

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BACKGROUND

Kratom has been used with increasing frequency in the US to manage pain, drug withdrawal, and mental health. The active ingredient, mitragynine (MTG), has been implicated in drug interactions and death. We sought to identify risk factors for death in subjects who died from MTG compared to polysubstance exposure with MTG present.

METHODS

We contacted each medical examiner (ME) in the state of FL to obtain the autopsy records and toxicology reports over a 5-year period for all decedents with MTG identified as the cause of death (MD). As a comparison group, we collected all of the patients with MTG present on autopsy, but not deemed to be the cause of death from a single county (PD). Four trained personnel used a standardized data extraction tool to record information on demographics, medications, co-ingestions, medical history, serum drug levels, autopsy findings, location of death, and perimortem circumstances. We used comparative statistics to determine differences in MTG concentration, other drug levels, and medical comorbidities between the groups.

RESULTS

We obtained 37 cases of MTG attributable death (MD) from 9 out of 12 medical examiners in our state. We excluded 4 of these due to a likely alternate cause of death. From a single county, we obtained 107 subjects who died from other causes (PD) but were found to have MTG present at autopsy, 3 of whom were excluded due to MTG being the primary cause of death. Demographic factors were similar in both groups with regards to age, BMI, race, and gender. In the PD group, fatal co-ingestions were the most common cause of death including 84 fentanyl (mean level 17.4 ng/mL), 6 morphine, 28 ethanol (mean 63g/dL), and 49 cocaine. Comparing MD v PD, more had no other substance in their system (19% v 0.9%), pulmonary edema (55.6% v 60.7%), aspiration (5.6% v 4.7%), coronary plaque (25% v 28%), hepatomegaly (50% v 25%), cerebral edema (13.9% v 9.3%), and cardiomegaly (50% v 30.1%). The mean MTG level for the MD group was 2235 ng/mL (95%CI 1607-2863) v 296 ng/mL (95%CI 217 – 375) for the PD group.

CONCLUSIONS

ME sometimes misclassify the cause of death in patients with MTG exposure. Majority of PD deaths are due to fentanyl. Subjects who died from MTG toxicity had significantly higher concentrations compared to those with other fatal substances. Kratom appears to be lethal and its ef-

fectiveness in management of addiction, pain, and mental health disorders may be overestimated.

50. MAKING SENSE OF CANCER: THERE'S AN APP FOR THAT!

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BACKGROUND

While early detection of cancer through screening improves treatment, screening is not prevalent due to misconceptions about screening necessity, barriers to screening accessibility, and fears associated with diagnosis and safety.

METHODS

Cancer Sense is an app that tests the user's risk for developing common cancers based on predictors corresponding to age, physical condition, general demographic information, family history, and genetic markers. An 11-question survey was completed by adult users of the app in order to determine the impact of the app on users' awareness of cancer risks and cancer screening, as well as on users' likelihood of getting screened.

RESULTS

Approximately a third of respondents were directed to get screened for cancer by the Cancer Sense app, and approximately two-thirds of these respondents planned to get screened for cancer following their result. All respondents who were directed to get screened for cancer noted a family history of cancer. Respondents who did not plan to get screened for cancer stated that they were either too busy or not concerned enough to do so.

CONCLUSIONS

The low likelihood of people pursuing cancer screening after accessing the Cancer Sense app reflects broader trends of individuals forgoing recommended cancer screening due to a variety of factors. Users acknowledged the helpfulness of the app as it provided more information about cancer symptoms and risk factors, but increased clarity can improve the effectiveness of the app overall.

51. TEMPORAL VARIABILITY AND FACTORS INFLUENCING RESUSCITATIVE TEE IN EMERGENCY AND CRITICAL CARE: A RTEECORE STUDY

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BACKGROUND

Resuscitative transesophageal echocardiography (TEE) has been shown to be impactful in assessing critically ill pa-

tients, characterizing shock, guiding procedures, and optimizing cardiopulmonary resuscitation. While previous research has described the variable availability of transcutaneous emergency ultrasound procedures, the temporal use and factors affecting the use of resuscitative TEE have not been investigated.

METHODS

We conducted an observational study analyzing prospectively collected data from the Resuscitative TEE Collaborative Registry (rTEECORE). The primary objective was to describe the temporal use of TEE in the Emergency Department (ED) and intensive care units (ICU). Data analyzed included setting, procedure time and duration, clinical indication, operator level, and hospital and unit-specific characteristics. The analysis included descriptive statistics and multivariate regression to explore factors that could explain usage variability.

RESULTS

Of 949 resuscitative TEEs performed across 26 hospitals, 683 (72%) were performed during daytime hours. Of those, 89.8% were performed by attendings and fellows. Compared to residents who showed no temporal difference, TEEs performed by attendings and fellows as primary operators were significantly more likely to occur during the day (7am-7pm). TEEs for hemodynamic monitoring were significantly more likely to occur during the day, while cardiac arrest indications showed no significant temporal variation. Procedure duration was longer during the day (23.5 min; SD 71.6) vs. at night (17.8 min; SD 15.8), but no differences were found by patient sex or race. The lack of credentialed faculty to both supervise and perform TEE was identified as a potential barrier to explaining the temporal variability of TEEs.

CONCLUSIONS

This study highlights significant temporal variability in the use of resuscitative TEE, with most procedures occurring during daytime hours and being performed by attendings and fellows.

The findings from this large multicenter sample also suggest that the availability of credentialed faculty may play a crucial role in shaping TEE usage patterns and suggest that factors such as staffing may affect nighttime TEE access more than physical resource availability.

52. ASSESSING THE EFFECTIVENESS OF SDOH SCREENING IN EMERGENCY DEPARTMENTS AND IMPACT ON PATIENT CARE COORDINATION

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BACKGROUND

Emergency Departments (EDs) serve as critical access points for patients with socio-economic challenges. These

patients often have unmet social needs such as food insecurity, lack of stable housing, or inadequate transportation that can significantly affect their health outcomes. Screening for Social Determinants of Health (SDOH) in EDs could help identify these unmet needs, enabling targeted interventions that may improve patient care. However, the effectiveness of SDOH screening in improving health outcomes and healthcare utilization has not been well-established. This study aims to evaluate the impact of SDOH screening in the ED on patient care coordination and healthcare utilization.

METHODS

This study was conducted at an adult level one trauma center over the course of 3 months. Patients with altered mental status were excluded from this study.

The screening was conducted using a brief validated SDOH questionnaire by the nurse while triaging the patient. Patients were asked to answer questions about medicine/medical supplies needs, food insecurity, housing instability, financial stress, social isolation, access to transportation and safe living conditions.

Patients who screened positive were seen and evaluated by a care coordinator and provided with relevant community resources based on their needs.

RESULTS

A total of 79 percent of patients seen in the ED over the study period were screened for SDOH. This resulted in 3,915 referrals to the patient care coordinator team in the ED. Among the various Social Determinants of Health, the highest needs identified were related to medicine/medical supplies, followed by housing and food.

Patients identified with medication needs were often referred to in-house pharmacy at the hospital, while those with other needs were connected to community resources through findhelp.org and additional available resources.

CONCLUSIONS

In conclusion, screening patients for SDOH in the ED proved to be a valuable tool for identifying and addressing critical patient needs. With 79% of patients screened, the process resulted in 3,915 referrals to the care coordinator team, highlighting significant gaps in access to medicine, housing and food. By connecting patients to in-house pharmacy services and community resources, we were able to offer targeted support. This screening initiative highlights the significance of addressing SDOH in the emergency department.

53. CLINICAL MARKERS OF DEHISCENCE, SURGICAL SITE, AND ORGAN SPACE INFECTIONS WITHIN 30 DAYS OF LAPAROSCOPIC CHOLECYSTECTOMY

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BACKGROUND

Surgical site infections (SSI), including superficial, deep, and organ-space infections, as well as wound dehiscence, remain significant complications even in low-risk procedures like laparoscopic cholecystectomy (LC). These events increase healthcare utilization and can delay recovery. This study aimed to identify clinical predictors of these infectious complications within 30 days of LC, using an extensive national surgical registry.

METHODS

The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database was queried for patients undergoing laparoscopic cholecystectomy between 2018 and 2022. Nominal logistic regression models were constructed to identify predictors of:

- Superficial incisional surgical site infection (SUPINFEC)
- Deep incisional SSI (WNDINF)
- Organ/space SSI (ORGSPCSSI)
- Wound dehiscence (DEHIS)

Predictors analyzed included BMI, age, sex, diabetes, ASA class, functional status, steroid use, smoking, prealbumin levels, and others. Significance was defined as $p < 0.05$.

RESULTS

SUPERFICIAL SSI (N = 21,292)

BMI was the strongest independent predictor ($p < 0.0001$; OR per unit = 1.03), followed by operative time ($p < 0.0001$). Smoking, ASA class, and steroid use were also significant. AUC = 0.6137.

DEEP SSI (N = 218,245)

Significant predictors included BMI ($p = 0.0039$), diabetes ($p = 0.0137$), operative time ($p < 0.0001$), and age ($p = 0.0008$). The ASA classification showed no independent association. AUC = 0.7415.

ORGAN/SPACE SSI (N = 170,883)

Operative time ($p < 0.0001$), sex ($p < 0.0001$; male at higher risk), ASA class ($p < 0.0001$), diabetes ($p < 0.0001$), and steroid use ($p = 0.0477$) were all significantly associated. Preoperative cancer and renal failure were also strong predictors ($p < 0.001$). AUC = 0.7482.

WOUND DEHISCENCE (N = 155,275)

BMI ($p = 0.0039$) and sex ($p = 0.0083$; male sex associated with higher risk) were the only significant predictors. The model had moderate discrimination (AUC = 0.6631).

CONCLUSIONS

Across multiple types of postoperative infections following laparoscopic cholecystectomy, BMI and operative time consistently emerged as strong independent predictors. Male

sex, diabetes, and steroid use also played significant roles in select complications. Organ-space infections showed the strongest model performance (AUC = 0.7482), while wound dehiscence had the weakest (AUC = 0.6631). These results underscore the importance of risk stratification and opti-

mization in patients undergoing LC, particularly those with obesity or prolonged operative times.

Submitted: October 01, 2025 EDT. Accepted: October 01, 2025 EDT. Published: October 16, 2025 EDT.



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