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Predicting the odds of persistent renal failure requiring dialysis in patients receiving elective, open thoracoabdominal aortic aneurysm repairs.

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Background: Renal failure remains a significant morbid complication after open thoracoabdominal aortic aneurysm repair, even for patients in good health and undergoing repair in experienced centers.

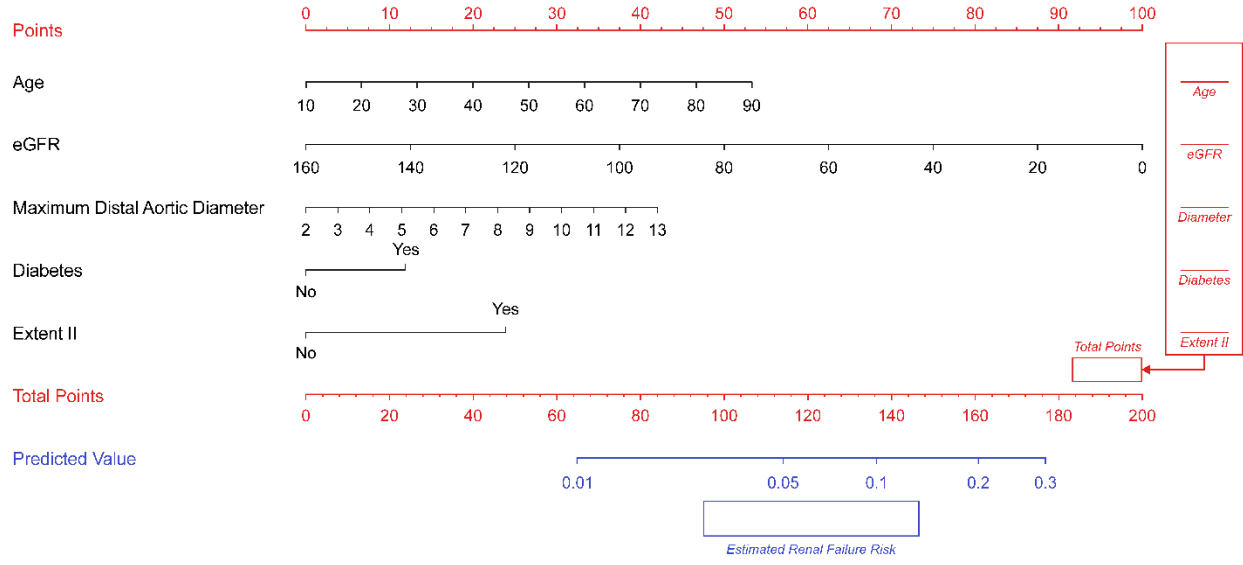
Objective: For patients considering an elective, open thoracoabdominal aortic aneurysm repair, rigorous risk estimation for patient-level complications is vital and is the purpose of this study.

Method: Data from 2,854 patients undergoing elective, open TAAA repair between 1986 and 2024 from a single practice were analyzed. This cohort was split into two groups: those who had persistent renal failure and those who did not. Persistent renal failure was defined as the need for dialysis at time of operative discharge (including any hospital transfer) or death. Operative death is defined as any death within 30 days of surgery or prior to discharge/transfer. Four predictive models were evaluated: multivariable logistic regression (MLR), random forests (RF), support vector machines (SVM), and gradient boosting machines (GBM). The predictive effectiveness of each were compared based on the test C-statistic (C) from an 80:20, 1000 iteration cross validation scheme. The MLR model was also converted into a nomogram to aid in patient counseling.

Results: Persistent renal failure necessitating dialysis occurred in 221 (7.7%) patients. Of those patients, 100 (45.2%) suffered an operative death. Additionally, of the 199 (7.0%) operative deaths in the cohort, 99 (49.7%) of these were on dialysis at the time of death. The persistent renal failure group were older (median=71 [Q1=65, Q3=76] vs. 67 [58, 72]; $P<.001$), had higher preoperative serum creatinine values (1.22 [1.03, 1.70] vs. 1.1 [0.9, 1.3]; $P<.001$) and larger aortas (6.3 cm [5.7, 7.1] vs. 6.0 cm [5.5, 7.0]; $P<.001$), as well as higher rates of diabetes (11.3% vs. 7.4%; $P=.047$). Of the 4 models, The MLR model was the most effective (C=0.70 [0.67, 0.72]), with the highest performing machine learning model, the gradient boosting machine, displaying similar efficacy (C=0.69 [0.67, 0.72]). The final MLR model included 5 predictors: age (OR=1.02, $P=.005$), eGFR (0.98, $<.001$), maximum distal aortic diameter in cm (1.14, .04), diabetes (1.49, .08), and a Crawford extent II repair (2.23, $<.001$). The MLR model was then converted into a nomogram, which is presented in the associated figure.

Conclusion: In this study we built a model to predict persistent renal failure requiring dialysis in patients undergoing elective, open TAAA repair using exclusively preoperative factors. We then converted this model into a nomogram in order to aid surgeons in preoperative patient counseling.

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Presidential Session | Education | Ophthalmic Surgery
Comparative Analysis of Readability Levels of Oculoplastic Surgery Patient Information on the Oculofacial Society Website and ChatGPT

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Background: Effective patient education materials (PEM) are essential for informed decision-making in oculoplastic surgery. Patients can explore this on AI platforms, like ChatGPT; however, it is unknown if the readability of these materials exceeds the average patient's health literacy, creating barriers to understanding.

Objective: The study aims to determine if the readability of oculoplastic surgery PEM from the Oculofacial Society website (OSW) and ChatGPT meet AMA's recommended 6th-grade reading level.

Method: PEM on Blepharoptosis, Ectropion, Thyroid Eye Disease, Blocked Tear Duct, and Stye were obtained from OSW. Identical prompts from the OSW were input into ChatGPT. The Flesch-Reading Ease Score (FRES) and Flesch-Kincaid Grade Level (FKGL) were calculated. Statistical analysis was performed using a two-sample t-test ($p < 0.05$).

Results: OSW provided easier-to-read information than ChatGPT when compared to a 6th-grade reading standard [OSW (FRES: 42-52.2, FKGL: 9.9-11.9), ChatGPT (FRES: 24.1-42, FKGL: 10.6-12.8)]. A higher FRES and lower FKGL indicate easier readability. Statistical significance was found when comparing the FRES of OSW to ChatGPT for Thyroid Eye Disease ($p = 0.048$) and Blocked Tear Duct ($p = 0.038$). Both OSW and ChatGPT provided PEM above the 6th-grade reading standard for patient education materials (all $p < 0.05$).

Conclusion: While OSW was more accessible than ChatGPT, both sources exceeded the recommended 6th-grade AMA reading level. Future research should focus on refining PEM to meet AMA guidelines and optimize patient understanding of surgical procedures.

Table 1. Readability levels of OSW versus ChatGPT.

Article	Mean FRES (Readability)	p-value	Mean FKGL (readability)	p-value
Blepharoptosis: OSW	42 (College)	0.00127573	11.9 (High School)	0.000843854
Blepharoptosis: ChatGPT	29.1 (College Graduate)	1.77E-05	12.7 (College)	1.10E-05
Thyroid Eye Disease: OSW	46.8 (College)	0.00246947	11.1 (High School)	0.000136724
Thyroid Eye Disease: ChatGPT	24.1 (College Graduate)	0.00250549	12.8 (College)	4.12E-05
Blocked Tear Duct: OSW	49.9 (College)	0.00014799	11.3 (High School)	1.46E-05
Blocked Tear Duct: ChatGPT	36.1 (College)	0.00011707	10.7 (High School)	0.000149894
Stye: OSW	52.2 (10th to 12th Grade)	0.00011336	9.9 (High School)	0.000322301
Stye: ChatGPT	42 (College)	0.04676055	10.6 (High School)	0.001938831

Presidential Session | Basic/Transactional Science | Hepatobiliary and Pancreas
The anti-inflammatory effect of small molecular compound CYD0630 occurs through the canonical NF- κ B-regulated Stat3 pathway in hepatic stellate cells
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Background: Hepatic fibrosis arises from dysregulated wound healing, primarily driven by hepatic stellate cell (HSC) activation. Pro-inflammatory NF- κ B and STAT3 pathways are significantly upregulated in liver fibrogenesis, but interactions in HSCs remain incompletely understood. Oridonin and synthetic analogs have demonstrated potent anti-inflammatory properties, inhibiting NF- κ B and STAT3 pathways. CYD0630, a novel oridonin analog designed to enhance potency and specificity in targeting HSCs, has demonstrated potent antiproliferative effects and improved specificity against multiple cancer types. However, its efficacy in limiting inflammatory signaling is unknown.

Objective: This study explores the therapeutic potential of CYD0630 in limiting hepatic inflammatory signaling. We hypothesize that inflammation will be minimized via the NF- κ B and STAT3 pathways.

Method: Activated human HSC line LX-2 was treated with CYD0630 or other chemical inhibitors followed by treatment with TNF α . Nuclear and cytosolic proteins were isolated for Western blots or immunofluorescence assay. Secretion of cytokines was measured by ELISA.

Results: CYD0630 demonstrated dose-dependent suppression of TNF α -induced pro-inflammatory ICAM-1, IL-6, and IL-1 β , similar to STAT3 and NF- κ B inhibitors. Additionally, CYD0630 inhibited NF- κ B p65 nuclear translocation and DNA binding, suppressing phosphorylation of NF- κ B inhibitory protein I κ B α and upstream IKK α / β . In LX-2 cells, TNF α induced Stat3 phosphorylation of T705, suppressing nuclear translocation and DNA binding. NF- κ B inhibitors Bay11-7082, PDTC, and p65 siRNA also suppressed TNF α -induced Stat3 activation, while Stat3 inhibitors did not affect NF- κ B activation, indicating that STAT3 activation occurs downstream of NF- κ B activation.

Conclusion: The anti-inflammatory effect of CYD0630 is similar to NF- κ B inhibitors and may occur through inhibition of canonical NF- κ B-regulated STAT3 pathway.

Early tracheostomy allows earlier ventilator liberation, shorter post-transplant length of stay in patients requiring pre-operative intubation

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Background: Liver transplant (LT) recipients are at risk for post-LT respiratory complications including prolonged mechanical ventilation.

Objective: This study aimed to assess optimal timing for tracheostomy of LT recipients to improve outcomes.

Method: Records of patients receiving post-LT tracheostomy were systematically reviewed for demographics, cause of liver failure, timing of intubation and tracheostomy, days to ventilator liberation (VL), incidence of complications, and post-LT length of stay (LOS). Early tracheostomy (ET) was defined as ≤ 14 days post-LT and delayed tracheostomy (DT) > 14 days post-LT.

Results: 191 patients were evaluated, with 129 ET and 62 DT. ET patients had higher average MELD scores (38 vs 34, $p=0.001$) and were more likely to have alcohol-induced liver disease ($p=0.0001$). ET patients had fewer days to VL (18.55 vs 27.10, $p=0.0167$) and shorter post-LT LOS (55 vs 75 days, $p=0.0037$). Patients intubated pre-transplant (iPT) versus intubated in the OR day of transplant (iOR), had higher MELD scores (38 vs 30, $p<0.0001$). Only iPT patients who underwent ET had fewer days to VL (19 vs 31 days, $p=0.0057$), and shorter LOS (54 vs 70 days, $p=0.0108$), whereas iOR patients had no differences in ET vs DT outcomes. There was no difference in return to ventilator after initial liberation, pneumonia incidence, or tracheostomy-related complications.

Conclusion: Early tracheostomy performed within 14 days after LT resulted in earlier ventilator liberation and shorter hospital LOS, especially in patients requiring pre-transplant intubation. Tracheostomy timing was not associated with risk of pneumonia or tracheostomy-related complications.

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Tracheostomy post-transplant				
	Ventilator Liberation (days)	P value	Post-op LOS	P value
Early tracheostomy n = 129	18.5	0.0167*	55.3	0.0037*
Late tracheostomy n = 62	27.1		74.8	
Intubation pre-transplant (IPT)				
	Ventilator Liberation (days)	P value	Post-op LOS	P value
Early tracheostomy n = 116	18.7	0.0057*	53.6	0.0437*
Late tracheostomy n = 37	31.3		70.1129	
Intubation in the OR (iOR)				
	Ventilator Liberation (days)	P value	Post-op LOS	P value
Early tracheostomy n = 13	16.9	0.53	69.9	0.4197
Late tracheostomy n = 25	20.9		81.8	
* <i>p</i> <0.005 statistically significant				
LOS = hospital length of stay in days post-transplant				
Table 1: outcome variables stratified by early vs late tracheostomy post-liver transplant in 191 patients				

Circulating factors after burn injury induce cardiomyopathy.

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UTMB

Background: Burn injury leads to the systemic release of inflammatory factors, leading to organ dysfunction. In cardiomyocytes, it is associated with mitochondrial dysfunction via interruption of the PDE5-cGMP-PKG pathway.

Objective: This study examined whether burn-induced mitochondrial dysfunction in cardiomyocytes is linked to circulating inflammatory factors and if activating the PDE5-cGMP-PKG pathway could improve function.

Method: Serum was obtained from unburned and 60% TBSA scald burned Sprague Dawley rats with or without sildenafil treatment. Human cardiomyocytes were incubated with or without rat serum: sham-serum, burn-serum (24 hpb-serum), and burn serum with sildenafil (24 hpb/SIL-serum). Biochemical assay and RNA sequencing were performed. ATP levels, mitochondrial membrane integrity, and ROS levels were measured.

Results: In the 24 hpb-serum group, cGMP levels decreased, while cardiac troponin I, IFN-gamma, IL-1 beta, IL-6, and IL-10 expression levels increased. Fluorescence microscopy showed reduced cell viability and proliferation, along with increased cell cytotoxicity, ROS production, and apoptosis. Mitochondrial dysfunction was evident through reduced ATP production, compromised membrane integrity, and decreased mitochondrial basal respiration, proton leak, and maximal respiration. Treatment with sildenafil significantly improved these mitochondrial and cellular functions to sham levels.

Conclusion: Burn injury elevates inflammatory factors that correlate with marked cardiomyocyte mitochondrial dysfunction. This study demonstrates that mitochondrial impairment, driven by the disruption of the PDE5-cGMP-PKG pathway, can be reversed by sildenafil, restoring mitochondrial function to near pre-injury levels. These findings may improve understanding of the pathogenic mechanism of circulating factors released after burn injury and preliminary genomic evidence for the mechanism of cardiomyopathy after burn injury.

Impact of Preexisting Substance Use Disorders on Prolonged Opioid Use and Postoperative Complications After Burns

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Background: Previous literature has highlighted the association between preexisting substance use disorders (SUDs) and adverse postoperative outcomes such as wound infections, postprocedural pain, and wound healing disruptions in burn patients. The impact of preexisting SUDs on prolonged opioid use and postoperative complications remains unclear. We hypothesize that preexisting SUDs increase the risk of opioid dependence and contribute to adverse postoperative complications in burn patients. This retrospective cohort study evaluates the effect of alcohol, cannabis, and tobacco SUDs on long-term opioid use and postoperative complications in adult burn patients.

Objective: The objective of this study is to evaluate the impact of preexisting SUDs – specifically alcohol, cannabis, and tobacco – on long-term opioid use and postoperative complications in adult burn patients. We aim to assess whether these SUDs increase the risk of opioid dependence and contribute to adverse postoperative outcomes, such as wound infections, postprocedural pain, and disruptions in wound healing.

Method: The TriNetX database was queried to identify adult burn patients (aged 18+) with preexisting diagnoses of alcohol, cannabis, or tobacco SUDs who sustained burn injuries. Patients were matched to a non-SUD cohort based on demographics, mental health conditions, pain syndromes, and burn severity using propensity score matching. Outcomes measured included prolonged opioid use and postoperative complications, such as wound infections, postprocedural pain, and wound healing disruptions. Risk ratios (RR) were calculated at 90 days and 1-year post-injury. Statistical significance was set at $p < 0.05$.

Results: Before matching, 24,940 alcohol SUD, 20,274 cannabis SUD, and 77,543 tobacco SUD patients were identified with burn injuries. After matching, SUD patients had significantly higher risk ratios for prolonged opioid use at 90 days (Alcohol: RR 1.899, Cannabis: RR 1.832, Tobacco: RR 1.568) and 365 days (Alcohol: RR 1.798, Cannabis: RR 1.650, Tobacco: RR 1.581) compared to non-SUD patients. Similarly, the risk of wound infections was elevated at 90 days (Alcohol: RR 3.702, Cannabis: RR 2.864, Tobacco: RR 2.157) and 365 days (Alcohol: RR 2.452, Cannabis: RR 2.144, Tobacco: RR 1.898). SUD patients also exhibited an increased risk of postprocedural pain at 90 days (Alcohol: RR 2.122, Cannabis: RR 2.307, Tobacco: RR 1.636) and 365 days (Alcohol: RR 1.761, Cannabis: RR 1.802, Tobacco: RR 1.578), as well as higher risks for wound healing disruptions at 90 days (Alcohol: RR 2.472, Cannabis: RR 2.906, Tobacco: RR 1.752) and 365 days (Alcohol: RR 2.001, Cannabis: RR 1.897, Tobacco: RR 1.555). All findings were statistically significant ($p < 0.005$).

Conclusion: Burn patients with preexisting SUDs face a significantly higher risk of prolonged opioid use and postoperative complications. Burn patients with preexisting alcohol-related disorders showed the most significant increase in opioid use. Cannabis use was associated with the highest rate of postoperative complications at 3 and 12 months after burn.

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Table 1: Risk Ratios for Opioid Use and Measured Outcomes at 3 Months Post-Burn

3 Months Post-Burn									
Measured Outcomes	Alcohol SUD			Cannabis SUD			Tobacco SUD		
	RR	CI	p	RR	CI	p	RR	CI	p
Opioid Use	1.899	[1.714, 2.104]	< 0.0001	1.832	[1.649, 2.035]	< 0.0001	1.568	[1.488, 1.652]	< 0.0001
Wound Infection	3.702	[2.474, 5.541]	< 0.0001	2.864	[1.903, 4.311]	< 0.0001	2.157	[1.745, 2.667]	< 0.0001
Postprocedural Pain	2.122	[1.761, 2.555]	< 0.0001	2.307	[1.868, 2.848]	< 0.0001	1.636	[1.461, 1.832]	< 0.0001
Disruption of Wound	2.472	[1.408, 4.342]	0.0191	2.906	[1.417, 5.962]	0.0023	1.752	[1.246, 2.463]	0.0011

Table 2: Risk Ratios for Opioid Use and Measured Outcomes at 12 Months Post-Burn

12 Months Post-Burn									
Measured Outcomes	Alcohol SUD			Cannabis SUD			Tobacco SUD		
	RR	CI	p	RR	CI	p	RR	CI	p
Opioid Use	1.798	[1.660, 1.949]	< 0.0001	1.650	[1.515, 1.796]	< 0.0001	1.581	[1.518, 1.647]	< 0.0001
Wound Infection	2.452	[1.903, 3.159]	< 0.0001	2.144	[1.621, 2.835]	< 0.0001	1.898	[1.637, 2.202]	< 0.0001
Postprocedural Pain	1.761	[1.537, 2.019]	< 0.0001	1.802	[1.545, 2.102]	< 0.0001	1.578	[1.452, 1.715]	< 0.0001
Disruption of Wound	2.001	[1.356, 2.953]	0.0012	1.897	[1.201, 2.997]	0.0053	1.555	[1.229, 1.967]	0.0002

Presidential Session | Education | History of Surgery

Necks, Knives, and Nobel Prizes: Thyroid Surgery Through the Ages

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Background: The history of thyroid surgery is a long and fascinating journey, beginning as early as 2700 BC when the Chinese recognized goiter and used burnt sponge and seaweed to treat it. Although Greek physician Galen (129–200 AD) described the thyroid gland, its function remained a mystery. The first recorded thyroid surgery dates back to 952 AD, when Albucasis excised a large goiter, though such procedures were perilous due to poor anatomy knowledge and lack of anesthesia.

Objective: In the 16th and 17th centuries, thyroid surgery began evolving, but mortality remained high. Pierre Joseph Desault's partial thyroidectomy in 1791 marked a significant milestone. However, in the mid-19th century, William Halsted highlighted a 40% mortality rate for thyroid surgeries in his 'The operative history of goitre'. The French Academy of Medicine also banned thyroid operations in 1850 due to the high mortality associated with them.

The turning point came with the introduction of anesthesia in 1846 and antiseptic techniques in the 1860s, which drastically improved surgical outcomes.

Method: Theodor Billroth and Theodor Kocher revolutionized thyroid surgery. Kocher, the "father of thyroid surgery," reduced mortality rates to under 5% through meticulous dissection and vascular control. His recognition of hypothyroidism following total thyroidectomy led to the development of subtotal thyroidectomy. For his groundbreaking work, Kocher received the Nobel Prize in 1909.

Results: An interesting observation in the evolution of thyroid surgery is the contrasting postoperative complications experienced by these two pioneering surgeons. Billroth, despite his limited encounters with myxedema following total thyroidectomy, frequently encountered tetany as a significant postoperative complication. In contrast, Kocher rarely observed tetany in his patients. This discrepancy in outcomes has been noted by Halsted, who had the unique opportunity to observe both surgeons. Halsted hypothesized that the difference in postoperative complications could be attributed to variations in their surgical approaches and temperaments. These observations highlight the importance of surgical technique in influencing patient outcomes in thyroid surgery.

Conclusion: The 20th century saw further advancements, particularly Thomas Peel Dunhill's near-total thyroidectomy, which minimized hypothyroidism and reduced mortality. In recent years, thyroid surgery has shifted toward minimally invasive techniques, including video-assisted and robotic thyroidectomies, which offer better cosmetic outcomes and faster recovery. Intraoperative nerve monitoring has also reduced complications such as vocal cord paralysis. This evolution from a high-risk procedure to one of precision and safety demonstrates the relentless pursuit of surgical excellence in thyroid care.

Presidential Session | Basic/Transactional Science | Trauma/Burn/Critical Care
C60-Serinol Modulates Oxidative Stress and Immune Responses in Monocyte-Derived Dendritic Cells and Mononuclear Cells: Implications for TBI-Related Inflammation

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Background: Secondary injury following TBI involves oxidative stress and inflammation driven by reactive oxygen species (ROS). C60-serinol (C60ser), a fullerene derivative, demonstrated protective effects against oxidative stress in vitro, suggesting potential as a therapeutic agent in TBI-related oxidative stress.

Objective: This study investigated if C60ser reduces peripheral inflammation and ROS production in monocyte-derived dendritic cells (moDCs) and mononuclear cells (MNCs).

Method: Umbilical cord CD14+ monocytes were stimulated with IL-4 and GM-CSF for 5 days. Immature moDCs were activated with lipopolysaccharide (LPS) or left unstimulated, with or without C60ser. ROS levels were measured at 24 hours via flow cytometry using H2DCFDA probes. To assess moDC function, MNCs from allogeneic peripheral blood donors were co-cultured with moDCs for 6 days. MNC proliferation was assessed by flow cytometry while IFN- γ and IL-4 secretion were measured in culture supernatants by ELISA.

Results: C60ser treatment decreased ROS in activated moDCs (3023 vs 5868 MFI in untreated) but increased ROS in immature moDCs (2345 vs 1796 MFI in untreated). Priming with C60ser reduced MNC proliferation (38.6% vs 43.4%) and IL-4 production (77.26 vs 40.71 pg/mL, $p < 0.001$) in response to activated moDCs, with no significant change in IFN- γ levels. Priming of immature moDCs with C60ser lowered the stimulation of MNC proliferation (41% vs 46.5%), increased IL-4 secretion (44.35 vs 4.21 pg/ml, $p < 0.001$), and decreased IFN- γ levels (961.80 vs 0.00 pg/ml, $p < 0.001$).

Conclusion: C60ser modulates ROS levels and immune cell responses in vitro, suggesting peripheral inflammation mitigation. Future research will explore C60ser's neuroprotective properties in TBI-related neuroinflammation using a blood-brain barrier triculture model.

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C60ser Priming Effect on IL-4

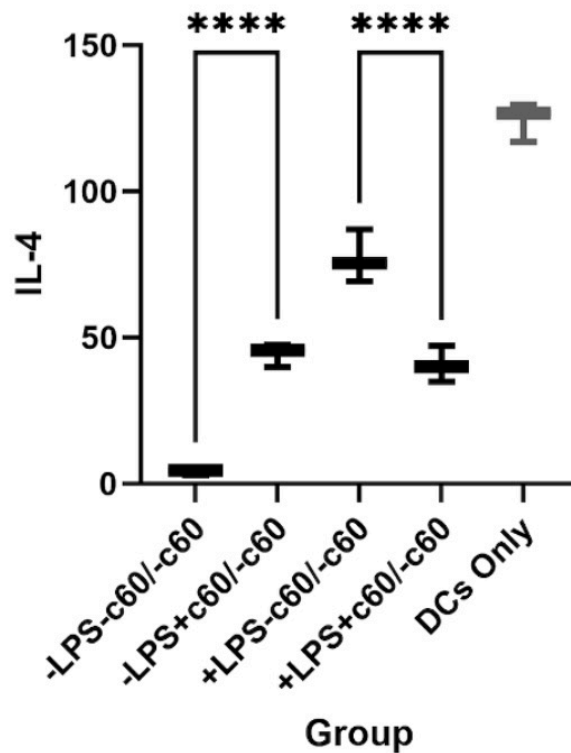


Figure 5: B: IL-4 levels in moDC-MNC co-cultures. C60ser priming significantly reduced IL-4 production in response to activated moDCs (**** $p < 0.001$) and increased IL-4 secretion when priming immature moDCs (**** $p < 0.001$) compared to respective controls. Significance was determined using unpaired t-tests for comparisons between C60ser-primed and control conditions.

Hemoglobin of 8? Not So Great: Decrease in 3 or More Units of Hemoglobin Following Revascularization, Thrombectomy or Bypass Procedures is Associated with an Increased Risk of Myocardial Infarction and Mortality

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Background: Patients undergoing vascular surgery procedures have unique physiology secondary to comorbidities, which put them at increased risk of complications from intraoperative hemorrhage. We postulate that the relative change in hemoglobin is an important factor contributing to adverse outcomes.

Objective: To evaluate the risk of myocardial infarction and mortality after revascularization procedures of the aorta and lower extremities based on perioperative changes in hemoglobin.

Method: The TriNetX database was utilized to perform a retrospective cohort study of patients undergoing descending or abdominal aortic, iliac or lower extremity revascularization procedures. Patients were stratified based on perioperative hemoglobin change into two cohorts: 1-3 g/dL and 3-5 g/dL groups. Patients who received a transfusion at any point perioperatively and who had post-operative hemoglobin of > 8 g/dL were excluded. Patients were propensity score matched. Rates of myocardial infarction and mortality within 3 months of the procedure were compared between groups using chi-square analysis.

Results: After matching, a total of 4,126 patients were identified in each cohort. Patients who had a 3-5 g/dL change in hemoglobin had increased risk of myocardial infarction relative risk (RR) of 0.016 ($p < 0.02$) and mortality with RR of 0.019 ($p < 0.004$) compared to those who had a 1-3 g/dL change.

Conclusion: A hemoglobin of 8 g/dL as a guideline for blood transfusion in vascular surgery is insufficient. Patients who have more significant changes in perioperative hemoglobin levels are at greater risk of myocardial infarction and mortality. Aggressive blood resuscitation intraoperatively may avert these complications.

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Table 1: Risk Analysis of Mortality Within 3 Months Based on Change in Hemoglobin Post Op

Cohort	Patients in cohort	Patients with outcome	Risk	
1 bypass, revasc, and Δ hgb 1-3 bl 12; txfs exclude	4,126	232	0.056	
2 bypass, revasc, and Δhgb 3-5 bl 12; txfs exclude	4,126	312	0.076	
		95% CI	z	p
Risk Difference	-0.019	(-0.030, -0.009)	-3.549	0.000
Risk Ratio	0.744	(0.631, 0.876)	N/A	N/A
Odds Ratio	0.728	(0.611, 0.868)	N/A	N/A

Prehospital airway management in patients with severe traumatic brain injury

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Background: Severe traumatic brain injury (TBI) is an indication for definitive airway management in the emergency department. However, conflicting data exists on whether advanced airway management in the prehospital period improves outcomes. The aim of this study is to compare outcomes in trauma patients with severe TBI managed with or without a prehospital advanced airway (PHAA).

Objective: The aim of this study is to compare outcomes in trauma patients with severe TBI managed with or without a prehospital advanced airway (PHAA).

Method: Retrospective review of adult patients with a prehospital GCS = 8 and confirmed severe TBI (head AIS \geq 3) who were transported by EMS to our ACS verified Level 1 trauma center from 2014-2022. Data collected included demographics, admission physiology, and injury severity score (ISS). Patients who received prehospital endotracheal intubation, supraglottic airway device placement, or cricothyrotomy were categorized into the PHAA group. PHAA and non-PHAA groups were compared by univariate and multivariate analysis. The primary outcome was mortality.

Results: 731 patients met inclusion criteria, 43% received PHAA and 57% did not. The two groups were similar with regards to age (41 vs. 41, $p=0.70$) and male gender (77% vs. 76%, $p=0.80$), but the PHAA group was more often white/non-Hispanic (59% vs. 50%, $p=0.03$), experienced less blunt trauma (83% vs. 93%, $p<0.001$), was more often transported by air EMS (55% vs. 4%, $p<0.001$), more often had prehospital (31% vs. 20%, $p<0.0001$) and ED (34% vs. 20%, $p<0.0001$) hypotension, and had a higher ISS (35 vs. 30, $p<0.001$). Mortality was higher in patients with PHAA (57% vs. 33%, $p<0.001$). Multivariate analysis revealed that PHAA was independently associated with mortality (Adjusted OR [95% CI]; 3.9 [2.3-6.8] $p<0.001$), see table.

Conclusion: PHAA in trauma patients with severe TBI is independently associated with higher mortality. The priority in prehospital management for trauma patients with severe TBI should be non-invasive airway management and rapid transport to a trauma center.

	Adjusted OR	95% CI	p-value
Age	1.03	1.01-1.04	<0.001
Head AIS	2.2	1.8-2.8	<0.001
Prehospital Hypotension	4.0	2.5-6.2	<0.001
PHAA	3.9	2.3-6.8	<0.001
Penetrating Trauma	2.3	1.2-4.3	<0.001
Ground Transport	2.0	1.1-3.4	<0.001

**Evolving Trends in Multimodal Care for Pancreatic Neuroendocrine Liver Metastases:
An Analysis of the National Cancer Database**

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Background: The management of pancreatic neuroendocrine tumors with liver metastasis (PNELM) is complex due to diverse treatment modalities and inconsistent guidelines.

Objective: To explore evolving treatment patterns for PNELM and identify factors associated with treatment approach.

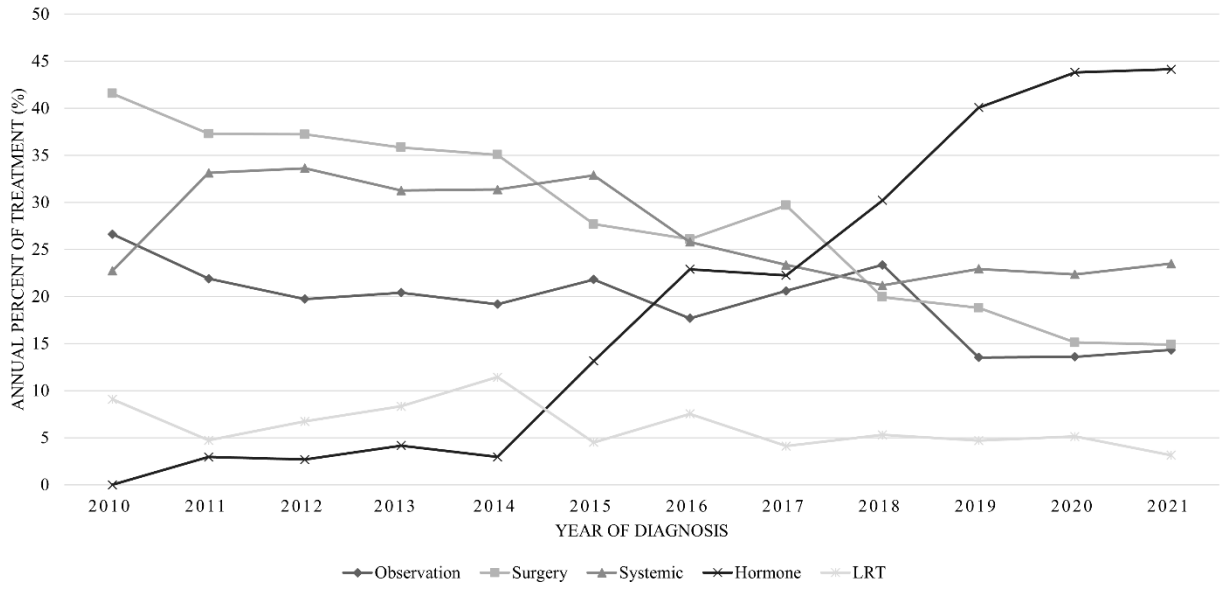
Method: Using NCDB data (2010-2021), we identified patients with grade 1/2 PNELM. Treatment modalities were categorized into surveillance, surgery (primary tumor/metastases/both), hormone therapy (lanreotide/octreotide), systemic therapy (chemotherapy/targeted therapy/immunotherapy), and locoregional therapy (LRT; radiation/ peptide receptor radionuclide therapy/transarterial embolization). Trends were analyzed over time, and multivariable logistic regression was employed to identify factors associated with hormone therapy use.

Results: Of 3,362 patients, 2,721 (81%) received treatment, while 641 (19%) underwent surveillance. Systemic therapy (35%) and surgery (30%) were the most common treatments, followed by hormone therapy (27%) and LRT (11%). Initial treatments included surgery (n=903, 26%), systemic therapy (n=902, 26%), hormone therapy (n=768, 23%), observation (n=641, 19%) and LRT (n=204, 6%). Hormone therapy usage increased, while surgery declined over time, with less variation in other modalities. Multivariate analysis showed the use of hormone therapy increased significantly over time (OR:1.85 (95%CI:1.53-2.21), $p < .0001$). Patients of Black (OR:0.54 (95%CI:0.29-0.98), $p = 0.043$) and Asian backgrounds (OR:0.39 (95%CI:0.16-0.96), $p = 0.039$), and those treated at an integrated network cancer program (OR:0.42 (95%CI:0.19-0.96), $p = 0.40$), were less likely to receive hormone therapy.

Conclusion: This study demonstrates an increase in the use of hormonal therapy to treat PNELM over time while the use of surgical resection decreased, and hormonal therapy use varied based on clinical and social factors. This evolving therapeutic landscape underscores the importance of tailored strategies for optimal outcomes.

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TRENDS IN FIRST COURSE OF TREATMENT FOR GRADE 1 AND 2 PNELM



The Effect of Glucagon-Like Peptide 1 Receptor Agonists and Thyroid Cancer

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University of Texas Medical Branch - Galveston

Background: Preclinical studies suggested that glucagon-like peptide-1 receptor agonists (GLP-1RAs) may increase the risk of thyroid cancer.

Objective: We hypothesized that GLP-1RA use does not increase the risk of thyroid cancer in the clinical setting.

Method: We conducted a retrospective cohort study using the TriNetX database to compare the outcomes of patients ≥ 18 years old with a BMI of ≥ 30 kg/m². Two cohorts were fashioned: those who took GLP-1RAs and those with no exposure to GLP-1RAs. Patients with a history of thyroid malignancy or any thyroid procedure prior to starting a GLP-1RA were excluded. Patients' propensity score was matched based on age, sex, diabetes, history of endocrine disorders, and genetic carrier status. Outcomes of interest were 5-year risk of thyroid malignancy.

Results: We identified 521,557 patients who took GLP-1RAs and 4,697,839 who did not. After matching, each cohort had 521,522 patients. Among both cohorts, the prevalence and incidence of thyroid malignancy increased over the past 5-years. There was a significantly lower risk of thyroid malignancy in those individuals who took GLP-1RAs with an Odds Ratio of 0.674, 95% CI (0.603, 0.755), p-value < 0.0001. The incidence of thyroidectomy between the two matched groups was not significantly different.

Conclusion: Patients with a BMI ≥ 30 kg/m² who took GLP-1RAs were found to have a decreased risk of thyroid cancer. These findings support the safety and continued use of GLP-1RAs in this population when considering risk of thyroid malignancy, however particular consideration should be given to patients who are at risk for specific thyroid hyperplasias as found in Multiple Endocrine Neoplasia patients.

Predictors of Response to Neoadjuvant Systemic Therapy and Survival in cN1

Invasive Breast Cancer

JH Chen, P Singh, R Rauch, MS Guirguis, HM Johnson, MJ Piotrowski, T Adesoye, N Tamirisa, SX Sun

Baylor College of Medicine

Background: Clinically node-positive (cN1) breast cancer patients represent a heterogeneous population with evolving axillary surgical management based on neoadjuvant systemic therapy (NST) response.

Objective: To identify preoperative characteristics associated with survival in cN1 patients, particularly those with higher nodal burden on imaging.

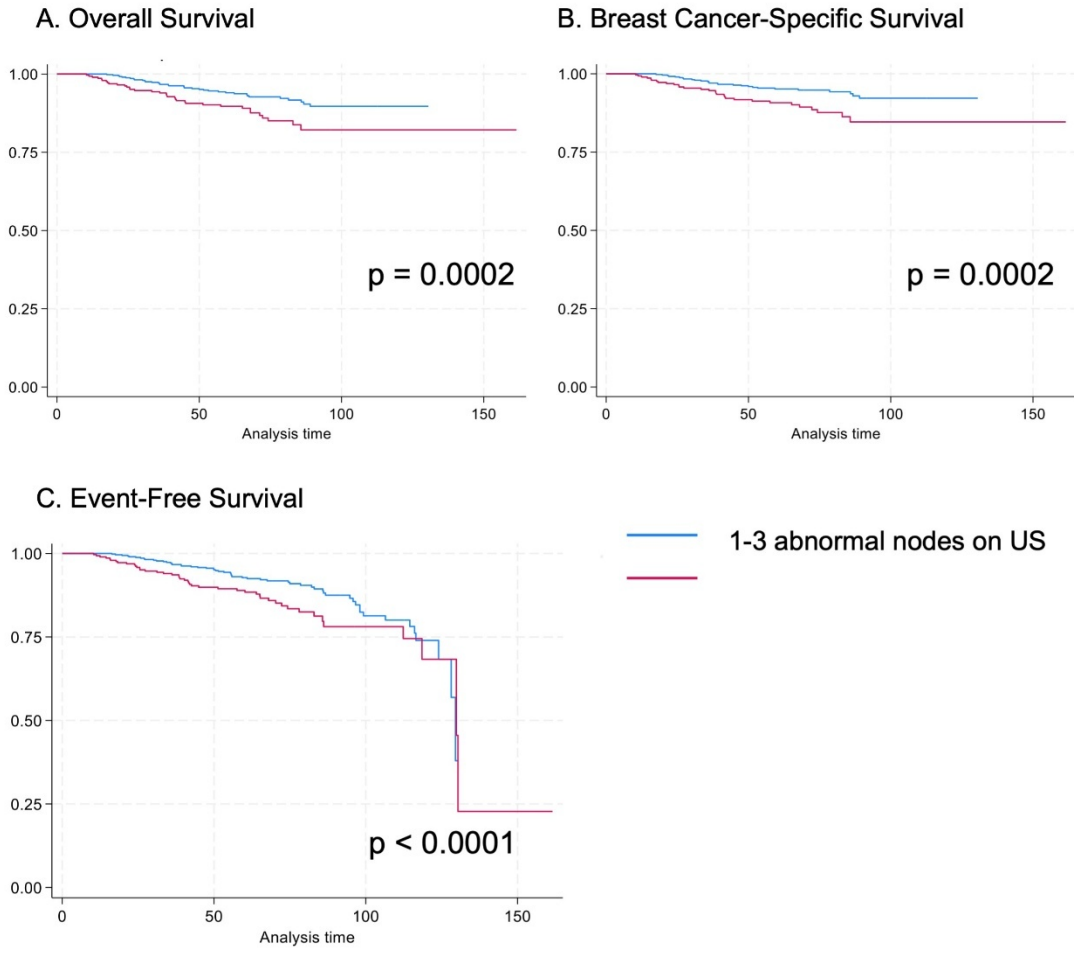
Method: This was a retrospective study of cT1-4N1M0 invasive breast cancer patients with biopsy-proven axillary nodal metastasis (2012-2018). All underwent baseline axillary ultrasound (US) followed by NST and surgery. Chi-square and student's t-test were used for group differences, Kaplan-Meier method was used for survival estimates.

Results: Among 825 patients, mean age was 50.4 years (SD11.7). Majority had cT1-2 (75.9%, 626), HR+ (73.8%, 609), HER2- (73.%, 608), ductal (89.7%, 740) disease. 64.1% (529) had 1-3 abnormal nodes on baseline US while 35.9% (296) had ≥ 4 abnormal nodes. Axillary surgery included 83.2% (687) ALND, 9.5% (78) SLNB, and 7.3% (60) targeted axillary dissection. Overall pCR rate (breast and node) was 17.7% while breast-only and node-only pCR rates were 16.7% and 3.3%, respectively. Overall pCR was prognostic of all survival outcomes (overall survival (OS): $p=0.01$, breast cancer-specific survival (BCSS): $p=0.004$, event-free survival (EFS): $p<0.0001$). Similar trends were observed for patients with node-only and breast-only pCR, despite presence of residual disease. Presence of ≥ 4 abnormal nodes on US was associated with worse OS ($p=0.0002$), BCSS ($p=0.0002$), and EFS ($p<0.0001$) compared to 1-3 abnormal nodes.

Conclusion: In this cohort of cN1 patients, US assessment of nodal burden was a significant prognostic factor. Baseline nodal quantification by US may help risk stratify cN1 patients and guide adjuvant treatment decisions.

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Figure 1. Survival Outcomes in cN1 Invasive Breast Cancer by Number of Abnormal Nodes



Evaluation of Oral Potentially Malignant Disorders (OPMDs) with S100A7

Audra Boehm DDS MD MA, Nadarajah Vigneswaran BDS DrMedDent DMD Muhammad Walji MS PhD, Jayson Workman DDS, Krishna Kookal MS, Chi Viet DDS PhD MD, Simon Young DDS MD PhD
University of Texas HSC - Houston

Background: Squamous cell carcinoma of the head and neck is a condition carrying a high mortality rate and significant morbidity. Currently, diagnosis and prognosis rely heavily on histopathologic staging and grading. The current system devised by the World Health Organization grades dysplastic lesions on severity and risk of malignant transformation; however, it fails to incorporate factors that could prove useful in prognostication.

Objective: This study evaluated the performance of Straticyte™, an AI-assisted histopathologic assay that utilizes the biomarker S100A7 and cell morphology to predict the transformation of dysplasia into oral squamous cell carcinoma.

Method: This multicenter study retrospectively enrolled patients with a biopsy of an oral lesion determined to be dysplasia. Charts were then reviewed to determine the rate of progression of dysplasia to squamous cell carcinoma. Finally, the Straticyte™ method was performed on archived biopsy samples and the relationship of this outcome and time to a positive diagnosis of oral cancer was evaluated.

Results: The analysis included 165 biopsies across all clinical sites. The Straticyte™ method showed an overall sensitivity of 1.00 and a specificity of 0.18. The positive and negative predictive values were 0.39 and 1.0, respectively. Kaplan-Meier curves demonstrated a negative correlation between time to cancer progression and higher grade of dysplasia, with elevated Straticyte™ scores also showing this relationship ($p = 0.0018$). Receiver-operator curves demonstrated similar aggregate area under the curve (AUC) as traditional dysplasia grading.

Conclusion: Results of our study indicate that the Straticyte™ method may be useful in identifying those with OPMDs who are at risk of malignant transformation.

Surgery Alone versus Neoadjuvant Therapy Followed by Surgery for Clinical T1N1 Esophageal Adenocarcinoma: Can Less Be More for Patients?

Z Hooda, D Langburt, S Ries, M Antonoff, R Mehran, R Rajaram, D Rice, S Swisher, A Vaporciyan, G Walsh, K Mitchell, L Ferri, W Hofstetter
MD Anderson

Background: Clinical T1N1 (cT1N1) esophageal adenocarcinoma (EAC) is a rare heterogeneous disease commonly complicated by imprecise node staging. Overstaging as cN1 may lead to unnecessary neoadjuvant therapy (NAT) administration, making optimal treatment for cT1N1 EAC unclear.

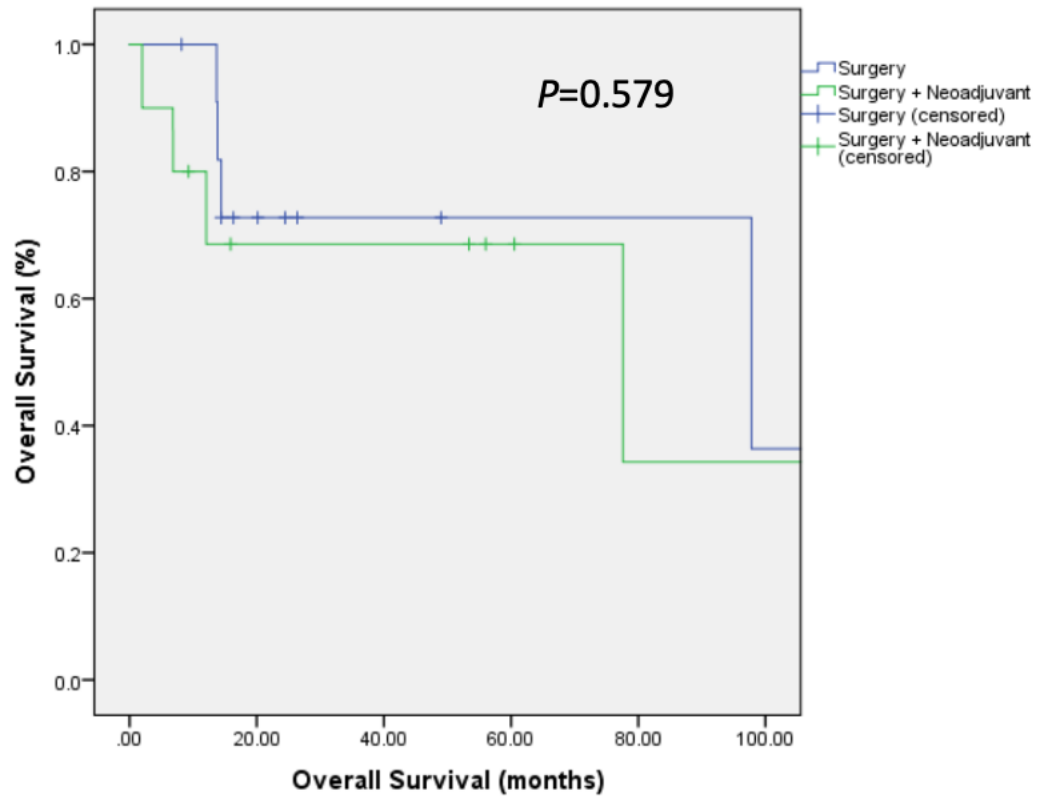
Objective: To assess clinical staging accuracy in cT1N1 EAC patients who underwent upfront surgery or surgery following NAT.

Method: From 2 centers, we identified cT1N1 EAC patients between 2005-2022. Data on demographics, clinicopathologic features, treatment, and outcomes were collected. Patients were grouped by treatment (upfront surgery or surgery after NAT). Survival outcomes were evaluated using Kaplan-Meier method and Cox regression models.

Results: We identified 22 cT1N1 EAC patients with 12 (54.5%) who underwent upfront surgery (-NAT) and 10 (45.5%) who underwent surgery following NAT (+NAT). The -NAT and +NAT groups included 9 (75%) and 9 (90%, $p=0.594$) males, respectively, with dissimilar median ages at surgery (-NAT, 70.5 years; +NAT, 56.5 years, $p<0.01$). Postoperatively, 3 (25%) -NAT patients had pathologic T1N1 disease (pT1N1) while the rest were downstaged to pT1N0. The +NAT group had 3 (30%, $p=1.00$) patients with ypT1N1 disease and 7 with ypT1N0 disease. Median follow-up was 49 months, with median OS of 97.8 months (95% CI: 0.00-217.34) for -NAT patients and 77.6 months (95% CI: 0.00-172.76, $P=0.58$, Figure 1) for +NAT patients. Cox regression analysis showed no NAT influence on PFS (HR=2.44, 95% CI: 0.21-28.05, $P=0.48$) nor OS (HR=2.55, 95% CI: 0.33-19.79, $P=0.37$).

Conclusion: In our study, the potential for overtreating cT1N1 EAC patients was frequent. Pretreatment histological cT1N1 confirmation should be considered to avoid therapy-associated toxicity.

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No. at Risk:

Surgery

12

6

3

2

2

1

Surgery +

10

5

5

3

1

1

Neoadjuvant

Chromosome 9p deletions are associated with higher rates of R1 resection across GI cancers

M Silva, C Viera, S Arora, N Newman, C McIntyre, M Kitano, A Parikh, C Chen, C Court
University of Texas Medical Center - San Antonio

Background: Determining adequate surgical margins in gastrointestinal (GI) cancers remains imprecise due to limited frozen section accuracy and certain tumors' infiltrative nature. Chromosome 9p (Chr9p) deletions contribute to cell cycle dysregulation and tumor progression and are associated with poorer prognosis and aggressive features in renal and GI cancers.

Objective: We investigated whether Chr9p deletions are correlated with increased rates of microscopic margin positivity (R1 resection) across GI cancers.

Method: The Cancer Genome Atlas (TCGA) was used to identify GI cancer patients who underwent primary tumor resection and had available tumor genomic information. Chr9p deletions were identified from the arm_level copy number variation dataset and correlated with residual microscopic disease (R0 vs R1 resection) at primary tumor resection.

Results: A total of 1,417 patients across five GI cancers were analyzed: hepatocellular (n = 362), pancreatic (n = 171), gastric (n = 368), colorectal (n = 477), and cholangiocarcinoma (n = 42). R1 resection occurred in 102 (7.2%) patients. Chr9p deletions were significantly associated with R1 resections across all GI cancers ($\chi^2 = 21.25$, $p = 0.000004$). For all individual GI cancers, except cholangiocarcinoma, Chr9p deletions were linked to higher R1 rates; cholangiocarcinoma had equivalent R0 and R1 rates (Fig 1).

Conclusion: This exploratory study revealed that patients with Chr9p deletions had higher rates of R1 positivity in GI cancers, suggesting a more infiltrative cancer subtype, which may impact surgical management. Patients with known Chr9p deletions could benefit from wider resection margins to reduce risk of residual disease, supporting a more precision medicine approach to surgical planning.

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Figure 1: Correlation of Chr9p deletion with R0 vs R1 resection across GI cancers

Breast Conservation Surgery for Breast Cancer in Men

J Den, N Nelson, K Khanipov, VS Klimberg

University of Texas Medical Branch - Galveston

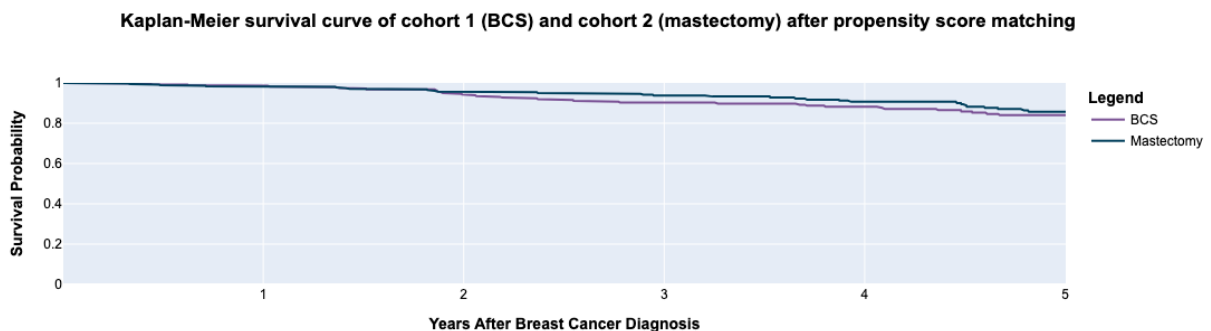
Background: Male breast cancer (MBC) is a rare disease, accounting for 1% of all breast cancers diagnosed in the United States. The rarity of MBC has limited the development of treatment algorithms specific to men, thus the standard of care has been mastectomy. The safety and feasibility of breast conserving surgery (BCS) in MBC is unclear. This study assessed whether recurrence, postoperative complications, and survival outcomes differed between MBC patients who underwent conservative surgery or mastectomy.

Objective: A retrospective search for men aged ≥ 18 years diagnosed with breast cancer was conducted using the TriNetX network. Cohort 1 included patients who underwent BCS (CPT codes 19301, 19302). Cohort 2 included patients who underwent mastectomy (CPT codes 19303, 19307). Propensity score matching was conducted using age, BMI, tobacco use, cancer stage and tumor size (T1-T4), radiation, chemotherapy, hormonal therapy, genetics, and comorbidities. Outcomes of interest were local recurrence (ICD C77, C79) (LR), 5-year overall survival (OS), and postoperative complications (ICD L76, T80-T88).

Method: A retrospective search for men aged ≥ 18 years diagnosed with breast cancer was conducted using the TriNetX network. Cohort 1 included patients who underwent BCS (CPT codes 19301, 19302). Cohort 2 included patients who underwent mastectomy (CPT codes 19303, 19307). Propensity score matching was conducted using age, BMI, tobacco use, cancer stage and tumor size (T1-T4), radiation, chemotherapy, hormonal therapy, genetics, and comorbidities. Outcomes of interest were local recurrence (ICD C77, C79) (LR), 5-year overall survival (OS), and postoperative complications (ICD L76, T80-T88).

Results: 423 patients underwent BCS, and 1,101 patients underwent mastectomy. After matching, 401 patients per cohort were identified. There was no difference in 5-year OS with the Kaplan-Meier analysis (Cohort 1: 84% vs Cohort 2: 86%, log-rank test $p=0.412$) or with LR (11% vs 13%, $p=0.384$). The mastectomy cohort was more likely to have postoperative complications, with a risk of 24% compared to 17% in the BCS cohort ($p=0.011$).

Conclusion: There is no difference in the 5-year OS and LR rate between MBC patients who undergo BCS or mastectomy. The postoperative complication rate was higher with mastectomies. We conclude that BCS for unicentric male breast cancer is feasible and preferred for T1 and T2 cancers.



Implementation of a novel, longitudinal, operative feedback model for colorectal subspecialty residents; initial impressions

J Xiao, J Van Eps, M Cusick
Houston Methodist Hospital

Background: Surgical residents lack consistent formalized feedback in their operative training. Furthermore, a lack of attending surgeon familiarity with resident proficiency is detrimental when trying to decrease redundancy in operative training. Current options for operative feedback such as the SIMPL OR app (The Society for Improving Medical Professional Learning) are cost-intensive and the summative feedback provided that residents/attendings can refer to in order to identify trends in performance and areas in need of improvement is limited. At this time, there are no longitudinal operative feedback tools geared towards subspecialty trainees. In regards to colorectal surgery training, the Accreditation Council for Graduate Medical Education (ACGME) does not require programs to provide trainees with standardized operative feedback.

Objective: The goal of the project was to improve the quality and consistency of operative feedback for trainees and also compare resident self-assessment to other experienced, objective input sources, ultimately to improve the accuracy of such self-assessments. We hypothesized that this tool would lead to faster progression in operative skill acquisition and improved confidence upon subspecialty training completion.

Method: A novel colectomy proficiency initiative was developed and implemented with the University of Texas Health (UTHealth) Colon and Rectal Clinic (CRC) subspecialty training program. This program consists of 12 teaching faculty and 4 subspecialty residents per year. An operative feedback tool was developed for colorectal fellows with input from attending surgeons and the fellows themselves. This was distributed via electronic survey and included daily text message reminders to complete the survey. Surveys were completed by participants within 48 hours of the surgery. The three procedures included in the study were right colectomies, left/sigmoid colectomies, and colectomies with a low anterior resection (LAR). The survey focused on the residents' operative proficiency at key components of the procedure (i.e. vascular pedicle dissection, colon mobilization, anastomosis etc.) using a Likert scale. Trainees and faculty were provided with periodic summative feedback of their survey responses.

Results: This quality improvement initiative has been ongoing for 10 weeks. Attending surgeon survey compliance was 42.1%. Resident surgeon survey compliance was 22.5% (min 5.8%, max 45.2%). 72.8% of responses were recorded after the evening text message reminder. The vast majority of responses (92.4%) were submitted via the hyperlink included in the reminder text message as opposed to a printed QR code (7.6%). 18.6% of attending surgeon responses included optional, free-text commentary/feedback on resident performance.

Conclusion: Developing a consistently utilized operative feedback tool requires a concerted commitment from both the attending surgeon and trainee. Consistent reminders and ease of access to the data collection tool are critical to ensure ongoing participation in such quality improvement initiatives. Additional participant feedback is needed to determine why attending surgeon compliance is significantly higher than trainee participation. As this initiative continues, we will examine trends in resident performance both from the attending surgeon's perspective and from the trainees' self-reflection.

Using Chat-GPT to Automate Cosmetic Procedure Planning

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Texas Tech University HSC - El Paso

Background: The integration of AI technologies in plastic surgery is revolutionizing patient care, allowing for more efficient and personalized approaches. This study presents the development and evaluation of an AI-driven system, leveraging ChatGPT to automate virtual consultations and cosmetic procedure planning. The system aims to assist plastic surgeons in predicting primary cosmetic surgeries, suggesting additional procedures, and outlining follow-up care based on patient profiles and images.

Objective: Upon completion of this presentation, participants will be able to

1. Understand how AI-driven systems can automate virtual consultations and surgical planning for cosmetic procedures.
2. Evaluate the effectiveness of large language models (LLMs) in predicting primary and additional cosmetic surgeries based on patient profiles and images.
3. Identify the challenges and limitations of using AI in the surgical planning process, particularly for rare procedures and fine-tuning without image integration.

Method: A retrospective analysis of anonymized patient data from one clinic's dataset was conducted, focusing on individuals who had committed financially to surgery. The system used large language models (LLMs) to process patient images, medical data, and preferences to create personalized surgical recommendations. Evaluation metrics included F1 scores for both primary and additional procedures, as well as follow-up care planning.

Results: The AI-driven system demonstrated promising accuracy in predicting surgical plans, achieving a macro F1 score of 0.70 for all procedures using a sample size of 120 patients. The system performed better on common procedures such as Brazilian Butt Lifts (BBL) and Tummy Tucks (TT) but showed limitations with less frequent surgeries and revision cases.

Conclusion: The proposed system provides an effective method for automating virtual consultations, reducing the time and logistical costs associated with in-person consultations. While the system shows strong performance for predicting common procedures, future work is needed to improve its accuracy for rare and revision surgeries. Fine-tuning efforts faced challenges due to the lack of image integration during training, suggesting that future improvements should focus on incorporating multi-modal data, retrieval augmented generation, and improved feature engineering. Further research is required to quantify the level of agreement among qualified plastic surgeons when creating surgical plans, to determine human-level performance of virtual consultations.

Impact of a Preclinical Elective Course and Surgical Skills Workshops on Student Preparation for Surgical Clerkships

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Baylor College of Medicine

Background: Many preclinical medical students lack exposure to surgical specialties, hindering their readiness for surgical clerkships. A previous assessment of our preclinical surgical elective found significant improvement in student confidence through a series of clinical case presentations.

Objective: This study aims to assess the impact of the addition of surgical simulation workshops aimed at enhancing students' clinical and technical skills for future clerkships.

Method: A curriculum was designed with specialty-specific lectures, patient data interpretation sessions, leadership discussions, and surgical simulation skills labs including suturing, knot tying, and laparoscopy. Surveys tracked self-reported abilities before and after the course. Variance analysis was performed.

Results: Students reported improved confidence in all reviewed technical skills: two-handed knot tying [2.58(SD 1.84) to 6.04(SD 2.18)], one-handed knot tying [2.5(SD 2.19) to 6.42(SD 2.39)], handling surgical instruments [3.08(SD 2.32) to 7.92(SD 1.47)], and basic suturing techniques such as simple interrupted [2.75(SD 2.56) to 7.38(SD 2.2)], horizontal and vertical mattress [2(SD 1.47) to 5.17(SD 2.48)], deep dermal [1.88(SD 1.42) to 5.92(SD 2.67)], and subcuticular [1.96(SD 1.88) to 5.63(SD 2.58)]; $p < 0.001$ for all. Improved confidence was reported with laparoscopic instruments including their identification [1.79(SD 1.22) to 4.96(SD 2.56)] and use [2.42(SD 2.24) to 5.38(SD 2.5)]; $p < 0.001$ for all. Overall confidence in preparation for surgery core clerkships increased significantly [3.25(SD 2.36) to 6.83(SD 1.27)], with $p < 0.001$.

Conclusion: Implementation of preclinical surgical workshops significantly elevates students' confidence and sense of readiness for surgical clerkships. Further studies can explore the long-term impact of such courses on students' interest in surgical specialties and performance during clerkships.

Correlation of Personality Testing with Residency Recruitment and PGY-1 Performance

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University of Texas Medical Branch - Galveston

Background: Decreasing emphasis on objective metrics for residency applications complicates selection for interviews. Personality assessments have been incorporated in other professions to guide recruitment, but their utilization is underexplored for resident selection.

Objective: Determine whether personality test results correlate to applicants' pre-interview scores, interview performance, rank list position, and Post-Graduate Year 1 (PGY-1) performance.

Method: Retrospective analysis of 586 General Surgery Residency applicants from 2018-2023 was conducted. Validated personality assessments—Ten-Item Personality Inventory and Grit Scale—were utilized. Personality test scores were compared to objective metrics, interview scores, and PGY-1 performance (n=36) using linear and logistic regression. Applicants were stratified by match rank (top 1/3 vs. lower 2/3) to assess personality differences between the two tiers.

Results: High tier applicants had higher IQ scores in 2019 and lower entitlement scores in 2020 (both $p=0.016$). Surgery clerkship grades (SCG) and USMLE Step 1 (S1) and Step 2 CK scores associated positively with the IQ test (all $p<0.04$). Higher Openness scores were predictive of better SCGs ($p=0.02$). Extroversion negatively associated with S1 ($p=0.03$). Interview performance negatively associated with Entitlement scores ($p=0.03$). No significant differences were seen for other personality traits, nor were any traits significant predictors for match rank, successful match, or improved PGY-1 performance.

Conclusion: With increasing complexity of residency applications, personality tests offer potential utility in predicting resident performance. Although few significant relationships were revealed, discontinuing personality tests could be premature as they are reliably used in other professions, albeit in a different capacity. The sample size limitation encourages further studies to validate these findings.

Surgical/Patient Education | Clinical Science | Plastic & Maxillofacial Surgery
A Comparative Study of Readability, Interpretability, and Patient Comprehension Factors in AI-Generated Plastic Surgery Consent Forms

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University of Texas Austin - Dell Medical School

Background: Artificial intelligence models have the capability to generate patient consent forms, potentially enhancing the informed consent process.

Objective: Four AI models were evaluated in their ability to generate patient consent forms for the top 10 procedures cited by the American Society of Plastic Surgeons.

Method: The Flesch Reading Ease, Flesch–Kincaid Grade Level, percentage of passive sentences, word count, similarity to online sources (SOS), sentiment analysis, hapax legomena (HL), lexical text density (LTD), and word diversity (WD) were analyzed.

Results: The average Flesch Reading Ease score was 36.3 ± 4.2 , a generally complex reading level; Claude scored highest (41.1) and LLaMA lowest (31.0). The Flesch–Kincaid Grade Level averaged 11.2 ± 0.5 , an advanced reading level, with GPT-o1 as the most accessible (10.8) and Claude as the most complex (11.9). Passive sentence usage averaged $13.6 \pm 13.4\%$, with Claude (33.1%) significantly more than Gemini (3.8%). Word count differed (average 495.6 ± 221.1), ranging from GPT-o1's 790.8 to Gemini's 270.2, reflecting variations in content length. SOS remained low ($6.8 \pm 2.6\%$) with LLaMA showing the highest originality (3.5%). Sentiment analysis revealed a range from GPT-o1's positive tone (44.6) to Gemini's negative tone (-33.0). HL and LTD were stable ($66 \pm 0.9\%$ and 57.6 ± 4.0 , respectively), while WD varied (68 ± 6.5).

Conclusion: Variations in AI-generated consent forms highlight the need for cautious use, as differing readability, tone, and complexity may impact patient understanding and the effectiveness of informed consent.

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	GPT-o1	Gemini	Claude	LLama
Flesch reading ease	36.8	36.3	41.1	31.0
Flesch–Kincaid grade level	10.8	10.8	11.9	11.1
Passive Sentences (%)	11.4	3.8	33.1	6.1
Words	790.8	270.2	516.8	404.7
% Similarity to online sources	9.4	6.1	8.3	3.5
Sentiment Analysis	44.6	-33.0	-24.3	9.9
Hapax Legomena % (unique word occurrences)	64.7	66.5	66.6	66.0
Lexical Text Density Analysis (LTD)	66.8	61.2	67.2	76.9
Lexical Word Diversity Analysis (WD)	53.0	62.4	56.4	58.7

Defining the Starting Line: A Need for Longitudinal Robotic Education Curriculum

R Wu, S Martinez, N Tapia

Houston Methodist Hospital

Background: Robotic surgery is rapidly being integrated into general surgery practice, requiring residency programs to implement early and comprehensive training. We performed a needs assessment to determine areas of emphasis within a robotic education curriculum.

Objective: We aimed to create a hernia procedure-specific robotic training program to allow successful transition from simulation to operating room.

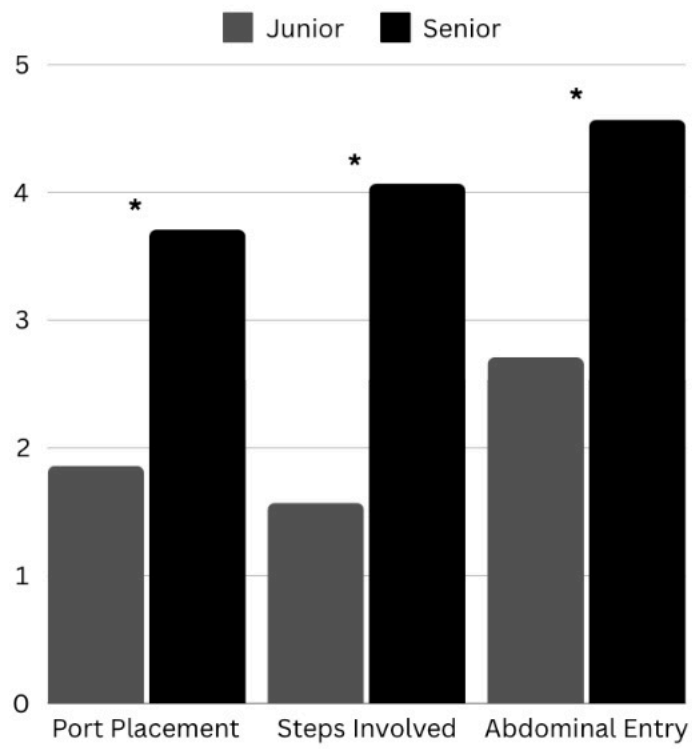
Method: Before the lab, residents were administered a questionnaire assessing prior exposure to the procedures, confidence, multiple-choice and free-text questions. Junior residents were classified as PGY 1-2 and senior residents as PGY 3-5.

Results: Exposure to robotic inguinal and ventral hernia cases varied between classes. Senior residents had significantly more cases than junior residents (mean 27.5 vs. 2.7, respectively, $p < 0.001$), higher confidence with port placement (mean 3.72 vs. 1.86, respectively, $p < 0.001$), procedural steps (mean 4.07 vs. 1.57, respectively, $p < 0.001$), and techniques (mean 4.57 vs. 2.71, respectively, $p < 0.001$). Senior residents answered more multiple-choice questions correctly compared to junior residents (average percent correct 81% vs. 54.8%, $p < 0.001$), however, there was no difference in free-answer accuracy regarding anatomy, repair indications, or mesh types.

Conclusion: Targeted needs assessment is critical for development of a robotic simulation curriculum. Despite perceived higher confidence in their knowledge of specific topics, senior residents were not as accurate in their understanding of the procedures on non-multiple-choice questions, which indicated an unrecognized knowledge deficit we addressed in the lab. Future lab iterations will include pre- and post-testing, video review of technique, and longitudinal repetition to monitor resident growth.

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Figure 1. Likert Confidence of Junior and Senior Residents for Robotic Inguinal and Ventral Hernia Repair



* = $p < 0.001$

Surgical/Patient Education | Clinical Science | Trauma/Burn/Critical Care
Assessing the Utility of ChatGPT in Providing Accessible and Socioeconomically Relevant Burn Care Information for Low Socioeconomic Status Patients: A Comparative Study with Google

B Beohon, J Lewis, P Nguyen, M Dao, M Ghogomu, S Wolf, J Song.
University of Texas Medical Branch - Galveston

Background: Patients from low socioeconomic status (SES) backgrounds often face significant barriers to quality burn care, including limited healthcare access, follow-up, and health literacy. Many rely on online resources like Google for medical information, which can be overwhelming and lack relevance to their specific needs.

Objective: This study compares the quality, accessibility, and SES-relevance of burn care information provided by ChatGPT and Google to address information disparities for low SES patients.

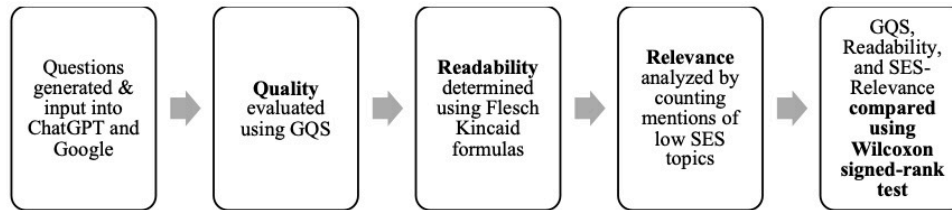
Method: A standardized set of commonly asked questions on immediate burn care, medical treatments, and long-term care was developed based on clinical guidelines. These questions were input into ChatGPT (version 4.0) and Google, with the first organic Google search result analyzed. Two medical students and two burn surgeons with over 15 years of experience independently assessed response accuracy using the Global Quality Score (GQS) on a scale of 1 (poor) to 5 (excellent). Readability was measured using the Flesch-Kincaid grade level, and SES-relevance was determined by counting responses addressing affordable treatments and access to care. A Wilcoxon signed-rank test was used to compare GQS, readability, and SES-relevance between ChatGPT and Google.

Results: ChatGPT provided significantly higher-quality responses than Google, with an average GQS of 4.35 ± 0.60 versus 2.25 ± 1.10 for Google ($p < 0.01$). For half of the questions, respondents unanimously preferred ChatGPT for patient information. For the remaining five, two surgeons preferred ChatGPT, while one preferred Google. Both platforms fell within grade levels 8-9. ChatGPT addressed SES-related issues in 74% of its responses, while Google did so in 33%.

Conclusion: ChatGPT outperformed Google in providing accurate and SES-relevant burn care information. These findings suggest that AI tools like ChatGPT could reduce health information disparities for low SES patients by offering tailored and user-friendly guidance. Future studies should validate these findings across other clinical topics and patient populations.

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Research Summary



Global Quality Score

Score	Global Score Description
1	Poor quality, most information missing, not at all useful for patients
2	Generally poor quality, some information listed but many important topics missing, of very limited use to patients
3	Moderate quality, some important information is adequately discussed but others poorly discussed, somewhat useful for patients
4	Good quality, most of the relevant information is listed, but some topics not covered, useful for patients
5	Excellent quality, very useful for patients

Flesch Kincaid Readability

Description	Grade Level	Reading Ease	Avg # of Words per Sentence	Syllables per 100 Words
Very Easy	5	90-100	8 or fewer	123
Easy	6	80-90	11	131
Fairly Easy	7	70-80	14	139
Standard	8-9	60-70	17	147
Fairly Hard	10-12	50-60	21	155
Hard	College	30-50	25	167
Very Hard	College Graduate	0-30	29 or more	192

Flesch-Kincaid Reading Ease Formula: $206.835 - 1.015 \times (\text{words/sentences}) - 84.6 \times (\text{syllables/words})$.

Flesch-Kincaid Grade Level Formula: $0.39 \times (\text{words/sentences}) + 11.8 \times (\text{syllables/words}) - 15.59$.

Bridging the Gap: The Impact of Distance on Healthcare Utilization in Children with Pediatric Surgical Congenital Anomalies

J Strubel, M Anapolsky, V Ringheanu, K Sutyak, N Hebballi, M Broussard, J Joly, T Fisher, K Tsao

University of Texas HSC - Houston

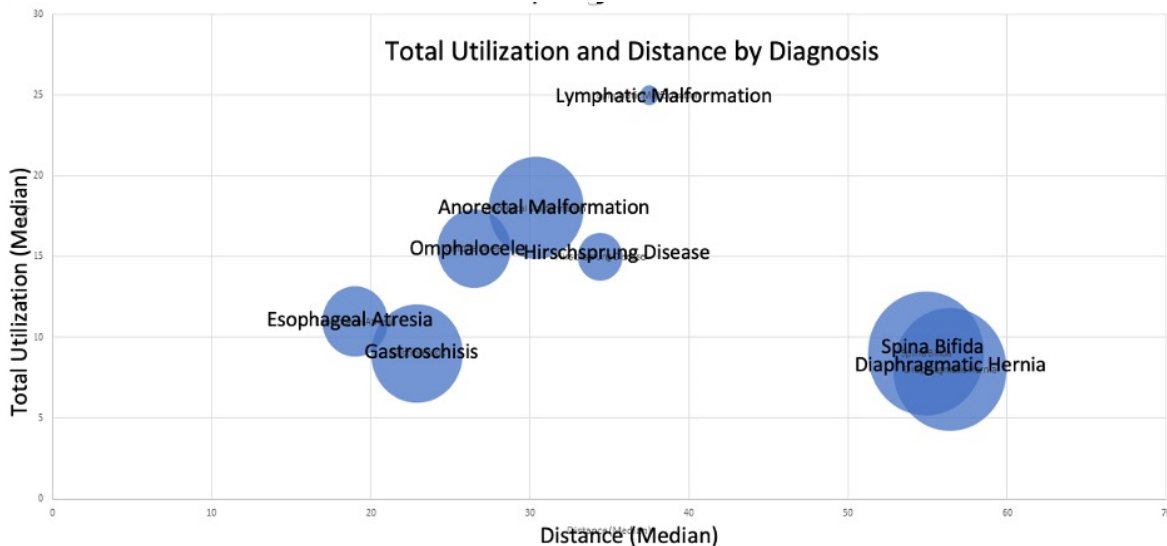
Background: Children born with complex surgical congenital anomalies often have ongoing healthcare needs. For those in rural settings, access to care is challenging and may result in poorer outcomes. Long-term healthcare needs and utilization patterns after hospital discharge are not well known.

Objective: To evaluate distance from the index healthcare facility and socioeconomic characteristics impact healthcare utilization among children with complex surgical congenital anomalies in Texas.

Method: A retrospective chart review was conducted from June 2021-July 2023 of patients with anorectal malformation, congenital diaphragmatic hernia, esophageal atresia, gastroschisis, Hirschsprung's disease, lymphatic malformation, omphalocele, or spina bifida. Healthcare utilization was defined as aggregate clinic visits, emergency department visits, readmissions, emergent surgeries, and missed clinic visits. Distance from home to hospital and socioeconomic status, measured by Area Deprivation Index (ADI), were examined.

Results: Overall, 167 patients were identified. There was a 1% reduction in healthcare utilization seen per one-mile increased distance from home to hospital ($p < 0.0001$). Hispanic ethnicity ($p < 0.017$) and presence of comorbidities ($p < 0.002$), particularly more than four comorbidities (< 0.0001), were associated with increased utilization. Conditions such as esophageal atresia ($p < 0.025$) and gastroschisis ($p < 0.014$) were associated with lower utilization. Utilization was not associated with ADI.

Conclusion: Geographic and demographic factors on access to care for children with complex congenital conditions may exist, with greater distance resulting in reduced healthcare utilization. The impact of health and outcomes remain unknown. Understanding and addressing individual barriers to overcoming distance is essential to optimizing care delivery for this vulnerable population.



Three months and stuck: predicting outcomes for prolonged length of stay in CDH

Kylie I. Holden, Ashley H. Ebanks, George B. Mychaliska, Rebecca A. Stark, Kevin P. Lally, Neil Patel, Charles C. Miller 3rd, Matthew T. Harting on behalf of the CDH Study Group
University of Texas HSC - Houston

Background: Infants with congenital diaphragmatic hernia (CDH) may require extended hospitalizations for complex cardiopulmonary disease, with some staying beyond 3 months.

Objective: The objective was to identify factors associated with, and outcomes among, CDH patients with LOS >3 months.

Method: Using the CDH study group registry (2007-2022), CDH patients were categorized by length of stay (LOS): ≤90 days as anticipated LOS (aLOS), >90 days as prolonged LOS (pLOS). Data were prospectively collected and retrospectively analyzed. Models predicting pLOS and predicting outcome among pLOS patients were generated.

Results: Of 9,212 patients, 7,830 (85.0%) had aLOS and 1,382 (15.0%) had pLOS. Compared to aLOS, the pLOS group had more C/D defects (78.9% vs 41.6%), higher ECLS use (48.4% vs 23.4%), longer intubation (48 vs 10 days), higher rates of major cardiac defects (15.1% vs 7.9%) and chromosomal anomalies (12.9% vs 6.6%) (all p<0.001). Survival was 73.3%, with pLOS at 86.9% and aLOS at 70.9%. Factors associated with pLOS (all p<0.01) included pre-term delivery, low birthweight, major cardiac anomaly, prolonged intubation, ECLS use, larger defect sizes, neurologic complications, and surgical feeding access. These factors can predict the likelihood of a pLOS. A scoring system was then generated to stratify patients by risk probability groups for pLOS. Once in the pLOS, prolonged intubation (p≤0.001) and major cardiac anomaly (p=0.04) were linked to mortality.

Conclusion: Factors associated with pLOS were identified and models predicting pLOS and outcomes among pLOS patients were generated. These findings aid in counseling and care planning for this complex patient group.

Percent of patients that have varying risk of pLOS

Calculated Risk of a pLOS	Probability of pLOS			
	0-25%	26-50%	51-75%	76-100%
Low Risk (1-4 points)	80.8 -100%	0.0-15.8%	0.0-0.3%	0.0-0.1%
Intermediate Risk (5-7 points)	0-59.8%	9.7-17.8 %	16.0-36.0%	6.4-65.9%
High Risk (8-10 points)	0%	0-2.9%	0-1.0%	96.1-100%

The scoring system was established based off the significant variables identified in the multivariable regression. The variables obtained the following scores: 1 point: low birth weight (<2.5 kg), 1 point: preterm (<37 weeks gestation) delivery, 1 point: presence of a major cardiac anomaly, 1 point: use of ECLS, 1 point: the development of a neurologic complication, 1 point: need for a surgical feeding tube, 1 point: prolonged intubation (>50 days intubated). Points 1-4 were given based on patients defect sizes (A=1, D=4). Values 1-10 correlated with the probability of pLOS, based on the probability generated for an individual patient using the multivariable regression formula. The probability of pLOS was grouped into categories of 0-25%, 26-50%, 51-75%, and 76-100% chance of having a prolonged length of stay. With low risk being 1-4 points, intermediate risk being 5-7 points, and high risk being 8-10 points.

Pediatric Surgery | Clinical Science | Surgical Oncology
Regional-Level Evaluation of Disparities and Trends in Pediatric Cancer

J Dempsey, J Westra, Y Kuo, B Naik-Mathuria
University of Texas Medical Branch - Galveston

Background: Pediatric cancer causes significant morbidity and mortality with known disparities, but regional trends are lacking.

Objective: Evaluation of pediatric cancer disparities and trends in Texas.

Method: Pediatric patients (<18y) diagnosed with Leukemia/Lymphoma, Brain, Renal, Adrenal, and Retinal cancers between 2006-2018 were identified using Texas Cancer Registry. Age- and sex-standardized incidence and mortality were calculated to compare by race, year, and residential area.

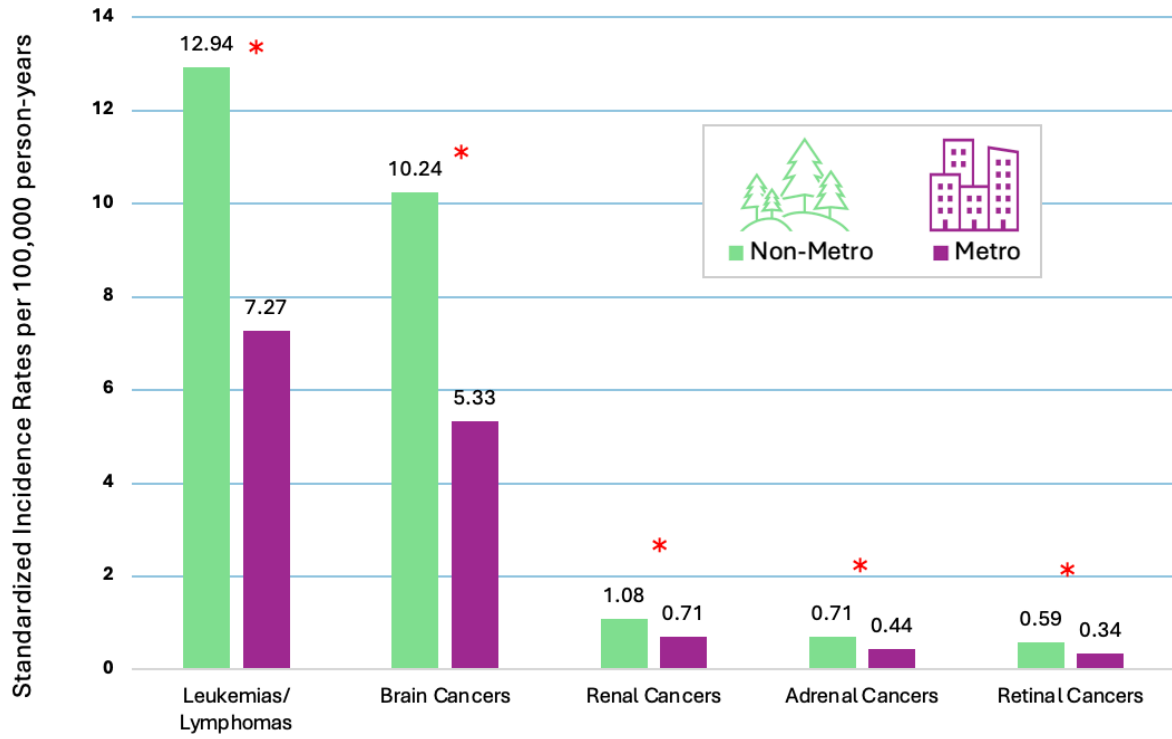
Results: Of 12,671 childhood cancers, leukemia/lymphomas were most common (n=6,524, 51.5%), followed by brain (n=4,769, 37.6%), renal (n=649, 5.1%), adrenal (n=408, 3.2%), and retinal cancers (n=321, 2.5%). Non-Hispanic (NH) White children were more affected than minority (NH Black and Hispanic) groups in all categories (leukemia/lymphoma SIR=0.85 [CI=0.82-0.87, p<.0001], brain SIR=0.65 [CI=0.63-0.68, p<.0001], renal SIR=0.72 [CI=0.65-0.79, p<.0001], adrenal SIR=0.42 [CI=0.36-0.38, p<.0001], and retinal SIR=0.84 [CI=0.73-0.96, p=0.0071]). Cancer-specific mortality was lower for minority groups for brain (SMR=0.87, CI=0.79-0.94, p=0.0008) and adrenal cancers (SMR=0.61, CI=0.43-0.78, p<.0001), higher for leukemia/lymphoma (SMR=1.12, CI=1.02-1.22, p=0.0175), and similar for renal or retinal cancers.

All categories had higher non-metro incidence (leukemia/lymphoma SIR=1.69 (CI=1.57-1.82, p<.0001), brain SIR=1.91 (CI=1.75-2.07, p<.0001), renal SIR=1.41 (CI=1.06-1.77, p=0.02), adrenal SIR=1.60 (CI=1.13-2.07, p=0.013), retinal SIR=1.51 (CI=1.00-2.03, p=0.05)). Non-metro cancer-specific mortality was also higher for brain (SMR=1.87, CI=1.48-2.27, p<.0001) and adrenal (SMR=2.60, CI=1.24-2.96, p=0.0213) cancers; mortality by residence was similar for other categories. No cancer types had significant incidence change.

Conclusion: Texas pediatric cancer incidence has been stable, but disparities exist. Further investigation is necessary to elucidate reasons for these racial/ethnic and residence differences. These findings highlight important targets for prevention, screening, and surveillance.

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Texas Pediatric Cancer Incidence by Area of Residence



Comparison of Postoperative Antibiotic Regimens for Perforated Appendicitis in a Pediatric Population: A Retrospective Cohort Study of Zosyn vs. Cephalosporin-Metronidazole Therapy

A Srikanth, J Dempsey, G Radhakrishnan, R Radhakrishnan
University of Texas Medical Branch - Galveston

Background: Effective postoperative antibiotic regimens are necessary for perforated appendicitis, which is a very common source of peritoneal abscesses in pediatric patients. Treatment norms have shifted from traditional triple-drug regimens, including an aminoglycoside, clindamycin, and ampicillin, to a two-drug approach, consisting of a cephalosporin and metronidazole. Previously, controlled studies have indicated that single-agent therapies, such as piperacillin-tazobactam (Zosyn) may reduce complications related to infection in controlled settings, but there is limited real-world data directly comparing Zosyn with ceftriaxone and metronidazole (CM).

Objective: This study aims to provide insights into the effectiveness of Zosyn versus CM in reducing postoperative complications related to perforated appendicitis.

Method: A retrospective cohort study using TriNetX was conducted to compare postoperative antibiotic regimens (Zosyn vs. CM) in children with perforated appendicitis. The primary outcome was the occurrence of postoperative peritoneal abscess or open/image-guided fluid abscess drainage within 30 days.

Results: A total of 2,938 pediatric patients were included in each cohort, with a significantly higher risk of peritoneal abscess and fluid abscess drainage in the Zosyn cohort compared to the CM cohort (15.62% vs 10.93%, $p < 0.001$, odds ratio (OR) 1.51). In comparison to the CM group, the Zosyn group had significantly higher post-operative computed tomography imaging rates 0.91% vs 0.25%, $p < 0.001$, OR 3.76). There was not a statistically significant difference in the number of ED visits or antibiotic-related complications between the two cohorts.

Conclusion: Postoperative therapy with CM was associated with a significantly lower risk of postoperative complications such as fluid drainage and intrabdominal abscess formation compared to Zosyn within 30 days. Consideration of perioperative care and surgical technique is essential, taking into account patient factors and the surgeon's experience, as these may influence postoperative outcomes and complications.

PAS vs pARC: A Retrospective Comparison of Pediatric Appendicitis Risk Scoring Systems

VM Ringheanu, JJ Strubel, MA Anapolsky, KM Sutyak, NB Hebballi, JM Joly, M Broussard, T Fisher, KP Lally, K Tsao
University of Texas HSC - Houston

Background: The Pediatric Appendicitis Score (PAS) and Pediatric Appendicitis Risk Calculator (pARC) are clinical support tools to improve acute appendicitis diagnosis.

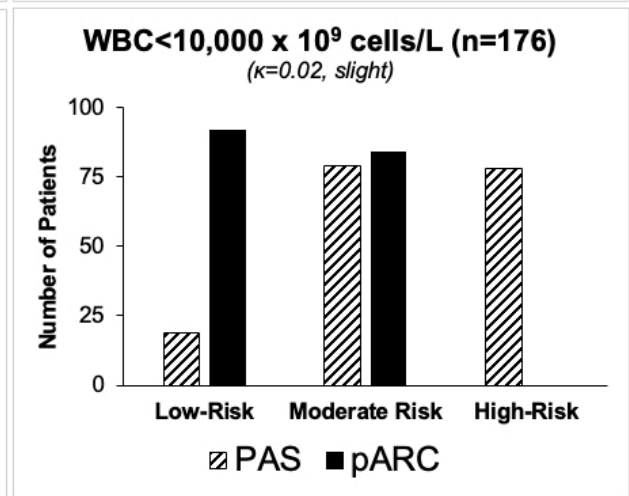
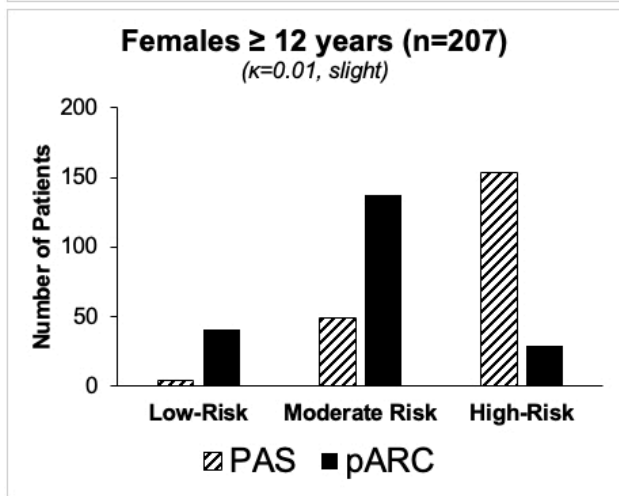
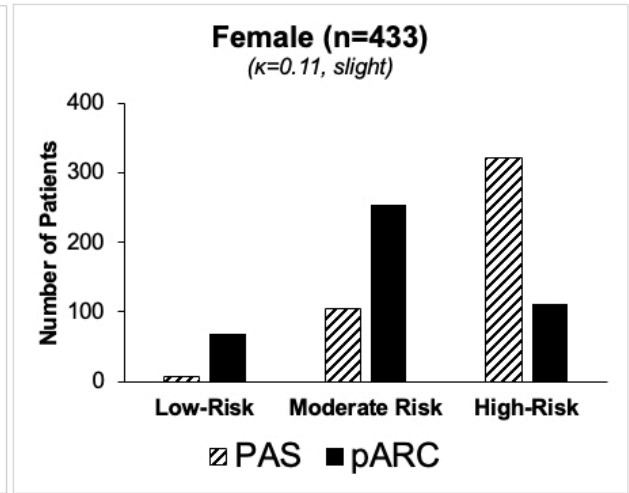
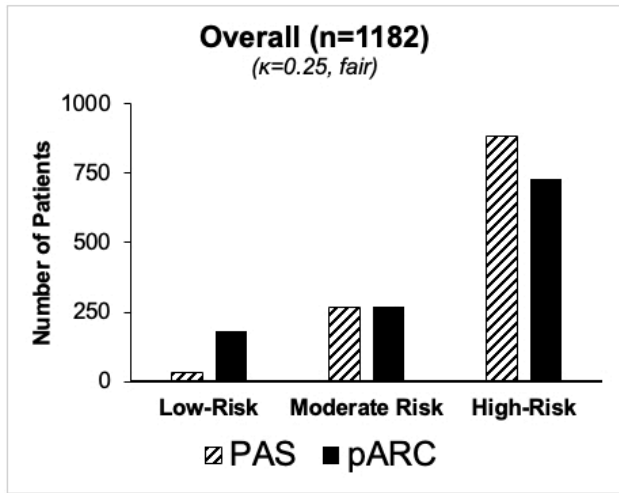
Objective: To investigate the level of agreement between PAS and pARC and identify situations where one may be preferred.

Method: A retrospective review was conducted of patients 3-17 years who underwent appendectomy from May 2021-March 2024. PAS and pARC scores were calculated and assigned to low, moderate, or high-risk categories based on recommended management. Cohen's kappa (κ) was used to assess agreement between PAS and pARC, considering age, sex, and white blood cell (WBC) count.

Results: Among 1,182 patients, median age was 11 years (IQR 8-14), 63% male, 60% Hispanic. Median PAS and pARC scores were 8/10 points (IQR 6-9) and 70/100% (IQR 44-84%). PAS categorized 3% of patients as low-risk, 23% as moderate, and 75% as high while pARC categorized 15% as low-risk, 3% as moderate, and 62% as high ($p < 0.001$). Overall, fair agreement existed between PAS and pARC ($\kappa = 0.25$). However, agreement varied by age and sex: fair for < 12 years ($\kappa = 0.30$) vs. slight for ≥ 12 years ($\kappa = 0.19$); fair for males ($\kappa = 0.35$) vs. slight for females ($\kappa = 0.11$). Females ≥ 12 years had the lowest agreement ($\kappa = 0.01$). Those with $WBC > 10,000 \times 10^9$ cells/L had fair agreement ($\kappa = 0.26$) vs. slight for those with $WBC < 10,000 \times 10^9$ cells/L ($\kappa = 0.02$).

Conclusion: Although there was fair agreement between PAS and pARC, PAS assigned more to high-risk. In addition, there were subgroups which demonstrated almost no agreement: females ≥ 12 years and in patients with $WBC < 10,000 \times 10^9$ cells/L. Careful scrutiny is required when utilizing clinical support tools.

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Health disparities in the surgical care of infants with congenital anomalies in Texas

Shannon M Larabee, Bea Jeon, Kathleen Hosek, Sarah Peiffer, Alice King
Texas Children's Hospital

Background: Social determinants impact health with well-described disparities to Black/Indigenous/People-of-Color(BIPOC) patients. Surgical care for infants with congenital anomalies (CA) is complex and accompanied with significant financial costs.

Objective: With the rising rate of birth and CAs rates, we sought to evaluate the intersection of surgical costs in CA infants and the BIPOC population in Texas.

Method: A retrospective cohort study using state-wide Hospital Inpatient Discharge Public Use Data File (7/1/2020-6/20/2023) was performed for infants (<1 years). Impact of BIPOC on outcomes and healthcare utilization in CAs with surgical admission were analyzed. Patients without race/ethnicity listed were excluded.

Results: Of 1,035,441 infant admissions, 615,045(59%) were BIPOC. BIPOC admissions were less likely to live in rural counties (BIPOC 7.1% vs non-BIPOC 12%), but more likely to live in border counties (BIPOC 17% vs non-BIPOC 3%). Overall, 21.6%(223,917/1,035,441) admissions were operative with 53%(117,629) BIPOC. While non-surgical admissions costs were similar(non-surgical-BIPOC \$4943[IQR:\$3,377-8,799]vs non-surgical-non-BIPOC \$5,099[IQR:\$3,628-9,682]), surgical-BIPOC admissions were higher than surgical-non-BIPOC admissions (surgical-BIPOC \$7,727[IQR:\$5,038-21,431] vs surgical-non-BIPOC \$6,950[IQR:\$4,872-13,827]). CAs were overall similar between populations (18% vs 17%), however, BIPOC infants undergoing surgery were more likely to have a CA than non BIPOC patients (24% vs 20%). Further, BIPOC infants had a higher rate of mortality during surgical admissions than non-BIPOC (BIPOC 0.7%[n=787] vs non-BIPOC 0.4%[n=455]) with higher illness severity scores (ISS>3:BIPOC 18,487 vs non-BIPOC 13,032).

Conclusion: Despite similar CA rate, BIPOC infants requiring surgery are more likely to have a CA, high illness severity scores, higher mortality rates, admission costs compared with non-BIPOC surgical admissions.

Impact of Burn Injury Characteristics on Hospital Length of Stay in Pediatric Patients

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University of Texas Medical Branch - Galveston

Background: Burns are the 5th most common cause of non-fatal injuries in children, causing significant morbidity and often resulting in extended hospital stays.

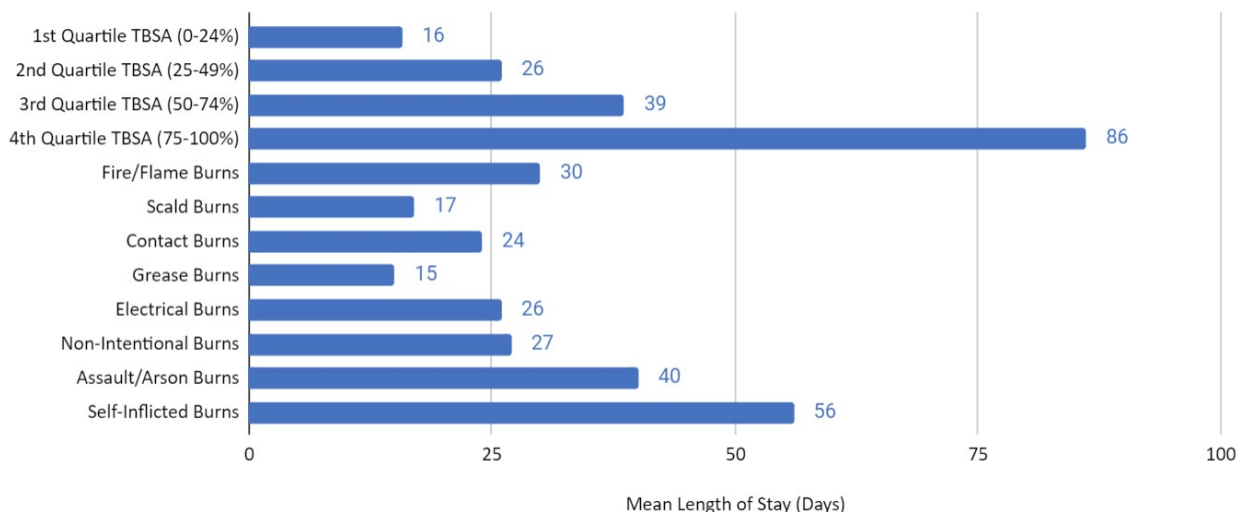
Objective: This study aimed to evaluate the association between burn injury characteristics including, burn etiology, circumstances of burn, and total body surface area (TBSA) of burn with hospital LOS.

Method: Retrospective review of pediatric patients (8-17 years) presenting with burn injuries from 1994-2023 was conducted utilizing the Burns Model System National Database. Patients were stratified by TBSA quartile and compared by hospital LOS, intentionality of the burn, and burn mechanism. Associations were analyzed using ANOVA, Tukey HSD, linear regression, and t-tests where appropriate.

Results: A total of 992 pediatric burn patients were included, with a mean TBSA of 33.7%. Flame burns were most common (72.4%) followed by electrical (12.5%), and scald (5.9%). Patients had significantly increased LOS (mean days) with each TBSA quartile (0-24%: 15.6 ± 12.7 , 25-49%: 25.5 ± 18.0 , 50-74%: 38.3 ± 24.7 , 75-100%: 77.2 ± 59.7 , $p < 0.00001$). Flame burns were associated with the highest LOS (29.9 ± 30.8 days), followed by scald (16.9 ± 15.6 days) and grease burns (15.4 ± 13.1) [$p = 0.0003$]. Intentional burns resulted in greater LOS than accidental burns at 44.7 and 26.9 days respectively, ($p = 0.00006$).

Conclusion: The longest hospital LOS were seen in children with greater TBSA injuries, flame burns, and intentional burn injuries, factors which may indicate increased rates of complication. Identifying patients at highest risk can aid physicians in addressing the needs of this vulnerable population. Next steps include further exploration of modifiable risk factors and LOS.

Burn Characteristics vs Mean Hospital Length of Stay



Pediatric Surgery | Clinical Science | Pediatric Surgery
Impact of Social Determinants in Surgical Care of Infants in Texas

S Larabee, B Jeon, K Hosek, S Peiffer, A King
Texas Children's Hospital

Background: Surgical care of infants is complex with Children's Surgery Verification (CSV) program implemented to match resources with patient needs. Social determinants impact care with well described disparities in black/indigenous/people-of-color (BIPOC) populations.

Objective: To evaluate the impact of CSV-certification and race/ethnicity in surgical care of infants in Texas.

Method: A retrospective cohort study using state-wide Hospital Inpatient Discharge Public Use Data File (7/1/2020-6/30/2023) was performed. Outcomes and healthcare utilization of infants (<1year) were analyzed comparing race/ethnicity and CSV treatment.

Results: Of 1,035,441 admissions, 21.6%(223,917/1,035,441) require surgery. CSV care for a minority of admissions (4.3%;44,492/1,035,441), but disproportionately treat surgical admissions (surgical-CSV33.1% vs surgical-non-CSV21.1%). BIPOC represent 59%(615,045/1,035,441) receiving disproportionate care at CSV-centers (CSV65.3%[29,065/44,492] vs non-CSV59.1%[585,980/990,949]). However, BIPOC are less likely to be surgical across all facilities (overall:surgical-BIPOC19.1% vs surgical-non-BIPOC25.3%, CSV:surgical-BIPOC32.6% vs surgical-non-BIPOC34.0%, non-CSV:surgical-BIPOC18.5% vs surgical-non-BIPOC25.0%). While non-surgical admissions are similar to between centers; at CSV centers, surgical-CSV admissions are longer than non-surgical-CSV. Durations are similar between BIPOC/non-BIPOC. Surgical admissions cost more than non-surgical with surgical-CSV greater than surgical-non-CSV. However, BIPOC costs are lower than non-BIPOC across all centers despite higher illness severity scores. BIPOC have higher overall mortality than non-BIPOC (BIPOC:0.3% vs non-BIPOC0.2%) with highest mortality in surgical-BIPOC (overall mortality:surgical-BIPOC0.7%[787/117,629], surgical-non-BIPOC0.4%[455/106,288], non-surgical-BIPOC0.2%[1,177/497,416], non-surgical-non-BIPOC0.2%[584/314,108]). Mortality rate is higher CSV centers (CSV1.8% vs non-CSV0.3%) and surgical admissions (mortality:surgical0.5% vs non-surgical0.2%), surgical-BIPOC mortality is lower at CSV and higher at non-CSV compared with surgical-non-BIPOC.

Conclusion: CSV-verification cohort surgical admissions, however BIPOC-infants have higher mortality with lower healthcare expenditure and lower rate of surgical intervention.

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	Surgical (N=223917)				Non-Surgical (N=811524)			
	CSV		Non-CSV		CSV		Non-CSV	
	Non-BIPOC (N=5241)	BIPOC (N=9468)	BIPOC (N=101047)	BIPOC (N=108161)	Non-BIPOC (N=10186)	BIPOC (N=19597)	Non-BIPOC (N=303922)	BIPOC (N=477819)
Length of stay (days [IQR])	8.0 (3.0, 25.0)	8.0 (2.0, 28.0)	2.0 (1.0, 2.0)	2.0 (2.0, 3.0)	3.0 (2.0, 6.0)	2.0 (2.0, 5.0)	2.0 (1.0, 2.0)	2.0 (1.0, 2.0)
Total cost (\$[IQR])	161071.0 (56649.3, 436834.0)	126487.5 (34164.9, 410061.0)	6719.5 (4807.0, 11656.0)	7378.0 (4980.7, 14027.9)	33225.0 (18015.4, 71054.7)	24982.2 (4545.0, 56812.0)	5001.1 (3593.6, 8838.0)	4872.0 (3360.0, 8197.3)
Illness Severity Score								
0	6 (0.1%)	16 (0.2%)	49 (0.0%)	67 (0.1%)	7 (0.1%)	42 (0.2%)	104 (0.0%)	445 (0.1%)
1	1193 (22.8%)	2722 (28.7%)	69355 (68.6%)	68820 (63.6%)	3060 (30.0%)	7551 (38.5%)	210880 (69.4%)	335960 (70.3%)
2	1108 (21.1%)	1926 (20.3%)	21545 (21.3%)	25591 (23.7%)	3963 (38.9%)	6508 (33.2%)	67707 (22.3%)	103970 (21.8%)
3	1293 (24.7%)	2222 (23.5%)	8816 (8.7%)	11215 (10.4%)	2359 (23.2%)	4081 (20.8%)	24204 (8.0%)	35237 (7.4%)
4	1641 (31.3%)	2582 (27.3%)	1282 (1.3%)	2468 (2.3%)	797 (7.8%)	1415 (7.2%)	1027 (0.3%)	2207 (0.5%)
Mortality (n [%])	179 (179/524, 3.4%)	275 (275/9468, 2.9%)	276 (276/101047, 0.3%)	512 (512/108161, 0.5%)	111 (111/10186, 1.1%)	216 (216/19597, 1.1%)	473 (473/303922, 0.2%)	961 (961/477819, 0.2%)

Pediatric Presentations of Gastrointestinal Pneumatosis: A Case Series and Review of the Literature

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Texas Tech University HSC - El Paso

Background: Gastrointestinal pneumatosis involves air in the gastrointestinal tract wall and is rare but serious, particularly in children. Gastric pneumatosis, a subset, includes emphysematous gastritis (infection-related) and gastric emphysema (pressure-related). There are no standard management guidelines, though gastric emphysema is generally less severe.

Objective: This study reviews pediatric gastric pneumatosis cases at a tertiary academic center over the past five years.

Method: This retrospective study at a tertiary academic hospital reviewed three pediatric gastric pneumatosis cases which occurred over the last 5 years, focusing on patient characteristics, symptoms, treatments, procedures, outcomes, and follow-up to understand the condition's presentation and progression.

Results: The study reviewed three pediatric cases of gastric pneumatosis, highlighting varied presentations and management strategies. The first case involved a 3-month-old male with gastric dilatation and emphysema diagnosed with pyloric stenosis who was successfully treated with pyloromyotomy. The second case occurred in a premature infant who developed gastric pneumatosis on day five of life, managed with TPN and antibiotics, and discharged after improvement. The third case was a 15-month-old female status post a right hepatectomy for hepatoblastoma readmitted with emphysematous gastritis successfully managed conservatively with decompression and antibiotics. The literature review emphasized the rarity of pediatric gastric pneumatosis and the lack of standardized treatment guidelines, underscoring the need for tailored management strategies based on individual patient characteristics and clinical presentations. Overall, the study highlights the importance of early diagnosis and personalized treatment to improve outcomes in pediatric patients with this condition.

Conclusion: Pediatric gastric pneumatosis, while rare, requires careful diagnostic and therapeutic approaches due to its potential severity. This study highlights the importance of distinguishing between emphysematous gastritis and gastric emphysema, as their etiologies and prognoses differ significantly. The findings underscore the need for developing standardized guidelines for the management of gastric pneumatosis in pediatric patients. Further research is warranted to establish evidence-based protocols to improve outcomes and reduce the incidence of complications in this vulnerable population.

Clinicopathologic and prognostic significance of Biomarker Expression in Gastric Cancer In a Predominately Hispanic Population

Ashley Montgomery, DO, Chen-Ping Wang, PhD, Courtney Thomas, MD, Madeline Silva, MD, Candice Vierra, MD, Colin Court, MD, Caitlin McIntyre, MD, Alexander Parikh, MD, Mio Kitano, MD

University of Texas Medical Center - San Antonio

Background: Identification of molecular biomarkers in gastric adenocarcinoma (GC) has led to advancements in targeted therapy. The prevalence and prognostic significance of biomarkers in Hispanics has not been well defined.

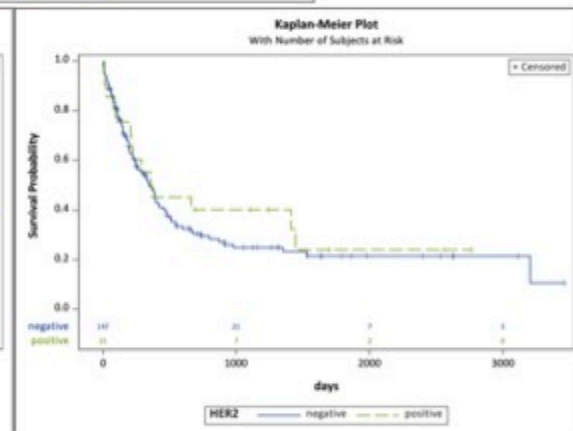
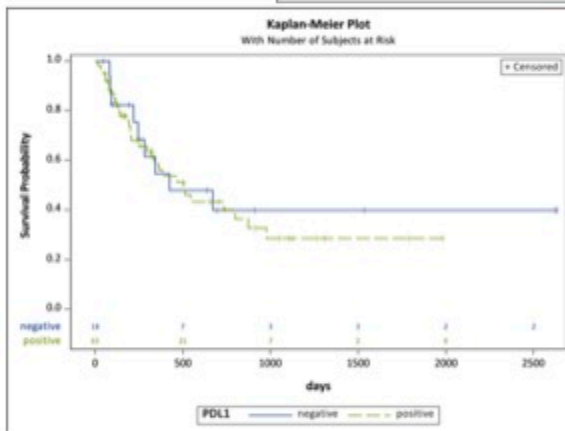
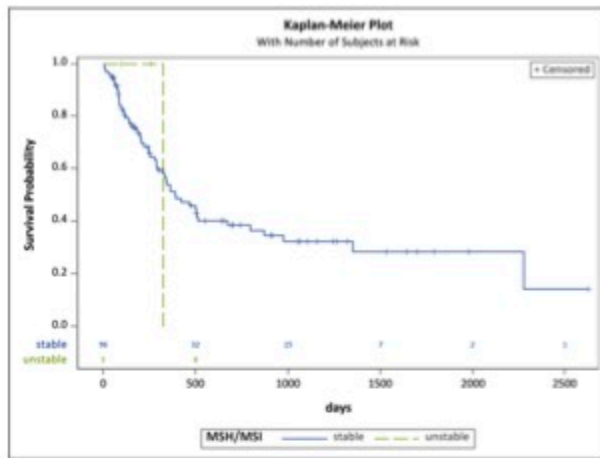
Objective: In this study, the expression of human epidermal growth factor receptor 2 (HER2), programmed cell death ligand 1 (PD-L1), and microsatellite instability (MSI) were investigated to define the prevalence, clinicopathologic characteristics, and outcomes.

Method: HER2, PD-L1, and MSI status in a prospective cohort of 174 patients were analyzed. Association between biomarkers with demographics and clinicopathologic status was analyzed utilizing chi-squared test, Fishers exact test, or 2-sample T-test. Kaplan-Meier curve and Cox proportional hazards model were performed to calculate survival.

Results: Of the 174 patients, 81% (140) identified as Hispanic. The prevalence of biomarker expression was 12.5%, 78%, and 3% for HER2, PD-L1, and MSI-H, respectively. Analysis did not identify association between age, gender, histologic subtype, tumor location, nodal status, or clinical staging with PDL-1 or MSI-H expression. There was an association between HER2 expression and moderately differentiated histology ($p < 0.001$). HER2 expression and lack of PD-L1 expression showed trends towards higher survival probability.

Conclusion: HER2 expression was lower in this population than in literature among predominantly Caucasian and Asian populations, 12.5% vs 22%. PDL-1 was higher at 78% vs 12-73% and MSI-H was comparable at 3% vs 4%. There was an association between HER2 and histologic grade. Overall, biomarker expression appears independent of clinicopathologic status. Immune checkpoint inhibitors may be a promising therapeutic option in this unique population with high PD-L1 expression.

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Socioeconomic Factors and Outcomes in Developmental Dysplasia of the Hip

Diagnosed at Birth: A Retrospective Study

C Fritz, N Malik, S Younas, M Austin

MD Anderson

Background: Developmental dysplasia of the hip (DDH) is a common congenital condition characterized by abnormal development of the hip joint, which can lead to long-term musculoskeletal complications if not treated early. Socioeconomic factors, such as access to healthcare, healthcare literacy, and social support, may influence the timely diagnosis and treatment of DDH.

Objective: The objective of this study was to examine the association between socioeconomic status (SES) and presentation, hospital course, and outcomes in patients diagnosed with DDH at birth.

Method: All live births discharged from Texas hospitals between the years 2015-2023 were extracted from the Texas Inpatient Public Use Data File. Live births related to congenital deformities of the hip were isolated using ICD-10 codes and were compared to a random sample of 10,000 live births that did not include these ICD-10 codes. Births resulting in a discharge to home or self-care were said to have experienced a routine discharge, while births resulting in a mortality or transfer were designated as non-routine discharges. Births were assigned an Area Deprivation Index (ADI) and were designated as belonging to a Health Professional Shortage Area (HPSA) based on their associated zip code.

Results: 7415 DDH cases were included. There was a higher proportion of female (67.8% vs 48.4%; $p < 0.001$) patients in the DDH group. Median ADI was lower in the DDH group (54.4 vs 59.1; $p < 0.001$), as were the proportion of patients living in an HPSA (64.6% vs 69.3%; $p < 0.001$) and patients using Medicaid or self-pay (50.4% vs. 53.2%; $p < 0.001$). Mortality in DDH cases was low overall but was significantly higher than in non-DDH cases (0.5% vs 0.2%; $p = 0.001$). Female patients with DDH were significantly more likely to experience routine discharges (OR=1.65; $p = 0.001$). Black patients with DDH had significantly longer lengths of stay (beta=1.03 days; $p < 0.001$), higher costs (beta=16758\$; $p < 0.001$), and higher numbers of co-occurring congenital anomalies (beta=0.038; $p = 0.035$). DDH patients living in a HPSA, and DDH patients with an ADI above the median had shorter lengths of stay (beta= -0.616 days; $p < 0.001$ and beta= -0.556 days; $p < 0.001$), lower costs (beta= -\$4950; $p = 0.001$ and beta= -\$5525; $p < 0.001$), but higher numbers of co-occurring anomalies (beta=0.028 anomalies; $p = 0.006$ and beta=0.041 anomalies; $p < 0.001$).

Conclusion: Patients diagnosed with DDH at birth tended to live in higher SES areas when compared to the general population and were less likely to use Medicaid or self-pay. This may be due to under-diagnosis of DDH in lower resource areas. Furthermore, DDH patients living in low SES areas seem to be receiving less treatment despite having higher rates of co-occurring congenital anomalies.

Is Social Vulnerability Associated with Physical Therapy-informed Discharge after Trauma Laparotomy

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Background: The Activity Measure Post Acute Care (AM-PAC) score in physical therapy (PT), predicts rehabilitative needs after trauma admission. However, discharge disposition (DD) depends on social and functional factors.

Objective: We explored associations between social vulnerability and appropriate DD in trauma. We hypothesized lower social vulnerability is associated with appropriate discharge to post-acute-care rehabilitation per AM-PAC scores.

Method: We conducted a retrospective single-center cohort study of adult, post-trauma laparotomy patients receiving PT between 1/2020-6/2023. Demographic and inpatient data was collected from the trauma registry. Social Vulnerability Index (SVI) was obtained from the Center for Disease Control registry, with values near 1 indicating higher vulnerability. Inpatient AM-PAC scores, based on activities of daily living (ADLs), were collected from medical records. Primary outcome was discharge matching AM-PAC-predictive rehabilitation needs (rehabilitation <16). Descriptive and multivariable analyses were performed.

Results: Of 572 patients, median age was 33 (IQR 23-43), 75% were male, the majority (36.4%) were Black, and most (51.5%) had a public payer (e.g. Medicaid). The median SVI was 0.75 (IQR 0.53-0.97). Most patients (n= 495,77%) were discharged appropriately per AM-PAC scores. Appropriate DD based on AM-PAC scores was associated with multiple factors (see Table). Black patients had lower odds of appropriate DD than white. SVI was not associated with appropriate DD.

Conclusion: Patient needs should drive rehabilitative care upon discharge regardless of socioeconomic status. While SVI was not associated with inappropriate DD per AM-PAC scores, Black patients were at increased odds of discharge without rehabilitation despite ADLs, which requires further evaluation.

Predictor	Odds Ratio	95% Confidence Interval	p-value
Age	1.02	1.00-1.04	0.04
Injury severity score	1.02	1.00-1.04	0.05
Length of stay	1.02	1.00-1.04	0.03
Black Race (Ref White)	0.36	0.15-0.91	0.02
Self-Pay (Ref Insured)	0.31	0.07-1.43	0.13
SVI	1.23	0.40-3.25	0.81

Table. Binomial logistic regression results

Readability of Commonly Used Patient Reported Outcome Measures Across Assessment Tools in Trauma

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Background: Patient reported outcome measures (PROMs) assess the impact and effectiveness of healthcare interventions. For accessibility, PROMs should be readable at grade levels (GLs) ≤ 6 . Though 1 in 4 trauma patients are found to have low health literacy, few studies have examined the readability of PROMs in trauma.

Objective: We assessed the readability of commonly used PROMs in trauma and the accuracy of commonly used readability calculation tools. We hypothesized that (1) $>75\%$ of trauma-related PROMs have a readability GL >6 , and (2) online and artificial intelligence (AI) calculation will be less accurate than gold standard manual calculation.

Method: PROMs were selected based on reported frequent use by global trauma organizations; those without a standard, written component were excluded. Each was assessed via the FORd-Caylor-STicht (FORCAST) readability formula. Text was scored manually, with online calculators (app.readable.com and readabilityformulas.com), and AI (Originality.ai). Descriptive analysis and linear regression were performed.

Results: Of 17 identified PROMs, all had individual GL >6 (total mean of 10.2, SD 1.38) using manual calculation with FORCAST. PROMs scored with AI had a notably higher maximum GL (14.1) than those scored manually (12.8) or with online calculators (13.1). Assessment of PROMs scored manually compared to online and AI calculation showed little difference with correlation coefficients of 0.17 (95% CI -0.57-0.93; $p=0.7$) and 0.70 (95% CI -0.06-1.5; $p=0.07$), respectively (Table).

Conclusion: Although variation exists between calculation methods, commonly used PROMs in trauma are less readable than recommended. Care should be exercised in administering PROMs to patients with low health literacy.

Tool Category	Mean Readability GL (Standard Deviation)	Minimum-Maximum GL	Linear Regression Results (Manual Ref)	
			Correlation Coefficient (95% CI)	p-value
Manual	10.2 (1.18)	8.20-12.8		
Online Calculator	10.4 (1.29)	8.78-13.1	0.17 (-0.06-1.45)	0.65
AI	11.0 (1.43)	9.10-14.1	0.70 (-0.57-0.93)	0.07

Table. Readability and Regression analysis across readability tools (CI: Confidence Interval)

Disparities | Clinical Science | Trauma/Burn/Critical Care
Persistent Racial and Sex Disparities in Opioid Use in Trauma

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Background: Sex, racial, and ethnic disparities exist in receipt of opioids after trauma. Although our institution implemented a protocolized multimodal pain regimen (MMPR) in 2013, disparities persisted. Subsequently, we conducted the Multimodal Analgesic Strategies for Trauma (MAST) randomized controlled trial (RCT) comparing two opioid-minimizing MMPRs.

Objective: We hypothesized that MAST would reduce prior disparities and decrease opioid use, measured in adjusted morphine milligram equivalents per day (MME/day).

Method: A secondary analysis of the MAST RCT (2018-2019) was performed, which enrolled trauma patients (≥ 16 years) at a single center. Demographics, injury characteristics, outcomes, and pain medications were extracted from the trauma registry and chart review. Patients were grouped by race/ethnicity and sex, with White and female patients as comparators. Univariate and multivariate analyses were conducted.

Results: Of 1,561 patients, the median age was 45 (IQR 29-63); 47% were White, 31% Hispanic, 20% Black, and 32% female. Black, and Hispanic patients had more risk factors associated with increased opioid use including higher rates of laparotomies and penetrating injuries ($p > 0.05$). Male patients also had increased rates of laparotomies, penetrating trauma, ICU admissions, and high-risk history compared to females ($p < 0.05$). Although unadjusted MMEs/Day were similar across race/ethnicities, males received more unadjusted MME/day ($p = 0.49$; $p = 0.03$). Black, Hispanic, and male patients had lower adjusted MMEs/day (Table).

Conclusion: Although protocolized MMPRs reduced opioid use among trauma patients overall, disparities persisted. Further research should assess why these disparities exist.

	Black Race	Hispanic Ethnicity	Male Sex
Opioid Total MME/Day (95% CI)	0.58 (CI 0.40-0.85) $p = 0.005$	0.67 (CI 0.49-0.92) $p = 0.01$	0.70 (CI 0.52- 0.95) $p = 0.02$
Incidence Rate Ratio with 95% Confidence Intervals Adjusted for age, injury severity score (ISS), MMPR regimen, unit of admission, laparotomy surgical procedure, high risk history, long bone fractures, and mechanism of injury			

Disparities | Education | Plastic & Maxillofacial Surgery

Funding Patterns and Gender Representation in 23,704 Articles Across Four High-Impact Surgical Journals

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Background: Gender diversity and funding transparency are essential in academic publishing, especially in surgical research, where gender disparities persist. Analyzing high-impact surgical journals offers insights into equity in authorship and funding.

Objective: To assess gender representation, author gender probability, funding allocation, and author country affiliations across a diverse selection of high-impact surgical journals.

Method: We analyzed all articles from Diseases of the Colon & Rectum (22,124), Journal of Bone and Joint Surgery (26,479), Plastic and Reconstructive Surgery (38,828), and JAMA Surgery (4,187), chosen for their high impact and disciplinary diversity. Author gender was determined using genderize.io, with data from Web of Science. Articles with authors with only initials as first names, or missing country data were excluded, resulting in final sample sizes of 3,534, 5,518, 11,312, and 3,340 articles, respectively.

Results: JAMA Surgery had the highest percentage of female primary (39.4%) and senior authors (27%) and greater funding rates for female authors. Average gender probabilities for authors ranged from 0.95 to 0.97 across journals. The US was the predominant affiliation, accounting for 76.7% in JAMA Surgery and 67.3% in Journal of Bone and Joint Surgery. Other frequently represented countries included Canada, Japan, and Italy.

Conclusion: This analysis highlights gender disparities in surgical authorship, particularly among senior authors, with JAMA Surgery demonstrating relatively higher female representation. Funding rates were marginally higher for female primary authors. These findings emphasize the need for efforts to promote gender diversity and equitable funding in surgical research.

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	JAMA Surgery	Diseases of the Colon & Rectum	Journal of Bone and Joint Surgery-American Volume	Plastic and Reconstructive Surgery
Percentage of Female Primary Authors	39.4	29.3	17.1	25.4
Percentage of Female Senior Authors	27.0	18.4	13.1	16
Average Primary Author Gender Probability	0.96	0.95	0.97	0.95
Average Senior Author Gender Probability	0.96	0.96	0.96	0.95
Percentage of Funded Papers with Female Primary Authors	35.4	29.7	29.8	21.5
Percentage of Funded Papers with Female Senior Authors	35.1	32.1	27.7	18.1
Primary Country of Affiliation (%)	USA (76.7)	USA (39.3)	USA (67.3)	USA (58.3)
Second Leading Country by Publication (%)	Canada (3.5)	Japan (7.0)	Canada (5.6)	Italy (4.6)
Third Leading Country by Publication (%)	China (2.7)	England (6.6)	England (2.6)	China (4.0)

Cultural and Socioeconomic Determinants of Hip and Knee Arthroplasty in the Rio Grande Valley Community

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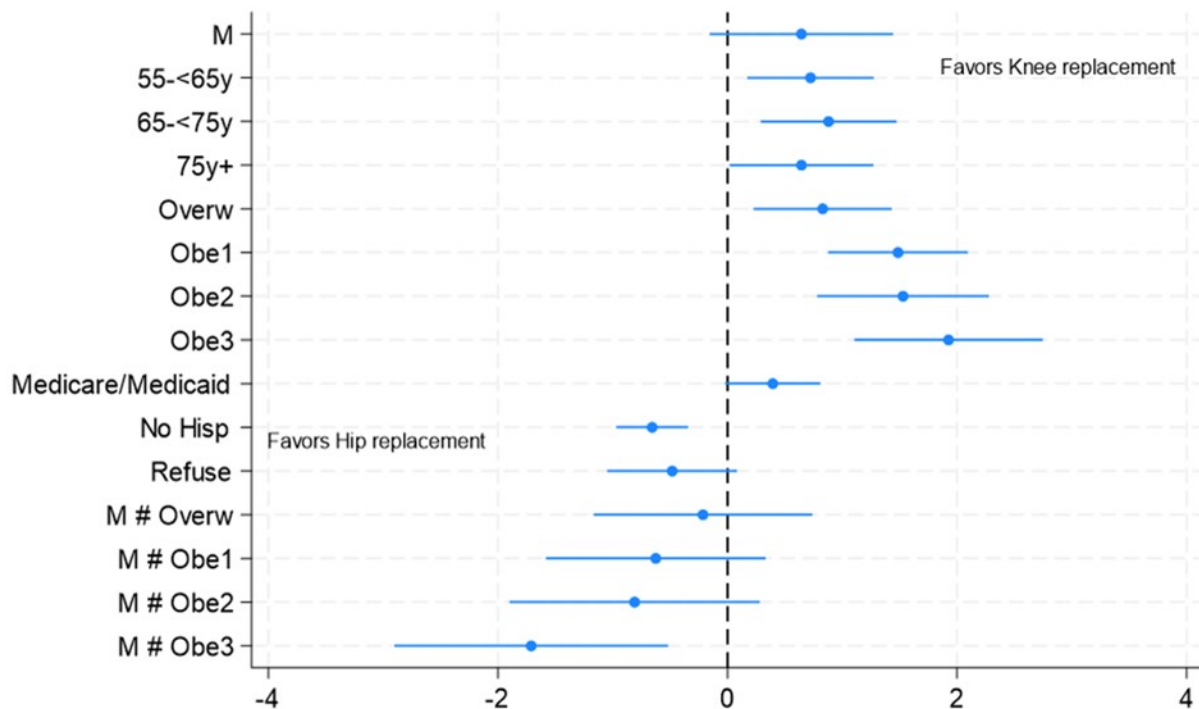
Background: Joint arthroplasty is one of the most common procedures performed worldwide and the volume of these operations are on the rise.

Objective: In this study we aimed to discover if there were differences in the demographics and social factors associated with individuals undergoing total knee arthroplasty (TKA) and total hip arthroplasty (THA) in the Rio Grande Valley (RGV). We hypothesized that women would have increased risk of THA whereas individuals who are older and have higher BMI would have increased risk of TKA.

Method: We conducted a retrospective chart review using the UTRGV UHealth electronic database from January 1, 2018 through July 1, 2024. Individuals were selected using Current Procedural Terminology codes for any patients with TKA or THA. Various statistical analyses were performed to calculate the OR (95% CI).

Results: We analyzed 780 participants, 252 with THA and 528 with TKA. The mean age at the procedure was 69.9 (SD 9.7) years, with a mean BMI of 31.8 (SD 6.25). TKA was associated with higher BMI and was 20% more common in Hispanics [OR 2 (95%CI: 1.4, 3.3) p=0.004]. Factors associated with TKA compared with THA were age greater than 55 years old, increased BMI, the use of public insurance, and Hispanic individuals.

Conclusion: This study demonstrated the influence of unique cultural and socioeconomic conditions in the RGV in the context of elective surgeries such as TKA and THA. This suggests the need for policy interventions and continuing research to cope with the disparities observed in this community and other underserved communities.



Disparities | Education | General Surgery

Unmet Surgical Needs: The Growing Challenge of General Surgeon Shortages in Rural Texas

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Texas A&M EnMed

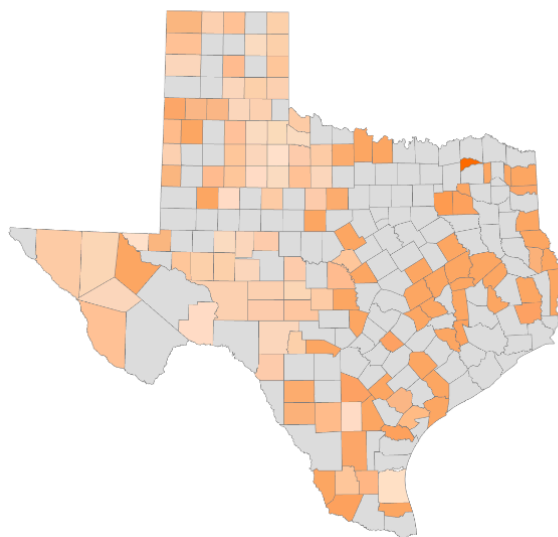
Background: Rural Texans face significant difficulties in access to general surgeons due to the scarcity of physicians in these areas. Studies have shown that the current supply and demand problem of general surgeons leads to lack of access in an adequate amount of time. Additionally, lack of an adequate number of general surgeons lead to hospital closures. Reduced access to care for even basic needs creates obstacles for rural citizens to be diagnosed and treated effectively.

Objective: This literature review explores differences in access in both elective and emergent general surgery interventions between rural and urban areas in Texas.

Method: "Physician data was collected from the Texas Medical Board. Literature review was conducted using "rural Texas

Results: Currently over 2.7 million Texans live in areas without access to care by a general surgeon or trauma surgeon. This spans over 50% of the state by total land area as without access to adequate healthcare by any general surgeon.

Conclusion: The access to a general surgeon in rural Texas is extremely limited. Increasing imbalances in the field of general surgery will create even more disparities between access to care in rural and urban areas in the state. These disparities will lead to poorer outcomes, an increased morbidity for those seeking consults, and mortality for those who need immediate interventions. Addressing sufficient general surgery access to care in rural areas is one of healthcare's most pressing problems.



Counties in TX with General surgeons (Grey) and ones without (color)

THE BURNING INFLUENCE OF SOCIAL DETERMINANTS OF HEALTH ON THE RISK OF SELF-IMMOLATION EVENTS IN THE UNITED STATES

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Background: Several social determinants of health (SDOH) influence suicide rates, including economic instability, violence exposure, minimal education, and social isolation. Self-immolation (SIM), the act of setting fire to oneself, is a devastating suicide method, occurring predominately in developing nations.

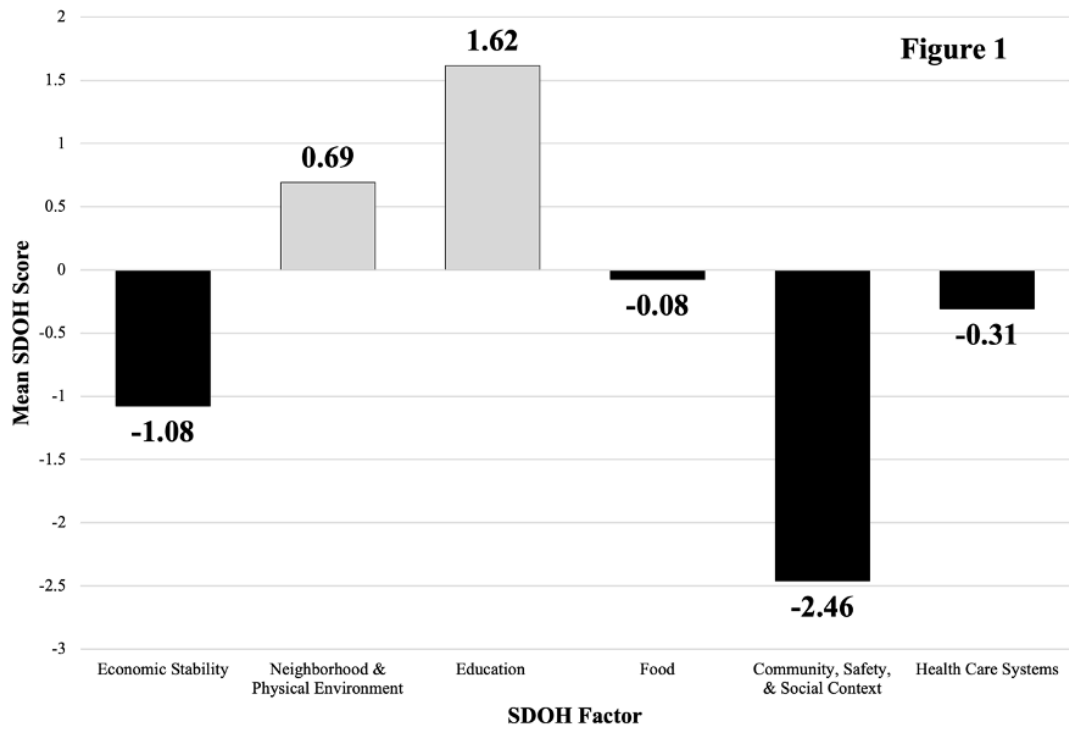
Objective: In response to an increased incidence of SIM events at our institution, our objective is to identify correlations between SDOH factors and SIM risk. We hypothesize that such risk will closely resemble that of other suicide mechanisms.

Method: We performed a retrospective analysis (2017-2022) of patients who presented to our academic burn center after SIM. Data included demographics, burn total body surface area (TBSA), and patient history, including psychiatric illness, prior suicide attempts, substance use, and SDOH factors. SDOH factors were assessed using the Kaiser Family Foundation's SDOH Figure, which consists of six key factors and contributing sub-factors. Each sub-factor was scored as protective (+1), harmful (-1), or neither (0). Sub-factor scores were used to calculate individual and mean SDOH scores per factor. The primary outcome was mean SDOH score per factor.

Results: There were 13 SIM patients. All were male, mean age of 40, and mean burn TBSA of 53%. Most had a history of psychiatric illness (85%, n=11), prior suicide attempts (54%, n=7), and/or substance use (62%, n=8). Mean SDOH scores are shown in Figure 1.

Conclusion: Multiple SDOH are associated with SIM. Surprisingly, most patients had favorable educational sub-factors and stable housing conditions, while economic instability, unemployment, violence exposure, and social isolation were common harmful associations. Our findings suggest that patients with favorable backgrounds remain vulnerable to social stress and suicide by SIM. This supports approaching suicide as a trans-diagnostic phenomenon, with social support being a critical component.

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TEVAR for Blunt Thoracic Aortic Injury: Impact of Arch Type on the Rate of Type 1 Endoleak

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Background: In recent years, thoracic endovascular aortic repair (TEVAR) has emerged as the standard of care for management of blunt thoracic aortic injury (BTAI), resulting in reduced rates of in-hospital mortality.

Objective: We aim to identify factors, including arch type, which may impact endoleaks among these patients.

Method: The Aortic Trauma Foundation registry was utilized to identify patients with BTAI managed with TEVAR from 2012 – 2023 for whom arch type was documented. Type 1 endoleak rates, graft specifications, lesion characteristics, demographics, and mechanism of injury were compared.

Results: A total of 405 patients were included for analysis. Patients with type II and III arches were found to be more likely to have an endoleak when compared to those with type I arches (4.3% vs. 7.7% vs. 1.1%, $p=0.019$). Those with type 1 endoleak also had a higher maximum lesion diameter on average (31mm vs 23mm, $p=0.034$). Left subclavian artery coverage conferred a higher endoleak rate (5.1% vs. 1.2%, $p=0.019$), particularly among those with type II or III arches (9.1%). Patients with endoleak did not have a higher mortality rate. Furthermore, there was no difference in rates of endoleak when comparing SVS grade, device dimensions, bovine anatomy, lesion length, gender, age, comorbidities, trauma center volume, ISS, or mechanism.

Conclusion: As endovascular therapies continue to be the mainstay in the surgical management of BTAI, identification of anatomic features which increase the risk of technical failure is critical. Especially in cases of Zone 2 TEVAR, arch angulation appears to impact endoleak rate and could influence device selection.

Drains After Trauma Splenectomy: Helpful or Harmful?

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Background: Left upper quadrant (LUQ) drains after splenectomy are often used to detect pancreatic leaks but may increase organ space surgical site infection (OS-SSI) risk.

Objective: To assess if LUQ drains after splenectomy are associated with OS-SSIs after trauma laparotomy.

Method: A retrospective review was performed of adult blunt trauma patients who underwent splenectomy from 1/2011-6/2024. We included patients surviving ≥ 5 days and excluded those with obvious pancreatic injuries at initial laparotomy. Demographics, surgical details, and LUQ drain placement were extracted from the medical record. Inverse probability of treatment weighting (IPTW) method using propensity scores balanced variables between patients with a LUQ drain and those without. A multivariable logistic regression with IPTW estimated the association of LUQ drains with the odds of developing an OS-SSI.

Results: Of the 356 patients who met inclusion criteria, 26% (N=91) received a LUQ drain. Patients with a drain had a higher median BMI (27[23, 31] vs. 25[22, 29] p=0.049), higher percentage of contaminated and dirty wounds, and longer median length of hospital stay (LOS) (17 [9, 29] vs. 12 [6, 24], p= <0.001) compared to patients without a drain. However, patients had similar ages, Injury Severity Scores, and bowel injury rates. LUQ drain was associated with increased adjusted odds of OS-SSI (OR 2.89, 95% CI 1.31-6.37, p=0.008). LUQ drain identified 12 patients with pancreatic injuries undiagnosed at initial laparotomy.

Conclusion: Patients with LUQ drain after trauma splenectomy had increased OS-SSIs and LOS. Although LUQ drains may identify unsuspected pancreatic injury, the benefits may not outweigh the risks.

	Odds Ratio	95% CI	p-value
Left Upper Quadrant Drain	2.89	1.31 - 6.37	0.008
Injury Severity Score	1.01	0.97-1.04	0.64
Large Bowel Resection	2.91	1.12-7.51	0.027
Damage Control Laparotomy	2.49	1.12-5.57	0.025

Table 1. Multiple Regression Analysis Incorporating the inverse probability of treatment weighting method (IPTW) model.

Late VTE Chemoprophylaxis is Associated with Increased Risk of DVT, PE, and Mortality in Patients with Traumatic Spinal Injuries

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Background: For spinal trauma patients, initiation of VTE chemoprophylaxis (CP) is weighed against bleeding risk, especially those undergoing operative intervention.

Objective: The aim of this study was to compare outcomes in patients with spinal injuries who receive early vs. late CP.

Method: This is a 2021 National Trauma Data Bank study. We included patients with a length of stay >48 hours who sustained spinal injuries according to ICD-10 codes. We analyzed demographics, injury severity score (ISS), timing and type of CP, and need for surgical procedure for the spine. The early (< 48 hours) and late (>= 48 hours) CP groups were compared by univariate and multivariate analysis. Primary outcomes were DVT, PE, and mortality.

Results: There were 96,515 patients, with 63,051 (65%) in the early group and 33,464 (35%) in the late group. Patients that received late CP were younger (53 vs. 56, p<0.0001), more often male (64% vs. 59%, p<0.0001), and had a higher ISS (19 vs. 14, p<0.0001). The late group had more spine procedures (34% vs. 13%, p<0.0001) and more often developed a DVT (3.5% vs. 1.3%, p<0.0001), PE (1.8% vs. 0.8%, p<0.0001), and had a higher mortality (5.8% vs. 2.5%, p<0.0001). On logistic regression, while controlling for age, gender, ISS, type of CP, and surgical procedure, late CP was independently associated with DVT (AOR: 1.9 [95% CI=1.7-2.1], p<0.0001) and PE (AOR: 1.4 [95% CI=1.2-1.6], p<0.0001). Similarly, late CP was independently associated with mortality (AOR: 1.5 [95% CI=1.3-1.6], p<0.0001).

Conclusion: Delayed administration of VTE CP for patients with spinal injuries is independently associated with an increased risk of DVT, PE, and mortality.

Total Population of Spine Injuries			
Data (n=96,515)	Early (n=63,051)	Late (n=33,464)	p - value
DVT	1.3%	3.5%	<0.0001
PE	0.8%	1.8%	<0.0001
Mortality	2.9%	5.4%	<0.0001
Need for Transfusion	11.6%	21.1%	<0.0001
Unplanned Operation	1.5%	3.2%	<0.0001
Hospital LOS (mean + SD)	10 (+/- 11)	16 (+/- 16)	<0.0001
Total ICU LOS (mean + SD)	7 (+/- 8)	10 (+/- 10)	<0.0001
Total Vent Days (mean + SD)	8 (+/- 11)	11 (+/- 12)	<0.0001

Enhancing Pre-Hospital Airway Management: The Impact of Intubation Training on Peri-Hospital Clinical Outcomes of Trauma Patients

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Background: Peri-hospital mortality and morbidity of trauma patients are affected by timely recognition of compromised airways by first responders. For this reason, continuing medical education is imperative.

Objective: This study aims to evaluate the impact of airway management courses taught by trauma surgery faculty to surrounding EMS departments on peri-hospital outcomes.

Method: All adult trauma activations at UTMB hospitals pre-intervention from 2020 to 2022 (Cohort A) were compared to post-intervention from 2023 to 2024 (Cohort B), with preliminary analysis of 200 patients in each cohort. Primary outcomes of incidence of endotracheal intubation (ETI), failure to intubate (FTI), unnecessary intubation (UI) by EMS were analyzed via chi-sq analysis. Secondary outcomes of mortality, ventilator days, ICU length of stay, and total hospital length of stay were analyzed via unpaired t-test.

Results: The average patient age in Cohort B was significantly higher than Cohort A (39.54 ± 16.85 vs 44.60 ± 19.01 years, $p < 0.05$). The incidence of ETI was 5 in each cohort. None of the patients in cohort A were UI compared to 1 patient in cohort B. Cohort A had significantly higher incidence of FTI compared to Cohort B (3 vs 1, $p < 0.05$). No significance in mortality between the cohort was noted (2 vs 5, $p = 0.17$). Average ventilator days were not significant between the two cohorts (4.25 vs 5.83 , $p = 0.76$). Average ICU Length of stay was not significant either (4.25 ± 4.71 vs 5.83 ± 11.36 , $p = 0.78$). The average total hospital length of stay was also not significant (2.26 ± 4.11 vs 2.1 ± 5.99 , $p = 0.13$).

Conclusion: Preliminary data of EMS airway management course demonstrates differences in FTI pre and post intervention. Complete analysis is necessary to understand the full impact of the course on peri-hospital outcomes.

Table 1. Peri-Hospital Outcomes before and after EMS Airway Management Teaching

n = 200	Cohort A		Cohort B		P-Value
	Yes	No	Yes	No	
Pre-Hospital Endotracheal Intubation	5	195	5	195	1.00
Failure to Intubate	3	5	1	5	0.04
Unnecessary Intubation	0	5	1	4	0.26
Mortality	2	198	5	195	0.17
Ventilator Days	4.25 ± 4.71		5.83 ± 11.36		0.76
ICU Length of Stay (Days)	4.17 ± 131.78		3.69 ± 118.09		0.78
Total Hospital Length of Stay (Days)	2.26 ± 4.11		2.1 ± 5.99		0.13

Cohort A = Pre-Intervention 2020-2022, Cohort B = Post-intervention 2023-2024

Should Anything Else Be Done Besides Prehospital CPR? The Role of CPR and Prehospital Interventions After Traumatic Cardiac Arrest

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Background: The utility of prehospital CPR after traumatic cardiac arrest (TCA) remains in question. While EMS initiated CPR following TCA is a common practice, variability exists due to differences in EMS perceived futility and survivability. These perceived differences have prevented the universal implementation of CPR following TCA.

Objective: We sought to identify factors associated with survival in TCA patients.

Method: Retrospective cohort study of adult patients transported by EMS to our trauma center, after receiving CPR at the scene or in transit, from January 1, 2014 to December 31, 2022. We compared patients who arrived at the ED with and without a pulse following CPR for TCA. Multivariate logistic regression identified interventions independently associated with having a pulse on ED arrival.

Results: 244 patients met inclusion criteria. Overall, 30% of patients had a pulse on ED arrival.

No differences existed for age (41 vs. 40, $p=0.44$), ISS (33 vs. 36, $p=0.20$), air transport (13% vs. 19%, $p=0.14$), male gender (81% vs. 77%, $p=0.51$), or transport time (11min vs. 15min, $p=0.16$). Differences existed for blunt mechanism (76% vs. 63%, $p=0.04$) and rates of prehospital thoracostomy (39% vs. 55%, $p=0.02$), tourniquet (1% vs. 8%, $p=0.045$), and defibrillation (17% vs. 7%, $p=0.02$). When comparing patients who arrived with and without a pulse, patients who arrived with a pulse had a 65% mortality, compared to 100% of patients who arrived pulseless. On multivariate logistic regression, penetrating trauma and prehospital thoracostomy were independently associated with an increased likelihood of having a pulse on arrival.

Conclusion: Patients who arrive to the ED with a pulse after prehospital CPR for TCA have 35% chance of survival. Penetrating trauma and prehospital thoracostomy were independently associated with pulse on arrival, possibly indicating relief of tension pneumothorax.

FIVE YEAR, POST-IMPLEMENTATION ANALYSIS OF AN AIR EMS AUTO-LAUNCH SYSTEM FOR SEVERELY INJURED TRAUMA PATIENTS

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Texas A&M Scott and White

Background: Prolonged transport times and double transfers have the potential to worsen trauma mortality by delaying time to definitive hemorrhage control. The Air EMS Auto-Launch System (AALS) was developed to expedite care of severely injured trauma patients by prompting air EMS agencies to the scene of injury.

Objective: This is the five year analysis post-implementation of the AALS, examining the impact of the AALS on patient outcomes.

Method: This study is a retrospective analysis at a Level 1 trauma center following the implantation of the AALS in 2018. Adult trauma patients from January 2015- September 2023 with ISS >15 were included. Transport origin, transport time, initial vital signs, and blood product administration data were collected. Mortalities on arrival, within 4, and 24 hours were compared before and after implementation. Preliminary analysis was completed with standard student t-test and Chi-Square test.

Results: A total of 695 patients met the inclusion criteria for the study. Following initiation of the system, there were significantly more patients that came directly from the scene compared to a referring hospital, $\chi^2 (2, N=693) = 8.7, p < 0.05$. The ISS scores of presenting patients were similar compared between before and after the implantation of the system, (27.90 +/- 11.95 vs 28.42 +/- 11.30, $p = 0.603$). Patients dead on arrival and 4-hour mortality remained similar through 2023. Mortality at 24-hours was significantly lower in 2023, the fifth year after AALS implementation, $\chi^2 (2, N=249) = 5.046, p < 0.05$.

Conclusion: The AALS system decreased trauma transfers, promoting the opportunity to expedite hemorrhage control and improve mortality within 5 years of implementation. These results highlight the importance of rapid, definitive management and justify the ongoing use of the AALS system for severely injured trauma patients.

Accidental Gunshot Wounds: An NTDB Retrospective Study

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Background: American gun ownership remains a controversial topic – with considerable literature dedicated to the employment of guns in acts of violence and self-harm. By comparison, much less attention has been focused on accidental discharges of firearms and their consequences.

Objective: Our goal is to shed light on the consequences related to accidental firearm discharges.

Method: The National Trauma Data Bank annual data from 2021 was queried to identify patients with gunshot wounds characterized as “accidental” by e-coding. Demographics, presentation data, management and outcomes were subsequently collated and reported.

Results: Accidental gunshot wounds were identified in 4,399 patients. Male gender (84.2%; 3,703/4,399) represented the majority with a predominantly mixed-race distribution (47.8% black, 38.9% white). The majority were 40 years of age or younger (3,404/4,399; 77.4%). Of the incidents compiled, 6.8% (299/4,399) resulted in death. Alcohol screen data was reported for 53.2% (2,339/4,399), with 27.3% yielding a finding of an elevated blood alcohol level (639/2,339) and 16.4% (384/2,339) proving legally intoxicated (BAL > 0.08). Positive drug screens were also common, including cannabinoid (15.7%; 692/4,399), amphetamine (7.1%; 311/4,399) and cocaine (5.4%; 236/4,399). Only 4.2% of patients were hypotensive on arrival. The most common injury locations were to the lower extremity (44.1%; 1,942/4,399), upper extremity (19.9%; 877/4,399), face/head (10.4%; 458/4,399) and abdomen (10.2%; 449/4,399). Vascular injury occurred in 11.3% (498/4,399), with 38.6% (192/498) requiring vascular repair. Among patients with upper extremity accidental gunshot wounds, 10.1% (89/877) required a hand or finger amputation. Among lower extremity injured patients, amputation was ultimately required in 4.7% (91/1,942), including above knee amputation in 0.4% (8/1,942), below knee amputation in 1.1% (22/1,942) and partial foot or toe amputation in 3.2% (63/1,942). Of those queried, 71.8% (3,157/4,399) of incidents demanded inpatient care for an average length of stay of 6.2 days.

Conclusion: Accidental gunshot wounds commonly occur in the context of alcohol or drug use with approximately 7% ending in death and 11% vascular injury. These injuries require prolonged hospital stays and not infrequently result in the need for amputation. These data highlight the potential value of gun safety education and suggest the utility of “don’t drink and carry” policies related to gun ownership.

Trauma/Burns | Clinical Science | Trauma/Burn/Critical Care
Operationalizing the Trauma Systems Blueprinting Framework at a Level 1 Trauma Center near the US-Mexico Border.

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 Baylor College of Medicine

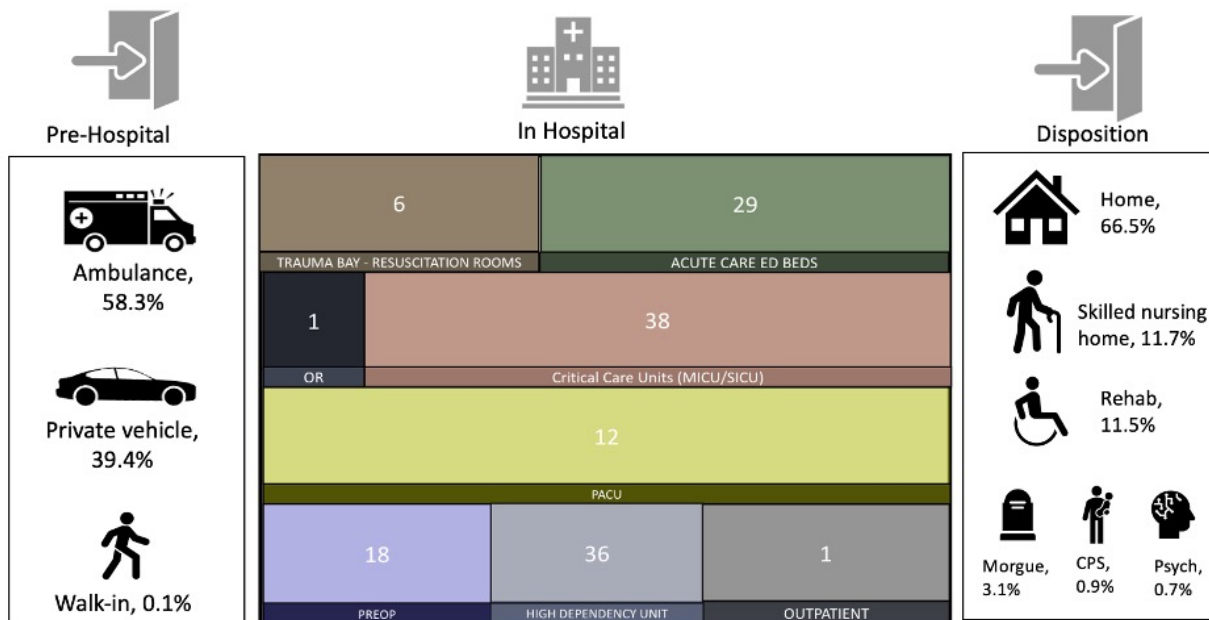
Background: The Trauma Systems Blueprinting Framework (TSBF) was developed to analyze and compare trauma care delivery across facilities, providing a foundation for system improvements in resource-limited areas.

Objective: To operationalize the TSBF to evaluate trauma care delivery and system design at a safety-net trauma center near the U.S.-Mexico border.

Method: Data was collected through consultations with emergency medical services (EMS) and hospital staff. Prehospital arrivals and post-discharge dispositions for 3,041 patients were analyzed using trauma registry data from January 2023 to September 2024.

Results: 57.9% of trauma patients arrived by ambulance, with a total call-to-hospital time of <45 minutes across the encatchment area. The city is served by seven first responder vehicles and a rescue truck equipped with whole blood. The trauma center maintains seven units of whole blood, individual blood products, and a multidisciplinary trauma activation team including emergency, surgery, anesthesia, respiratory therapy, radiology, and OR staff. A detailed breakdown of trauma-related facilities is provided in Fig.1. Post-hospital care is robust, with 616 home health services, 40 skilled nursing facilities, specialized wound care teams, and outpatient follow-up options. Additional resources include an on-site morgue with a capacity for three, mass casualty protocols for county morgue transfers, and an active organ donation program.

Conclusion: Our safety-net trauma system is supported by efficient EMS response, strong hospital infrastructure, and comprehensive post-hospital care. Regular evaluations can address access disparities and optimize resource utilization. This pilot study demonstrates the potential for scaling the TSBF to resource-limited regions to drive data-informed trauma system enhancements.



NON-COMPRESSIBLE TORSO HEMORRHAGE CONTROL WITH INTRAVASCULAR ULTRASOUND GUIDED RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION

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Research performed at BAMC

Background: Non-compressible torso hemorrhage (NCTH) is the leading cause of potentially survivable deaths in modern combat. Resuscitative endovascular balloon occlusion of the aorta (REBOA) is a non-targeted management option. Minimally-invasive diagnostic and endovascular treatment modalities, which are targeted, could improve combat casualty care.

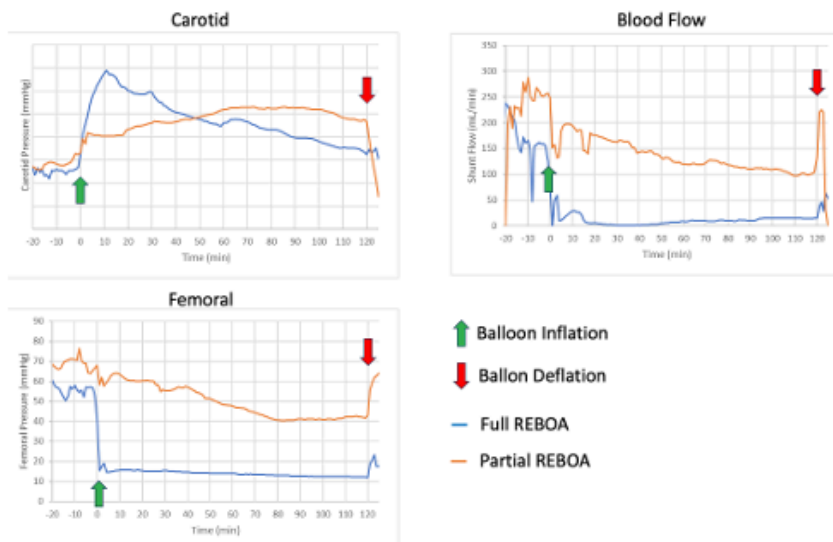
Objective: The objective of this study was to determine the feasibility of placing a REBOA under intravascular ultrasound (IVUS) guidance and determining flow dynamics while undergoing treatment for ongoing NCTH secondary to aortic branch vessel injury.

Method: Ten Sus scrofa swine underwent laparotomy with exposure of branch vessel of the aorta and inferior vena cava. Subsequently, an artificial arteriovenous shunt between the vessels was created to simulate ongoing hemorrhage. A 0.018" IVUS catheter was advanced to localize the injury. A full or partial REBOA was deployed under IVUS guidance. Intraarterial pressures and shunt flow rate was monitored throughout.

Results: All REBOA devices were placed successfully under IVUS visualization. Femoral perfusion demonstrated 2-3x more flow in partial-REBOA over full-REBOA throughout observation. Blood flow to the shunt was present using partial-REBOA demonstrating some organ perfusion, whereas limited flow was seen in full-REBOA (Figure 1). All REBOA swine became more acidotic, with lactate in full-REBOA being significantly higher ($p=0.02$).

Conclusion: Endovascular treatment of hemorrhagic injury is becoming a part of modern combat casualty care. We demonstrate that with IVUS technology, we have an option for more targeted treatment for NCTH. Our data also demonstrates the metabolic sequela of full and partial REBOA.

Figure 1: Pressure and Shunt Flow as a Result of REBOA Inflation/Deflation



CIVILIAN PREHOSPITAL TOURNIQUETS FOR EXTREMITY TRAUMA: MORE COMMON AND GETTING BETTER ALL THE TIME

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Background: From lessons learned in recent U.S. military conflicts, extremity tourniquets (TQ) have become standard practice in civilian prehospital care. We hypothesized that civilian EMS TQ use has increased and TQ are more often applied correctly to patients with extremity vascular injury.

Objective: The specific aim of this study was to investigate the rate of civilian TQ placement and compare TQ placement in patients with and without vascular injury.

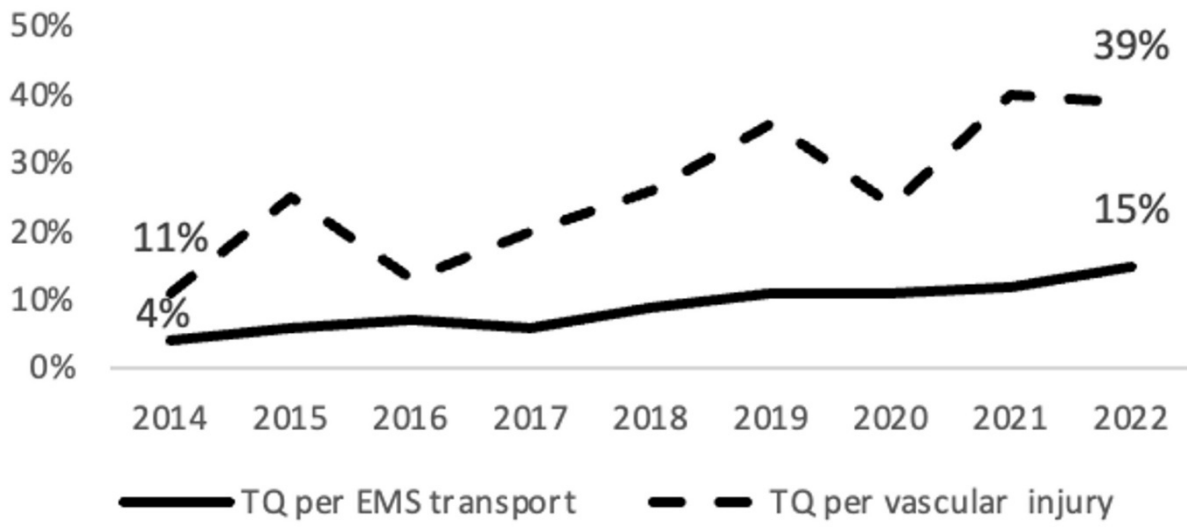
Method: This was a retrospective study (2014-2022) of all adult trauma patients who had a prehospital extremity TQ placed and were transported to our trauma center at the highest level of activation. Data collected includes demographics, mechanism, physiology, injury severity, presence of extremity vascular injury (ICD-9 and 10 codes), and TQ year, number, and location. The primary outcome was the rate of TQ placement over time, while secondary outcome was the presence of an extremity vascular injury.

Results: There were 353 patients who had a total of 482 prehospital extremity TQ placed. The TQ patients were on average 37 years old, 82% male, 61% sustained penetrating trauma with an ISS=15, and 26% had an extremity vascular injury. There was an average of 1.4 TQ placed per patient, with 44% placed on an arm and 59% placed on a leg. TQ placement increased during the study period for both TQ placement per EMS transport (4% vs. 15%, $p<0.0001$) and TQ placement per vascular injury (11% vs. 39%, $p<0.0001$), see figure. When comparing TQ patients with and without vascular injury, there was no difference in age, gender, race/ethnicity, or ISS, but the vascular injury patients more often sustained penetrating trauma (82% vs. 54%, $p<0.0001$) and had a lower prehospital systolic blood pressure (106 vs. 116, $p=0.03$). On logistic regression, while controlling for age, gender, as well as number and location of tourniquets, only penetrating injury (AOR: 3.4 [1.7-6.8], $p=0.0004$) and prehospital hypotension (AOR: 2.9 [1.6-5.4], $p=0.0005$) were independently associated with the patient having an underlying extremity vascular injury.

Conclusion: Civilian EMS TQ use has increased over the past decade, and one in four patients with a TQ had an extremity vascular injury. There may be room to further refine indications for civilian prehospital TQ application, considering mechanism and hemodynamic condition in the decision making.

Graphic on next page.

Extremity Tourniquets (TQ) over Time



Comparative Outcomes of Choledochal Cyst Excision with Hepaticoduodenostomy Versus Hepaticojejunostomy

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Background: Choledochal cysts, affecting 1 in 100,000-150,000 births, are typically managed with excision and biliary-enteric reconstruction by either hepaticoduodenostomy (HD) or hepaticojejunostomy (HJ). Currently, there is limited evidence for superiority of either reconstruction approach, therefore, the decision is primarily determined by surgeon experience and preference.

Objective: This study aimed to compare postoperative complications in patients who underwent choledochal cyst excision with HD or HJ.

Method: Patients who underwent choledochal cyst excision with HD or HJ (CPT 47715 vs 47760) from 2004-2024 were identified utilizing TriNetX database. The cohorts were propensity score matched by age, race, and ethnicity. Rates of reoperations and complications (Anastomotic Strictures, Bile Leakage, Cholangitis, Bowel Obstruction, Pancreatitis, Reflux/Gastritis, and Pseudocyst/Abscess formation) occurring up to 6 months postoperatively were compared between the cohorts.

Results: Of 612 patients included, 52% had postoperative complications, with complications significantly higher for HD vs HJ (59% vs 45%; OR=1.74, $p<0.001$). Reflux/gastritis was the most common complication, with similar rates for HD and HJ (32% vs 29%, $p=0.2219$). HD patients had increased risk of anastomotic strictures (26% vs. 14%; OR=2.04, $p<0.0006$) and pancreatitis (17% vs. 10%; OR=3.06, $p<0.0001$), with similar incidence of other complications between the two approaches. Additionally, patients who had reconstruction with HD more commonly required reoperation (7% vs. 3%; OR=2.32, $p=0.036$).

Conclusion: Choledochal cyst excision with HD reconstruction had increased risk of anastomotic strictures, pancreatitis, and need for reoperations, suggesting improved outcomes for HJ compared to HD reconstruction. Careful consideration of reconstruction approach should be taken based on patient factors and surgeon experience.

Surgical Sustainability: Tracking Waste in Pediatric Surgery Operating Rooms

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University of Texas HSC - Houston

Background: Healthcare significantly contributes to greenhouse gas emissions and landfill waste, with operating rooms (ORs) producing a substantial portion of total hospital waste.

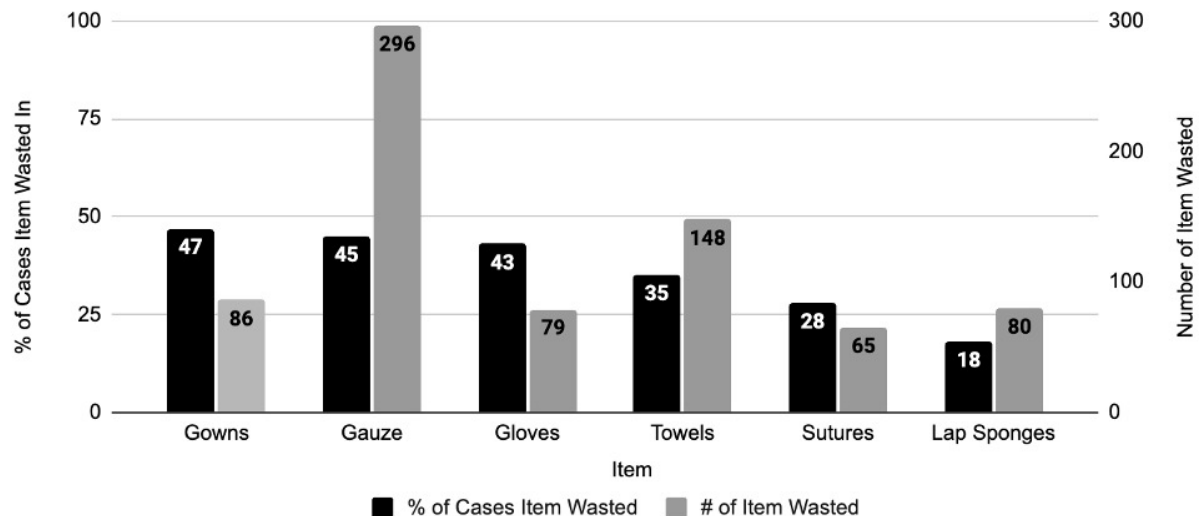
Objective: To evaluate the current waste load generated in the ORs of a children’s hospital and assess current waste management practices.

Method: A prospective observational study was conducted from May 2024 to July 2024. Operative details and material waste data were collected post-operatively through observation of the surgical instrument table, Mayo stand, and consultations with the OR team. Waste was defined as discarded disposable equipment that was opened but unused, sterilizable materials not utilized, and/or opened but unused surgical trays. Descriptive statistics were used for analysis.

Results: Across 94 pediatric surgical cases, 83% generated waste, totaling 912 wasted materials (median 10 per case, IQR 1-14). The items most frequently wasted were gowns, gauze, gloves, sterile towels, and sutures. The items with the most waste included gauze, sterile towels, gowns, lap sponges, and gloves. Unused trays were opened in 16% of cases. Orthopedic and plastic surgery operations (93% and 94%) had the highest waste rates, while urology operations (50%) had the lowest.

Conclusion: Because all cases had some level of waste, understanding equipment and supply utilization highlights opportunities for targeted waste reduction in our ORs. Process-improvement and systems engineering approaches are needed to further investigate the significant contribution of synthetic materials, used in items like gowns and gloves, to the OR’s carbon footprint. Identifying sustainable alternatives will mitigate OR emissions and bring us closer to a net zero-carbon healthcare system.

Prevalence and Quantity of Commonly Wasted Items



Unplanned Retrievals in Pediatric Surgery: A Path to Streamlined Efficiency

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University of Texas HSC - Houston

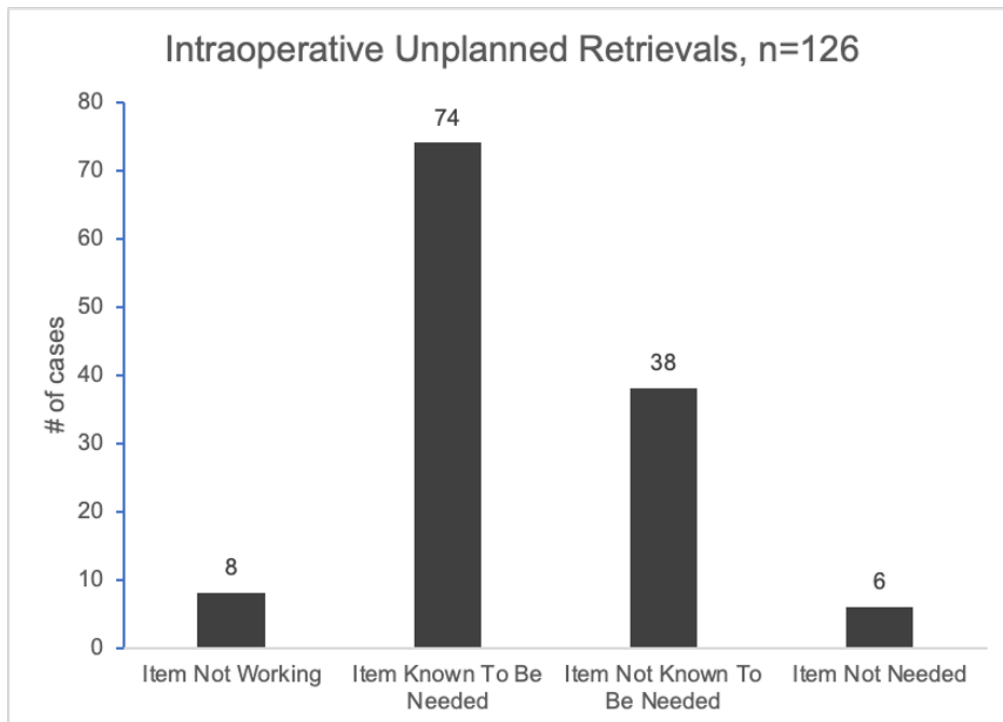
Background: Effective operating room preparation and team communication are essential for optimal patient care. Unplanned retrievals of equipment and supplies disrupt operating room flow, divert essential personnel, and extend operative times.

Objective: This study quantifies intraoperative unplanned retrievals and identifies patterns to improve protocols and equipment availability.

Method: A prospective observational study was conducted across six pediatric surgical subspecialties from May to July 2024. Trained personnel audited pediatric surgeries, defining unplanned retrievals as items retrieved that were not in the operating room at the case start. Retrievals were categorized as: replacement of non-functional items present in the room, known needed items, unknown needed items, and/or items that were retrieved but ultimately not needed. Data included item type, quantity, reason, and retrieval time. Descriptive statistics summarized the findings.

Results: Among 94 pediatric surgical cases, 45.8% involved unplanned retrievals, totaling 126 retrievals (median 1, IQR 0-2). Of these, 58.7% were known needed items, 30.2% were unknown needed items, 6.4% were replacements, and 4.8% were ultimately unnecessary. Retrievals per case varied by specialty: general surgery (median 1.5), orthopedics (2.6), otolaryngology (0.5), neurosurgery (1.5), plastic surgery (0.8), and urology (1.0).

Conclusion: Unplanned retrievals can be common in pediatric surgery, with nearly half of the observed cases requiring at least one retrieval. The majority were for known needed items, highlighting preoperative preparation gaps. Targeted interventions, especially addressing variation across subspecialties, are needed to enhance operating room efficiency, reduce delays, and improve outcomes.



Semaglutide and postoperative outcomes in non- diabetic patients following body-contouring surgery

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Background: Semaglutide is a recent medication targeted for weight loss in non-diabetic, obese patients. Following semaglutide use, many users undergo body-contouring to reduce physical discomfort or achieve their desired look. Body- contouring post-bariatric surgery aims to enhance patient well-being by reducing physical discomfort and infection risks associated with loose skin, but faces challenges with postoperative complications like wound dehiscence and delayed healing

Objective: To examine the relationship between preoperative semaglutide use and postoperative complications in non-diabetic obese patients undergoing body-contouring surgery.

Method: This study identified patients aged 18 years or older who were prescribed semaglutide analysis using the TriNetX Research Database. Non-diabetic patients undergoing body-contouring surgery following bariatric procedures between 2021 and 2024. A total of 728,947 patients with a prescription of semaglutide in 64 healthcare organizations.

Cohort A included 4,215 patients prescribed for ≥ 6 months pre- surgery and previous history of undergoing body- contouring surgery; Cohort B comprised of 104,927 patients without semaglutide treatment. After propensity score matching, Cohort A and Cohort B consisted of 4,157 patients per cohort. Postoperative complications including wound dehiscence, delayed wound healing, surgical site infections, nausea, vomiting, diarrhea, hypertrophic scar formation, and surgical site pain.

Results: After matching, significant differences were observed. Semaglutide users had higher risks of wound dehiscence (5.19% vs. 2.78%, $p < 0.0001$), delayed wound healing (2.58% vs. 1.21%, $p < 0.0001$), and surgical site infections (5.37% vs. 2.87%, $p < 0.0001$). They also had higher risks of nausea, vomiting, diarrhea (11.27% vs. 5.34%, $p < 0.0001$), hypertrophic scar formation (5.53% vs. 3.86%, $p = 0.0011$), and surgical site pain (6.05% vs. 3.29%, $p < 0.0001$).

Conclusion: Semaglutide use in non-diabetic patients undergoing body-contouring surgery post-bariatric procedures is associated with increased risks of adverse postoperative outcomes. These findings emphasize the need for better preoperative counseling and surgical planning to mitigate these risks and optimize surgery outcomes.

A Retrospective Review of Ventral Hernia Repair Outcomes among Geriatric Patients at the Texas Hernia Center

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Background: As surgical technique evolves, a better understanding of age-related outcomes in ventral hernia repair (VHR) is needed.

Objective: To compare complications (Clavien-Dindo classification grade 2-5) within 30 days post-operative following elective VHR in patients ≥ 65 years of age to those < 65 .

Method: We conducted a retrospective review of elective VHRs performed from 2021-2024 comparing patients < 65 (n=170) to patients ≥ 65 (n=54). Our primary outcome was any grade 2-5 Clavien-Dindo complication. Secondary outcomes included hospital readmission, length of stay, reoperation, surgical site infection (SSI), surgical site occurrence (SSO), and hernia recurrence. Multivariate logistic regression was performed to identify variables associated with complications, controlling for known confounding variables, selected a priori.

Results: Patients ≥ 65 had increased operative times, a higher prevalence of dirty and/or infected wounds prior to surgery, and larger fascial defects. There was no statistically significant difference in overall complications between patients < 65 and those ≥ 65 (12.9% vs 16.7%, p=0.49), including SSIs (9% vs 6%, p=0.60), reoperations (7% vs 13%, p=0.26), and readmissions (14% vs 13%, p=0.84). Patients ≥ 65 more frequently developed hematomas (1% vs 7%, p=0.01). All other SSOs, including cellulitis, fascial disruption, and seroma, were similar across groups (14% vs 23%, p=0.13). On multivariate analysis, diabetes and increased operative time were associated with increased complications (OR 5.47, 95%CI 1.25-23.91, and OR 1.01, 95%CI 1.00-1.01).

Conclusion: Advanced age was not associated with increased complications following elective VHR in this population. In carefully selected patients, age should not be a prohibitive risk factor for elective repair.

A Comparison of Techniques in Conquest of the Common Bile Duct: Outcomes in Laparoscopic vs Robotic Common Bile Duct Exploration

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University of Texas Medical Branch - Galveston

Background: Common bile duct exploration (CBDE) during cholecystectomy for choledocholithiasis has similar clearance rates to ERCP while reducing total length of stay, radiation, and anesthesia exposure. The benefits of CBDE have been demonstrated with both laparoscopic and robotic platforms; however, there is limited data comparing these techniques.

Objective: This study evaluates the effectiveness of the robotic versus laparoscopic approach in clearing choledocholithiasis.

Method: We conducted a retrospective chart review of adults who had transcystic CBDE with cholecystectomy from January 2022 to October 2024 at our institution. Patients were grouped by the operative approach for CBDE. We compared primary outcomes such as clearance rate, ERCP need, complications, and 30-day readmission using a 2-sample Z test for proportions.

Results: 131 patients met inclusion criteria: laparoscopic cholecystectomy with CBDE (LCBDE, n = 57) and robot cholecystectomy with CBDE (RCBDE, n = 74). Clearance rate for all transcystic CBDE regardless of operative approach was 80.9% (106/131). RCBDE was associated with a significantly higher clearance rate (93.2% vs. 64.9%, $p < 0.00001$) and decreased post-operative ERCP (6.7% vs 33.3%, $p = 0.0001$). There was no significant difference in complication rates or 30-day readmissions.

Conclusion: Early data indicates that the robotic platform may improve duct clearance rates during transcystic CBDE compared to laparoscopy. Laparoscopic failures often resulted from difficulty threading a wire past the cystic duct, a challenge addressed robotically by performing a cystic ductotomy distal to the resistance. In depth comparison of different CBDE techniques is imperative for surgeons in their endeavor to reclaim the common bile duct.

	LCBDE (n=57)	RCBDE (n=74)	p value
Stone Clearance	64.9% (37/57)	93.2% (69/74)	<0.00001
Post-op ERCP	33.3% (19/57)	6.7% (5/74)	0.0001
Complications	8.7% (5/57)	2.7% (2/74)	0.129
30-day Readmission	7% (4/57)	1.4% (1/74)	0.098

Association of GLP-1 Agonists on Femur Fractures in a Real-World Cohort

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Background: GLP-1 agonists such as Semaglutide have exploded in popularity to help control patients' A1C in those afflicted with Type 2 Diabetes Mellitus.

Objective: Our objective was to evaluate if GLP-1 agonists had an impact on future femur fractures relative to other diabetes drugs.

Method: We utilized the TriNetX database to identify two cohorts of patients. Cohort #1 consists of patients who were diagnosed with T2DM and were prescribed GLP-1 agonists. Additionally, patients in cohort #1 were not on any other diabetes drug. Cohort #2 consists of patients diagnosed with T2DM and who were prescribed any other diabetes drug excluding GLP-1 agonists. Outcomes included "fracture of femur" (ICD-10: S72) and outcomes were analyzed for up to five years after patients started taking GLP-1 Agonists.

Results: Propensity score matching was run to balance the baseline characteristics of each cohort and 36,456 patients were identified in Cohort #1 and 36,251 patients in Cohort #2. Cohorts were matched according to age, gender, race, weight, along with incidence of CKD, Vitamin D deficiency, and osteoporosis. The GLP-1 agonist group (Cohort #1) was found to have a lower incidence of future femur fractures (ICD-10: S72) when compared to the Non-GLP-1 group (0.148% vs. 0.703%) ($p < 0.0001$) with a hazard ratio of 2.294 (95% CI, 1.70–3.095) & risk ratio of 4.479 (95% CI, 3.542–6.367).

Conclusion: This study indicates that patients taking GLP-1 agonists after a diagnosis of T2DM are at a lower risk of long-term femur fractures when compared to patients taking other diabetes medications not including GLP-1 agonists.

Incidence and Clinical Significance of Early Postoperative Fever Following Cardiopulmonary Bypass

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University of Texas Medical Center - San Antonio

Background: Postoperative fever is common in patients undergoing cardiac surgery, and an inflammatory response to cardiopulmonary bypass (CPB) is a contributing factor.

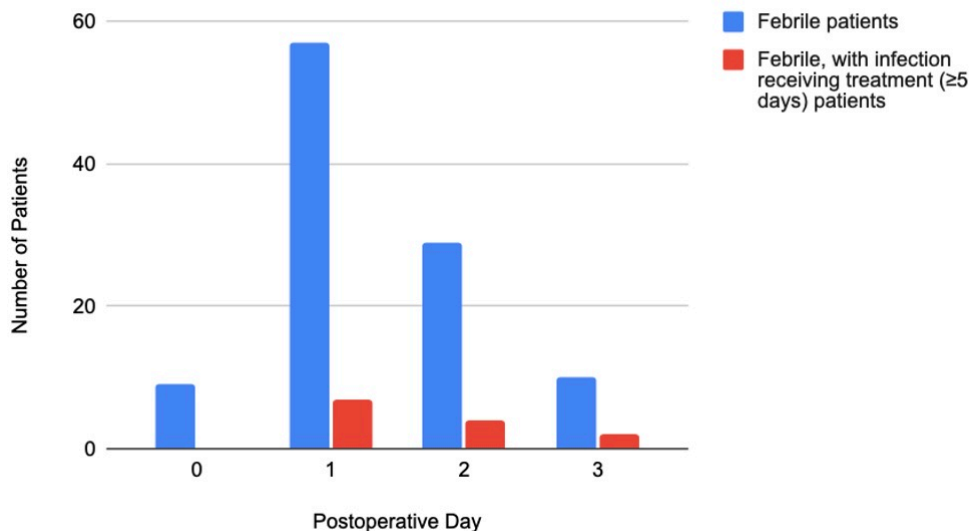
Objective: Our study assessed postoperative fever incidence after CPB, associated factors, and infection incidence in febrile patients.

Method: A retrospective review of consecutive patients undergoing on-pump cardiac surgery from May 2021-June 2023 at a tertiary care center. Early postoperative fever was defined as temperature $\geq 38.5^{\circ}\text{C}$ during the first 3 days. Data were analyzed with univariate and bivariate analyses and multivariable logistic regression.

Results: In 482 patients (age 62 [54-68] years, 69% male), early postoperative fever occurred in 22% (n=105). Baseline factors associated with fever were aortic surgery (OR 3.12, 95% CI:1.23- 7.75, p=0.01), current smoker (OR 2.07, 95% CI: 1.17-3.59, p=0.01), and age (OR 1.03, 95% CI:1.01-1.05, p=0.006), as well as minutes under CPB (OR 1.003, 95% CI:1.00-1.01, p=0.02), aortic cross-clamp (OR 1.005, 95% CI:1.001-1.009, p=0.018), and anesthesia (OR 1.003, 95% CI:1.001-1.005, p=0.002). Of the febrile patients, 65.7%(n=69) had culture workup, of which 30%(n=21) were culture-positive. Common infections receiving treatment (defined as culture-positive and antibiotic therapy for ≥ 5 days) include pneumonia (62%, n=8), UTI (23%, n=3), URI (8%, n=1), and colitis (8%, n=1). (Figure 1) First postoperative fever episode most frequently occurred day 1 in patients with fever (54%, n=57) and infection (54%, n=7).

Conclusion: Early postoperative fever after CPB is common but associated with possible infection in only 20% of febrile patients. Immediate empiric antibiotics may not be beneficial. Identification of risk factors may help improve efficiency of workup and antibiotic stewardship.

Figure 1. Timing of First Postoperative Fever Episode



Seamless, Not Secret: A Prospective Observational Study of Intraoperative Handoffs in Pediatric Surgery

VM Ringheanu, JJ Strubel, MA Anapolsky, KM Sutyak, NB Hebballi, JM Joly, M Broussard, T Fisher, K Tsao

University of Texas HSC - Houston

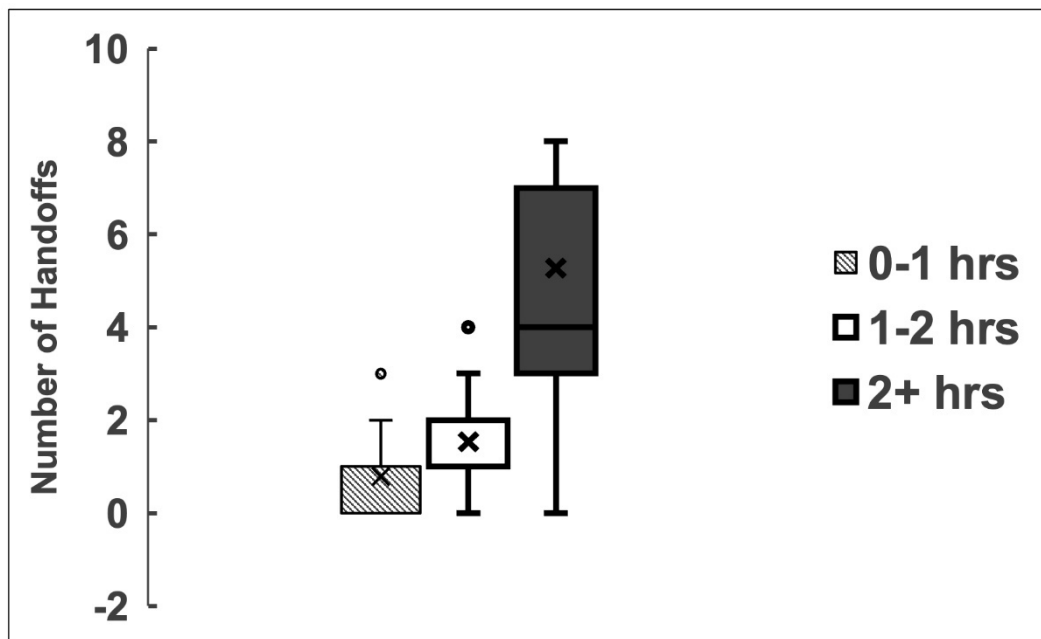
Background: Changing personnel during an operation is a common practice. Intraoperative handoffs transfer patient care responsibilities between team members. Although essential for ensuring continuity of care, each handoff poses risk for patient harm through miscommunication and errors.

Objective: This study aims to identify the prevalence of intraoperative handoffs between operating room (OR) technicians, circulating nurses, anesthesia providers, and surgeons during pediatric surgery cases.

Method: A prospective observational study of pediatric surgical cases was conducted from May to July 2024. Handoffs were defined as the transfer of responsibility between two team members from the surgery time-out time to debrief. Data points included the team member involved in the handoff, time of handoff, and case duration.

Results: Across 54 pediatric surgical cases audited, the median case duration was 0.96 hours (IQR 0.50-1.62). Of these, 72.2% had at least one intraoperative handoff (median 1 per case (IQR 0-2)). Based on team member, 58 (56.3%) occurred between anesthesia providers, 29 (28.2%) between circulating nurses, and 17 (16.5%) between OR technicians. 41 (76%) cases had < 3 handoffs, while 13 (24.1%) had ≥ 3 handoffs. Cases 0-1 hours in duration had a median of 1 handoff (IQR 0-1), cases 1-2 hours had a median of 1 (IQR 1-2), and cases ≥ 2 hours had a median of 4.5 handoffs (IQR 3-7.25).

Conclusion: Intraoperative handoffs occurred in the majority of cases, even when less than one hour duration. Optimal strategies and protocols to limit handoffs are needed. Such protocols could optimize workflow, ensure patient safety, and reduce the likelihood of adverse events.



Blazing a Trail to Complications? How Cannabis Use Could Complicate Diverticulitis

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Background: Patients hospitalized with diverticulitis can experience diverse hospital courses, from successful conservative management to complex surgeries or mortality. While various risk factors for adverse outcomes in diverticulitis have been thoroughly investigated, the impact of cannabis use remains underexplored.

Objective: This study examines the association between cannabis use and adverse outcomes in hospitalized diverticulitis patients.

Method: A retrospective analysis was conducted using the TriNetX database, encompassing 97 U.S. healthcare organizations. Adults diagnosed with diverticulitis were divided into cannabis-positive and non-cannabis cohorts based on urine cannabinoid screens. Propensity score matching produced two balanced groups of 14,414 patients each, with outcomes tracked for 30 days post-hospitalization.

Results: Cannabis users showed significantly higher rates of sepsis (3.6% vs. 2.4%, RR 1.53, $p < 0.001$), systemic inflammatory response syndrome (SIRS) (0.4% vs. 0.3%, RR 1.60, $p = 0.025$), and cerebral infarction (1.9% vs. 0.7%, RR 2.76, $p < 0.001$) compared to non-users. Generalized anxiety disorder was also more common among cannabis users (3.2% vs. 1.0%, RR 3.25, $p < 0.001$). Mortality and procedural complication rates were similar between groups.

Conclusion: Cannabis use in diverticulitis patients is linked with an elevated risk of sepsis, SIRS, and cerebral infarction. While mortality and general complications were similar across cohorts, these findings highlight the need for close monitoring of cannabis users for specific complications rather than a broad-based heightened risk. Preventive strategies could play a crucial role in mitigating cannabis-related risks in this population.

Impact of Preoperative Malnutrition on Short- and Long-Term Complications

Following Ankle ORIF: A Propensity-Matched Analysis

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Background: Ankle fractures are one of the most common trauma pathology faced by our Orthopedic surgeons. Since most patients present in the acute setting, many aspects of their care can not be optimized. As such this paper explores the relationship between malnutrition and postoperative complications of patients who undergo operative fixation of traumatic ankle fractures.

Objective: This study evaluated the relationship between malnutrition and postoperative complications in patients undergoing ankle open reduction internal fixation (ORIF).

Method: Patients who underwent ankle ORIF from 2004 to 2022 with preoperative lab values available for analysis with a record for a minimum of 2 years of follow-up were identified using Current Procedural Terminology, ICD-9, and ICD-10 codes. Patients were stratified according to those with and without a preoperative lab value for nutrition defined as any as transferrin <204 mg/dL, or total leukocyte count <1,500/ μ L within 3 months of surgery, between October 8, 2004, and October 8, 2022. Follow data was assessed up to October 8, 2024. Complication rates, including 90-day readmissions, infection, hardware removal, nonunion, amputation, hardware infection, myocardial infarction, pulmonary embolism, deep vein thrombosis, transfusion, stroke. Patients were additionally compared with a 1:1 matched analysis that controlled for demographics and comorbidities.

Results: A total of 46,843 patients with preoperative lab values and ankle fractures were identified and propensity. The cohort was balanced with respect to demographics and comorbidities. At 90 days, patients with malnutrition had higher rates of hardware removal, device infection, myocardial infarction, pulmonary embolism, deep vein thrombosis, and transfusion compared to the control group ($P < 0.05$). Notably, the risk ratio (RR) for hardware removal was 1.680 (95% CI: 1.322-2.134, $P < 0.001$), and for transfusion, it was 3.212 (95% CI: 2.179-4.734, $P < 0.001$). Malnutrition was associated with a higher risk of amputation at 90 days [RR: 2.106, 95% CI: 0.993-4.466, $P = 0.047$] and at 2 years [RR: 4.089, 95% CI: 2.233-7.486, $P < 0.001$]. Additionally, patients in the malnutrition group had increased device infections at 2 years [RR: 2.050, 95% CI: 1.511-2.781, $P < 0.001$]. In contrast, no significant differences were observed in rates of post-traumatic osteoarthritis, stroke, or nonunion between the two groups at 90 days or at 2 years ($P > 0.05$).

Conclusion: Malnutrition significantly increased the risk of postoperative complications in patients undergoing ankle ORIF, including hardware removal, device infections, MI, PE, DVT, and transfusion. These trends were consistent across both the 90-day and 2-year follow-up periods. The findings suggest that malnutrition is a critical risk factor for both short- and long-term adverse outcomes, including higher rates of amputation. Surgeons should carefully consider malnutrition as part of preoperative risk stratification and provide patients with tailored counseling regarding the increased risk of complications following ankle ORIF.

Table 1: Patient demographics pre and post 1:1 propensity matching:

Variable	Pre Matched			Post Matched		
	Malnutrition	Control	P-Value	Malnutrition	Control	P-Value
Age at Index	57.5 ± 17.3	45.9 ± 18.3	<0.001	57.4 ± 17.3	57.6 ± 17.1	0.626
Male	1,202 (34.6%)	17,234 (39.7%)	<0.001	1,194 (34.6%)	1,215 (35.2%)	0.596
Female	2,174 (62.6%)	24,642 (56.8%)	<0.001	2,159 (62.6%)	2,147 (62.3%)	0.765
Not Hispanic	2,720 (78.3%)	30,981 (71.5%)	<0.001	2,699 (78.3%)	2,716 (78.8%)	0.618
Hispanic	290 (8.3%)	5,231 (12.1%)	<0.001	289 (8.4%)	292 (8.5%)	0.897
White	2,636 (75.9%)	30,327 (69.9%)	<0.001	2,615 (75.8%)	2,640 (76.6%)	0.48
Black	463 (13.3%)	6,103 (14.1%)	0.222	461 (13.4%)	450 (13.1%)	0.696
American Indian	13 (0.4%)	209 (0.5%)	0.373	13 (0.4%)	12 (0.3%)	0.841
Unknown Race	261 (7.5%)	4,543 (10.5%)	<0.001	258 (7.5%)	240 (7.0%)	0.402
Asian	29 (0.8%)	726 (1.7%)	<0.001	29 (0.8%)	31 (0.9%)	0.795
Native Hawaiian	10 (0.3%)	133 (0.3%)	0.846	10 (0.3%)	10 (0.3%)	1
Other Race	67 (1.9%)	1,317 (3.0%)	<0.001	67 (1.9%)	71 (2.1%)	0.731
Comorbidities						
Hypertension	1,812 (52.2%)	10,773 (24.8%)	<0.001	1,787 (51.8%)	1,817 (52.7%)	0.47
Diseases of liver	280 (8.1%)	1,039 (2.4%)	<0.001	268 (7.8%)	250 (7.3%)	0.411
Diabetes mellitus	1,018 (29.3%)	4,175 (9.6%)	<0.001	999 (29.0%)	994 (28.8%)	0.894
Chronic kidney disease	606 (17.4%)	1,212 (2.8%)	<0.001	581 (16.9%)	564 (16.4%)	0.582
Heart failure	474 (13.6%)	881 (2.0%)	<0.001	448 (13.0%)	431 (12.5%)	0.539
Nicotine dependence	642 (18.5%)	5,405 (12.5%)	<0.001	635 (18.4%)	659 (19.1%)	0.459

Epidemiology of Firearm Injuries in Texas: An Analysis of Trends and Geographic Disparities from 2016-2023

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Background: Gun violence presents a significant public health challenge across the United States, affecting healthcare systems and communities nationwide. In Texas, laws regarding firearm carry have changed significantly in recent years, yet the impact on specific regions and demographics remains unclear. This study addresses gaps in understanding the geographic distribution of firearm injuries and the potential influence of place-based social determinants of health (SDoH) across Texas counties.

Objective: The primary aim of this study is to characterize the epidemiology of firearm injuries in Texas from 2016 to 2023, with a focus on identifying geographic trends and the influence of place-based factors on injury prevalence.

Method: This retrospective study utilizes de-identified data from the Texas Emergency Department Public Use Data File (PUDF) and the Texas Department of Health and Human Services. Additional socioeconomic data are sourced from the U.S. Census to investigate correlations between non-medical drivers of health and firearm injury prevalence. Our dataset includes all patients with firearm-related injuries admitted from 2016 Q1 to 2023 Q3. Descriptive analyses and regression models are used to identify trends and disparities across Texas counties.

Results: Preliminary findings reveal that several rural counties exhibit high rates of firearm injuries, contrary to the common perception that gun violence is primarily an urban issue. The top ten counties with the highest firearm injury rates per 1,000 population are Potter County (1.69), Duval County (1.52), and Lubbock County (1.51), among others. The data can be visualized in figure one below.

Conclusion: The study's initial findings challenge the misconception that firearm violence is confined to urban areas, with rural counties in Texas demonstrating substantial injury rates. These results suggest a need for targeted state and local interventions focusing on firearm safety and education in rural communities. Continued analysis incorporating socioeconomic factors aims to clarify the impact of place-based characteristics on firearm injury prevalence.

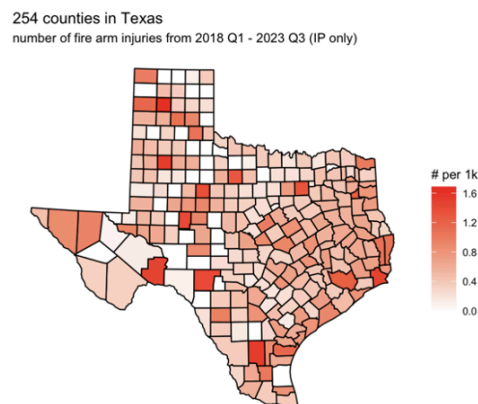


Figure 1. Heat map showing rate of firearm injury resulting in an inpatient hospital stay per 1000 people by Texas county

Prehospital Whole Blood Transfusion Improves Probability of Survival Over Transfusion Within One Hour of Arrival to a Trauma Center

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Background: Hemorrhagic shock remains the leading cause of mortality in trauma patients and Low Titer O+ Whole Blood (LTOWB) has become a preferred method of balanced resuscitation in trauma.

Objective: To evaluate the impact of prehospital LTOWB transfusion on the probability of survival(PS) in trauma patients with hemorrhagic shock.

Method: The trauma registry was queried for patients who received blood transfusion either prehospital (group A) or within one hour of arrival to the trauma resuscitation unit(TRU)(group B). PS was determined via the TRISS equation. The revised trauma score(RTS) and PS were calculated prehospital and on arrival to the TRU and differences were analyzed.

Results: 102 patients were identified with 73 in group A and 29 in group B. Groups were similar with regards to their demographics. The median age was 31[IQR 23-44] years. Results are tabulated in Table 1.

7 patients in our dataset had prehospital PS <0.5 but emerged unexpected survivors. Of these, 4 patients still had PS<0.5 on arrival (2 in group A and 2 in group B). The remaining 3 patients, all of whom had received prehospital blood, had an improvement in PS from <0.5 on scene to >0.5 on arrival.

Conclusion: This study is the first to show the impact of pre-hospital transfusion on PS. Patients who require early transfusion likely benefitted from prehospital transfusion, which could improve PS upon arrival and allow more time for intervention. The majority of our unexpected survivors (5 of 7) belonged to the pre-hospital transfusion group.

Table 1:

	Group A (prehospital blood)	Group B (Blood within 1 hour of arrival)	p-value
Prehospital PS (Median [IQR])	94.4%[50.2%-98.2%]	84.8%[64.2%-97.6%]	
Prehospital RTS (Median [IQR])	6.08[3.36-7.11]	6.08[4.09-7.84]	
Improvement in PS (prehospital to arrival)	55% (n=40)	31% (n=9)	0.03
Improvement in RTS (prehospital to arrival)	55% (n=40)	31% (n=9)	0.03
Improvement in PS (Blunt trauma)	59%	31%	0.07
Improvement in PS (Penetrating trauma)	53%	30%	0.18

PS: Probability of survival; RTS: Revised Trauma Score; IQR: Interquartile Range

Are We Over Imaging Traumatic Brain Injuries?

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Background: In an attempt to reduce the burden of traumatic brain injury (TBI) to healthcare systems, patients and families, the Brain Injury Guidelines (BIG) were created.

Objective: The purpose of this study was to determine the relation of BIG classification with worsening CT scan findings when controlling for variables such as Injury Severity Score, age, hospital length of stay and preexisting home anticoagulation.

Method: A retrospective cohort study between September 2016 and December 2021 was performed. Adult (≥ 16 years old) TBI patients with polytrauma were included. Patients were assigned to BIG cohorts (1-3) based on review of imaging and prespecified criteria dictated by the brain injury guidelines project. Pre-existing anticoagulation, radiographic worsening on 6hr stability scan, hospital length of stay (LOS), Injury Severity Score (ISS) and need for a craniectomy were assessed. Univariable analysis was conducted, and a multivariable logistic regression model was created.

Results: Of 1,236 included patients, 49 (3.96%) patients were BIG1, 202 (16.36%) were BIG2, and 984 (79.6%) were BIG3. Most patients were male ($n=868$; 70.36%) and the mean age was 44.51 years (SD 19.60). BIG1 patients were oldest while BIG3 patients were youngest (Table). In univariable analysis, the stability scan revealed progression of ICH in 14.29% ($n=7$) of BIG1, 24.75% ($n=50$) of BIG2, and 37.40% ($n=368$) of BIG3 patients ($p<0.001$). The same was evidenced for craniectomies, with no BIG1 patients requiring a craniectomy, while 4.46% ($n=9$) and 10.26% ($n=101$) of BIG2 and BIG3 requiring craniectomies, respectively ($p=0.007$). Finally, LOS was statistically significantly different among the three groups, being the shortest for BIG1 (median of 5 days) patients and longest for BIG3 (median 11 days) patients ($p<0.001$). On adjusted multivariable analysis (ISS, age, LOS, and home anticoagulation), we found that when compared to BIG3, patients classified as BIG1 (OR 0.31, 95% CI 0.14-0.72) or BIG2 (OR 0.66; 95% CI 0.46-0.95) had statistically significant lower odds of having radiographic worsening of their TBI.

Conclusion: In both, unadjusted and adjusted analyses, the BIG criteria accurately identified patients who are at the lowest risk of ICH progression. De-escalation of TBI management using the BIG criteria has the potential to safely reduce costs, reduce resource waste, and reduce hospitalization time for patients.

Have You Prepared for the Future? Rates of Medical Power of Attorney

Documentation Among Geriatric Patients with Rib Fractures

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Background: Rib fractures are associated with significant morbidity and mortality in geriatric patients, emphasizing the importance of up-to-date advance care planning (ACP), including a medical power of attorney (MPOA), directive to physician (DTP), and out-of-hospital do not resuscitate (OOHDNR).

Objective: We sought to compare demographic characteristics of patients with and without an MPOA completed, prior to or during hospitalization, and uploaded to our medical record.

Method: We completed a retrospective study of geriatric trauma patients admitted to a regional level 1 trauma center with 2 rib or more rib fractures from 2017-2023. Data collected included demographics, language, rates of ACP, palliative care consultation, and chaplain visits. The MPOA and no-MPOA groups were compared using univariate and multivariate analyses.

Results: Of the 613 patients, 22% (n=132) had an uploaded MPOA. There was no difference among white/non-Hispanic race, but the MPOA group was more likely to be older, female, primarily speak English, complete additional ACP, have a palliative care consultation, and visit with a chaplain, as shown in Table 1. After logistic regression, factors independently associated with an MPOA included age (AOR: 1.03 [1.00-1.05], p=0.05), female gender (AOR: 1.5 [1.0-1.4], p=0.04), English as primary language (AOR: 3.0 [1.2-7.6], p=0.02), and palliative care consult (AOR: 2.1 [1.2-3.9], p=0.02).

Conclusion: Older patients and women are more likely to complete and upload an MPOA, while men and patients whose primary language is not English are less likely to do so. Admission to the trauma or surgical ICU should prompt ACP conversations as part of comprehensive rib fracture protocols.

Burning Down ARDS: How a Plasma-First Approach to Burn Resuscitation Can Lower ARDS Incidence in Large TBSA Burns

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Background: Acute Respiratory Distress Syndrome (ARDS) is a well known complication of patients who experience large total body surface area (TBSA) burns. This pathophysiology is thought to be multifactorial, likely influenced by systemic inflammation, fluid resuscitation, protein loss, multiorgan dysfunction, and inhalation injury. A recent meta-analysis established an ARDS rate of 32% in patients with $\geq 20\%$ TBSA. Our burn center began resuscitating large burns primarily with plasma in 2019. From June 2019 to February 2023 all $\geq 50\%$ TBSA burns were resuscitated with plasma only. Less than 50% TBSA were resuscitated with crystalloid and albumin using the “Rule of 10’s”.

Objective: The objective of this study was to compare the incidence of ARDS in our patient population to the nationally accepted average of approximately 30%

Method: We performed a retrospective analysis of all adult (≥ 18 years) patients who presented to our academic burn center with $\geq 20\%$ TBSA burns and were resuscitated with ≥ 1 unit fresh frozen plasma from 2019 to 2022. We subclassified our sample into two groups: moderate (20-49% TBSA burns) and severe ($\geq 50\%$ TBSA burns). Data collected included demographics, TBSA, inhalation injury, resuscitation products and volumes, and outcomes. Our primary outcome was ARDS development and ventilator days.

Results: 41 patients met inclusion criteria, of which 56% (n=23) had moderate burns and 44% (n=18) had severe burns. Most patients were male (78%, n=32) with a mean age of 49 ± 18 and mean weight of 88 ± 17 kg. Injury details, resuscitation values, and outcomes are reported in Table 1.

Conclusion: In both our moderately and severely burned patients, the incidence of ARDS in our patient population is much less than reported national averages. This is likely related to the infusion of plasma and the decreased total amount of expected fluids. Future studies should compare plasma and crystalloid in the resuscitation of patients with large TBSA burns.

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Variable	Moderate Burn (n=23)	Severe Burn (n=18)	Overall (n=41)
TBSA (%)	34 ± 8	72 ± 16	51 ± 23
Inhalation Injury	52% (n=12)	56% (n=10)	54% (n=22)
Mean Total 24-Hour Plasma (mL)	2,949 ± 1,505	9,879 ± 3,508	6,068 ± 4,333
Mean Total 24-Hour Volume (mL)	6,949 ± 1,011	10,860 ± 3,753	8,709 ± 3,252
Portion of Plasma of Overall Resuscitation	42%	91%	70%
Mean Ivy Index	81 ± 16	129 ± 49	103 ± 42
Ventilator Days	11 ± 8	25 ± 30	17 ± 22
ARDS	9% (n=2)	17% (n=3)	12% (n=5)
Mortality	17% (n=4)	50% (n=9)	32% (n=13)

Pre-Injury Statin Therapy is Associated with Lower VTE after Traumatic Brain Injury

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Background: Traumatic brain injury (TBI) triggers a prothrombotic cascade that begets venous thromboembolism (VTE). Inflammation is heightened after TBI due to sympathetic dysregulation and endothelial activation. Hemorrhage progression is a potentially devastating complication after TBI, mandating delay to VTE prophylaxis in high-risk patients. Statins have endothelial stabilizing effects associated with decreased VTE in other populations.

Objective: To explore whether prehospital statin exposure is associated with decreased incidence of VTE.

Method: This retrospective cohort study included adult (16y) trauma patients (9/2016 – 12/2021) and excluded those with bleeding disorder, disseminated cancer, pregnancy, and deaths < 24 hours. TBI progression, VTE incidence, VTE prophylaxis type/timing were assessed, grouped by prehospital statin exposure. Univariate and multivariable analyses were performed.

Results: 148/1188 patients used statins. Statin users were older (71.5 vs 41 years, $p<.001$) with lower injury severity score (22 vs 27, $p<.001$) and higher incidence of pre-existing hypertension (78% vs 19%; $p<.001$), hyperlipidemia (4.7% vs 0.3%, $p<.001$), CHF (12.2% vs 1.4%, $p<.001$), COPD (7.4% vs 2.4%, $p<.001$), and stroke (4.7% vs 0.7%, $p<.001$). Time to DVT prophylaxis was shorter (35.2 vs 38.8 hours, $p=0.005$) and plasma transfusion within 4 hours of admission was lower for statin users (0 vs 1 unit, $p=0.039$). Statin use was associated with less progression of TBI (24.3% vs 37%, Fisher's exact test $p<.001$) and lower incidence of DVT (1.4% vs 2.2%, $p<.001$). After controlling for known covariates, statin users had a lower odds of developing VTE (OR=0.25, 95% CI 0.07-0.91; $p=.036$).

Conclusion: Statin exposure was associated with significantly decreased incidence of VTE after TBI.

Impact of Burn Extent and Injury Site on Mental Health Outcomes in Pediatric Burn Patients

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Background: Burn injuries in children are associated with negative impacts on psychological and emotional well-being.

Objective: We hypothesized that children with burns affecting greater total body surface area (TBSA) or highly visible and functionally significant body parts have an increased risk of developing negative mental health outcomes compared to their counterparts.

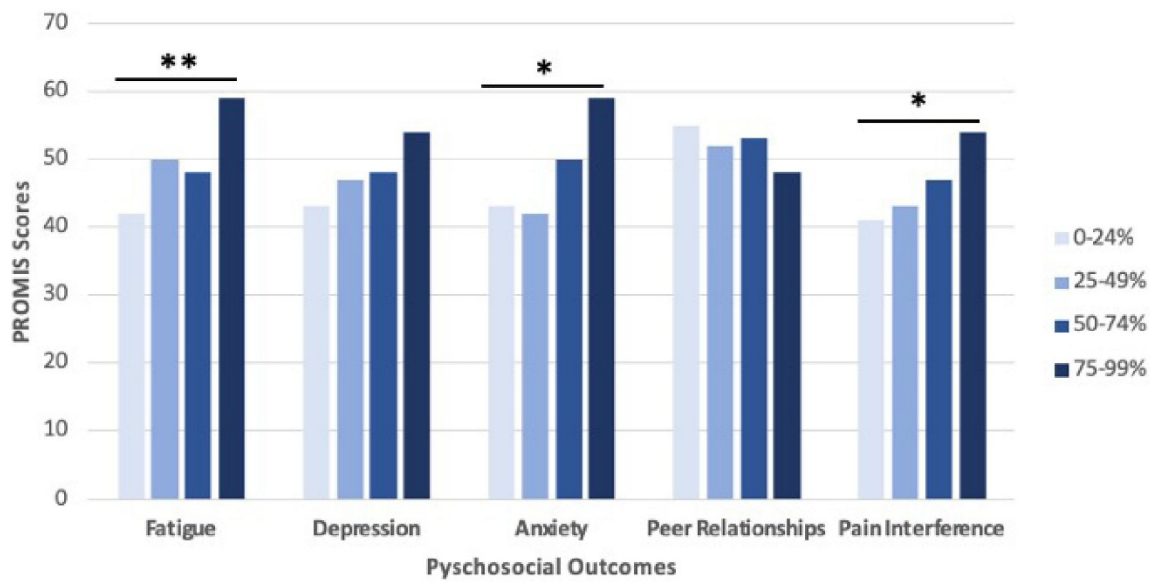
Method: A retrospective review of 178 pediatric (ages <18y) burn patients from 2010-2023 was conducted utilizing the Burns Model System National Database. Patient Reported Outcomes Measurement Information Systems (PROMIS) surveys obtained at 6 months, 1 year, and 2 years post-burn were utilized to assess mental health factors (anxiety, depression, peer relationships, pain interference, fatigue). Mental health status was defined using PROMIS survey T-scores (<55 normal, >55 poor). Patients were stratified by TBSA quartiles and body part affected (arm, foot, hand, head, leg, perineum, trunk), then mental health outcomes were compared using chi-squared calculations.

Results: At one-year post-burn, higher TBSA was associated with increased anxiety ($p=0.005$), fatigue ($p=0.04$), and pain interference ($p=0.02$) (Figure). By 2 years post-burn, this difference was no longer significant. No correlation was found between the body part affected and development of mental health symptoms.

Conclusion: Children with greater TBSA burns are at the highest risk of developing mental health consequences by one-year post-burn, regardless of the body part affected. Pediatric burn patients may benefit from increased emphasis on screening for mental health symptoms and increased accessibility of resources to support the psychological recovery of pediatric burn patients at one-year follow-up, particularly for those with higher TBSA burns.

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% TBSA by Mental Health Outcomes 1 Year Post Burn



Intercostal nerve cryoablation reduces opioid utilization after thoracotomy in children with cancer

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Background: Intercostal nerve cryoablation (INC) has shown promise as an adjunct method for analgesia in adults undergoing thoracotomy, but has yet to be widely used in children for this indication.

Objective: We hypothesize that INC decreases opioid utilization in children undergoing thoracotomy for cancer operations.

Method: A retrospective review was performed of children who underwent thoracotomy for cancer diagnosis at a freestanding children's hospital from 2018 to 2023. Patient characteristics, intraoperative data, and data on clinical course were collected. Patients were divided into those who underwent INC and those who underwent routine care for comparison.

Results: Twenty-six patients underwent 38 procedures at a median age of 16 years (range 5-21 years). INC was performed in 23 cases over a median of five intercostal levels (range 2-7). Total oral morphine equivalents during inpatient admission were significantly lower in INC patients (137.6 vs. 514.5 mg, $p = .002$). Routine care patients were more likely to be discharged with an opioid prescription (30.4% vs. 80.0%, $p = .008$). Length of stay was similar between patients with INC and routine care (4 vs. 5 days, $p = .15$). There were no differences in rates of reoperation or 30-day re-admission (emergency department or inpatient).

Conclusion: INC is a feasible and safe adjunct for children undergoing thoracotomy for cancer. INC is associated with reduced postoperative opioid utilization with respect to both inpatient use and outpatient prescriptions.

Beyond Physical Deformity: It is Time to Integrate Mental Health in Surgical Candidacy for Pectus Excavatum

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University of Texas HSC - Houston

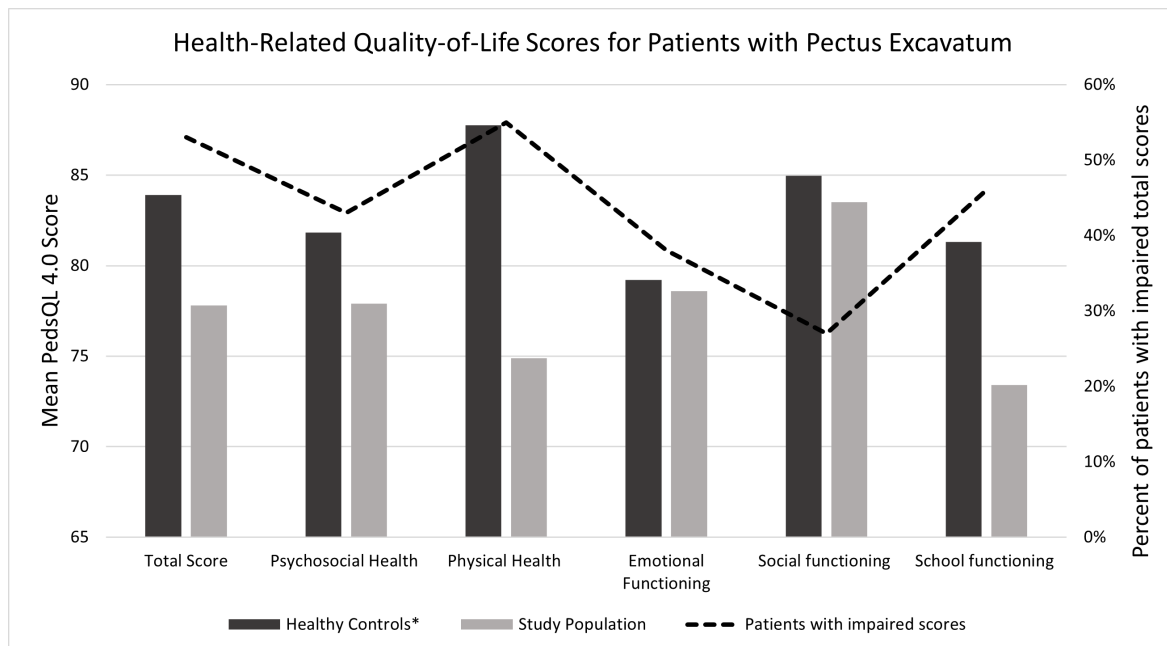
Background: Patients with pectus excavatum (PE) experience body dysmorphia, anxiety, and depression; yet criteria for surgery remain based on physiology only. The mental health impact of PE remains unknown.

Objective: To investigate the impact of psychosocial impairment and quality-of-life in pediatric PE patients.

Method: A self-assessment survey consisting of items from the validated Pediatric Quality of Life Inventory 4.0 (PedsQL), an 8-item questionnaire about chest appearance, the Severity Measure for Social Anxiety Disorder (SMSAD), and the Short Form Mood and Feelings Questionnaire (SMFQ) for depression were administered to patients (≤ 18 years) referred for PE evaluation from August 2021 to July 2024. PedsQL scores were compared to healthy population means and considered impaired if below the minimal clinically important difference. Univariate analysis was performed.

Results: Among 53 patients, 87% were male with a median age of 14 (IQR 13,15) years. PE patients had lower health-related quality-of-life scores compared to healthy controls, with 51% of patients having an impaired total score (FIGURE). Greater than one impaired subscore was seen in 72% of patients, while 47% had greater than two. Regarding chest appearance, 42% reported discomfort taking their shirt off in public, 38% felt different secondary to chest shape, and 40% were dissatisfied with the appearance of their body. Nine (17%) patients met severe social anxiety criteria (SMSAD) or depression threshold (MFQ).

Conclusion: Almost three-quarters of the patients with PE had impaired total quality-of-life scores, while one in six screened positive for social anxiety and/or depression, supporting discussions on mental health benchmarks for surgical eligibility.



Costs of Care for Children with Intestinal Failure

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Background: Pediatric intestinal failure (PIF) requires complex, multidisciplinary care. A 2008 study estimated that the first-year costs were >\$500,000. Despite this significant financial burden, contemporary treatment costs are poorly understood.

Objective: This study examined costs of care for PIF patients at a single center.

Method: Patients <18 years diagnosed with PIF from 2018-2023 at a single tertiary children’s hospital were eligible for inclusion in this retrospective cohort analysis. PIF was defined as need for parenteral nutrition (PN) for ≥60 of 74 consecutive days. Cost data were collected for the index admission and all emergency department (ED) visits and hospital readmissions

Results: 78 patients were identified with a median age at diagnosis of 61 days and 47% were male. The median cost of index admission was \$306,126. The rate of ED visits within 30, 90, and 365 days of discharge were 22%, 32%, and 50%, respectively; readmission rates were 18%, 56%, and 63%. Patients discharged with home PN had increased ED visits (p=0.003) and hospital readmissions (p<0.001) within 365 days of discharge compared to those without PN (Table 1). ED visit median cost was \$2,686 for home PN patients versus \$1,122 in patients without PN (p=0.014) and readmission median cost was \$47,669 versus \$20,270 (p=0.056).

Conclusion: Costs of care for PIF are significant, particularly for home PN patients, who face more frequent and expensive encounters. Future studies will aim to identify targets for cost reduction.

	Home PN (n=21)	No Home PN (n=57)	p
Index LOS Median (IQR)	193 (138-222)	145 (110-180)	0.041
Index Cost Median (IQR)	\$373,690 (\$223,965-\$436,542)	\$278,472 (\$195,042-\$437,690)	0.271
ED Visits Median (IQR)	1 (0-4)	0 (0-1)	0.003
ED Visits Cost Median (IQR)	\$2,686 (\$713-\$4,536)	\$1,122 (\$582-\$1,763)	0.014
Readmissions Median (IQR)	4 (2-5)	1 (0-2)	<0.001
Readmissions Cost Median (IQR)	\$47,669 (\$19,069-\$103,961)	\$20,270 (\$5,435-\$56,386)	0.056

Table 1: Subgroup analysis comparing index admission data, post-discharge return to care, and associated costs within 365 days of initial discharge for patients stratified by home PN. All LOS are reported in days and costs are reported in US dollars with p-values <0.05 in bold.

PN=parenteral nutrition, LOS=length of stay, ED=emergency department.

Kid-Friendly Burn Care: Reducing Opioid Doses and Dressing Changes with Long-Term Advanced Therapies

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Background: Pediatric partial thickness burns have traditionally been managed with short-term dressings that require frequent changes and opioid pain management. Advanced therapies, including epidermal autografting (EA), epidermal skin substitutes (ESS), and silver, are long-term alternatives that reduce frequent, painful dressing changes.

Objective: To investigate the impact of long-term advanced therapies in pediatric burn care.

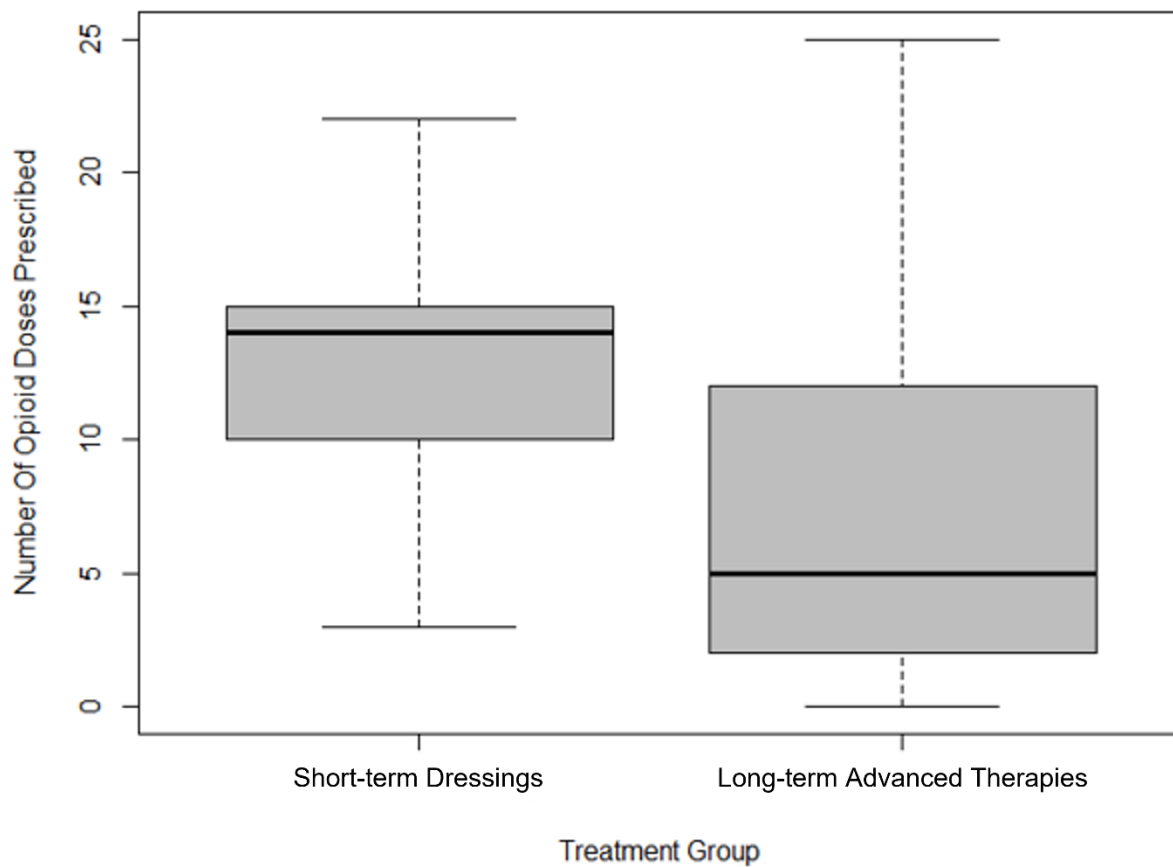
Method: A retrospective cohort study was conducted of patients (≤ 16 years) with partial thickness burns, May 2021-July 2024. Demographics, injury details, treatment were collected. Patients were grouped by short-term dressings (antibiotic ointment/impregnated gauze) or long-term advanced therapies (EA, ESS, silver). Descriptive statistics, Mann-Whitney U tests were performed.

Results: Overall, 606 patients had partial thickness burns: 441 with short-term dressings, 165 with long-term advanced therapies. Median age was 2.6 years (IQR:1.3,6.6), 56.1% were male. Median total body surface area was 4% (IQR:2,7), no difference between groups ($p=0.87$). Of patients with short-term dressings, 93% discharged with twice-daily changes compared to 3% with long-term advanced therapy; 85% of patients with long-term advanced therapies required no home changes. Opioids were prescribed at discharge for 77% of patients, no difference between groups ($p=0.93$). Those with short-term dressings were discharged with median 14 doses/patient (IQR:10,15) compared to 5 (IQR:2,12) for long-term advanced therapies, decrease of 6 doses (95% CI:5.00-7.50; $p<.001$) (FIGURE).

Conclusion: Most patients with long-term advanced therapies required no home dressing changes, allowing for 64% reduction in median number of opioids at discharge and primarily single-dose prescriptions intended for clinic changes. Advanced therapies are well-tolerated and can be preferentially used in pediatric partial thickness burn care.

Graphic on next page.

Opioid Doses at Discharge



Does Approach Matter? Evaluating Outcomes of Open versus Laparoscopic Repair for Pediatric Inguinal Hernias

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Background: Laparoscopy has been increasingly utilized for pediatric inguinal hernia repair, but data on outcomes compared to open herniorrhaphy is lacking.

Objective: Comparison of complication rates for pediatric open versus laparoscopic inguinal hernia repairs.

Method: Pediatric patients (<18y) undergoing open and laparoscopic inguinal herniorrhaphy from 2004-2024 were identified using TriNetX database. The overall cohort and age-stratified subcohorts were propensity-score matched for demographics and comorbidities, then assessed for postoperative complications.

Results: Of 18,089 patients included, 5.94% had postoperative complications (open 6.04% vs. laparoscopic 5.85%, $p>0.05$). For initial repair, open approach had lower recurrence (1.44% vs 2.60%; $p<0.001$) and wound infection (0.56% vs 0.78%, $p=0.038$) rates. Laparoscopic repairs had less hydrocele/spermatocele (1.29% vs 1.97%, $p<0.001$), scrotal edema (1.50% vs 2.02%, $p=0.003$), testicular atrophy (0.15% vs 0.29%, $p=0.026$), and hematoma/seroma (0.33% vs 0.63%, $p=0.001$). For children 3-11y, open herniorrhaphy had reduced recurrence (1.68% vs 2.77%, $p<0.001$), while laparoscopy had fewer hydroceles and spermatoceles (1.17% vs 2.11%, $p<0.001$). Among ages 12-18y, open surgery had reduced recurrence (1.06% vs 3.33%, $p<0.001$), while other complications were similar. For initial repairs, there were no differences in outcomes for ages <1y or 1-3y. No differences were found for recurrent hernia repair across any age groups.

Conclusion: While complications overall were not significantly different, open herniorrhaphy may have lower recurrence risk for initial pediatric hernia repair, while laparoscopic repair can mitigate the risk of several scrotal complications. Careful consideration of approach for initial hernia repair should be taken based the patient and surgeon experience, though approach is less significant for recurrent hernias.

Mechanical Bowel Preparation with Oral Antibiotics in Pediatric Surgery: Is the Benefit Worth the Challenge?

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Background: Mechanical bowel preparation with preoperative oral antibiotics (MBP+OA) is recommended in adult surgery to reduce surgical site infections (SSI); however, pediatric-specific evidence is limited. MBP+OA in children presents additional barriers, such as preadmission and nasogastric tube (NGT) placement.

Objective: This study aimed to evaluate the impact of MBP+OA on SSI compared to previous practices of MBP alone or no bowel preparation (NBP).

Method: A retrospective study was conducted of non-neonatal pediatric patients (≤ 18 years) who underwent elective colostomy takedown between January 2014 and March 2024. Demographics, medical history, primary diagnosis, antibiotic use, bowel preparation, NGT placement, and 30-day postoperative infections were collected. Chi-square, Mann-Whitney-U, and logistic regression were used to compare outcomes between NBP and MBP+OA.

Results: 100 patients were included with a median age of 10.5 months (IQR 7, 14); 62% were male. Primary diagnoses included anorectal malformation (82%), Hirschsprung's disease (7%), trauma (4%), colonic perforation (3%), and other (4%). MBP+OA was used in 61% of cases; all required preadmission, with 80% requiring NGT placement. The overall SSI rate was 19%, with 21% NBP and 20% MBP+OA (Figure 1), showing no difference in univariate comparison ($p = 0.91$). When adjusting for gender, peri-operative antibiotic use, and rectal irrigations, no difference in SSI rate was found (OR 0.78, 95% CI 0.23-2.63).

Conclusion: Despite the implementation of MBP+OA, the SSI rate in pediatric colostomy takedown remains high at 19%. Further prospective studies are necessary to evaluate the efficacy of MBP+OA in pediatrics and to investigate alternative factors that may contribute to SSI.

