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**KIOSK 1**

**Kiosk #1 | ePoster#1**

**Clinical Science | Trauma/Burn/Critical Care**

## **IDENTIFICATION & EMBOLIZATION OF A PULMONARY ARTERY PSEUDOANEURYSM FOLLOWING A GUNSHOT WOUND**

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**Background:** Acquired pulmonary artery pseudoaneurysm (PAP) is a rare but potentially lethal condition caused by penetrating trauma. Definitive diagnosis requires computed tomography angiography (CTA) demonstrating saccular or fusiform areas of dilatation with homogenous contrast filling which occurs simultaneously with the pulmonary artery. The lesions are treated by endovascular repair or surgery. Swift diagnosis and treatment are vital due to the high risk of mortality in the event of rupture.

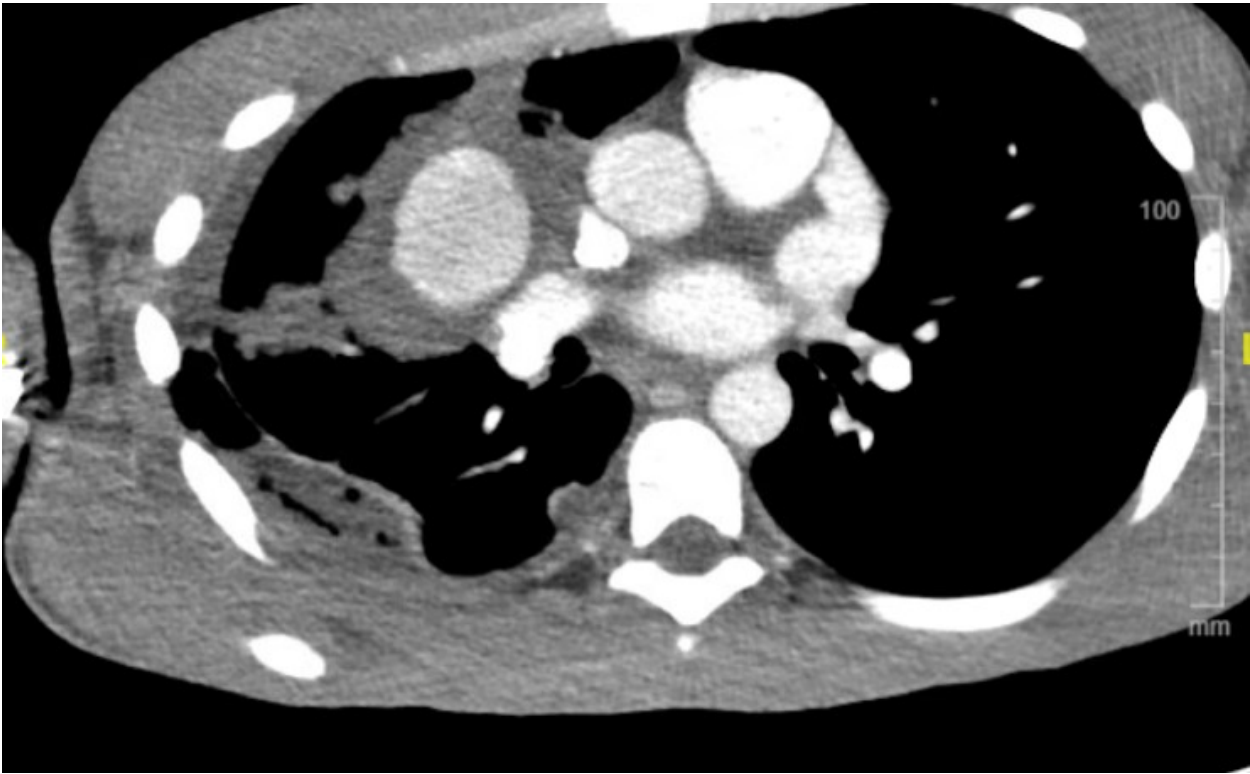
**Summary:** A 16 year old male arrived to the trauma bay as a transfer with a gunshot wound (GSW) to the right upper quadrant and a right-sided chest tube with 600 cc bloody output. He was hypotensive and was taken to the operating room for emergent exploratory laparotomy, which was negative. Postoperative CT demonstrated a 2.2x3.9 region of contained extravasation in the upper lobe of the right lung suspected to be originating from a branch of the pulmonary artery. He was having small-volume hemoptysis at which point a repeat CTA showed an enlarging area of contrast accumulation in the right upper lung now 3.9x3.5cm in size and with adjacent hematoma, consistent with an expanding pseudoaneurysm.

**Case Description:** The Interventional Radiology (IR) team was consulted and patient was taken for angioembolization. Diagnostic pulmonary arteriogram documented that the lesion originated from branch of the pulmonary artery. A 10 Fr by 70 cm sheath was used to stabilize catheter position in the pulmonary artery. Then, a multipurpose catheter and microcatheter combination was used to perform super-selective catheterization of the lesion. A microcatheter was advanced into the lesion and repeat injection confirmed the pseudoaneurysm and showed no venous outflow therefore identified as an end lesion. The pseudoaneurysm was embolized with a combination of 20 mm framing coils and 20 mm hydrogel coils (AZUR, Terumo, Japan) until complete obliteration was achieved. The patient tolerated the procedure well and remained hemodynamically stable. On POD #2 he underwent follow up CTA which showed no active extravasation and he was discharged home.

**Discussion:** Although rare, pulmonary artery pseudoaneurysm should be suspected in patients with penetrating thoracic trauma who present with the radiologic findings described above and consistent clinical symptoms such as hemoptysis.

**Conclusion:** Patients with evidence of a PAP should undergo urgent intervention, ideally endovascular angioembolization. In this case of a gunshot wound the patient's lesion was recognized and successfully treated in this manner.

**Lessons Learned:** It is critical to recognize symptoms of rare but potentially catastrophic sequelae of seemingly stable penetrating trauma, both at the time of presentation as well as days or even weeks following the injury. Multidisciplinary intervention, such as this collaboration with interventional radiology, may provide life-saving therapy for these patients with rare but treatable complications.



**Kiosk #1 | ePoster#2**

**Clinical Science | Trauma/Burn/Critical Care**

**SUPPORTING CARDIAC PERFUSION WITH PARTIAL RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA PRO: REDUCED VISCERAL ISCHEMIA DURING EXTENDED OCCLUSION**

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**Background:** Resuscitative endovascular balloon occlusion of the aorta (REBOA) is being utilized as an adjunct for patients with noncompressible truncal hemorrhage. The partial resuscitative endovascular balloon occlusion of the aorta (pREBOA) reduces distal organ injury and can allow longer occlusion times. Current clinical guidelines recommend avoiding REBOA in polytrauma where proximal chest injuries are suspected. However, polytrauma patients may benefit from REBOA placement due to the nature of their injuries. The objective of this case report was to present the successful management of a pREBOA for a patient with hemorrhagic shock secondary to a blunt cardiac injury with no evidence of post-procedure distal ischemia.

**Summary:** Resuscitative endovascular balloon occlusion of the aorta (REBOA) is regaining momentum and has become increasingly utilized as a resuscitative adjunct for trauma patients with life-threatening noncompressible truncal hemorrhage.

Available studies looking at the adverse effects of REBOA primarily focus on distal tissue ischemia, finding the degree of injury to be proportional to the length of time occluded. However, both clinical and experimental observations of supraphysiologic proximal arterial pressure during REBOA have led to concerns about potential organ damage and exacerbation of injuries above the point of occlusion as well. Current clinical practice guidelines reflect these considerations and recommend avoiding REBOA in cases of thoracic trauma. Nonetheless, 12% of trauma patients have injuries in multiple anatomic regions and two-thirds of these poly-trauma victims have thoracic injuries.

Partial aortic occlusion, in which low volume aortic flow is permitted distal to occlusion, has been proposed as a technique to alleviate the ischemic consequences of complete occlusion. Preclinical animal studies and case reports indicate that compared to complete occlusion, partial occlusion reduces biomarker evidence of organ injury, reduces adjunct resuscitation requirements, and increases survival with prolonged occlusion time.

We present a case in which pREBOA was successfully utilized for an extended occlusion time in zone 1 (180 minutes) to support coronary perfusion during left ventricular repair from blunt cardiac injury without causing any subsequent ischemic injury to downstream abdominal viscera.

**Case Description:** A 28-year-old male restrained driver was involved in a motor vehicle collision with multiple traumatic injuries. Systolic blood pressure (SBP) was unattainable on arrival thus massive transfusion protocol (MTP) was activated and pREBOA was placed at 48 cm in Zone 1. A left chest tube was placed after chest x-ray and large volume bloody output immediately returned. Patient was not stable enough for imaging and he was taken directly to the operating room for surgical exploration. A median sternotomy was performed and an injury to the left ventricle was found and repaired. Partial REBOA remained in Zone 1 for a total of 3 hours (proximal SBP 80s, distal SBP 30s-60s). The

patient had on-going hypotension when the REBOA balloon was deflated, and subsequently an exploratory laparotomy was performed which revealed hemoperitoneum from a mesenteric injury. The abdomen was packed and the REBOA balloon was deflated followed by catheter removal in the OR. Patient was transferred to ICU for on-going resuscitation and eventual abdominal closure two days after his index surgery. No lab marker indications of renal hypoperfusion were found post operatively, nor any other markers of ischemic sequelae to viscera noted in the post-operative period.

**Discussion:** For patients with impending cardiac arrest from circulatory collapse, REBOA offers a less invasive alternative to the traditional resuscitative thoracotomy with aortic cross clamping as a temporizing measure to increase coronary and cerebral perfusion pressures, decrease the workload on the heart, and thus decrease cardiac oxygen demand.

Increased coronary pressures and flow have been shown to be significant predictors of ROSC in both traumatic and non-traumatic cardiac arrest patients. However, this increased perfusion to coronary and cerebral vasculature also means increased blood flow to any injury that may be present above the point of REBOA deployment. This consequentially can accelerate bleeding at the site of injury which can be detrimental if not quickly followed by a definitive intervention, and thus current recommendations do not support the use of REBOA in the management of thoracic injuries.

Our findings challenge this recommendation, as the hemodynamic support provided by pREBOA not only bridged our patient to the operating room, but also maintained an increased coronary perfusion pressure for an extended repair time. Partial occlusion to Zone 1 was safely utilized for 180 minutes without any resultant hypoperfusion related injury to downstream viscera. Additionally, the regulated permissive hypotension of pREBOA provides hemodynamic support at a more physiologic SBP when compared to complete occlusion, which in turn minimizes left ventricular strain. Patients with cardiac injuries can especially have added benefit from this physiologic effect, as strain induced myocardial remodeling can disrupt proper healing of the injury which can ultimately weaken the repair.

Further considerations exploring the potential use of pREBOA in penetrating cardiac injuries could show similar benefits as those seen in our patient with blunt cardiac injury. A published case series from a level 1 trauma center suggests that the combined use of REBOA and median sternotomy could be a feasible and effective alternative to hemorrhage control in patients with non-compressible torso hemorrhage secondary to penetrating chest trauma. The conclusions from this study were congruent with the findings in our patient, and successfully demonstrated the beneficial utilization of pREBOA as an adjunct to provide hemodynamic support until definitive control was established, without worsening bleeding or reported adverse effects for penetrating cardiac injuries.

**Conclusion:** We present the successful utilization of pREBOA in Zone 1 to bridge a critically ill polytrauma patient to the operating room for definitive management. Use of the pREBOA supported coronary perfusion throughout the operation, and controlled bleeding from a mesenteric injury without causing any resulting ischemic damage. Our findings suggest that pREBOA can be sustained for as long as 180 minutes without negative distal sequelae and can be used as an adjunct to surgery in the management of thoracic injuries.

**Lessons Learned:** Partial-REBOA can be utilized for up to 180 minutes without ischemic related consequences to distal viscera. It may also prove to be beneficial in proximal thoracic injuries to the heart when used in adjunct to operative treatment.



**LARGE OR SMALL: AN ANALYSIS OF CHEST TUBE SIZE IN THE MANAGEMENT OF TRAUMATIC HEMOTHORAX**

Genevieve E. Messa, John P. Hunt, Alan Marr, Jonathan Schoen, Lance Stuke, Patrick Greiffenstein, Alison A. Smith, LSU Health - New Orleans

**Introduction:** Chest tubes are the standard of care for management of traumatic hemothorax and hemopneumothorax. Previous studies have compared the efficacy of small bore pigtail catheters versus large bore chest tubes with no significant differences found in outcomes based on size. Despite these studies, few guidelines exist to help physicians select the optimal chest tube size. The objective of this study was to evaluate provider practice patterns of chest tube sizes for patients with chest trauma.

**Methods:** A retrospective chart review was performed on consecutive adult patients who underwent tube thoracostomy for traumatic hemothorax or hemopneumothorax at an urban Level 1 Trauma Center from January 2016 to December 2021. Comparison was made between patients who received small bore (20 Fr) thoracostomy tubes. The primary outcome was indication for chest tube placement based on injury pattern including mechanism of injury (MOI), injury severity score (ISS), and abbreviated injury scale (AIS). Secondary outcomes included retained hemothorax, insertion related complications, and duration of chest tube placement. Univariate analyses were performed.

**Results:** A total of 352 patients were included in the study with 86.9% of patients (n=306/352) receiving large bore chest tubes. Large bore chest tubes were more frequently placed in younger patients (37.4 +/- 15.7 vs. 49.3 +/- 18.1 years old, p<0.0001), penetrating MOI (n=192/306, 62.7% vs n=12/46, 26.1%, p<0.0001), and patients with higher average ISS (18.7 +/- 9.4 vs 14.7 +/- 7.9, p=0.006). Despite having a large bore chest tube, patients in this group still had a higher incidence of retained hemothorax (n=108/306, 35.3% vs n=7/46, 15.2%, p=0.01). No significant differences were found between the pigtail and chest tube groups with respect to chest tube duration, need for an additional chest tube, insertion-related complications, surgery for retained hemothorax, and hospital length of stay (p>0.05).

**Conclusion:** This study found a higher portion of large bore chest tubes still being placed, in particular for younger patients with penetrating trauma and more severe injuries with no significant differences found in overall hospital course and no benefit to improve the incidence of retained hemothorax. Evidence based guidelines are needed to help providers determine the optimal size chest tube to place.

Table 1: Drug misuse history and risk factors of participants.

Demographics	All patients n=352	Naloxone prescription n=5	No Naloxone prescription n=347	p- value
<b>Drug Misuse history, n (%)</b>				
Opiate misuse	44 (12.5)	3 (60.0)	41 (11.8)	0.02
Depressant and opiate Misuse	94 (26.7)	2 (40.0)	92 (26.5)	0.61
Opiate overdose	33 (9.4)	3 (60.0)	30 (8.6)	0.007
<b>Risk Factors, n (%)</b>				
Opioid Rx at discharge, n (%)	197 (56.0)	1 (20.0)	196 (56.5)	0.17
0-1 risk factors	226 (64.2)	2 (40.0)	224 (64.6)	0.35
2-3 risk factors	124 (35.2)	3 (60.0)	121 (34.9)	0.35
4-5 risk factors	2 (0.6)	0	2 (0.6)	1.0

## Kiosk #1 | ePoster#4

### Clinical Science | Trauma/Burn/Critical Care

#### A PHASE-BY-PHASE ANALYSIS OF CHANGES IN TRAUMA PATTERNS DURING THE COVID-19 PANDEMIC

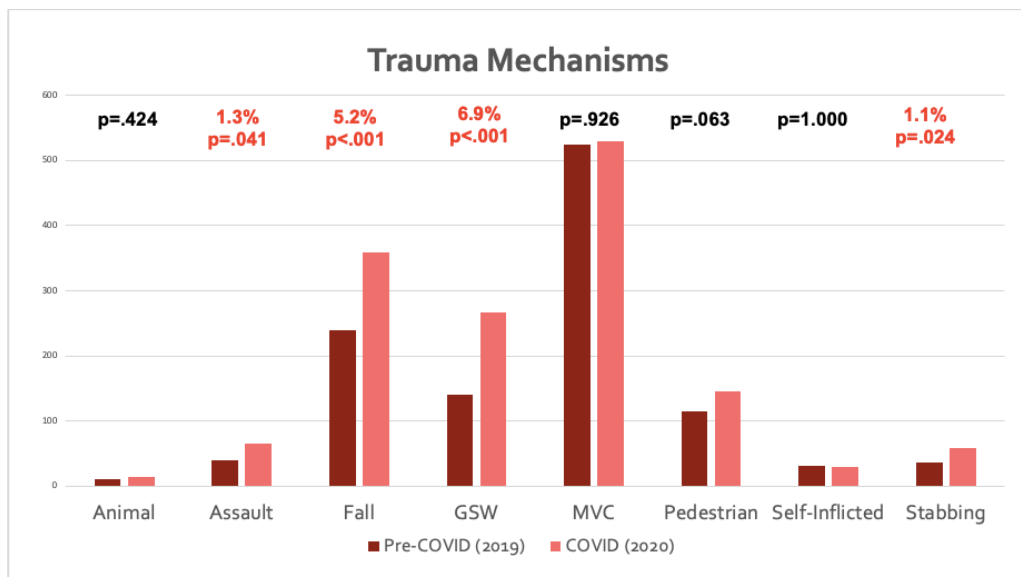
A Dotiwala, J Ferrer, Z Palowski, P Ingrassia, Z Connelly, N Samra, LSU Health - Shreveport

**Introduction:** The COVID-19 pandemic prompted myriad social restrictions which were lifted gradually in phases. We aim to investigate how the nature of traumatic injuries shifted during each phase of the COVID pandemic.

**Methods:** We conducted a retrospective review of all trauma patients separated into Lockdown and Phases 1, 2, and 3. Data from the corresponding dates in 2019 were used as a baseline. Traumatic injuries were separated into 8 categories: vehicular collisions, falls, assault, gunshot injuries, stabbings, self-inflicted injuries, animal injuries, and pedestrian injuries. We also evaluated for mortality, injury severity, and alcohol-related trauma.

**Results:** During COVID periods, there was a 1.3% increase in blunt assault ( $p=.041$ ), 5.2% increase in falls ( $p<.001$ ), 6.9% increase in gunshot wounds ( $p<.001$ ), and 1.1% increase in stabbings ( $p=.024$ ). Overall alcohol-related trauma was greater in COVID vs pre-COVID ( $p=.003$ ) which decreased by phase: 17% increased risk in Lockdown ( $p<.001$ ), 6.5% increased risk in Phases 1 ( $p=.067$ ) and 2 ( $p=.040$ ). Mortality ( $p<.001$ ) and ISS ( $p=.002$ ) also increased during COVID.

**Conclusion:** The increase in violent trauma (i.e., blunt assault, GSWs, stabbings) during COVID is likely reflective of lockdown fatigue. The significant increase in falls may reflect a strain on resources at outside hospitals. We found a strong correlation between alcohol-related injuries and stricter quarantine restrictions during COVID phases, greatest during Lockdown phase with a progressive decrease with each subsequent phase. This suggests that focused efforts should be made during earlier, more restrictive quarantine conditions for those groups most vulnerable to alcohol-driven trauma. Increased mortality and ISS were seen during all phases, likely because during quarantine, only the more severe injuries to be seen in the hospital.





**TROPICAL STORMS AND HURRICANES IN THE BIG EASY LEAD TO INCREASED RATES OF VIOLENT INJURY**

Michael Ghio, Caroline Ghio, Danielle Tatum, Patrick McGrew, Juan Duchesne, Kat Theall, Joseph Constans, Julia Fleckman, Sharven Taghavi, Tulane School of Medicine

**Introduction:** Tropical storms and hurricanes impact communities where disparities are pronounced. This study investigated the impact of tropical storms/hurricanes on the incidence of penetrating trauma in a major metropolitan city prone to extreme weather events.

**Methods:** This cross-sectional analysis examined penetrating trauma at the only Level 1 Trauma Center in New Orleans during hurricane season from 2010-2021. Landfall was defined as 2 days prior through 7 days after the eye of the storm made landfall. The storm recovery period was the 2 weeks following landfall. Mean frequency of trauma was calculated with standard deviation, and linear regression was performed.

**Results:** There were 5,531 penetrating injuries during hurricane seasons from 2010-2021, with 412 (7.4%) during storm landfall and 554 (10.0%) during recovery. Penetrating trauma occurred at higher rates during landfall and recovery than the control period (3.4 vs 3.5 vs 2.8 events/day;  $p < 0.001$ ). Firearm incidents increased during landfall and recovery compared to baseline (2.17 vs 2.2 vs 1.6 incidents/day;  $p < 0.001$ ). Knife incidents were more frequent during landfall and recovery compared to baseline (0.28 vs 0.36 vs 0.14 events/day;  $p < 0.001$ ). Self-harm increased during recovery compared to baseline (0.14 vs 0.07 events/day;  $p = 0.004$ ), but not during landfall. Using multivariate analysis, wind speed, hurricane category, and rainfall total were significant in predicting firearm violence rates during landfall and recovery periods (Table 1).

**Conclusion:** Cities at risk for tropical storms/hurricanes may face increased penetrating trauma. Prevention efforts during tropical storm/hurricane landfall and recovery periods may save lives.

TABLE 1. Factors Independently Associated with Firearm Penetrating Trauma					
Independent Factors	Standardized $\beta$	OR	95% Confidence Interval		<i>p</i>
			Lower Limit	Upper Limit	
Wind Speed	-3.46	0.03	-4.76	-2.16	0.01
Rainfall Total	-0.56	0.57	-0.82	-0.30	0.02
Hurricane Category	2.60	13.5	1.66	3.54	0.01
Excluding self-harm Mean-centered linear regression analysis was applied using best subsets regression. $R^2 = 0.91$					

**BUG JUICE AND CHEST TUBES: ARE PROPHYLACTIC ANTIBIOTICS NEEDED FOR TUBE THORACOSTOMY PLACEMENT?**

M Brown, K Pavleszek, R Schroeder, J Schoen, A Marr, P Greiffenstein, J Hunt, L Stuke, A Smith, LSU Health - New Orleans

**Introduction:** Chest tube placement following traumatic injury has associated long-term infectious risks. The use of prophylactic antibiotics prior to tube thoracostomy remains controversial. This study aimed to determine if prophylactic antibiotics for tube thoracostomy was associated with reduced rates of infection.

**Methods:** This is a retrospective chart review of adult patients at a Level 1 Trauma Center from July 1, 2012-January 31, 2022 with traumatic injuries requiring tube thoracostomy. Primary outcome was empyema development. Secondary outcomes included pneumonia, C. diff colitis, injury severity, LOS, ICU LOS, and in-hospital mortality. Results were compared using univariate analysis.

**Results:** 827 patients who underwent single chest tube placement were included. Of these, 36% (n=298/827) received antibiotics prior to tube thoracostomy. These patients had a higher injury severity score (20.7 vs 17, p=0.0001). Rates of penetrating trauma were similar (44 vs 47%, p=0.42). There was no difference in the rate of empyema (4.3% vs 4.2%, p=1.0) or pneumonia (17% vs 14.2% p=0.31). The antibiotics group had higher rates of C. diff colitis (1.3% vs 0%, p=0.02), sepsis (10.7% vs 5.1%, p=0.005), ICU admission (78.3% vs 46.1%, p=0.0001), intubation (29% vs 16.1%, p=0.0001), longer hospital stay (16.5 vs 6.9, p=0.0001) and longer ICU stay (8.3 vs 6.7, p=0.006). In-hospital mortality was higher in the non-antibiotic group (33.2% vs 22.7%, p=0.002).

**Conclusion:** Antibiotic use is not associated with decreased rates of empyema or pneumonia and can have deleterious effects such as increased risk of C. diff infections. Prospective studies focused on evidence-based guideline development are needed.

Patient demographics	No antibiotics n=527	Antibiotics n=300	p value
Empyema, n (%)	22 (4.2)	13 (4.3)	1.0
Pneumonia, n (%)	75 (14.2)	51 (17.0)	0.31
C. diff colitis, n (%)	0	4 (1.3)	0.02
Sepsis, n (%)	27 (5.1)	32 (10.7)	0.005
ICU admission, n (%)	243 (46.1)	235 (78.3)	0.0001
ICU LOS, avg days (SD)	6.7 (7.1)	8.3 (9.3)	0.006
Hospital LOS, avg days (SD)	6.9 (7.9)	16.5 (35.0)	0.0001
Intubation, n (%)	85 (16.1)	87 (29.0)	0.0001
In-hospital mortality, n (%)	174 (33.2)	68 (22.7)	0.002

**Kiosk #1 | ePoster#7**

**Clinical Science | Trauma/Burn/Critical Care**

**VASCULAR COMPLICATIONS SECONDARY TO REBOA PLACEMENT AT A LEVEL 1 TRAUMA CENTER**

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**Introduction:** Resuscitative endovascular balloon occlusion of the aorta (REBOA) is designed to manage severe hemorrhagic shock. Popularized in medical care during military conflicts, the concept has emerged as a lifesaving technique that is utilized around the United States. Literature on risks of REBOA placement, especially vascular injuries, are not well reported. Our goal was to assess the incidence of vascular injury from REBOA placement, risk factors associated with injury and the incidence of death among these patients at our institution.

**Methods:** We performed a retrospective cohort study of all patients who underwent REBOA placement between September 2017 and June 2022 in our Level 1 Trauma center. The primary outcome variable was the presence of an injury related to REBOA insertion or use. Secondary outcomes studied were limb loss and mortality. Data were analyzed using descriptive statistics, Chi square and t-tests as appropriate for the variable type.

**Results:** We identified 99 consecutive patients who underwent REBOA placement during the study period. The mean age of patients was 43 (13-84) and 67.7% (67/99) were males. The majority of injuries were from blunt trauma (79.8%, 79/99). Twelve of the patients (12.1%, 12/99) had a vascular injury related to REBOA placement that intervention. All but one of the injuries were identified within 4 hours of REBOA placement. The delayed repair was a pseudoaneurysm that was identified and repaired 10 days following REBOA placement. The complications included local vessel injury 58.3% (7/12), distal embolization 16.7% (2/12), excessive bleeding requiring vascular consult 8.3% (1/12), pseudoaneurysm requiring intervention 8.3% (1/12) and one incident of inability to remove REBOA device (8.3%, 1/12). The repairs were performed by vascular surgery (75%, 9/12), interventional radiology (16.7%, 2/12) and trauma surgery (8.3%, 1/12). There was no association of age, gender, race, and blunt versus penetrating injury to REBOA related complications. Mortality in this patient population was high (40.4%, n/99), but there was no association with REBOA related complications. Ipsilateral limb loss occurred in two patients, but both were related to their injuries and not to REBOA related ischemia.

**Conclusion:** While vascular complications are not unusual there does not appear to be an association with limb loss or mortality if they are addressed promptly. Close coordination between vascular surgeons and trauma surgeons is essential in patients undergoing REBOA placement.

**Kiosk #1 | ePoster#8**

**Clinical Science | Trauma/Burn/Critical Care**

**DOES VEHICLE INTRUSION ALONE STILL PREDICT INJURY: A RETROSPECTIVE ANALYSIS OF MECHANISM AS TRAUMA ACTIVATION CRITERIA**

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**Introduction:** Guidelines recommend patients involved in automobile collisions with driver side intrusion >12 inches or >18 elsewhere meet criteria for trauma activation. However, crumple zones have since been incorporated into modern vehicle safety design. We hypothesize vehicle intrusion alone as mechanism-of-injury (MOI) criteria inadequately predicts trauma center activation.

**Methods:**

A retrospective, single center chart review of adult patients involved in motor vehicle collisions (MVC) presenting to a Level 1 trauma center from July 2016 to March 2022 was performed. Patients were divided by MOI criteria: vehicle intrusion alone (VI) vs. multiple MOI criteria. Univariate analyses were conducted to evaluate clinical outcomes with statistical significance set at  $p < 0.05$ .

**Results:** 2940 patients met inclusion criteria. Vital signs on presentation were similar between both groups ( $p > 0.05$ ). The VI group reported lower injury severity scores (5.3 +/- 6.6 vs 6.3 +/- 7.5,  $p = 0.004$ ). The average number of CT scans performed between the two groups was slightly higher in the multiple MOI group but likely not clinically relevant (3.1 +/- 1.5 vs 3.3 +/- 1.5,  $p = 0.001$ ). The VI only group had a higher incidence of ED discharge ( $n = 1335/2098$ , 63.6% vs  $n = 450/842$ , 53.4%,  $p = 0.001$ ), lower ICU admissions ( $n = 210/2098$ , 10.1% vs  $n = 116/842$ , 13.8%,  $p = 0.004$ ), and fewer in-hospital procedures ( $n = 345/2098$ , 16.4% vs  $n = 168/842$ , 20.0%,  $p = 0.03$ ).

**Conclusion:** With increasing demand to optimize resource utilization, the results from this study suggest that vehicle intrusion MOI criteria alone may not be an accurate predictor for trauma center transport. Future studies are needed to evolve guidelines to minimize costs without compromising care.

### PREHOSPITAL VITAL SIGNS FOR USE AS PREDICTORS OF ORGAN DONATION POTENTIAL AFTER GUNSHOT WOUNDS TO THE HEAD

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**Introduction:** Gunshot wounds to the head (GSWH) are high mortality and account for over one-third of head injury deaths, but result in a lower rate of organ donation than the general population. As GSWH patients deteriorate rapidly after injury, the severity of on-scene deterioration noted by emergency medical services after initial contact may provide insight into stability of patients that is not appreciable in-hospital. We hypothesize that prehospital vital signs have utility in early identification of organ donor potential.

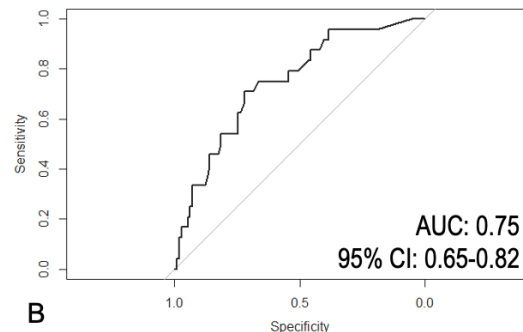
**Methods:** Retrospective analysis included all adult trauma patients who presented to a Level 1 trauma center with a GSWH and had signs of life on-scene and at the emergency department (ED) before expiring between 2012-2020. Vitals compared include Glasgow Coma Score (GCS), systolic blood pressure (SBP), and respiratory rate (RR). Logistic regression analysis identified PH vital signs predictive of organ donor potential. Receiver operating characteristic (ROC) curve analysis assessed the predictive accuracy of these factors.

**Results:** Of 187 subjects, 31 (16.6%) donated organs. Compared to non-donors, donors had significantly higher median PH GCS (4 vs 3,  $p=0.02$ ), SBP (148 vs 115,  $p=0.001$ ), MAP (109 vs 98,  $p=0.04$ ), and RR (19 vs 12,  $p=0.01$ ). There were no significant differences in ED vitals between groups. Logistic regression analysis showed increased PH GCS and increased PH SBP to be predictive of organ donation, while increased PH GCS-Eye was associated with decreased odds of organ donation(A). ROC analysis based on the classification of PH GCS, SBP, and GCS-E showed area under the curve (AUC)=0.75 (95% CI:0.65-0.82) (B).

**Conclusion:** Screening PH vital signs may help screen GSWH patients for organ donation potential and increase timely referral for donor workup.

	OR	95% CI	P-Value
Intercept	0.04	0.01-0.18	<0.001
Prehospital GCS	1.42	1.06-1.94	0.02
Prehospital GCS-E	0.28	0.08-0.79	0.03
Prehospital SBP	1.01	1.00-1.03	0.01

A



B

**ACUTE KIDNEY INJURY OUTCOMES IN HYPOTENSIVE TRAUMA PATIENTS TREATED WITH pREBOA VS ER-REBOA**

I Hunt, L Gold, L Stuke, J Schoen, P Greiffenstein, A Marr, J Hunt, A Smith, LSU Health - New Orleans

**Introduction:** Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) is an adjunct tool to achieve hemostasis in trauma patients with non-compressible torso hemorrhage. The development of the partial REBOA allows for distal perfusion of organs while maintaining occlusion of the aorta. The primary aim of this study was to compare rates of acute kidney injury (AKI) in trauma patients who had placement of either a pREBOA or ER-REBOA.

**Methods:** A retrospective chart review of adult trauma patients who underwent REBOA placement between September 2017 to February 2022 was performed. Baseline demographics, information of REBOA placement, and post procedure complications including AKI, amputations, and mortality were recorded. Univariate analyses were performed. with  $p < 0.05$  considered to be significant.

**Results:** A total of 68 patients met study inclusion criteria with 53 patients (77.9%) having an ER REBOA. 6.7% of patients treated with pREBOA had a resulting AKI, while 40% of patients treated with ER-REBOA had a resulting AKI, and this difference was significant ( $p < 0.05$ ). The rates of rhabdomyolysis, amputations, and mortality were not significantly different between the two groups.

**Conclusion:** The results from this case series suggest that patients treated with pREBOA have a significantly lower chance of developing an AKI compared to ER-REBOA. There were no significant differences in rates of mortality, rhabdomyolysis, and amputations. Future prospective studies are needed to further characterize the indications and optimal use for pREBOA.

	pREBOA n= 15	ER REBOA n= 53	P value
<b>Demographics</b>			
Age, avg (SD)	38 (13.8)	44.7 (16.1)	0.1
Male Gender, n (%)	11 (73.3)	36 (67.9)	0.7
<b>Injury Mechanism</b>			
Penetrating Mech, n (%)	1 (6.7)	9 (17.0)	0.3
ISS, avg (SD)	24.55 (12.9)	28.2 (16.2)	0.4
<b>Complications</b>			
AKI, n (%)	1 (6.7)	18 (40.0)	0.04
Amputations, n (%)	1 (6.7)	2 (3.8)	0.6
Rhabdomyolysis, n (%)	0 (0.0)	9 (17.0)	-
<b>Outcomes</b>			
Died, n (%)	4 (26.7)	14 (26.4)	1

**Kiosk #1 | ePoster#11**

**Clinical Science | Trauma/Burn/Critical Care**

**METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS NARES SCREEN LEADS TO VANCOMYCIN DE-ESCALATION IN TRAUMA**

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**Introduction:** Methicillin-resistant Staphylococcus aureus (MRSA) polymerase chain reaction (PCR) nares swab may be used to de-escalate vancomycin therapy. However, in critically ill trauma patients at high risk for hospital-acquired infections, data is lacking on the utility of this test. This study evaluated the impact of MRSA PCR nares screening on the de-escalation of vancomycin therapy in critically ill trauma patients.

**Methods:** This is a single-center, pre-post observational cohort study conducted at a level I trauma center. Adult patients admitted for trauma who received empiric vancomycin for suspected infection in the intensive care unit (ICU) were included. Rapid MRSA PCR nares screening began in September 2021. A pre-cohort group was evaluated 6 months before and a post-cohort group was evaluated 6 months after implementation. The primary outcome was the duration of vancomycin therapy. Secondary outcomes included rate of acute kidney injury (AKI), positive MRSA screen or cultures, ICU length of stay (LOS), hospital LOS, and mortality.

**Results:** 158 patients were included with 82 in the pre-cohort group and 76 in the post-cohort group. 90 vancomycin initiation orders were observed in the pre-cohort versus 80 orders in the post-cohort. Baseline demographics were similar between groups. There was a significantly higher rate of MRSA PCR orders in the post-cohort group compared to the pre-cohort (75% vs. 21%,  $p < 0.001$ ). There were no reported instances of positive MRSA cultures with a negative PCR. Vancomycin duration was significantly shorter in the post-cohort group (2.55 vs. 3.5 days,  $p = 0.02$ ). Hospital and ICU LOS, rates of AKI, and mortality were not statistically different between the groups.

**Conclusion:** Implementation of empiric rapid MRSA nares screening led to a shorter overall duration of vancomycin therapy by nearly one day in critically ill trauma patients. Further study is required to evaluate the potential cost savings of empiric MRSA screening in critically ill trauma patients.

*Graph on next page*



	<b>Pre-MRSA PCR Rapid Test</b> (N=82)	<b>Post -MRSA PCR Rapid Test</b> (N=76)	P-value
Age (mean, SD)	43.4 ± 19.4	45.8 ± 18.4	0.413
Gender, Male, N(%)	60 (73)	62 (82)	0.208
Type of Injury, N(%)			
- Penetrating	23 (28)	18 (24)	0.532
- Blunt	59 (72)	58 (76)	
ISS (median, IQR)	20.5	22	0.380
AKI, N(%)	6 (7.3)	6 (7.8)	0.891
Hospital LOS (median, IQR)	24	25.5	0.974
ICU LOS (median, IQR)	13	16.5	0.140
Mortality, N(%)	15 (18)	23 (30)	0.079
<b>CLINICAL OUTCOMES</b>			
<b>Vancomycin ordered (N)</b>	90	80	---
<b>MRSA screen result, N(%)</b>			
- MRSA screen positive	5 (26)	8 (13)	0.183
- MRSA screen negative	14 (74)	52 (86)	
<b>Cultures, N(%)</b>			
- Any culture positive	73 (81)	53 (66)	<b>0.037</b>
- MRSA positive	15 (17)	7 (9)	0.216
Vancomycin duration (days), median, IQR	3.5	2.55	<b>0.020</b>

Statistics:

- For nominal or ordinal data chi-square was used to evaluate significance.
- Continuous variables were evaluated for normal distribution. All data (with the exception of age) was highly skewed and not normally distributed therefore, median was reported and Mann-Whitney U test was used to evaluate significance. If normally distributed a t-test was used.
- $\alpha=0.05$

## A RETROSPECTIVE ANALYSIS OF NALOXONE PRESCRIPTIONS AMONG HOMELESS TRAUMA PATIENTS: LOW COMPLIANCE WITH CDC GUIDELINES

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**Introduction:** Oral opioids are commonly prescribed to patients following trauma surgery for post-operative pain. In 2016, the Centers for Disease Control and Prevention (CDC) recommended discharge naloxone for patients at an increased risk of opioid overdose. Homeless patients are at high risk for opioid abuse and represent a vulnerable population following hospitalization for traumatic injuries. Our objective was to determine compliance with CDC guidelines for discharge naloxone for homeless trauma patients at an urban Level 1 trauma center.

**Methods:** A retrospective chart review of adult trauma patients with a history of homelessness from 2012-2021 was performed. Patients with an opioid prescription at discharge and/or history of substance misuse were included. Patients were further stratified by number of risk factors for opioid overdose. A Fisher's Exact test was used to compare the groups by naloxone status with  $p < 0.05$  considered to be significant.

**Results:** Out of the 352 patients who met inclusion criteria, 197 patients (56%) had an opioid prescription at discharge while only 5 (1.4%) received discharge naloxone. Of patients with an opioid prescription at discharge, 1 patient (0.5%) received discharge naloxone despite 152 patients (77%) having at least one risk factor of opioid overdose.

**Conclusion:** Despite CDC guidelines, compliance with discharge naloxone among homeless trauma patients who present with risk factors for opioid overdose remains scarce. The number of patient risk factors does not appear to influence presence of naloxone prescription. Future studies will assess trauma physician views on discharge naloxone among those receiving discharge opioids.

**Table 1: Drug misuse history and risk factors of participants.**

Demographics	All patients n=352	Naloxone prescription n=5	No Naloxone prescription n=347	p- value
<b>Drug Misuse history, n (%)</b>				
Opiate misuse	44 (12.5)	3 (60.0)	41 (11.8)	0.02
Depressant and opiate Misuse	94 (26.7)	2 (40.0)	92 (26.5)	0.61
Opiate overdose	33 (9.4)	3 (60.0)	30 (8.6)	0.007
<b>Risk Factors, n (%)</b>				
Opioid Rx at discharge, n (%)	197 (56.0)	1 (20.0)	196 (56.5)	0.17
0-1 risk factors	226 (64.2)	2 (40.0)	224 (64.6)	0.35
2-3 risk factors	124 (35.2)	3 (60.0)	121 (34.9)	0.35
4-5 risk factors	2 (0.6)	0	2 (0.6)	1.0

**Kiosk #1 | ePoster#13**

**Clinical Science | Trauma/Burn/Critical Care**

**OUTCOMES IN PEDIATRIC VASCULAR TRAUMA**

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**Introduction:** Although pediatric vascular trauma is rare, it can result in severe functional deficits or death. The purpose of this study is to evaluate the demographics, injuries, and outcomes of the pediatric vascular trauma population and identify any risk factors associated with complications or death.

**Methods:** The authors conducted a retrospective cohort study that included all patients with penetrating and blunt trauma age 18 and under that presented to a large urban level 1 trauma center from January 2016 to August 2021. Demographic, injury, treatment, and outcome variables were recorded. The primary outcome variable was the presence of a vascular complication. The secondary outcome variable was mortality. Descriptive statistics were calculated and chi square, logistic regression and t-tests were used to analyze relationships between study variables and the outcomes.

**Results:** During the study period, there were 2,168 pediatric trauma patients of which 3.41% came in with a vascular related injury. A total of 74 patients were identified from January 2016 to August 2021 and a retrospective chart review was performed. The mean age for the study population was 15 [1-18] and 78% were male. Penetrating trauma represented 70.2% of the cohort and more specifically 60.8% of injuries seen were secondary to gunshots. Arterial injuries were the most common (90%). In 27% of the study patients, the only operative intervention for the vascular injury was carried out by the trauma surgery. 20.3% of patients had experienced additional episodes of trauma and were evaluated in the emergency department. Over the study period, 18.9% of patients died and 9.5% of patients suffered a vascular complication. Death was associated with low blood pressure on arrival ( $p=0.0011$ ), low heart rate on arrival ( $p=0.0095$ ), a lower GCS on arrival ( $p$

**Conclusion:** Pediatric trauma is a leading cause of death in patients under 18 years of age. While vascular trauma is uncommon in pediatric patients, death and morbidity frequently occur in these patients.

## REBOA AFTER PENETRATING INTRATHORACIC INJURY: AN AORTA REGISTRY ANALYSIS

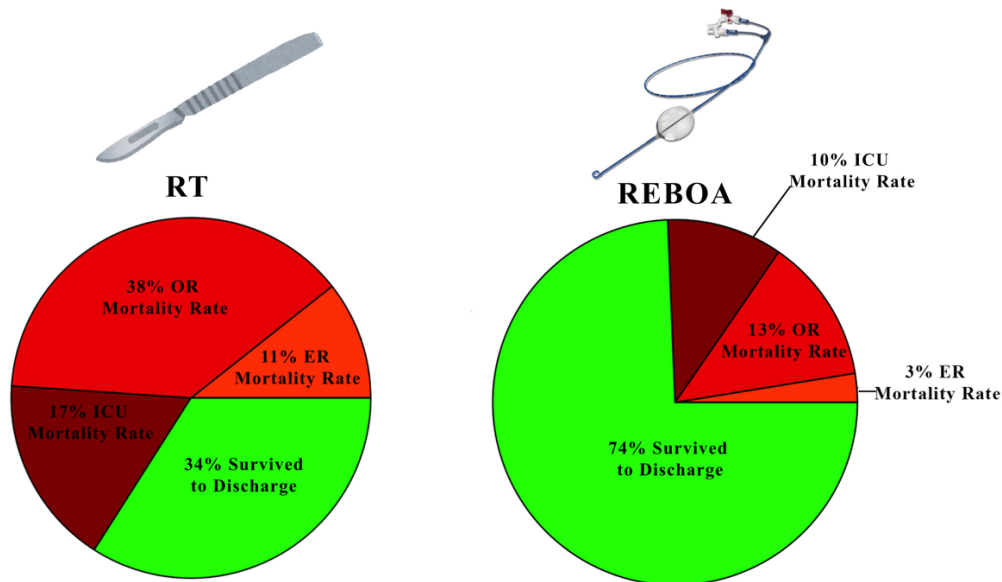
Sydney Caputo, Jacob M. Broome, Viktoriya Grayson, Bryant Mclafferty, John T. Simpson, MD1, Danielle Tatum, Sharven Taghavi, Joseph DuBose, Juan Duchesne, Tulane School of Medicine

**Introduction:** The use of resuscitative endovascular balloon occlusion of the aorta (REBOA) for noncompressible torso hemorrhage (NCTH) has shown promise for stabilizing NCTH patients. Currently, there is a gap in evidence on the benefits of REBOA use in the management of penetrating intrathoracic injury. We sought to evaluate the role of REBOA use in penetrating chest trauma, hypothesizing that REBOA may be a feasible alternative in select patients following penetrating chest injury.

**Methods:** This was a review of the Aortic Occlusion for Resuscitation in Trauma and Acute Care Surgery (AORTA) registry for patients with penetrating chest injuries from 2013 to 2021 who presented with signs of life and chest Abbreviated Injury Score > 3. Those with CPR before or at admission were excluded.

**Results** A total of 86 patients, 47 resuscitative thoracotomy [RT] (55%) and 39 REBOA (45%), met the inclusion criteria. There were no differences between RT and REBOA for median injury severity score, initial systolic blood pressure (SBP), or initiation SBP. REBOA patients had a longer occlusion time ( $p < 0.001$ ), but higher median response SBP ( $p = 0.01$ ) and more frequent hemodynamic improvement and stability. One REBOA patient required thoracotomy within the first 24 hours. Mortality was significantly lower in REBOA vs. RT patients ( $p < 0.001$ ).

**Conclusion:** Following penetrating intrathoracic injury, hypotensive patients without hemodynamic collapse may benefit from REBOA. Indications for REBOA use in penetrating chest injuries must be identified and further developed.



**INCIDENTAL NODULES IN TRAUMA PATIENTS: SHOULD THERE BE A STANDARDIZED APPROACH?**

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**Introduction:** Computed tomography (CT) scans are becoming increasingly common for the work up of patients with traumatic injuries. Due to increased imaging, incidental imaging findings are often discovered without proper follow up. Patients could potentially have high risk nodules or be at risk of the development of malignancies in the future.

**Methods:** This study is a retrospective chart review from January 1, 2016 – December 31, 2021 of adult trauma patients who presented as trauma activations. Data was gathered from patients who received a Thoracic or Whole Body CT as part of initial trauma evaluation.

**Results:** A total of 493 patients were screened for incidental nodules. 82 patients (16.6%) were found to have at least one incidental finding on CT. The most common incidental finding was a pulmonary nodule (n=36/82, 43.9%), followed by hepatic lesion (n=32/82, 39.0%), thyroid nodule (n=16/82, 19.5%), and adrenal nodules (n=9/82, 11.0%). Only 11 patients (13.4%) received follow-up of their incidental finding.

**Conclusion:** Incidental imaging findings in trauma patients is a developing phenomenon with potential significant complications. The results from this study indicate that inadequate follow-up for incidental imaging findings in this population exists. Future guidelines should focus on the development of appropriate patient education and follow up.

Total Number of Patients	493
Male	59
Median Age	52 (18-98)
Number of Patients with Incidental Nodules	82
Lung Nodules	36
Hepatic Nodules	32
Thyroid Nodules	16
Adrenal Nodules	9
Number of Patients Receiving Follow-Up	11

**RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA IN THE OBESE PATIENT**

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**Introduction:** Perceptions of difficulty in obtaining arterial access in obese patients may impact the rate of resuscitative endovascular balloon occlusion of the aorta (REBOA) use in clinical practice. We aimed to examine the association between obesity and REBOA placement, hypothesizing that increased body habitus would decrease success and increase time to successful aortic occlusion (AO).

**Methods:** A retrospective analysis of the AO for Resuscitation in Trauma and Acute Care Surgery (AORTA) registry was performed on REBOA patients (2013-2022). Patients with systolic blood pressure (SBP) > 0mmHg at admission were included. Patients requiring CPR on arrival to the ED were excluded. Body mass index (BMI) categorized obesity into subgroups (Table).

**Results:** Inclusion criteria was met by 410 patients. There was no statistical difference in injury severity or admission SBP among the subgroups (Table). At initiation of AO, moderately and severely obese patients had higher median SBP compared to non- and mildly obese patients ( $p=0.03$ ). On multivariate analysis, BMI did not significantly impact the arterial access technique, success of REBOA placement or time to successful AO. When stratified by arterial access technique, there was no difference in success rates, time to successful AO, or mortality between groups. Overall time to successful AO, response SBP, and mortality did not differ across subgroups.

**Conclusion:** Following traumatic injury in obese patients, REBOA placement is a feasible intervention. Despite body habitus differences, ultrasound guidance was not superior to landmark palpation for acquiring arterial access. Placement of REBOA is equally effective in obese patients and should not impede REBOA use.

Parameter - Median (IQR)	Non-Obese (BMI<30) (n=261)	Mildly Obese (BMI 30-34.9) (n=93)	Moderately Obese (BMI 35-39.9) (n=31)	Severely Obese (BMI 40+) (n=25)	p-value
Age	40 (26-58)	52 (34-60)	54 (33-61)	49 (39-59)	<0.01
Injury Severity Score	34 (25-45)	29 (21-39)	34 (22-41)	29 (19-45)	0.05
Initiation SBP (mmHg)	70 (56-88)	69 (60-90)	80 (69-88)	82 (73-86)	0.03
Cutdown for arterial access, n (%)	12 (4.6)	11 (12)	1 (3)	1 (4)	0.07
Time to Successful AO (min)	5 (2-11)	5 (3-12)	7 (3-12)	6 (3-14)	0.84
Ultrasound – Time to Successful AO	5 (2-14)	7 (2-13)	6 (3-12)	8 (3-15)	0.90
Palpation – Time to Successful AO	5 (2-10)	4 (2-11)	8 (5-12)	6 (3-13)	0.43
Response SBP, (mmHg)	112 (110-130)	110 (100-130)	114 (109-133)	109 (101-126)	0.55
Mortality, n (%)	94 (36)	33 (35)	10 (32)	13 (52)	0.42



**PSEUDOANEURYSM FORMATION AFTER TRAUMATIC HIGH GRADE SOLID ORGAN INJURIES: FORMIDABLE FOE OR HARMLESS RADIOGRAPHIC FINDING?**

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**Introduction:** Widespread utilization of imaging for the work up of trauma patients has increased the diagnosis of post-traumatic pseudoaneurysms (PSA). While rare, PSAs can have devastating consequences if they rupture. Evidence for surveillance of traumatic PSAs is lacking. The objective of this study was to present a case series of PSAs.

**Methods:** A retrospective chart review of trauma patients from two Level 1 and Level 2 trauma centers was performed. The trauma registry was queried for adult patients from 2012-2020 diagnosed with solid organ injuries, defined on imaging as the American Association for the Surgery of Trauma (AAST) grade 3 or higher.

**Results:** A total of 1,260 patients were identified with high grade solid organ injuries with 47 patients (3.7%) having a PSA. Penetrating trauma encompassed 23.4% of patients with PSAs. PSAs were most common in the spleen (n=21, 44.7%), kidney (n=15, 31.9%), and liver (n=11, 23.4%). One patient had pseudoaneurysms in two organs. The median AAST grade was 4 (range 3-5). Initial computed tomography (CT) scan findings of contrast blush/extravasation were found in 33 patients (70.2%) and 36 (76.6%) ultimately underwent angioembolization. Only 12 (25.5%) had a surveillance computed tomography angiography (CTA) prior to discharge. 3 (6.4%) were readmitted to observe/treat the PSA, and 1 (2.2%) re-presented with PSA rupture.

**Conclusion:** This case series describes the incidence of PSAs over an 8-year period for penetrating and blunt trauma. A small percentage of patients required re-admission for further intervention. Future studies are needed to determine the best practice for surveillance of PSAs.

Age, median, years (range)	34 (17-83)
Male, n (%)	29 (61.7)
Penetrating, n (%)	11 (23.4)
ISS, median (range)	24.5 (10-43)
Organ Injured, n (%)	
Liver	18 (30.5)
Spleen	25 (42.4)
Kidney	16 (27.1)
AAST solid organ injury grade, median (range)	4 (3-5)
Organ w/ PSA, n (%)	
Liver	11 (23.4)
Spleen	21 (44.7)
Kidney	15 (31.9)
Blush/Extravasation on CT, n (%)	33 (70.2)
Ruptured, n (%)	1 (2.1)
Embolized, n (%)	36 (76.6)
Embolization within 24h of presentation, n (%)	21 (44.7)
Operative intervention, n (%)	24 (51.1)
Surveillance CTA prior to discharge, n (%)	12 (25.5)
Hospital LOS, median, days (range)	9 (1-73)
Readmitted for PSA, n (%)	3 (6.4)
Overall mortality, n (%)	7 (15.0)

ISS = injury severity score, CT = computed tomography, PSA = pseudoaneurysm, CTA = computed tomography angiography, AAST = The American Association for the Surgery of Trauma, LOS = length of stay



## Kiosk #1 | ePoster#18

### Clinical Science | Trauma/Burn/Critical Care

#### A 5 YEAR REVIEW OF THE INCIDENCE AND COSTS OF AUTOMOBILE VS PEDESTRIAN ACCIDENTS

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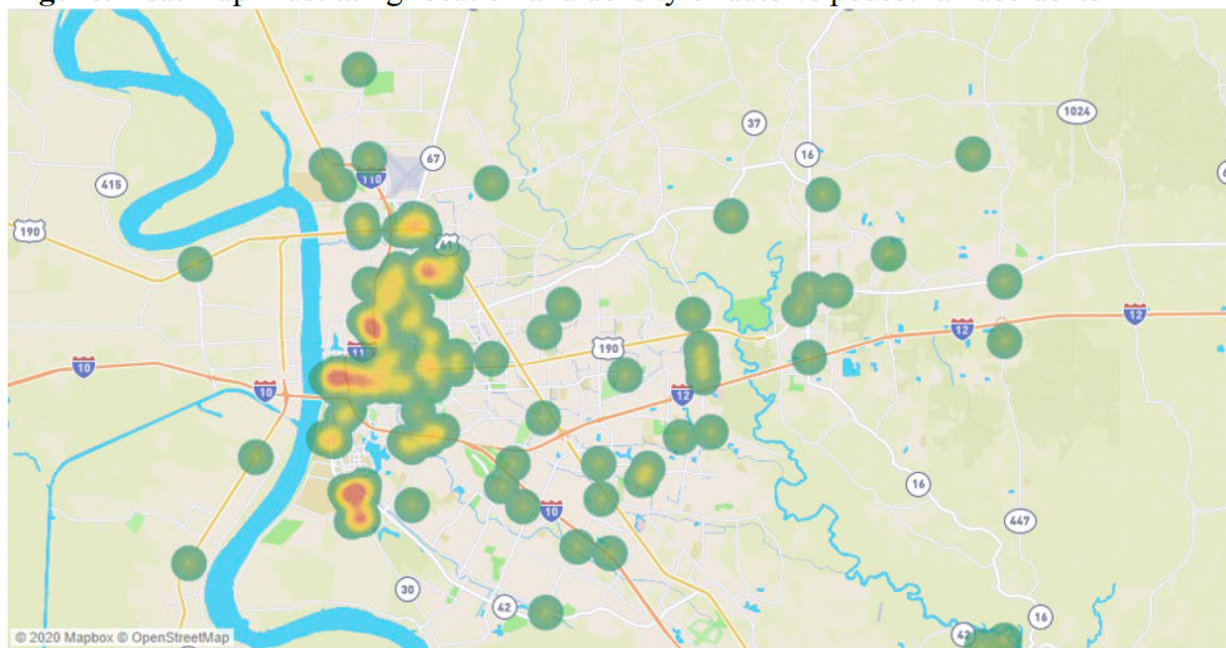
**Introduction:** Baton Rouge was ranked as the 19th worst metropolitan area for pedestrian safety. Our aim was to describe the patient population that presented to our trauma center in order to better understand who is at risk of poor outcome and which areas of the region are most unsafe.

**Methods:** Adult (18+) patients presenting to the emergency department from January 2014 - December 2018 were identified using ICD-9 mechanism of injury code 814.7 and ICD-10 codes V03.10XA and V04.10XA, which indicate automobile vs pedestrian, and tabulated. Incident locations were mapped using Tableau 2019.2.9. A poor outcome was defined as a Glasgow Outcome Scale (GOS) < 4.

**Results:** Of 317 patients, 70.3% were male, median age 41 years, and median Injury Severity Score of 10. Median (IQR) length of stay (LOS) was 7 days (3 – 13) and ICU stay 5 days (2 – 10). Most (59.6%) incidents occurred after sunset. Long bone fractures were most common (54.6%). Median (IQR) hospital cost per incident was \$17,897 (\$7,235 – \$41,049). LOS, ICU LOS, ICU use, surgery, and ventilator utilization did not differ among payer groups. 41% (n = 130) had GOS

**Conclusion:** Auto vs pedestrian injuries are an expensive, but preventable, public health problem. The elderly and/or uninsured are at highest risk for poor outcome. Discrete areas of Baton Rouge have higher incidence and should be examined to reduce morbidity and mortality of pedestrians.

**Figure.** Heat map illustrating location and density of auto vs pedestrian accidents



Map based on Longitude (generated) and Latitude (generated). Details are shown for Lat and Long.

**TRAUMATIC BREAST INJURIES IN HIGH-RISK COMMUNITIES**

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**Introduction:** Traumatic breast injuries are an under-recognized etiology of life-threatening hemorrhage. Long-term consequences include patient's cosmetic appearance. The impact of these injuries has not been well-studied in underserved areas. The primary outcome of the study was to compare the incidence of these injuries in high-risk crime areas vs non-high risk crime areas. Secondary outcomes included a comparison of patient's demographic information, insurance status, injury severity, outcomes and follow up.

**Methods:** A retrospective chart review was performed of adult female patients presenting with traumatic breast injuries to an urban Level 1 Trauma Center from 2016 to 2022. Location Zip Codes of the injury site were also collected. These were divided into high-risk zip codes and non-high risk zip codes.

**Results:** A total of 47 patients were included in the study. There was a higher percentage of younger (35 +/- 9.8 vs 45.2 +/- 17.4 years old,  $p=0.03$ ) and African American patients who suffered traumatic breast injuries in high risk communities ( $n=17/18$ , 94% vs.  $n=13/29$ , 45%,  $p=0.0005$ ). The percentage of penetrating trauma was higher in the high risk zip codes (78% vs 55%). Bedside primary closure of the breast injury was more common in the high risk community patients ( $n=5/18$ , 28% vs  $n=3/29$ , 10%,  $p=0.04$ ).

**Conclusion:** Breast trauma is an understudied area of injury, in particular for high risk communities with limited access to healthcare. This study demonstrated differences between high and low risk communities in terms of patient demographics, injury patterns, and primary management. Given the long-term implications for patients with traumatic breast injuries, future studies are needed to better characterize this etiology.

	High Risk Zip Code N= 18	Non-High Risk Zip Code N=29	p value
<b>Demographics</b>			
Age, average years (SD)	35.0 (9.8)	45.2 (17.4)	0.03
African American, n (%)	17 (94)	13 (45)	0.0005
White	1 (6)	14 (48)	0.003
Hispanic	0	2 (7)	0.52
<b>Insurance Status, n (%)</b>			
Private	2 (11)	9 (31)	0.16
Medicare/Medicaid	15 (83)	20 (69)	0.32
Uninsured	1 (6)	0	0.38
<b>Injury Data</b>			
Penetrating trauma, n (%)	14 (78)	16 (55)	0.14
New Injury severity score, avg (SD)	5.6 (5.2)	10 (9.3)	0.07
<b>In-Hospital Outcomes</b>			
Hospital admission, n (%)	7 (39)	18 (62)	0.14
Hospital length of stay, avg days (SD)	1.6 (1.1)	5.4 (10.3)	0.13
Bedside primary closure, n (%)	5 (28)	3 (10)	0.04
OR procedure, n (%)	0	3 (10)	0.28
Discharged home, n (%)	15 (83)	26 (90)	0.66
<b>Follow Up</b>			
Trauma Surgery, n (%)	4 (22)	7 (24)	1.0
Other (PCP, plastics, ortho), n (%)	2 (11)	10 (34)	0.10
Additional breast imaging, n (%)	1 (5)	3 (10)	1.0



## ACQUIRED SECONDARY LUMBAR HERNIA FOLLOWING BLUNT TRAUMA

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**Introduction:** Lumbar hernia is a type of posterior abdominal wall hernia that are rare phenomena. Two types are superior lumbar (Grynfeltt-Lesshaft) hernias through the superior lumbar triangle and inferior lumbar (Petit) hernias through the inferior lumbar triangle. Etiology includes congenital defects in 20%, primary acquired spontaneous defects in 55%, and secondary acquired defects due to trauma, surgical lesions, regional bone or soft tissue infection, or infected retroperitoneal hematoma in 25% of cases. Approximately 15,000 traumatic abdominal wall hernias (TAWH) occur annually with an overall incidence of 0.17-0.90% in blunt trauma. Among TAWHs, lumbar defects account for 21% with rectus and flank defects accounting for 34% and 45%, respectively. Fewer than 100 cases of post-traumatic lumbar hernia are described in the literature.

**Results:** We describe a case of a 21-year-old male with acquired secondary lumbar hernia following a motorvehicle collision. He was the unrestrained driver of a high-speed vehicle before losing control and impacting a tree. Thorough evaluation revealed significant facial, torso, and extremity multisystem injuries. Among these injuries was a traumatic hernia through the inferior lumbar triangle in the left posterior abdominal wall (Figure 1). We elected to manage the lumbar hernia expectantly in the acute setting given the lack of injured or threatened viscera on cross-sectional imaging or exam.

**Conclusion:** Due to its rarity and lack of comprehensive literature, no guidelines exist regarding optimal management of lumbar hernia. Three available avenues are immediate repair, delayed repair, or expectant management. Early versus delayed repair is often dictated by associated injuries that mandate early operation.

