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'BEST OF' DECEMBER ARTICLES

BEST OF BASIC SCIENCES ARTICLE

Assessment of Left Ventricle Myocardial Deformation in Hemorrhagic Shock Swine Model by Two-Dimensional Speckle Tracking Echocardiography

Doria de Vasconcelos H et al. *Journal of Trauma and Acute Care Surgery* Month Year [doi]
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ASSESSMENT OF LEFT VENTRICLE MYOCARDIAL DEFORMATION IN A HEMORRHAGIC SHOCK SWINE MODEL BY TWO-DIMENSIONAL SPECKLE TRACKING ECHOCARDIOGRAPHY

[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/ASSESSMENT_OF_LEFT_VENTRICLE_MYOCARDIAL.18.ASPX?CONTEXT=FEATUREDARTICLES&COLLECTIONID=5](https://journals.lww.com/jtrauma/fulltext/2022/12000/assessment_of_left_ventricle_myocardial.18.aspx?context=featuredarticles&collectionid=5)



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<https://qr.page/g/GphA1JF7Ct>

BEST OF TRAUMA ARTICLE

Rib Fixation in Patients With Severe Rib Fractures and Pulmonary Contusions: Is it Safe?

Are surgical stabilization of rib fractures (SSRF) outcomes worse in presence of pulmonary contusions?

BPC18 score classified contusion severity: Mild (BPC18 1-3), Moderate (BPC18 4-6), Severe (BPC18 ≥ 7)

Shorter ICU stay in SSRF pts with mild contusions adjusted B -2.51 (95% CI -4.87;-0.16)

Fewer ventilator days in SSRF pts with moderate contusions adjusted B -5.19 (95% CI -10.2;-0.17)

SSRF (n=148) vs Non-op (n=73)

Wijck et al. *Journal of Trauma and Acute Care Surgery*, April 2022 [10.1097/TA.0000000000003790]
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RIB FIXATION IN PATIENTS WITH SEVERE RIB FRACTURES AND PULMONARY CONTUSIONS: IS IT SAFE?

[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/RIB_FIXATION_IN_PATIENTS_WITH_SEVERE_RIB_FRACTURES_AND_PULMONARY_CONTUSIONS.1.ASPX?CONTEXT=FEATUREDARTICLES&COLLECTIONID=5](https://journals.lww.com/jtrauma/fulltext/2022/12000/rib_fixation_in_patients_with_severe_rib_fractures_and_pulmonary_contusions.1.aspx?context=featuredarticles&collectionid=5)

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BEST OF SCC ARTICLE

Acute Kidney Injury Development in Polytrauma and The Safety of Early Repeated Contrast Studies: A Retrospective Cohort Study

All polytrauma patients with:

- ISS > 15
- > 16 years
- Admitted to ICU
- Received contrast in Emergency Department

Number of repeat contrast doses within 72 hours since ICU (n=663): No repeat dose (n=488), 1 repeat dose (n=153), 2 repeat doses (n=22)

High Risk Cohort Studied

Median ISS = 25
AKI incidence = 13.4%
Total Mortality = 5.4%
MOD Incidence = 11%

No association between repeat contrast doses & AKI (OR 1.33, CI 0.80 2.21, p 0.273)

Multivariate analysis adjusting for sex, age, ISS & Cr prior to 1st dose

Giles et al. *Journal of Trauma and Acute Care Surgery*, June 2022
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ACUTE KIDNEY INJURY DEVELOPMENT IN POLYTRAUMA AND THE SAFETY OF EARLY REPEATED CONTRAST STUDIES: A RETROSPECTIVE COHORT STUDY

[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/ACUTE_KIDNEY_INJURY_DEVELOPMENT_IN_POLYTRAUMA_AND.22.ASPX?CONTEXT=FEATUREDARTICLES&COLLECTIONID=5](https://journals.lww.com/jtrauma/fulltext/2022/12000/acute_kidney_injury_development_in_polytrauma_and.22.aspx?context=featuredarticles&collectionid=5)



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BEST OF EGGS ARTICLE

Identifying Vulnerable Populations with Symptomatic Cholelithiasis at Risk for Increased Healthcare Utilization

Population: Patients discharged from the Emergency Department after a diagnosis with Symptomatic Cholelithiasis

Results: Non-Hispanic Black & Non-Privately Insured patients had ↑ Odds for Repeat ED Utilization

Implications: Standardizing treatment protocols including guidelines for surgical appropriateness may facilitate equitable care. Expanding insurance coverage may play a role in impacting a surgical population.

Shenoy et al. *Journal of Trauma and Acute Care Surgery*, February 2022 [10.1097/TA.0000000000003771]
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IDENTIFYING VULNERABLE POPULATIONS WITH SYMPTOMATIC CHOLELITHIASIS AT RISK FOR INCREASED HEALTHCARE UTILIZATION

[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/IDENTIFYING_VULNERABLE_POPULATIONS_WITH.21.ASPX?CONTEXT=FEATUREDARTICLES&COLLECTIONID=5](https://journals.lww.com/jtrauma/fulltext/2022/12000/identifying_vulnerable_populations_with.21.aspx?context=featuredarticles&collectionid=5)

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The Journal of Trauma and Acute Care Surgery

Three-Dimensional Mapping of Sternum Fractures from High-Energy Trauma

Sternum Fractures

- Most commonly due to high-energy mechanism
- Associated injuries common
- Patterns poorly understood

Fracture Mapping of 120 Patients

- N=38 (Manubrium)
- N=67 (Body)
- N=0 (Xiphoid)
- N=15 (Combo)

64% MVC
9% Fall <10 feet
79% Rib Fracture
65% Vertebral Injury

Conclusion:

- Concentrated fracture regions
- Reproducible injury patterns
- Fracture maps differ based on age
- Fracture maps do NOT differ based on injury mechanism or associated spinal injuries

Single-center, retrospective cohort of patients >18 from 2012-2022

Three-dimensional reconstruction, segmentation, and mapping of 120 sternal fractures

LaRoque et al. *Journal of Trauma and Acute Care Surgery*. May 2022

The Journal of Trauma and Acute Care Surgery

RIB FIXATION IN PATIENTS WITH SEVERE RIB FRACTURES AND PULMONARY CONTUSIONS: IS IT SAFE?
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THREE-DIMENSIONAL MAPPING OF STERNUM FRACTURES FROM HIGH-ENERGY TRAUMA
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/THREE_DIMENSIONAL_MAPPING_OF_STERNUM_FRACTURES.5.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/three_dimensional_mapping_of_sternum_fractures.5.aspx)

Surgical stabilization of rib fractures versus nonoperative treatment in patients with multiple rib fractures following cardiopulmonary resuscitation: an international, retrospective matched case-control study (CWIS-CPR)

International, retrospective matched case-control study

Severe rib fractures following cardiopulmonary resuscitation

Surgical stabilization of rib fractures (SSRF; n=39) versus nonoperative management (n=66)

SSRF group: more severe rib fractures

Nonoperative group: only 20% consultation of surgeon for SSRF

SSRF group: longer Intensive Care Unit stay

Benefit of SSRF could not demonstrated

Low consultation rate in the nonoperative group: SSRF indication in this population might be for other non-radiographic or injury-related variables

Prins et al. *Journal of Trauma and Acute Care Surgery*. 6-2022

The Journal of Trauma and Acute Care Surgery

DeepBackRib: Deep Learning to Understand Factors Associated with Readmissions after Rib Fractures

Study population

N = 20,260 | aged <65 years rib fractures

DeepBackRib: Deep Learning Model

61 input features
7 layers (code: GitHub/jc2226)

Model performance (test set)

0.82 recall
0.20 area under the precision-recall-curve

SHAP analysis: elucidate how model makes decision

Most clinical prediction tasks: do not meet the MARA (measurement, adaptability, resilience, agnosticism) framework. Black box algorithms are unhelpful || AUROC is unhelpful stand-alone for imbalanced datasets

Choi et al. *Journal of Trauma and Acute Care Surgery*.

The Journal of Trauma and Acute Care Surgery

SURGICAL STABILIZATION OF RIB FRACTURES VERSUS NONOPERATIVE TREATMENT IN PATIENTS WITH MULTIPLE RIB FRACTURES FOLLOWING CARDIOPULMONARY RESUSCITATION: A MATCHED CASE-CONTROL STUDY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/SURGICAL_STABILIZATION_OF_RIB_FRACTURES_VERSUS.2.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/surgical_stabilization_of_rib_fractures_versus.2.aspx)

DEEPBACKRIB: DEEP LEARNING TO UNDERSTAND FACTORS ASSOCIATED WITH READMISSIONS AFTER RIB FRACTURES
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/DEEPBACKRIB_DEEP_LEARNING_TO_UNDERSTAND_FACTORS.6.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/deepbackrib_deep_learning_to_understand_factors.6.aspx)

Interobserver Agreement for the Chest Wall Injury Society taxonomy of Rib Fractures Using CT Images

Do we agree on the classification of rib fractures by the CWIS taxonomy?

Survey of surgeons involved in care for patients with rib fractures

Interobserver agreement kappa value (κ):

- Location – strong κ=0.83 (95% CI 0.69-0.97)
- Type – moderate κ=0.46 (95% CI 0.32-0.59)
- Displacement – fair κ=0.38 (95% CI 0.21-0.54)

11 cases, 76 observers

Van Wijck et al. *Journal of Trauma and Acute Care Surgery*. August 2022 [10.1097/TA.0000000000003766]

The Journal of Trauma and Acute Care Surgery

Redefining the Costal Margin: A Pilot Study

Slipped Rib Syndrome

Hypermobile ribs at the costal margin impinge on intercostal nerves producing pain

40 Cadavers

9th rib

- Attached in 33%
- 19% subluxation
- Hook tip in 10%

10th rib

- Attached in 18%
- 33% subluxation

Anatomic Variations in the costal margins may predispose to Slipped Rib Syndrome

Laswi et al. *Journal of Trauma and Acute Care Surgery*. December 2022

The Journal of Trauma and Acute Care Surgery

INTEROBSERVER AGREEMENT FOR THE CHEST WALL INJURY SOCIETY TAXONOMY OF RIB FRACTURES USING CT IMAGES
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/INTEROBSERVER_AGREEMENT_FOR_THE_CHEST_WALL_INJURY.3.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/interobserver_agreement_for_the_chest_wall_injury.3.aspx)

REDEFINING THE COSTAL MARGIN: A PILOT STUDY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/REDEFINING_THE_COSTAL_MARGIN_A_PILOT_STUDY.7.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/redefining_the_costal_margin_a_pilot_study.7.aspx)

A Method for Identifying the Learning Curve for the Surgical Stabilization of Rib Fractures

The learning curve (LC) for the Surgical Stabilization of Rib Fractures (SSRF) is unknown.

CUSUM analysis of operative time per plate

Surgeon LC = 15-20
Institutional LC = 20-55

Delman et al. *Journal of Trauma and Acute Care Surgery*. Month Year [doi]

The Journal of Trauma and Acute Care Surgery

Finite Element Analysis for Better Evaluation of Rib Fractures: A Pilot Study

Background

Modeling rib fracture stability is challenging. Computer generated finite element analysis (FEA) may be a possible option to assess chest wall stability (CWS).

Objective: To explore FEA as a means to assess CWS, hypothesizing it is a reliable approach to better understand rib fracture pathophysiology.

Methods

- 6 load cases were evaluated from a musculoskeletal AnyBody® model: forward flexion, right/left bending, right/left axial rotation, and 5kg weight arm lifting.
- 10 fracture cases were defined:

Case Number	Fracture RAS	Comment
1	Rib 7	Unilateral (Right)
2	Ribs 5-7	Unilateral (Right)
3	Ribs 4-9	Unilateral (Right)
4	Rib 9	Flail Chest Fragment, Unilateral (Right)
5	Ribs 5-7	Flail Chest Fragment, Unilateral (Right)
6	Rib 7	Bilateral
7	Ribs 5-7	Bilateral
8	Ribs 4-9	Bilateral
9	Rib 9	Flail Chest Fragments, Bilateral
10	Ribs 5-7	Flail Chest Fragments, Bilateral

Results

Calculations to quantify thoracic motion:

- Normalized mean absolute error (NMAE)
- Normalized root mean square error (NRMSE)
- Normalized interfragmentary motion (NIFM)

CWS can decrease by over 50% and NIFM can increase by as much as 250% depending on fracture pattern.

FEA is a promising technology for analyzing CWS.

Bauman ZM, Hermann S, Kott T, et al. *Journal of Trauma and Acute Care Surgery*. December, 2022

The Journal of Trauma and Acute Care Surgery

A METHOD FOR IDENTIFYING THE SURGEON LEARNING CURVE FOR THE SURGICAL STABILIZATION OF RIB FRACTURES
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/A_METHOD_FOR_IDENTIFYING_THE_LEARNING_CURVE_FOR.4.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/a_method_for_identifying_the_learning_curve_for.4.aspx)

FINITE ELEMENT ANALYSIS FOR BETTER EVALUATION OF RIB FRACTURES: A PILOT STUDY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/FINITE_ELEMENT_ANALYSIS_FOR_BETTER_EVALUATION_OF.8.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/finite_element_analysis_for_better_evaluation_of.8.aspx)

Lucky Number Thirteen: Association Between Center-Specific Chest Wall Stabilization Volumes and Patient Outcomes

Is there a volume-outcome relationship for chest wall stabilization?
Annual SSRF or SSSF per hospital

Primary composite outcome: Mortality, VAP, ARDS, Sepsis, Unplanned ICU admission or intubation

Each additional procedure annually → 2% lower odds of negative composite outcome

Adjusted OR for composite outcome in High-volume centers: 0.72 (0.59 – 0.88)

HIGH Volume = Better Outcomes

↓ Mortality
↓ DVT
↓ VAP
↓ Hospital LOS
↑ Discharge home

Tillman et al. *Journal of Trauma and Acute Care Surgery*. August 2022 [10.1097/TA.00000000000003764]
@JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

LUCKY NUMBER THIRTEEN: ASSOCIATION BETWEEN CENTER-SPECIFIC CHEST WALL STABILIZATION VOLUMES AND PATIENT OUTCOMES
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/LUCKY_NUMBER_13_ASSOCIATION_BETWEEN.9.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/lucky_number_13_association_between.9.aspx)

TACTICS for Hemorrhagic Shock

A prospective, pre-post evaluation of a novel visual aid designed to improve patient care in trauma.

PROBLEM
Lack of formalized training guiding trauma leaders in the treatment of patients with hemorrhagic shock

SOLUTION
TACTICS visual aid created by Hartford Hospital surgeons
Prospective, pre-post, within-subject, one-group study design
Scores compared by standardized rubric

RESULTS
Median score improved by 45.8% after introduction to TACTICS aid
92% of participants "strongly agreed" that the TACTICS aid would be helpful in real-life trauma resuscitations

Keating, et al. *Journal of Trauma and Acute Care Surgery*. January 2021 [doi] @JTraumaAcuteSurg @HartfordTrauma

The Journal of Trauma and Acute Care Surgery

TACTICS FOR HEMORRHAGIC SHOCK: A VIRTUAL COURSE AND VISUAL AID FOR IMPROVED RESUSCITATION
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/TACTICS_FOR_HEMORRHAGIC_SHOCK_A_VIRTUAL_COURSE.13.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/tactics_for_hemorrhagic_shock_a_virtual_course.13.aspx)

The Evolution of a Chest Wall Injury and Reconstruction Clinic During a Pandemic

Rib Fractures and Rib Pain

Acute and Chronic Injuries to the Chest Wall and Costal Margin can be Debilitating

Rib Clinic

Clinic Productivity
➤ 295 wRVU

Operative Productivity
➤ 591 wRVUs

➤ 23% Encounters via Telehealth

Access to care for chest wall injuries may be accomplished via in-person and telehealth platforms

Eriksson et al. *Journal of Trauma and Acute Care Surgery*. December 2022 @JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

THE EVOLUTION OF A CHEST WALL INJURY AND RECONSTRUCTION CLINIC DURING A PANDEMIC
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/THE_EVOLUTION_OF_A_CHEST_WALL_INJURY_AND.10.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/the_evolution_of_a_chest_wall_injury_and.10.aspx)

Do Selective Spinal Immobilization Protocols Change Prehospital Practice?

NEXUS-based protocol implemented system-wide in 2013

CHANGE

No change in spinal immobilization rates for blunt or penetrating trauma

Effective implementation strategies are needed to drive practice change

Robust interrupted time series analysis of 63,981 trauma incidents

Etheridge et al. *Journal of Trauma and Acute Care Surgery*. March 2022 [10.1097/TA.00000000000003589] @JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

PRACTICE PATTERNS AFTER IMPLEMENTATION OF A SELECTIVE SPINAL IMMOBILIZATION PROTOCOL IN A REGIONAL TRAUMA SYSTEM
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/PRACTICE_PATTERNS_AFTER_IMPLEMENTATION_OF_A.14.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/practice_patterns_after_implementation_of_a.14.aspx)

Operative Trauma Volume is Not Related to Risk-Adjusted Mortality Rates Among Pennsylvania Trauma Centers

Center Volume

Low 10-21

Medium 22-47

High 47-158 (annual operative trauma volume)

Higher volume centers were more likely to care for penetrating trauma patients

No difference in risk-adjusted patient mortality between low and high volume centers

64.1% vs 46.8%, p<0.001

OR 0.92 (0.57-1.49)

Hornor et al. *Journal of Trauma and Acute Care Surgery*. December 2022 @JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

OPERATIVE TRAUMA VOLUME IS NOT RELATED TO RISK-ADJUSTED MORTALITY RATES AMONG PENNSYLVANIA TRAUMA CENTERS
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/OPERATIVE_TRAUMA_VOLUME_IS_NOT_RELATED_TO.11.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/operative_trauma_volume_is_not_related_to.11.aspx)

Diagnosis and Management of Bile Leaks after Severe Liver Injury: A Trauma Association of Canada (TAC) Multicenter Study

10 North American Trauma Centers

Examined All AAST Grade ≥III Liver Injuries (2011-2021)

Bile Leak vs. No Bile Leak compared:

ERCP utilized for leaks >300 mL output on day of diagnosis

We recommend ERCP be reserved for high volume bile leaks (>300 mL), with percutaneous drainage of smaller volume leaks.

Prospective study validation is required.

Schellenberg et al. *Journal of Trauma and Acute Care Surgery*. July 2022 @JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

DIAGNOSIS AND MANAGEMENT OF BILE LEAKS AFTER SEVERE LIVER INJURY: A TRAUMA ASSOCIATION OF CANADA (TAC) MULTICENTER STUDY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/DIAGNOSIS_AND_MANAGEMENT_OF_BILE_LEAKS_AFTER.15.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/diagnosis_and_management_of_bile_leaks_after.15.aspx)

Hospital Readmission after Blunt Traumatic Rib Fractures

Single institution retrospective chart review from 2011-2019

Readmission rate: 5.5%

Predictors of readmission on univariate analysis:

- Anticoagulant use
- Hx of psychiatric disorder
- Smoking
- Hemothorax
- Higher abdominal or extremity AIS
- Rapid response
- ICU admission
- LOS >8 days
- Ventilator use
- >7 Rib fx
- In hospital complications: blood loss, sepsis, shock, pneumonia, return to OR

Independent predictors of readmission:

- Hx of psychiatric disorder
- Smoking
- Anticoagulant use
- Abdominal AIS >2
- LOS >8 days

Conclusion: Quality improvement aimed at patients in these groups can help to limit readmissions due to rib fractures from blunt thoracic trauma.

Patients with ≥1 rib fracture following blunt thoracic trauma

Unplanned readmissions classified within 30 days

Marthy et al. *Journal of Trauma and Acute Care Surgery*. December 2021 @JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

HOSPITAL READMISSION AFTER BLUNT TRAUMATIC RIB FRACTURES
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/HOSPITAL_READMISSION_AFTER_BLUNT_TRAUMATIC_RIB.12.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/hospital_readmission_after_blunt_traumatic_rib.12.aspx)

Using a Real-Time ABCDEF Compliance Tool to Understand the Role of Bundle Elements in Mortality and Delirium

ABC-123 = 6 bundle elements x 0-3 points/element

ABC-MAX = maximum daily ABC-123 score

Scores documented for highest daily mobility (bedrest, dangle, stand, out of bed to chair, ambulate)

Are these scores associated with mortality and delirium in critically injured patients?

6-month retrospective review of 172 patients

- 70% male
- 16% penetrating
- Median age 50
- Median ISS 17, AIS-Head 2
- 66.9% delirious, 11.0% mortality

Restraints

Age ISS AIS-Head Penetrating

ABC-MAX Score Mobility Level B & D Subscores

Any improvement in mobility = 83% mortality reduction

Bundle compliance as measured by ABC-123, ABC-MAX, and improved mobility is associated with reduced delirium and mortality in critically injured adults.

Shampo et al. *Journal of Trauma and Acute Care Surgery*. December 2022 @JTraumaAcuteSurg

The Journal of Trauma and Acute Care Surgery

USING A REAL-TIME ABCDEF COMPLIANCE TOOL TO UNDERSTAND THE ROLE OF BUNDLE ELEMENTS IN MORTALITY AND DELIRIUM
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/USING_A_REAL_TIME_ABCDEF_COMPLIANCE_TOOL_TO.16.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/using_a_real_time_abcdef_compliance_tool_to.16.aspx)

Epidemiology and Outcomes of Multiple Organ Dysfunction Syndrome following Pediatric Trauma

Population
Pediatric Multiple Organ Dysfunction Syndrome (MODS) criteria
37,177 Pediatric Intensive Care Unit (PICU) trauma patients
2009-2017
Virtual Pediatric Systems database

Results
No MODS
MODS 23.1%
23.1% mortality
46.7% death or poor outcome
0.5% mortality
8.3% death or poor outcome

Implications
Standardizing treatment protocols including guidelines for surgical appropriateness may facilitate equitable care.
Expanding insurance coverage may play a role in impacting a surgical population.

Killen ET et al. *Journal of Trauma and Acute Care Surgery*.
@JTraumaAcuteSurg

EPIDEMIOLOGY AND OUTCOMES OF MULTIPLE ORGAN DYSFUNCTION SYNDROME FOLLOWING PEDIATRIC TRAUMA
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Identifying Vulnerable Populations with Symptomatic Cholelithiasis at Risk for Increased Healthcare Utilization

Population
Patients discharged from the Emergency Department after a diagnosis with Symptomatic Cholelithiasis

Results
Non-Hispanic Black & Non-Privately Insured patients had:
↑ Odds for Repeat ED Utilization

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Shenoy et al. *Journal of Trauma and Acute Care Surgery*.
February 2022 [10.1097/TA.000000000000377]
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IDENTIFYING VULNERABLE POPULATIONS WITH SYMPTOMATIC CHOLELITHIASIS AT RISK FOR INCREASED HEALTHCARE UTILIZATION
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Assessment of Left Ventricle Myocardial Deformation in Hemorrhagic Shock Swine Model by Two-Dimensional Speckle Tracking Echocardiography

Baseline
Left Ventricle Global Circumferential Strain
Left Ventricle Global Longitudinal Strain

Hemorrhagic Shock
Ischemia
Volume Resuscitation
Reperfusion

Trauma-induced Secondary Cardiac Injury (TISCI)
Left Ventricle Global Longitudinal Strain
Troponin

Doria de Vasconcelos H et al. *Journal of Trauma and Acute Care Surgery*.
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No repeat dose (n=488)
1 repeat dose (n=153)
2 repeat doses (n=22)
High Risk Cohort Studied
Median ISS = 25
AKI Incidence = 13.4%
Total Mortality = 5.4%
MOF Incidence = 11%

Implications
Multivariate analysis adjusting for sex, age, ISS & Cr prior to 1st dose
No association between repeat contrast doses & AKI
(OR 1.33, CI 0.80-2.21, p 0.273)

Giles et al. *Journal of Trauma and Acute Care Surgery*.
June 2022
@JTraumaAcuteSurg

ACUTE KIDNEY INJURY DEVELOPMENT IN POLYTRAUMA AND THE SAFETY OF EARLY REPEATED CONTRAST STUDIES: A RETROSPECTIVE COHORT STUDY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/ACUTE_KIDNEY_INJURY_DEVELOPMENT_IN_POLYTRAUMA_AND.22.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/acute_kidney_injury_development_in_polytrauma_and.22.aspx)

Developing a National Trauma Research Action Plan (NTRAP): Results from the Post-Admission Critical Care Delphi Survey

METHODS
Experts in post-admission critical care identified gaps in knowledge, generated research questions and prioritized questions using a consensus-driven Delphi survey approach.

RESULTS
Subject matter experts generated 595 research questions. 249 questions reached a consensus level of 60% agreement; 22 were High Priority, 185 Medium Priority, and 42 Low Priority.

CONCLUSION
Research questions addressing traumatic brain injury appeared most frequently among those rated highest in priority. Hypovolemic shock is the clinical state most often addressed in high priority questions.

Journal of Trauma and Acute Care Surgery.
@JTraumaAcuteSurg

DEVELOPING A NATIONAL TRAUMA RESEARCH ACTION PLAN (NTRAP): RESULTS FROM THE POST-ADMISSION CRITICAL CARE RESEARCH GAP DELPHI SURVEY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/DEVELOPING_A_NATIONAL_TRAUMA_RESEARCH_ACTION_PLAN.19.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/developing_a_national_trauma_research_action_plan.19.aspx)

Noninvasive Assessment of Intracranial Pressure Using Subharmonic-Aided Pressure Estimation: An Experimental Study in Canines

A dynamic model of ICP change from 11 to 50 mmHg was established in experimental canines. Subharmonic-aided pressure estimation (SHAPE) technology was performed to assess ICP by measuring subharmonic contrast-enhanced ultrasound (SHCEUS) parameters, the correlation between these parameters and ICP were analyzed.

The subharmonic amplitude of the basal vein was negatively correlated with ICP (r=-0.798), the SHAPE gradient was positively correlated with ICP (r=0.628), no correlation was observed between the subharmonic amplitude of the intracranial artery and ICP.

The SHCEUS parameters are correlated with ICP. The SHAPE technique can assist in evaluating the changes in ICP in canines, which provides a new idea and method for evaluating ICP.

Zheng S, Zhang Y, Cheng L, et al. *Journal of Trauma and Acute Care Surgery*. 04. 2022
@JTraumaAcuteSurg

NONINVASIVE ASSESSMENT OF INTRACRANIAL PRESSURE USING SUBHARMONIC-AIDED PRESSURE ESTIMATION: AN EXPERIMENTAL STUDY IN CANINES
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/NONINVASIVE_ASSESSMENT_OF_INTRACRANIAL_PRESSURE.23.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/noninvasive_assessment_of_intracranial_pressure.23.aspx)

Developing a National Trauma Research Action Plan (NTRAP): Results from the Injury Prevention Research Gap Delphi Survey

METHODS
Experts in long-term trauma outcomes research identified gaps in knowledge, generated research questions and prioritized questions using a consensus-driven Delphi survey approach.

RESULTS
30 subject matter experts generated 482 research questions. 359 questions (75%) reached a consensus level of 60% agreement; 107 (30%) were High Priority, 257 (70%) Medium Priority, and 0 (0%) Low Priority.

CONCLUSION
Research on long-term trauma outcomes is scant and must be prioritized as a whole. The most prevalent topic areas among high priority questions are mental health, post-discharge health services, and the geriatric population.

Herrera-Escobar et al.
@JTraumaAcuteSurg

DEVELOPING A NATIONAL TRAUMA RESEARCH ACTION PLAN (NTRAP): RESULTS FROM THE LONG-TERM OUTCOMES RESEARCH GAP DELPHI SURVEY
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/DEVELOPING_A_NATIONAL_TRAUMA_RESEARCH_ACTION_PLAN.20.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/developing_a_national_trauma_research_action_plan.20.aspx)

NO VISUAL ABSTRACT PROVIDED
USE OF WHOLE BLOOD DEPLOYMENT PROGRAMS FOR MASS CASUALTY INCIDENTS: SOUTH TEXAS EXPERIENCE IN REGIONAL RESPONSE AND PREPAREDNESS
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/USE_OF_WHOLE_BLOOD_DEPLOYMENT_PROGRAMS_FOR_MASS.24.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/use_of_whole_blood_deployment_programs_for_mass_casualty.24.aspx)

NO VISUAL ABSTRACT PROVIDED
BURN RESUSCITATION – ARE WE WEIGHING PATIENTS APPROPRIATELY?
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/BURN_RESUSCITATION_ARE_WE_WEIGHING_PATIENTS.25.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/burn_resuscitation_are_we_weighing_patients.25.aspx)

NO VISUAL ABSTRACT PROVIDED
NOT SO FAST—AND NOT SO FURIOUS – AN IMPROPER METHOD CAN UNDERDIAGNOSE PNEUMOTHORAX. COMMENT TO THE ARTICLE “NOT SO FAST—CHEST ULTRASOUND UNDERDIAGNOSES TRAUMATIC PNEUMOTHORAX”
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/NOT_SO_FAST_BUT_NOT_SO_FURIOUS_AN_IMPROPER_METHOD.26.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/not_so_fast_but_not_so_furious_an_improper_method.26.aspx)

NO VISUAL ABSTRACT PROVIDED
RESPONSE TO LETTER TO THE EDITOR – NOT SO FAST- CHEST ULTRASOUND UNDERDIAGNOSES TRAUMATIC PNEUMOTHORAX
[HTTPS://JOURNALS.LWW.COM/JTRAUMA/FULLTEXT/2022/12000/RESPONSE_TO_LETTER_TO_THE_EDITOR_ORIGINAL_ARTICLE.27.ASPX](https://journals.lww.com/jtrauma/fulltext/2022/12000/response_to_letter_to_the_editor_original_article.27.aspx)