Methods: Ten male Sprague-Dawley rats were burned using a brass comb with 4 contact areas and 3 interspaces. Rats were given either a vehicle, medium or high dose intravenous Secretome. On post burn days 1 to 4, 7 and 14, punch biopsies were obtained, interspace tracing of digital images assessed the percentage of viable tissue, and laser Doppler imaging (LDI) was used to evaluate perfusion.

Results: Compared with the control, there was a higher percentage of viable interspace in the high dose group at every time point with a significant difference on day 7 [15.3 vs 21.7%; p = 0.02]. There were no significant differences in perfusion LDI analysis across the groups, however there was a trend toward increased perfusion in the medium and high dose groups with higher perfusion units on day 14. Hematoxylin and eosin stain demonstrated an increased severity of epidermal and dermal appendage damage in the controls compared with the medium and high dose groups on post burn day 1.

Conclusion: This pilot study may have implications for salvaging interspace conversion of unburned skin, thus limiting the burden of total body surface area burn.

A Retrospective Evaluation of Psychiatric Recommendations Using the Injured Trauma Survivor Screen (ITSS)

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Introduction: The American College of Surgeons' guidelines require Level I Trauma Centers to screen high-risk patients for psychological sequelae and ensure timely mental health referral. The Injured Trauma Survivor Screen (ITSS) is a validated tool for identifying trauma survivors at risk for post-traumatic stress disorder (PTSD) and depression that was implemented at a single Level I Trauma Center in August 2023. This study aims to evaluate psychiatric recommendations made for patients who screened positive for PTSD or depression using the ITSS.

Methods: We conducted a retrospective chart review of trauma patients (n = 735) screened with the ITSS between August 2023 - July 2024. Data was extracted regarding psychiatric recommendations after positive screenings. Recommendations included pharmacotherapy, psychotherapy, 1:1 sitter, legal hold for psychiatric evaluation (L2K), or no intervention. Descriptive statistics were used to analyze the frequency of each recommendation.

Results: Of the 735 patients screened, 45% tested positive for either PTSD or depression. Among those who screened positive, 65% were seen by psychiatry. The most common recommendations were psychotherapy (23%) and pharmacotherapy (22%), while 1:1 sitters (5%) and L2K (1%) were infrequent.

Conclusion: This study highlights the current practices in psychiatric recommendations for trauma survivors and underscores the importance of early identification using tools like the ITSS. Our findings suggest a need for standardized protocols to ensure that trauma patients receive appropriate psychiatric care based on their screening results. Future studies should evaluate the long-term impact of these interventions on patient outcomes and their role in ensuring continuity of care.

Age-Related Patterns in Pediatric Burn Injuries: A Retrospective Analysis in Appalachia

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Introduction: Pediatric burn injuries are a significant cause of morbidity and mortality, especially in Appalachia, where geographic isolation poses challenges to specialized care. While efforts focus on preventing unintentional burns, limited research explores age-related differences in burn patterns within this region. This study aims to identify risk factors across pediatric age groups to enhance prevention strategies.

Methods: A retrospective review of 218 pediatric burn patients (0-18 years) admitted between January 2010 and June 2023 was conducted. Patients were categorized into four age groups (0-5, 6-10, 11-15, and 16-18 years). Data on gender, burn source, Length of Stay (LOS), Total Body Surface Area (TBSA), Body Mass Index (BMI), and inhalation injuries were analyzed using chi-squared and ANOVA tests ($p < 0.05$).

Results: The cohort included 130 (56%) boys with a mean age of 6.9 years (SD ± 6.2). Distribution varied significantly among age groups ($p < 0.0001$). Scald burns were most common in younger children (0-5 years: 80%, 6-10 years: 75%), whereas flame burns were predominant in adolescents (11-15 years: 60%, 16-18 years: 65%). Significant differences were noted in LOS (p = 0.0017), TBSA (p = 0.0112), and BMI (p = 0.0003), with older adolescents experiencing longer hospital stays and greater burn severity.

Conclusion: Age-specific burn patterns highlight the need for targeted prevention and resource allocation. Younger children primarily suffer scald burns with shorter LOS and lower TBSA, while adolescents face more severe flame burns and prolonged hospitalization. Future research should refine prevention strategies and assess long-term outcomes.

Age-Stratified Analysis of Severe Burn Etiologies and Clinical Outcomes: Findings from the Neiss Database (2004-2023)

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Introduction: Age critically influences burn injury mechanisms and outcomes. This study identifies weighted age-specific patterns in burn etiologies and clinical outcomes, informing targeted prevention and reconstructive surgical strategies.

Methods: We performed a weighted analysis of severe burn injuries using National Electronic Injury Surveillance System (NEISS) data (2004-2023), categorizing injuries as thermal, scald, electrical, chemical, radiation, or unspecified. Weighted counts were stratified into five age groups: <1 year, 1-5 years, 5-18 years, 18-65 years, and ≥65 years. Chi-square tests compared burn-type distributions by age, and logistic regression (adjusted for sex and burn type) estimated hospitalization odds.

Results: A total of 1,882,934 weighted cases were analyzed: <1 year: 101,648; 1-5 years: 323,819; 5-18 years: 267,740; 18-65 years: 1,008,982; ≥65 years: 180,745. Thermal burns were overwhelmingly predominant in every age group, particularly among adults aged 18-65 years. Scald, chemical, electrical, and other burns comprised a smaller fraction across age groups ($p < 0.0001$). Geriatric patients had 81.0% thermal etiology attributed to cooking accidents and house fires, while infants had 78% attributed to hot liquids/foods and indoor heating equipment. Overall hospital admission was 16.0%, rising to 32.2% in patients ≥65 ($p < 0.0001$). Regression indicated older adults had 2.06 times the admission odds vs. the 18-65 cohort (95% CI = 1.88-2.25, $p < 0.0001$).

Conclusion: Children and older adults exhibit distinct burn profiles, from pediatric scalds to geriatric thermal injuries. Personalized preventive efforts—hot-liquid safeguards for children and enhanced fire safety for older adults—are essential. Plastic surgeons should adapt reconstructive care to each population's unique needs, optimizing recovery trajectories and functional outcomes.

Aging and Injury: How Traumatic Brain Injury Size and Type Shape Discharge Outcomes in Older Adults

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Introduction: Traumatic brain injury (TBI) is a leading cause of disability in middle-aged and elderly adults, with isolated blunt TBI often resulting in long-term morbidity. Despite increasing incidence due to an aging population, the interplay between TBI characteristics, age stratification, and discharge outcomes remains poorly understood. This study examines the impact of TBI size and type on hospital discharge disposition to hospice or rehabilitation facilities, aiming to inform age-specific post-hospitalization care strategies.

Methods: A retrospective cohort study was conducted using ACS-TQIP-PUF data (2017-2022) to evaluate discharge outcomes among adults (≥40 years) with moderate-to-critical (AIS 2-5) isolated blunt TBI. Patients with polytrauma or skull fractures were excluded. TBI types included subdural hematoma (SDH >8 mm), epidural hematoma (EDH >8 mm), contusion (>2 cm), subarachnoid hemorrhage (SAH), and diffuse axonal injury (DAI). Logistic regression models assessed the association between TBI characteristics, age group (middle-aged 40-65 years; elderly ≥65 years), and discharge disposition.

Results: Among 182,661 patients, elderly individuals had significantly higher odds of hospice discharge across all TBI types, with contusions >2 cm showing the highest risk (OR 5.02, $p < 0.01$). Rehabilitation discharge was also more common in the elderly, except for DAI cases. SDH had the highest likelihood of rehabilitation discharge (OR 1.65, $p < 0.01$).

Conclusion: Elderly TBI patients face worse discharge outcomes, with increased hospice transitions and variable rehabilitation rates. These findings emphasize the need for age-specific, injury-tailored post-discharge care strategies to improve recovery and quality of life.

Applicability of Brain Injury Guidelines to Patient Population at a Level I Trauma Center

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Introduction: Current protocol at our institution is for any traumatic brain injury to be admitted with a neurosurgery consult and repeat CT scan the next day, representing a significant burden in resources. Brain Injury Guidelines developed at the University of Arizona stratify traumatic brain injuries and recommend different levels of monitoring based on the severity of injury. The savings from implementing these guidelines could be significant both for the patient and the hospital and help reduce unnecessary admissions.

Methods: We performed a 5 year retrospective cohort study of 1,254 traumatic brain injury patients presenting to the emergency department and classified them according to the Brain Injury Guidelines. We then compared the treatment those patients received to the Brain Injury Guidelines in terms of repeat imaging, neurosurgical consultation, and length of stay with cost data to determine the excess cost of treating these patients.

Results: Of the 1,254 patients included in the initial data set, 278 were classified into BIG1 status and 104 patients were classified into BIG 2. No patient required neurosurgical intervention. At an average cost of $3040 per hospital day, $850 per neurosurgery consult, and $4060 per CT brain, the total excess cost for these patients was in excess of $4 million.

Conclusion: Our study found that significant resources in excess of what is recommended by the Brain Injury Guidelines are used on traumatic brain injury patients without any change in outcome or management.

Are There Racial Disparities in Trauma Center Undertriage Rates and Do They Affect Outcomes: Analysis from a Multicenter Study

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