significant risk factor for anticipated failure of needle tube decompression. Alternative anatomic sites for needle decompression did not appear to increase the anticipated success of the intervention.

371 Prevalence of Intracranial Injury in Blunt Head Trauma Patients With or Without Anticoagulant and Antiplatelet Use

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Study Objectives: We sought to compare the prevalence of significant intracranial injury (ICI) among patients who presented to the ED with blunt head trauma with and without anticoagulation and antiplatelet medication use.

Methods: We conducted a multicenter, prospective, observational study of adult (age 18 and over) ED patients with blunt trauma for whom head CT scanning was ordered. Demographic and clinical variables, including use of warfarin, aspirin, and clopidogrel, were collected using a standardized data collection form prior to imaging. The determination of ICI was based on the final radiologic interpretation of all imaging studies using predefined criteria. Prevalence and confidence intervals were calculated using standard methodology.

Results: We enrolled 9,115 adult patients presenting with blunt head trauma from 2007 to 2015. Mean age was 54 years (range: 18-103 years), 39% were female. Overall, the prevalence of significant ICI was 5.9% (95% confidence interval [CI] 5.4 to 6.4%). Among patients without coagulopathy, the prevalence of significant ICI was 3.6% (213/5,916, 95% CI 3.2 to 4.1%). Among patients taking anticoagulant/antiplatelet medications, the prevalence of significant ICI was 6.1% (30/488, 95% CI 4.2% to 8.5%) for warfarin, 4.8% (43/903, 95% CI 3.5% to 6.3%) for aspirin, and 6.3% (16/256, 95% CI 3.7% to 9.7%) for clopidogrel. The relative risk (RR) for significant ICI associated with each medication as compared to no coagulopathy was as follows: warfarin, RR=1.71 (95% CI: 1.18 to 2.47), aspirin, RR=1.32 (95% CI: 0.96 to 1.82), and clopidogrel RR=1.74 (95% CI: 1.06 to 2.84).

Conclusions: In our large sample of ED patients undergoing CT for blunt head trauma, the prevalence of ICI was significantly higher for those taking warfarin compared with those without any coagulopathy. For patients on aspirin or clopidogrel, there was a non-significant trend towards higher rates of ICI.

372 Derivation of a Clinical Decision Instrument to Identify Adults in a Community Setting With Mild Traumatic Intracranial Hemorrhage at Low Risk for Requiring Critical Care Intervention

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Study Objectives: Adults presenting to the ED with mild traumatic intracranial hemorrhage (tICH) are commonly admitted to the intensive care unit (ICU), although critical care interventions are often unnecessary. In prior research, we found that a clinical decision instrument (CDI) derived at an academic Level I trauma center to identify adults at low risk for critical care interventions performed poorly in a community setting, likely because of substantial differences in patient case-mix. We sought to derive a more generalizable CDI among patients of a large community-based integrated health care delivery system.

Methods: This retrospective cohort study included non-anticoagulated adults (≥18 years of age) with mild tICH, defined as GCS score ≥13, across 21 community EDs from 01/2012 to 12/2013. No study facility carried a Level I trauma center designation, and only one carried a Level II designation. The primary outcome of at least one critical care intervention within 48 hours of ED arrival included intubation, neurosurgical intervention, vasopressor or inotrope use, invasive monitoring, or cardiopulmonary resuscitation. Using logistic regression with single independent variables, we identified potential predictors of the outcome, developed a 6-variable predictive logistic regression model, and created a simplified CDI to identify low-risk patients based on predicted probabilities from the model. We examined the prevalence of patients designated low-risk by both CDIs and compared performance metrics. We calculated sensitivity and specificity with Clopper-Pearson, positive and negative predictive values with standard logit, and c-statistics with Wald confidence interval (CI) estimates.

Results: Our cohort included 929 patients with mean age of 73.3 (SD 17.0) years; 50% were female, and 82% were injured by a ground-level fall. Of these, 110 (11.8%) received at least one critical care intervention, 100 of whom received a neurosurgical operation, mannitol or hypertonic saline. Patients identified as low risk had none of the following: time from trauma to ED >7 days, ED admitting GCS <15, lowest ED systolic blood pressure >140 mmHg, CT evidence of skull fracture, mass effect, or midline shift >5 mm. The new CDI designated nearly three times as many patients as low-risk than the academic-based CDI with similar sensitivity and significantly higher specificity (see Table).

Conclusions: We derived a CDI to identify patients with mild tICH at low risk for requiring ICU-level care in this community setting. The community-based instrument was equally sensitive as its academic counterpart, but outperformed it with a greater specificity and positive predictive value. This lower rate of false positives may increase its ultimate clinical utility. Continued model development may further improve specificity, and a prospective validation study will be needed prior to clinical implementation.

Table. Performance metrics of a community-based and academic-based clinical decision instrument in identifying patients requiring an early critical care intervention.

	Clinical Decision Instrument	
	Community-based (95% CI)*	Academic-based (95% CI)*
Low-risk designation, n (%)	391 (42.1)	143 (15.4)
Sensitivity (%)	99.1 (95.0-100.0)	98.2 (93.6-99.8)
Specificity (%)	47.6 (44.2-51.1)	17.2 (14.7-20.0)
Positive predictive value (%)	20.3 (19.2-21.4)	13.7 (13.3-14.2)
Negative predictive value (%)	99.7 (98.2-100.0)	98.6 (94.7-99.6)
C-statistic	0.73 (0.71-0.75)	0.58 (0.56-0.60)

*Except where otherwise noted

373 Concussions in the Emergency Department: A Retrospective Analysis of Clinical Decision Guidelines Utilization

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Study Objectives: Head injuries are a common chief complaint in clinics, urgent care facilities, and emergency departments (ED) alike. In the setting of known head injury, the possibility for significant pathology can be daunting for clinicians. The decision to obtain advanced imaging should be guided by evidence-based medicine; however, in many cases, imaging or transfer to a higher level of care is viewed as unnecessary. Few studies have evaluated head injuries and concussions in the emergency department in comparison to imaging guidelines. The purpose of this study was to evaluate patients presenting to our rural, Level 1 trauma center ED with head injuries.

Methods: In this retrospective cohort study, data were obtained from our West Virginia University Hospital electronic medical record (EMR) from January 1 to December 31, 2015 regarding patients who presented to our ED and had a final diagnosis of a head injury or concussion. Data points extracted from the EMR and analyzed descriptively included age, sex, method of arrival, whether patients were transferred from an outside facility, if any advanced imaging was conducted at another facility, whether imaging guideline usage was indicated, if the injury was sports-related, and disposition.

Results: In 2015, there were 691 patients who presented to our ED and received a final diagnosis of a head injury or concussion. The median age was 23 years, ranging from 0 to 93 years, and 71% were male. The most common mode of arrival was via ambulance (43%). Approximately 20% of these patients were transferred to our ED from an outside facility. Only 120 cases (17%) were sports-related injuries. Of those, 58 (48%) received advanced imaging and one received MRI. However, 477 of the 571 (84%) non-sports-related injuries received CT imaging. Sixty-five percent of patients received a CT scan in our ED. Of those, 25% had a positive result; 88% of these were admitted as inpatient. About 48% of all patients were discharged from the ED. Of the