

NAEMSP 2020 ANNUAL MEETING ABSTRACTS

behavioral, and other. Patient primary symptom, demographics, and community size were evaluated. Descriptive statistics were reported. **Results:** In 2019, there were 154,906 WV 911 patients submitted to the WV EMS data repository and 173 (0.1%) received prehospital ketamine. Among all WV prehospital ketamine patients, most were male (63%, 106), white (135, 93%), and in urban areas (50%, 76). Median age was 41 (interquartile range [IQR]: 29-59). There were 62% (74) of patients with pain/injury impressions, 33% (40) AMS/behavioral, and 6% (7) other. Among patient with pain/injury impressions, 71% (48) had a primary symptom of unspecified pain, 21% hemorrhage/bleeding, 3% (2) slowness/poor responsiveness, 2% (1) abdominal tenderness, 2% (1) abnormal involuntary movements, 2% (1) dyspnea, and 2% (1) nausea. Most were male (65%, 46), white (95%, 60), and in rural areas (64%, 44). Median age was 45.5 (IQR: 29-60). Among patients with AMS/behavioral impressions, 46% (12) had a primary symptom of strange/inexplicable behavior, 31% (8) slowness/poor responsiveness, 8% (2) AMS, 8% (2) combative/violent behavior, 4% (1) restlessness/agitation, and 4% (1) suicidal ideations. Most were male (54%, 21), white (90%, 26), and in urban areas (75%, 24). Median age was 35 (IQR: 28-62). Among patients with other impressions, the only primary symptom reported was unspecified pain, 71% (5) were male, 83% (5) white, and 86% (6) in urban areas. Median age was 72 (IQR: 41-76). **Conclusion:** More WV 911 patients received prehospital ketamine for pain/injury than for AMS/behavioral impressions. Ketamine for pain/injury was administered more often in rural areas while ketamine for AMS/behavioral impressions was more frequent in urban areas. Those with pain/injury were older than those with AMS/behavioral impressions.

118. IMPLEMENTING A STATEWIDE PREHOSPITAL SEPSIS PROTOCOL: A SURVEY OF EMS MEDICAL DIRECTORS

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Background: Sepsis is a medical emergency that requires prompt recognition and treatment. Many Emergency Medical Services agencies across the United States have implemented sepsis protocols. In 2016, Maryland instituted its own state-wide EMS sepsis protocol which includes fluid resuscitation, vasopressor administration, and requires alerting the hospital of an incoming sepsis patient. **Objective:** The purpose of this study was to quantify the perspectives of EMS medical directors in Maryland regarding prehospital sepsis care and to identify challenges encountered during implementation of the statewide sepsis protocol. **Methods:** A 17 question survey was sent to all 24 jurisdictional medical directors in the state of Maryland. **Results:** A total of 14 (58%) medical directors responded, representing 4 of the 5 EMS regions in the state. More than half (57%) stated sepsis alerting was a priority in their jurisdiction; however, in a listing of eight initiatives, sepsis was the least prioritized. Most (64%) respondents believed their clinicians had adequate training on sepsis. A majority (79%) of medical directors surveyed felt that core measures of sepsis management would be beneficial. The most helpful core measures were volume of IV fluid administration (92%), true positive sepsis alerts (83%), and cases of failure to activate a sepsis alert (75%). Engagement of field personnel was rated as the biggest challenge

for implementation of a sepsis protocol in general, and lack of a thermometer on EMS units (50%) was the most problematic portion of the 2016 statewide sepsis protocol. Surveyed medical directors (86%) believe the most difficult obstacle to overcome for EMS clinicians in the treatment of sepsis are non-specific signs and symptoms. **Conclusions:** Prehospital sepsis care was viewed to be important amongst the medical directors surveyed. However, significant challenges to prehospital sepsis care and implementation of a sepsis protocol are perceived by jurisdictional medical directors. Additional investment and dedication to sepsis care will advance prehospital treatment in Maryland.

119. EARLY DELIVERY OF RECOMMENDED FLUID VOLUMES IS ASSOCIATED WITH DECREASED MORTALITY IN ADULT SEPSIS PATIENTS TRANSPORTED BY EMS

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Objectives: Earlier fluid resuscitation reduces sepsis mortality, particularly for patients with prehospital hypotension. While many EMS systems have implemented protocols for sepsis care, prehospital recognition and treatment of sepsis is variable. Our objective was to describe the ED care and outcomes for septic patients transported by EMS, including the timeliness of fluid resuscitation as it relates to patient outcome and optimizing our quality improvement initiatives in the field. **Methods:** A retrospective cohort of adult patients from a single county EMS system with a sepsis protocol (est. 2016) in an urban ED from 2017-2019 (pop > 1,000,000). Included were adults 18+ years with any ICD10 sepsis diagnosis present on admission (POA). Primary outcome was 30-day mortality. Data were extracted from Epic®, validated and analyzed using IBM® SPSS® Statistics v26. **Results:** There were 1001 EMS patients identified with sepsis POA; mean age 70.4 (±15.8) years; 50.0% female, 29.1% black, 29.4% from skilled/assisted living facilities. The majority had severe sepsis (43.7%) or septic shock (52.3%). Initial shock index was elevated (>0.9) in 51.8%. A NEWS-based ED alert triggered in 66.3%; median time to alert 25.0 minutes (IQR: 11.0-78.8). Lactate was ≥2 in 63.6%; median time to lactate was 1.3 hours (IQR: 0.9-2.0). Antibiotics were given in 92.2%; median time 1.7 hours (IQR: 1.0-2.8). Fluid volumes of ≥30mL/kg were achieved in the ED in 41.5%; only 23.9% had ≥30mL/kg initiated within 3-hours of arrival. The ICU admitted 62.3% and 30-day mortality was 16.1%. Multivariate logistic regression revealed age (OR: 1.03, 95%CI:1.01-1.04), presence of ED alert (OR: 2.60, 95%CI:1.59-4.26), initial lactate (OR:1.13, 95%CI:1.07-1.19), and ED mechanical ventilation (OR:2.18, 95%CI:1.30-3.66) were associated with greater mortality. Initiation of 30 mL/kg within 3-hours was associated with decreased mortality (OR: 0.64, 95%CI:0.41-0.99) and confirmed by Cox-regression when adjusted for the same covariates. **Conclusions:** For EMS transported severe sepsis/septic shock patients, half were presented to the ED with an elevated shock index and two-thirds met NEWS criteria, yet the minority received timely fluid resuscitation in the ED. Those who received early recommended fluids had decreased mortality. Further quality efforts are needed to include

early fluid delivery by EMS and linkage of prehospital data to the ED record.

120. MITIGATING EFFECT OF BYSTANDER CPR ON NEGATIVE ASSOCIATION BETWEEN EMS RESPONSE TIME INTERVAL AND SHOCKABLE RHYTHM PRESENTATION IN OHCA

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Background: Initial cardiac rhythm presentation is an important Utstein factor for outcome in out-of-hospital cardiac arrest (OHCA). The effect of bystander CPR on association between emergency medical service (EMS) response time interval (RTI) and probability of shockable rhythm presentation is not well known. We aimed to evaluate the distribution of shockable rhythm presentation according to EMS RTI and analyzed the interaction effect of bystander CPR on the association between RTI and shockable rhythm presentation. **Methods:** A cross-sectional study using a nationwide OHCA registry from 2013 to 2018 was conducted. Adult EMS treated OHCA patients (≥18 years old) with presumed cardiac etiology were enrolled. The primary outcome was shockable rhythm presentation at initial EMS rhythm analysis. Multivariable logistic regression model with interaction term was conducted to estimate the effect of bystander CPR on the association between RTI and shockable rhythm presentation. **Results:** A total of 46,300 OHCA was enrolled for analysis. 11,295(24.4%) had shockable rhythm at EMS arrival. Every 2 minute increase of RTI was associated with lesser proportion of shockable rhythm presentation (aOR 0.91, 95%CI 0.90-0.93). In the interaction analysis, bystander CPR mitigated negative association between RTI and shockable rhythm (bystander CPR performed: aOR 0.93,95%CI 0.91-0.94; bystander CPR not performed: aOR 0.88, 95%CI 0.86-0.90). **Conclusion:** Bystander CPR was effective in mitigating negative association between RTI and shockable initial rhythm presentation.

121. COMBINING TRADITIONAL BIostatistical ANALYSIS WITH NATURAL LANGUAGE PROCESSING TO IDENTIFY NEW FACTORS ASSOCIATED WITH RETURN OF SPONTANEOUS CIRCULATION AFTER PEDIATRIC OUT-OF-HOSPITAL CARDIAC ARREST

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Background: Pediatric out-of-hospital cardiac arrests (POHCA) are low-frequency, high-risk events. Detection of successful resuscitation in state and national EMS datasets are limited to certain administrative data fields, namely patient and arrest characteristics. The addition of natural language processing (NLP) and other advanced analytics affords researchers the ability to ensure comprehensive capture of return of spontaneous circulation (ROSC) and detect certain factors associated with ROSC in POHCA. **Objective:** To use NLP analysis of the EMS narrative and standard biostatistics in a large national EMS database and examine factors associated with prehospital return of spontaneous circulation (ROSC) in POHCA. **Methods:** From the ESO database, we identified patients ages