465 ED Offload Study: The Subjective Impressions of Patients Awaiting Emergency Medical Services Offload in the Emergency Department *Trevor Jamieson, Ben-Ari Fried, Steven Marc Friedman; University Health Network: Toronto, Ontario, Canada*

Objectives: To characterize patient impressions during emergency medical services (EMS) offload delay. **Methods:** Convenience sample in downtown teaching hospital. A standardized survey was administered to patients upon arrival by EMS and hourly until offload. Fisher's and McNemar's tests performed using Excel and SAS. **Results:** Data were collected for 76 hours (12 intervals, 16 weeks, December 2003 to April 2004). 60 patients arrived by EMS, 30 met inclusion criteria, and 22 (73.3%) consented. Mean offload delay was 71 minutes (range 16–283). At initial survey, 32% (95% CI 0.12 to 0.51) rated privacy as good or very good, 27% (95% CI 0.09 to 0.46) were concerned others could see them, and 18% (95% CI 0.02 to 0.34) were concerned that personal information could be overheard. Good or very good ratings were scored for comfort by 50% of patients (95% CI 0.29 to 0.71), dignity by 64% (95% CI 0.44 to 0.84), and safety by 86% (95% CI 72 to 100). Hourly patient interviews demonstrated worsening perceptions regarding personal information being overhead ($p = 0.0053$), exposure ($p = 0.0128$), privacy ($p = 0.0124$), and comfort ($p = 0.0097$). Median ten-point pain score increased from 4 to 7 for patients over two or more hourly surveys ($N = 9$). Interviews of 21 patient–medic pairs demonstrated a significant relationship between patient and medic ratings of patient privacy ($p = 0.0088$). Patients tended to report higher privacy ratings ($p = 0.0030$) than their medics. **Conclusions:** Patient impressions of privacy were inferior to perceived safety and comfort. Impressions of overall privacy and comfort diminished over time. There is a significant relationship between medic and patient estimates of patient privacy.

466 System Impact of the 2003 Blackout on New York City Emergency Medical Services *John P Freese, Neal J Richmond, Robert A Silverman, James Braun, Bradley Kaufman, Glenn Asaeda, John C Clair; New York City Fire Department: New York, NY, Long Island Jewish Medical Center/ Albert Einstein College of Medicine: New Hyde Park, NY*

Background: On August 14, 2003, a large portion of the Northeastern United States found itself without power. **Objective:** To describe the impact that the blackout had on emergency medical services (EMS) operations during that time. **Methods:** We performed a retrospective review of all EMS activity from 4:11 PM EST on August 14, 2003, until 9:03 PM EST on August 15, 2003. An identical time period from the preceding five weeks in July and August 2003 was analyzed in order to establish a historical control. **Results:** As compared to a mean of 3,860 EMS incidents during the historical control periods, New York City EMS responded to 7,844 incidents during the 2003 blackout ($p < 0.001$). Twenty of the system's 62 call types experienced a significant ($p < 0.05$) increase during the blackout. High-priority call types accounted for 46.7% of the EMS volume during the blackout as compared to 33.6% during the historical control periods ($p < 0.001$). Respiratory call types, which made up 12.1% of the total volume during the historical control periods, comprised 29.6% of the volume during the blackout ($p < 0.001$). Median unit response times—the interval from the assignment of a particular unit until that unit's arrival on scene—increased from 5.9 minutes during the historical controls (interquartile range = 3.9–8.3 minutes) to 6.9 minutes during the blackout (interquartile range = 4.1–10.3 minutes). Median system response times, or the interval from the receipt of the 9-1-1 call until the arrival of the first unit on scene, increased from 6.9 minutes during the historical control periods (interquartile range = 4.9–9.9 minutes) to 12.4 minutes during the blackout (interquartile range = 7.2–25.1 minutes). **Conclusions:** The 2003 blackout resulted in a number of changes in EMS demand in the New York City region. In preparing to deal with such disasters in the future, anticipating such changes and identifying means by which to minimize their system impact will be important to this or any EMS system.

467 EMS Service Staffed by Incarcerated Felons *Edmond A Hooker, Daniel J O'Brien, David Wilkinson; University of Louisville: Louisville, KY, Kentucky State Reformatory: LaGrange, KY*

Background: Convicted felons in many states are prohibited from serving as emergency medical services (EMS) personnel. Since 1976, our state prison system has operated an EMS service which is staffed by prisoners incarcerated for felony convictions. This EMS service only transports prisoners or prison staff. **Objective:** To review the history of the EMS service and its operations for 2003. **Methods:** Design: Retrospective chart review of runs performed by the prison EMS service for 2003. Participants: All runs, including non-emergency transports, from January 1, 2003, until December 31, 2003, were eligible. Observations: For each run, we recorded emergency run or a non-emergency transport, location of the patient, whether or not the run was advanced life support (ALS) (staffed with a nurse or physician) or basic life support (BLS), and whether or not an automated external defibrillator (AED) was used. We also estimated cost of operating the service based on actual expenditures and cost of paying the prisoners ($1.50 per day). **Results:** During 2003, the prison EMS had a total call volume of 481 runs. There were 463 BLS runs, 14 ALS runs, and 4 canceled runs. The AED was used 8 times, with one patient surviving to hospital admission neurologically intact. There were 330 emergency runs and 147 non-emergency transports. Of the 477 transports, 296 originated at the prison, 47 were from surrounding prisons, and 139 were from hospitals. The actual cost of operating the service for 2003 was $20,000 for supplies and $12,000 for prisoner salaries. This compared favorably to the estimate for on-site paid EMS of $1,500,000 and the estimate for a call-by-call basis of $269,500. There was no attempted escape or injured provider. **Conclusions:** Our state has operated a prisoner-staffed EMS service for over 28 years. The use of state prisoners as EMS providers to prison populations may offer a method for significant cost savings by other prison systems.

468 Intranasal versus Intravenous Naloxone for Prehospital Narcotic Overdose *Tania Mieke Robertson, Gregory W Hendey, Geoff Stroh, Marc Shalit; UCSF Fresno Medical Education Program: Fresno, CA*

Objectives: To compare the prehospital time intervals from patient contact and medication administration to clinical

response for intravenous (IV) versus intranasal (IN) naloxone in patients with suspected narcotic overdose. **Methods:** Retrospective review of emergency medical services (EMS) and hospital records, before and after implementation of intranasal naloxone by the EMS system. We included patients with suspected narcotic overdose treated in the prehospital setting between March 2003 and July 2004. Paramedics documented dose, route of administration, and response times using an electronic record. Clinical response was defined as an increase in respiratory rate or Glasgow Coma Scale score of at least 6. Main outcome variables included time from medication to clinical response, and time from patient contact to clinical response. Secondary variables included number of doses administered and rescue doses given by an alternate route. Between-group comparisons were accomplished using t-tests and chi-square tests as appropriate. **Results:** 154 patients met inclusion criteria, including 104 treated with IV and 50 treated with IN naloxone. Clinical response was noted in 58 (58%) and 33 (66%) of the IV and IN groups, respectively ($p = 0.3$). The mean time between naloxone administration and clinical response was longer for the IN group (8.1 vs 12.9 min, $p = 0.02$). However, the mean times from patient contact to clinical response were not significantly different between the IV and IN groups (20.3 vs 20.7 min, $p = 0.9$). More patients in the IN group received 2 doses of naloxone (18% vs 34%, $p = 0.05$), and 3 patients in the IN group received a subsequent dose of IV or IM naloxone. **Conclusions:** The dose to clinical response time for naloxone was longer for the IN route, but the overall time from patient contact to response was the same for the IV and IN routes. Given the difficulty and potential hazards in obtaining IV access in many patients with narcotic overdose, IN naloxone appears to be a useful alternative.

469 The Effectiveness of Parenterally Administered Promethazine in Relieving Nausea and Vomiting in the Prehospital Setting

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Background: Promethazine is used as an antiemetic in emergency departments (EDs) across the country; however, its efficacy has not been studied in a prehospital setting. **Objective:** Our hypothesis is that the prehospital administration of promethazine relieves nausea and vomiting (N/V) in a significant proportion of patients. **Methods:** The study was conducted from January 2003 to June 2004 in a two-tiered basic life support and advanced life support response EMS system with online medical control. The study was designed as a retrospective observational study from a convenience sample of prehospital patients with heterogeneous chief complaints. Data were collected from a statewide EMS patient registry database. All patients with N/V were eligible for study inclusion. Drug administration and dosing were approved by online medical oversight. Patients with N/V were given promethazine either intravenously or intramuscularly in doses ranging from 6.25 mg to 25 mg (median = 12.5 mg). Patients were reassessed for relief of N/V after drug administration, but before hospital arrival. Statistical analysis was performed by determining 95% confidence intervals (CIs) and by using the t-test. **Results:** 349 eligible patients were identified; of these, 55 patients were excluded for incomplete data, yielding 294 patients for study inclusion. Of the 294 patients with N/V who received promethazine, 210 patients (71.4 %; 95% CI: 66.2% to 76.6%) were noted to have relief of N/V, while 84 patients (28.6%; 95% CI: 23.4% to 33.8%) experienced no relief. No patients were identified with worsening N/V after promethazine administration. The mean dose of promethazine for responders was 13.1 mg, while that of the non-responders was 12.7 mg ($p = NS$). **Conclusions:** Prehospital administration of promethazine appears to relieve N/V in a majority of patients.

470 Does START Triage Correspond to Emergency Department Acuity?

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Background: Simple triage and rapid treatment (START) was designed for triage in mass-casualty incidents and uses an algorithm including ambulation, respiration, pulse presence, airway protection, and ability to follow commands to determine a victim's acuity. **Objective:** To apply the START tool to critically ill patients to determine if START corresponded to emergency department–assessed acuity. **Methods:** A five-month, prospective, observational study was conducted within the resuscitation area of an urban, Level 1 trauma center. Observers recorded case type, START criteria, Glasgow Coma Scale score (GCS), vital signs, and disposition as well as critical interventions such as thoracostomy, intubation, and transfusion. After case completion, the emergency physician (EP) was asked to assess the acuity of the case in terms of red (life threat in the golden hour), yellow (delayed life threat), or green (minor injuries only). **Results:** 383 critical cases were observed, and 144 trauma cases were used for this analysis. By START 22% were green, 59% yellow, and 19% red. By Spearman rank correlation, the START triage tool correlated with lowest blood pressure, GCS, and revised trauma score ($p < 0.01$). 14% of green, 26% of yellow, and 89% of red patients required immediate interventions. START triage assignment exactly matched the EP assessment in 22% of green, 68% of yellow, and 93% of red patients. Red START assignment was significantly associated with intensive care unit, operating room, or morgue disposition (chi-square, $p < 0.01$). In the yellow/green START groups combined, 25 of 117 (21%) were assessed as undertriaged by the EP, whereas in the red START group, only 2 of 27 (7%) were overtriaged (chi-square, $p < 0.01$). **Conclusions:** START triage is a simple but poorly validated tool for rapid triage of trauma patients. Red START designation most often predicted need for intervention, acute disposition, and high-acuity EP assessment. 21% of patients with yellow or green START assignment were undertriaged compared to EP assessment and need for immediate intervention.

471 Apoptosis Is Present in Severe but Not Mild Traumatic Brain Injury

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Background: Traumatic brain injury (TBI) induces neuronal cell death by both primary and secondary mechanisms. Previous studies have shown that programmed cell death (apoptosis) occurs in the immature posttraumatic brain,