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A Four-Year Multi-Center Retrospective Observational Study of Pediatric Emergency Medical Services Utilization in a Large Metropolitan Health System

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related characteristics. This work is limited by focusing on completed education, and future studies should investigate how exposure to protocols and continued BHE training may help mitigate the threat and hazards of paramedicine.

43. A Four-Year Multi-Center Retrospective Observational Study of Pediatric Emergency Medical Services Utilization in a Large Metropolitan Health System

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Study Objectives: The COVID-19 pandemic has significantly decreased pediatric emergency department (ED) utilization. The objective of this study was to quantify the characteristics of pediatric EMS utilization both before and during the COVID-19 pandemic in a metropolitan health care system.
Methods: We performed a multi-center, retrospective observational study of all pediatric ED visits between 1/1/2018 and 12/31/2021, that presented to one of nine EDs within our health system. The data were sorted by mode of arrival; children arriving to the ED via EMS, or arrival by other means. Data collection included a variety of demographic and clinical variables. We compared overall pediatric ED patients' arrival methods as well as ED and EMS volumes by year using a binomial test with a null hypothesis that the population proportion equals 50%. Analysis compared ED mode of arrival, admission rate, and Emergency Severity Index (ESI) triage scores using chi-square tests.
Results: There were 201,313 pediatric ED encounters for 118,744 unique patients meeting the inclusion criteria. There were 8,815 (4.38%) children who arrived via EMS compared to 192,498 (95.62%) children who arrived by other means ($p < 0.0001$). Children who arrived via EMS had a higher admission rate of 22.27% (1963) compared to 5.9% (11,351, $p < 0.0001$). ESI among children arriving via EMS was higher, with 44.3% (3847) having ESI 1 or 2 triage scores compared to 8.8% (16,790) for children arriving by other means ($p < 0.0001$). Overall pediatric ED mortality was 0.03% (61 deaths), with 86.9% (53) of those children arriving via EMS ($p < 0.0001$). Pediatric ED and EMS volumes in 2018 and 2019 pre-pandemic were 127,652 ED visits and 5,306 EMS visits, respectively, compared to 73,661 and 3,509 visits in 2020 and 2021. This represents a 42.3% overall reduction in pediatric ED visits ($p < 0.0001$) and a 33.9% reduction in pediatric EMS visits ($p < 0.0001$).
Conclusion: Approximately 5% of pediatric ED encounters in our health system arrived via EMS. These children appeared to have higher acuity presentations and required inpatient services more often than children who arrived by other means. Pediatric ED and EMS encounters have decreased substantially since the onset of the pandemic.

44. Safety and Paramedic Protocol Compliance of a Direct to Inpatient Psychiatry Transport Program

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Background: Transporting stable patients with psychiatric complaints to emergency departments (ED) for medical clearance often delays access to definitive mental health care. These delays can lead to unnecessary diagnostic evaluations, while increased traditional ED wall-time delays contribute to EMS system inefficiency. Our objective is to assess safety and protocol compliance of a direct to psychiatric hospital transport initiative for medically stable patients with primary psychiatric complaints from a single, high-volume, urban, ground-based EMS agency.
Methods: This is a retrospective observational study investigating all direct to inpatient psychiatric patients over a 10-month period. Data were obtained from EMS and hospital electronic medical records. Criteria for protocol inclusion required the patient to be 13 or older, non-aggressive, and able to perform activities of daily living, with a primary psychiatric complaint. Major exclusionary criteria included abnormal blood pressure, medical instability, elevated blood glucose levels, trauma, signs of infection, hypoxia, altered mental status, known overdose, or intoxication. Compliance was measured using EMS vital signs, and safety assessed by the need for secondary transport to a traditional hospital ED for any patients treated under the protocol. Descriptive statistics are calculated to compare characteristics of those transported and in/out of protocol compliance.
Results: During the study period, 23% (118/504) of eligible psychiatric patients were transported directly to psychiatric care. Of this population, only one patient required secondary transport to the ED following arrival at the psychiatric hospital (1/118, 1%). Protocol compliance improved from initial scene to final EMS evaluation, with 70% compliance initially increasing to 98% prior to transfer of care. Of those transported to psychiatric care outside of compliance, none required transfer to ED (0/2). For the 118 patients taken directly to psychiatric care, the EMS transport and return to service intervals were 19 and 17 minutes, respectively.
Conclusion: In this sample of EMS clinicians, low-risk patients with psychiatric complaints were appropriately recognized, triaged, and transported directly to appropriate facilities. Further evaluations of time saved, patient and clinician satisfaction, and EMS system resiliency, with larger and more geographically diverse sample sizes, are needed for generalizability to other systems.