

POSTER 052.**When is Helicopter Transit Use for Urban Trauma Patients Appropriate?**

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Purpose: Inappropriate use of helicopter transport of trauma patients in urban areas increases costs, risk of injury, and unavailability for appropriate flights. We evaluated the effect of an EMS system audit of helicopter trauma scene flights (TSF) on appropriateness of TSFs.

Methods: *Design:* Retrospective historical control. *Setting:* Defined urban area with two level-1 trauma hospitals, ALS ground response, and a flight team (FT) consisting of flight nurse and paramedic. *Participants:* Consecutive TSFs two years before (PRE) and two years after (POST) audit. *Intervention:* EMS system audit established criteria for appropriate TSF that included >2 patients, extrication time >20 minutes, prohibitive ground traffic, and difficult access to patient. If no criteria were met, use of the helicopter was considered inappropriate.

Results: Total number of TSFs decreased after audit (PRE n = 122, POST n = 50), but the proportions of appropriate (APPRO) (PRE = 38%, n = 46, POST = 34%, n = 17) and inappropriate (INAPPRO) TSFs (PRE = 62%, POST = 66%) were not significantly different ($\chi^2 = 0.038$, $p = 0.846$). There was no difference between APPRO and INAPPRO TSF for mean initial systolic BP, heart rate, respiratory rate, age, mechanism of injury, TRISS and ISS scores, mean length of stay, and proportion of survivors. There was no significant difference in mean time in minutes to liftoff (8.2 vs 7.5 mins) scene time (24.3 vs 25.2), or transport time (4.7 vs 5.1) (PRE vs POST). For APPRO patients, the most common criteria was extrication >20 minutes (PRE n = 27, POST n = 10). For both PRE and POST periods, 27 APPRO patients (45%) were admitted to non-ICU wards. There was no difference in level of training or agency of activating EMT in APPRO compared to INAPPRO. For both periods, TSFs were most commonly activated by paramedics for both APPRO (91%) and INAPPRO (86%).

Conclusion: An EMS system audit with general awareness of audit criteria decreased the number of TSFs, but not the proportion of INAPPRO flights. Despite the audit, ground EMS personnel continued to use helicopter transport for urban trauma patients. Future studies should identify EMTs' reasons for choosing helicopter transport, and establish criteria for appropriateness based less on anticipated delays in extrication or transport and more on the critical physiological status of the patient.

POSTER 038.**ALS Utilization in a Two-Tiered Urban EMS System: Are the Paramedics Getting to the Sickest Patients?**

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Purpose: To assess the efficacy of the utilization of advanced life support (ALS) resources in a two-tiered urban EMS system.

Methods: For 31 consecutive days, the ambulance call reports (ACR) and emergency department (ED) charts were reviewed for all adult patients arriving at our urban level-I trauma center via 9-1-1 dispatched emergency ambulances. Dispatch call types, responding unit type, ALS interventions, ED disposition, and ED diagnosis were recorded. Patients admitted directly from the ED to the intensive care unit (ICU), the operating room, or who expired in the ED were deemed the sickest, requiring ALS field response.

Results: A total of 1,416 cases were analyzed. Of these, 253 were excluded for unmatched data. Of the remaining, 1,163, 326 arrived via ALS (27.9%), and 837 (72.1%) via basic life support (BLS) units. Call type was documented in 1,127 of the 1,163 runs: 272 (24.2%) ALS, 838 (74.6%), and 16 (1.2%) dual call types. Eighty-eight (33.3%) of ALS call types were responded to by BLS units, and 119 (14.7%) of BLS call types were responded to by ALS units. Of the 133 sickest patients categorized as requiring ALS response in the field, 70 (52.6%) arrived via ALS and 63 (47.3%) via BLS, with 43 of these 63 BLS transports (69%) assigned BLS call types.

Conclusion: Almost half of the sickest patients arrived via BLS units, many not identified as requiring ALS. Additionally, ALS units frequently are dispatched to BLS call types. Further study may help optimize the efficacy of ALS utilization.