

The Association of Total Prehospital Time to Severe Trauma Patient Outcomes in Physician Staffed Emergency Medical Teams in Sarajevo, Bosnia, and Herzegovina

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Introduction: The Institute for Emergency Medical Assistance of Canton Sarajevo covers 1,777 square kilometers. All teams are physician staffed and are organized in ten geographic points. Patients are transported to a tertiary care level facility—University Clinical Center Sarajevo. Our objective was to determine the association between total prehospital time and severe trauma patient outcomes in a physician staffed emergency medical system with the hypothesis that the length of prehospital time is insignificant to patient outcome if physician treatment begins on scene.

Method: This was a descriptive, retrospective, analytical study conducted from June to December 2020. The data of 153 patients with an ISS score of ≥ 16 was selected from patient registries of both facilities. According to transport duration, patients were assigned to one of four groups: <15 minutes (group 1); 16 to 30 minutes (group 2); 31–45 minutes (group 3) and > 45 minutes (group 4). Both groups according to the TRISS score were equal in mortality with an expected survival rate margin taken at 70% due to this being the approximate intrahospital survival rate of our patients. The primary outcome was in-hospital mortality, and secondary outcomes included length of hospital stay, length of ICU stay and 30-day survival rate.

Results: We found no statistically significant difference to in-hospital mortality in relation to the length of pre-hospital transport when physician treatment begins on scene ($p = 0,186$). We ruled out any significant difference in length of stay and ICU stay ($p = 0,179$ and $p = 0,173$, respectively) among the preselected groups in relation to the length of prehospital time. Also, the 30 day survival rate was unaffected by the length of transport in physician led teams ($p = 0,156$).

Conclusion: With strategically placed physician staffed EMS teams and physician treatment beginning on scene, patient outcome is unaffected by the length of transport.

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Traumatic Cardiac Arrest in Polytrauma—There are Survivors: A 10-Year Analysis from a German Helicopter Base

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Introduction: In Germany, emergency care is provided by ambulances and rescue helicopters. Emergency physicians are part of prehospital care. The rescue helicopter in Dresden covers the city with 540.000 inhabitants and surrounding areas. The goal of the study was to evaluate cases of traumatic cardiac arrest (TCA) and to describe factors that affect the primary success of prehospital cardiopulmonary resuscitation (CPR) in trauma.

Method: Data of all emergencies from the German Air Rescue (DRF-Luftrettung®) Helicopter Base Dresden were recorded on a standardized protocol and transferred to a central database (MEDAT®, HEMSDER®). Data from all patients with severe injuries, classified as polytrauma between January 2006 and December 2015 were analyzed.

Results: There were a total number of 14,126 emergency cases involving the rescue Helicopter. The Helicopter was on the scene within 10.9 minutes [4–34]. Polytraumatized patients were identified in 673 cases (4.76%), the mean age was 43.73 years [2–98], and 498 patients were male (73.99%). In 444 cases, traffic accidents were responsible, in 188 cases falls from high. In 46 cases a suicide was documented. Mean ISS was 34,04 [16–75]. The main injury regions were head, extremities and chest. In 115 patients (17.08%) a TCA was observed. 43 pat. were pronounced dead initially and no treatment was initiated. 72 pat. (62.6%) received CPR. 39 of these pat. (54,17%) were also pronounced dead after treatment. 14 pat. (19.44%) were transported to hospital with ongoing CPR. 19 pat. (27.38%) reached the return of spontaneous circulation (ROSC). Male pat. reached more often ROSC.

Conclusion: According to present guidelines for TCA, it is important that reversible causes of cardiac arrest in trauma pat. are to be treated. If we ensure the treatment of hypoxia, hypovolemia, tension pneumothorax and cardiac tamponade consequently, there will be a survival chance. Regular training for manual skills and simulation can be a key factor.

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The Implementation and Evolution of Helicopter Emergency Medical Services in the Republic of Ireland

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Introduction: Helicopter Emergency Medical Services (HEMS) have formed an integral component of the Irish

healthcare system for the past decade, yet the factors leading its commencement, its evolutions over this time, the current model of service delivery have not been widely published.

Aeromedical service provision may vary significantly from country to country and may also vary regionally within countries. Health systems necessities, capacity and maturity, the level of state, corporate, private or community investment and capacity of the contracted service provider are all factors that influence the service provision.

Method: This research provides a descriptive analysis of the historic factors leading to the implementation of HEMS during an era of healthcare reform, its key evolutions and current model of service delivery.

Results: Health system reform in a time of global financial recession led to a unique collaboration between the Irish Defense Forces and civilian Emergency Medical Systems (EMS) to provide a sustainable foundation of primary scene landing Helicopter Emergency Medical Services for the Irish state. This sharing of professional knowledge, logistics and operational experience lead to many further system reforms and will inform future aeromedical service provision.

Conclusion: Over the past decade the Irish health system has undergone significant reconfiguration and centralization of services, leading to increased demands on emergency medical ground and aeromedical services. Future advancements in aeromedical service provision require an innate understanding of the current model.

This research will add to the knowledge base and inform policy makers and support decision making surrounding Helicopter Emergency Medical Services reform and enhanced service provision in the Irish state.

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Immediate Medical Care Rendered by U.S. Law Enforcement Officers After Officer-Involved Shootings – An Open-Access Public Domain Video Analysis

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Introduction: After officer-involved shootings, rapid delivery of emergency medical care is critical but may be delayed due to scene safety concerns. The purpose of this study was to describe medical care rendered by law enforcement officers (LEO) after lethal force incidents.

Method: Retrospective analysis of open-source video footage of officer-involved shootings (OIS) occurring between 2/15/2013 and 12/31/2020. Frequency and nature of care provided, time until LEO and emergency medical services (EMS) care, and mortality outcomes were evaluated. The study was deemed exempt by the Mayo Clinic Institutional Review Board.

Results: 342 videos were included in the final analysis. LEOs rendered care in 172 (50.3%) incidents. The average elapsed time from the time of injury to LEO-provided care was

155.8 + 198.8 seconds. Hemorrhage control was the most common intervention performed. An average of 214.2 seconds elapsed between LEO care and EMS arrival. No mortality difference was identified between LEO vs EMS care ($p = 0.1631$). Subjects with truncal wounds were more likely to die than those with extremity wounds ($p < 0.00001$).

Conclusion: LEO rendered medical care in half of all OIS incidents, initiating care on average 3.5 minutes prior to EMS arrival. Although no significant mortality difference was noted for LEO versus EMS care, this finding must be interpreted cautiously, as specific interventions, such as extremity hemorrhage control, may have impacted select patients. Future studies are needed to determine optimal LEO care for these patients.

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Developing Prepositioned Burn Care-Specific Disaster Resources for a BMCI

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Introduction: Disaster planning and preparedness for a burn mass casualty incident (BMCI) must consider the needs of those who will be directly involved and support the response to such an event. An aspect of developing a more comprehensive statewide burn disaster program included meeting (regionally) with healthcare coalitions (HCC) to identify gaps in care and deficiencies.

Method: Regularly scheduled (quarterly) HCC meetings are held around the state linking stakeholders representing local hospitals, health departments, emergency medical services (EMS) agencies, and other interested parties. We were able to use the HCCs regional meetings to serve as a platform for conducting focus group research to identify gaps specific to a BMCI and to inform strategy development for a statewide approach. Additionally, we held engagement meetings with state emergency response network (a state agency that coordinates the movement of ambulances to appropriate destinations) and the Burn Medical Directors findings were vetted from the focus groups.

Results: One of the deficiencies identified, included a lack of burn-specific wound care dressings that could support the initial response. Relying on this same process, a consensus was attained for equipment types and quantities, including a kit for storage. Furthermore, a maintenance, supply replacement,