

Results: Scheduled for deployment in mid 2017, this curriculum will be accessible to over 50,000 prehospital, hospital and clinic personnel throughout Maryland and the National Capital Region of the United States, as well as internationally through the web interface. Curriculum exists of twelve modules of didactic and live video-taped demonstrations.

Conclusion: Online education has been established as a well-validated means of content delivery, and offers an ideal means of content distribution to prehospital personnel. The development of an online educational intervention to educate prehospital personnel in critical issues surrounding high consequence emerging infectious diseases, can help ensure better patient care and prehospital EMS system readiness.

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Three-Wheeler Driver Training on Prehospital Emergency Care Service Provision in Anuradhapura Sri Lanka

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Study/Objective: To improve the capacity of Three-Wheeler Drivers (TWDs) on prehospital emergency care provision and patient transport in the City of Anuradhapura.

Background: Since the Tsunami of 2004, the most destructive natural disaster in the country Government of Sri Lanka, together with a number of private organizations, attempted to establish prehospital care service provisions; however they failed to establish such to date. World Health Organization (WHO) recognizes, the development of a lay person first responder program, as the initiation towards establishing proper EMS in resource poor settings. Anuradhapura is geographically the largest district situated 220 Km, (137 mi.) away from the Capital.

Methods: A descriptive study was carried out over a period of two weeks in the Teaching Hospital of Anuradhapura (THA), the only tertiary care center in the district, to identify the contributions made by the TWDs on emergency patient transport. A group of TWD (N=37) was trained on first aid, and some components of BLS and safe patient transport. A training module was developed with the aid of consultant anesthetists, surgeons and triage nurses working in THA. Pre and post assessments were compared to assess the effectiveness of the training program.

Results: Nearly three quarters of patients admitted to the emergency medical and surgical units were transported in TWS (74.7%, n=454). Cardiovascular incidents including MI (14.9% n=68), snakebite and poisoning (3.3%, n=15) were the most common medical emergencies; while Trauma including RTA was the most common surgical emergency (44.9%, 204). Participants for the training program had an average of 13 years (SD 5.4) experience as a TWD, and has handled 12 emergency patients a year (SD=7.95). Nevertheless, none of them has had a previous exposure to training on EMS; Paired t test showed significant improvement on the post training assessment ($t = 16.954$, 95% CI 6.47 to 8.23, $p < 0.00$).

Conclusion: Considering the pattern of emergency patient handling in the area, TWDs could be the best layperson group to train on EMS. Training module should be designed in a way to address the most common emergency conditions.

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Death in an Ambulance in Rural Haiti: Proper Care of the Recently Deceased

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Study/Objective: To describe the issues encountered during the profession of emergency care to a severely injured patient, who ultimately died during transport.

Background: Severely injured patients can die during ambulance transport to a hospital. The appropriate care and disposition of the deceased varies greatly depending on location, and carries significant implications.

Methods: The case was discussed with providers involved in the care of the patient, and the local Haitian staff who assisted in the ultimate disposition of the body.

Results: A severely injured man involved in a motor vehicle collision in rural Haiti was transported by ambulance to the nearest trauma hospital. No identification of the patient or his next of kin was possible. En route, the patient became pulseless despite active resuscitation. On arrival, a non-national physician entered the ambulance and declared the patient deceased, prior to accepting patient care or allowing the patient to leave the ambulance. He then refused to accept the deceased, stating the hospital lacked storage facilities and the resources to identify the next of kin. Consultation with the Haitian director of the clinic where the ambulance was based, led to the decision to return the deceased to the clinic and await the police. Following a police investigation, the deceased was transferred to the national hospital morgue.

Conclusion: Proper care of the deceased is a highly sensitive cultural matter. In this case, the clinic director's advice for future incidents was to await next of kin before transport in all cases. In regions where prehospital care is uncommon, cultural beliefs and legal statutes may not take into account the ramifications of delayed care for the critically injured. Developing an understanding of local, legal and culturally acceptable means of properly caring for severely injured patients who die, is paramount to any international medical operation.

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Does Rotor Wing Evacuation Shorten Total Prehospital Time? Analysis of Data from Southern Israel

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Study/Objective: To evaluate the effect of rotary wing evacuation by the Israeli air force medevac unit on prehospital time in the south of Israel.

Background: Rotor wing medevac operations are common worldwide in military and civilian systems. They potentially allow rapid on-scene arrival of medical personnel and evacuation, especially in remote locations or in cases of difficult land access. Until 2012, the only available rotor wing scene evacuation service for the southern part of the country was provided by the air force medevac unit. The south of Israel only has a level one trauma center, the Soroka hospital located in the city of Beer-Sheva. It receives all airborne evacuations from the region and most of the ground evacuations.

Methods: Data on evacuation times and injury severity, were collected from the Soroka trauma unit, Airborne Evacuation unit reports and from the national EMS archives. Air transports were matched with actual ground cases when available, or with computer extrapolated times, when matching ground transports were unavailable.

Results: In the three-year study period, 263 airborne scene to Soroka hospital evacuations were identified and matched to ground evacuations for each location. Airborne evacuations were shorter in 67.7% of the cases. The average evacuation time reduction was fifteen minutes; 73 of air-evacuated patients (27.7%), had an ISS score of 16 and above.

Conclusion: According to worldwide studies and guidelines, airborne evacuations should be reserved for severely injured where the time to ALS treatment and definitive care in a trauma center can be life-saving. Such evacuations may also be justified for less severe injuries in very remote or limited access locations. Our findings show that although helicopter evacuation allowed a mild reduction in evacuation time, this reduction was probably insignificant for the majority of evacuees who suffered only mild/moderate injuries.

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Prehospital Blood Product Administration Opportunities in Ground Transport ALS EMS Services - A Descriptive Study

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Study/Objective: The purpose of this study was to determine whether opportunities for blood product transfusion by ground EMS services exist, and to compare them with HEMS.

Background: Hemorrhage remains the major cause of preventable death after traumatic injury. Recent data suggests that earlier blood product administration may improve outcomes. Helicopter EMS (HEMS) units are increasingly fielding blood products.

Methods: Single EMS agency retrospective study of ground and air transport between 1/1/2011–12/31/2015, for adult trauma patients transported from the scene of injury, who met predetermined hemodynamic parameters for potential transfusion (heart rate > 120 and/or systolic blood pressure < 90).

Results: There were 7,900 scene trauma ground transports that occurred during the study period, of which 843 were classified as emergent dispatch. Of the 420 (49.8%) patients meeting hemodynamic criteria for transfusion, only 53 (12.6%) had a significant mechanism of injury. Outcome data were available for 51 patients; 17 received blood products during their ED resuscitation. The percentage of patients receiving blood products based upon hemodynamic variables ranged from 1.0% (HR) to 5.9% (SBP) to 38.1% (HR + SBP). 27.3% of penetrating trauma patients were transfused, compared with 35.0% of blunt trauma patients ($P = 1.0$). Three prehospital traumatic arrests occurred; all were transfused and none survived. Of 333 HEMS transports, 74 met hemodynamic criteria for blood transfusion, and 28 received prehospital blood transfusion ($P < .0001$ compared with ground ED transfusion). No difference in transport times was noted between air and ground patients (32.53 ± 13.65 vs 27.63 ± 10.21 ; $P = .26$).

Conclusion: In our study population, hemodynamic parameters alone do not predict need for ED blood product administration. Despite similar transport times, only one-third of HEMS patients meeting hemodynamic criteria for blood administration received prehospital transfusion. Given complex logistical issues involved in prehospital blood product administration, opportunities for ground administration appear limited.

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Are Two Always Better than One? Is a Double Paramedic Prehospital System Necessary and Worth the Cost?

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Study/Objective: To determine if, in our geographic area of the US, the use of a dual paramedic EMS (Emergency Medical Service) system is an important factor in improving prehospital care.

Background: Among many urban EMS systems, there exists a paradigm of belief regarding dual ALS provider ambulances that more advanced training must equal better care. Though much research has focused on the benefits of advanced life support (ALS) versus basic life support (BLS), far fewer studies have been devoted to whether there is any true benefit of dual ALS ambulances. Although seemingly valid on the surface, the foundation for this thinking has rarely been studied and little literature has emerged in support of dual ALS ambulances.

Methods: IRB approved retrospective chart review of 14 EMS provider agencies in the Dallas county area (population >2,300,000) for a year from October 2012–October 2013 looking at ALS calls and their complexity. We looked at a three month sample from October through December 2012 to assess for medical complexity to begin to assess which calls might have needed two or more ALS providers.

Results: 2731 of ALS charts spanning three months were reviewed for complexity with only five procedures or pharmaceutical interventions deemed complex. This resulted in 30 (1.1%)