

Conclusion: The results of this research can help local agencies plan for suicide attack response and also provides a strong foundation for future research to further investigate responses to the varying types of suicide attacks around the world.

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(P2-3) Analysis of Chest Compression Rate and Its Affect on the Quality of Chest Compressions

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Background: In the last 50 years of modern-era cardiopulmonary resuscitation (CPR), survival rates remain dismal, worldwide. International CPR guidelines recommended a compression rate of at least 100 per minute. There is little evidence documenting if and to what extent high compression rates affect the quality of chest compressions.

Objectives: An objective of this study was to evaluate the effect mean compression rate (MCR) had on the overall quality of chest compressions. Investigators hypothesized that MCRs > 110 would result in a smaller percentage of adequate: compressions (PAC); depth (PAD); and recoil (PAR).

Methods: In this observational pilot study, basic life support providers were recruited from prehospital and in-hospital settings to provide 10 minutes of continuous chest compressions, based on the 2005 American Heart Association guidelines. An adequate compression was defined as a compression that was > 35 mm, had full recoil, and correct hand position. Data were recorded using the Laerdal PC Skill reporting System.

Results: Ninety four (91.3%) of 103 participants completed 10 minutes of compressions. Rescuers represented a variety of backgrounds, average age of 35.5 ± 11.0 years. Fifty eight (56.2%) rescuers had performed CPR in the last two years, and 54 (52.4%) practiced prehospital EMS. Providers that did not complete the entire 10 minutes tended to have a higher MCR than those completing 10 minutes, 114.2 ± 19.3 vs. 105.8 ± 15.4 respectively. Within the first two minutes, rescuers with a MCR > 110 delivered 45% of their compressions adequately, compared to 60% when a rescuer's MCR was < 110. This initial disparity was primarily due to decreased PAR, not decreased PAD. After 2 minutes, higher MCRs correlated with decreased PAC, due to decreased PAD.

Conclusions: Data indicates a higher MCR results in decreased PAC, PAD, and PAR, likely attributed to increased rescuer fatigue.

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(P2-4) Prehospital System Development in Jaffna, Sri Lanka

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Introduction: This case study presents the development of a pre-hospital system in Jaffna, Sri Lanka. The case then outlines the development of the system, examines its first year of operations, and investigates possible reasons for the results of the development of the prehospital system in Jaffna. Finally, the case discusses the continued operations of the system.

Methods: This case study qualitatively researches the development of the Jaffna prehospital care system by looking at indicators of success in human resources, technical knowledge and community awareness. The case study also quantitatively examines the utilization and financial performance of the system during its first year of operation.

Results: According to indicators, the implementation of the model and its functioning can arguably be considered successful in terms of utility, and in many regards financial stability. The system has already responded to over 2,000 emergency calls in its first eleven months of operation. The main ambulance and call center has managed to operate at only a \$13.50 USD loss during its first twelve months of operation. It has established quality standards by utilizing trained Emergency Medical Technicians (EMT) and ambulances featuring basic life saving equipment. The system has also integrated itself as a part of the overall health system of the community it is serving.

Conclusions: The system's success in development should be examined as a potential model for implementing prehospital care in a developing and middle-income country setting, while keeping in mind factors outside of the system that were integral to its developmental success.

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(P2-5) Pre- and in-Hospital Time Delays in Acute Stroke Management in Estonia

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Background: Short intervals between stroke onset and thrombolysis determine the efficacy of this procedure. Guidelines for stroke management were introduced in 2005 in the West-Tallinn Stroke Centre and in 2008 in the Tallinn Emergency Medical Services. Since 2006, annual joint stroke meetings of pre- and in-hospital staff have been held. These meetings included analysis of time delays of thrombolized patients.

Objective: The aim of the study was to analyze changes in time delays in acute stroke management and adherence to treatment guidelines.

Methods: Pre- and in-hospital data of all consecutive ischemic stroke patients who received intravenous thrombolytic therapy were recorded prospectively at the Stroke Centre. Data from the implementation period of thrombolysis (2005–2008 i.e., 1st period) were compared to recent data from 2009 to 01 September 2010 (2nd period). The data from all stroke patients presenting to ambulance services were analyzed separately from 01 September 2009 to 01 September 2010. Recorded procedures were compared to current treatment guidelines.

Results: A total of 115 patients received thrombolysis at the Stroke Centre. The Alarm Centre assigned the correct priority

(C, lights and sirens) for 31% of thrombolized patients during the 1st period, and for 80% during the 2nd period. The mean time ambulance personnel spent at the home was 20 minutes during both periods. In-hospital door-to-needle time was < 60 minutes in 11% of patients during the 1st period, and in 56% during the 2nd period. Ambulance personnel treated 1,094 stroke patients during the study. All procedures were performed and documented correctly in 10% of visits. The most frequent deviation from guidelines was under-reported values of blood glucose. In 44.7% of patients, an ECG was performed, which is not required by guidelines.

Conclusions: Acute stroke management improved significantly. Adherence to recently developed stroke guidelines in the ambulance services must be improved.

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(P2-6) Evaluation of Air Rescue Missions Using a Helicopter — Analysis from a German Helicopter Base

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Introduction: In Germany, emergency medical care is provided by ambulances. Emergency physicians also are used in the German rescue system to ensure primary care. Additionally, rescue helicopters are insertable. The rescue helicopter in Dresden covers the city of Dresden and its surrounding areas, with 517,000 inhabitants and distances up to 70 km. The goal of this study was to evaluate emergency cases in helicopter rescue missions according to primary diagnoses and severity of the mission on the basis of NACA Score.

Methods: Data from all emergencies using the German Air Rescue (DRF-Luftrettung) Helicopter Base Dresden were recorded on a standardized protocol and transferred to a central computer database (MEDAT®). Data from all emergency cases between January 2006 and July 2010 were analyzed.

Results: There was a total of 6,310 emergencies during the study period, with a significant increase over time. The helicopter was on-scene within 10.9 minutes. In total, 54% of the patients were male. The rate of female patients > 80 years of age was 64.5%. A total of 63.4% of patients suffered life-threatening injuries or dysfunctions and a NACA score ≥ 4. A total of 7.6% of patients were classified in NACA 6 or 7. The most common cause for rescue missions was an acute coronary syndrome (20.4%). Other frequent diagnoses included brain injury (13.3%), unconsciousness (12.5%), stroke (12.9%), general cerebral convulsion (7.9%), polytrauma (6.4%), and cardiac arrest (5.0%). The rate of prehospital endotracheal intubation was 15.1%. In 1.1% of patients, a thoracic drainage was established.

Conclusions: In recent years the number of helicopter rescue missions increased, along with injury severity. The total number of patients with NACA 6 and 7 was extremely high, and demonstrates the need for an efficient emergency medical rescue system that includes helicopters.

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(P2-7) Patient Distribution during a Mass-Casualty Incident: The 25 February 2009 Turkish Airlines Crash in Amsterdam

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Background: Difficulties have been reported in patient distribution during mass-casualty incidents (MCIs). In this retrospective, descriptive study, the regional Patient Distribution Protocol (PDP) and the management of the patient distribution after the Turkish Airlines airplane crash on 25 February 2009 near Schiphol Airport in Amsterdam were analyzed.

Methods: Analysis of the of PDP involving the 126 surviving victims of the crash, by collecting data on Medical Treatment Capacity (MTC), number of patients received per hospital, triage classification, Injury Severity Scale (ISS) score, secondary transfers, distance from the crash site, and critical mortality rate.

Results: The PDP holds two inconsistent definitions of MTC. The PDP was not followed. Four hospitals received 133–213% of their MTC, and five hospitals received one patient. There were 14 receiving hospitals (distance from crash: 5.8–53.5 km); three hospitals within 20 km of the crash did not receive any patients. Major trauma centers received 89% of the “critical” casualties and 92% of the casualties with ISS score ≥ 16. They also received 10% of “minor” casualties and 29% of casualties with ISS score < 8. Only three patients were secondarily transferred, and no casualties died in, or on the way to, the hospital (critical mortality rate = 0%).

Conclusions: Patient distribution was effective, as secondary transfers were low, and the critical mortality rate was zero. The regional PDP could not be followed during this MCI. Uneven casualty distribution was seen in the hospitals. The regional PDP is inconsistent, and should be updated in a new cooperation between Emergency Services, surrounding hospitals and vSchiphol Airport, a high risk area, for which area-specific PDPs must be designed.

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(P2-8) Analysis of the Performance of Emergency Medical Services Management of 51 Mass-Casualty Incidents in Israel

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Introduction: Between February 2002 and January 2004, a total of 51 terrorism-related mass-casualty incidents (MCIs) occurred in Israel.

Objective: The objective of this study was to analyze data provided in After Action Reports (AAR) held by Magen David Adom (MDA), after each MCI.

Methods: Information relating to the type of MCI, location, number of ambulances dispatched in five-minute intervals from time of notification, and number of casualties evacuated by