

includes Strengths and Areas for Improvement. Upon completion of the Exercise Evaluation Guide, the findings are then utilized to complete the After Action Report for the exercise. This planning document is one tool to assure that children are not neglected in health care based exercises.

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(A151) Non-Traumatic Out-of-Hospital Arrests: Initial Cardiac Arrhythmia, Circadian Differences and Cause of Death

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Background: Out-of-hospital cardiopulmonary arrest (OHA) is an international health issue. There is an urgent need to better understand the key factors that affect OHA survival. Epidemiological surveillance is the first step towards scientific understanding of the problem. This study looks at the profiles of patients who suffered an OHA.

Methodology: In this retrospective study, the medical records of all patients who died upon arrival at Tan Tock Seng Hospital, Emergency Department (TTSH ED) between 1st January 2009 and 31st December 2009 were reviewed. The outcomes include patient demographics, pre-hospital management and the cause of death.

Results: Within the study period, there were a total of 275 OHA, 5 (1.8%) traumatic and 270 (98.2%) non-traumatic cases. Emergency Medical Service (EMS) conveyed 247 (91.5%) of OHA and 23 (8.5%) arrived by self-transport. The incidence of non-traumatic OHA was 14 per 10,000 ED attendees, predominantly male (72.2%). Male were significantly younger than female (63 vs 70 years, $p = 0.002$). The commonest initial cardiac arrhythmia recorded on scene by paramedics was asystole (54.1%), pulseless electrical activity (34.8%) and ventricular fibrillation (11.1%). One hundred sixty-one (59.6%) patients collapsed during the day (0600 – 1759 hours). Patients found in ventricular fibrillation on scene peaked in the morning (1020hours). All OHA were started on cardiopulmonary resuscitation, intubated with laryngeal airway mask, given intravenous adrenaline, and all ventricular fibrillation was electrically defibrillated enroute by the paramedics. Despite continued resuscitative efforts in the ED, all remained in asystole. The State Coroner reviewed 266 (96.7%) OHAs, of which, 96 (36%) were subjected to post mortem. Among patients with asystole at scene, acute coronary syndrome (55.2%), hypertensive heart disease (13%) and bronchopneumonia (5.2%) were the three commonest cause of death. The commonest cause of death for ventricular fibrillation at scene was acute coronary syndrome (76.7%), of which 10 (43.5%) had no pre-existing medical conditions.

Conclusion: In our study population, majority of patients had asystole as their presenting arrhythmia at scene. OHA with ventricular fibrillation demonstrated significant circadian differences and the underlying cause of death was acute coronary syndrome. This knowledge will allow EMS to devise future strategies that have the greatest potential to improve survival outcomes.

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(A152) Comparison of Load Distributing Band and Standard Cardiopulmonary Resuscitation in Patients Presenting with Cardiac Arrest to Emergency Department

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Objective: To compare resuscitation outcomes before and after switching from manual cardiopulmonary resuscitation (CPR) to load-distributing band (LDB) CPR in a multi-center Emergency Departments (ED) trial.

Methods: This is a phased, prospective cohort evaluation with intention-to-treat analysis of adults with non-traumatic cardiac arrest. The intervention is change in the system from manual CPR to LDB-CPR at two Urban EDs. The main outcome measure is survival to hospital discharge, with secondary outcome measures of return of spontaneous circulation (ROSC), survival to hospital admission and neurological outcome at discharge.

Results: A total of 1,011 patients were included in the study, with 459 in the manual CPR phase (January 01, 2004, to August 24, 2007) and 552 patients in the LDB-CPR phase (August 16, 2007, to December 31, 2009). In the LDB phase, the LDB device was applied in 454 patients (82.3%). Patients in the manual CPR and LDB-CPR phases were comparable for mean age, gender and ethnicity. Rates for ROSC were comparable with LDB-CPR (manual 22.4% vs. LDB 35.3%; adjusted odds ratio [OR], 1.07; 95% confidence interval [CI], 0.63-1.83). Survival to hospital admission was increased, Manual 14.2% vs. LDB 19.7%; adjusted OR, 2.50; 95% CI, 1.05-6.00. Survival to hospital discharge was increased Manual 1.3% vs. LDB 3.3%; adjusted OR, 3.99; 95% CI, 1.06-15.02. The number of survivors with Cerebral Performance Category 1 (good) (Manual 1 vs. LDB 12, $p < 0.01$) and Overall Performance Category 1 (good) (Manual 1 vs. LDB 10, $p < 0.01$) was also increased. The Number Needed to Treat (NNT) for 1 survivor was 52 (95% CI, 26-1000).

Conclusion: A resuscitation strategy using LDB-CPR in an ED environment was associated with improved survival to admission and discharge in adults with non-traumatic cardiac arrest.

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(A153) Analysis of Chest Compressions: Measured Using the Quality Compression Index and Performance Disparities among Demographic Characteristics

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Introduction: Cardiopulmonary resuscitation (CPR) guidelines throughout the world stress the importance of high quality chest compressions soon after cardiac arrest as the most significant factor in determining survival. Little evidence exists, internationally, documenting the quality of compressions provided by healthcare providers. In this study investigators sought to determine the

quality of chest compressions delivered by rescuers. It was hypothesized that greater variability in compression quality exists between rescuers than variability in individual rescuers over time.

Methods: In this observational pilot study, basic life support (BLS) providers from prehospital and in-hospital settings were invited to participate in the investigation. Ten minutes of continuous chest compressions were recorded on the Resusci Anne and the Laerdal PC Skillreporting System. An adequate compression was defined as a compression with depth > 38mm, full chest recoil, and correct hand position. The Quality Compression Index (QCI) was developed to factor rate into the characteristics of an adequate compression. QCI is a scaled performance index calculated every 30 seconds.

Results: Providers came from a variety of clinical backgrounds, aged 35.5 ± 11.0 years. Of the 103 total participants, 94 (91.3%) completed 10 minutes of compressions. The most significant degradation in the quality of compressions occurred within the first two minutes. There was greater variability between different rescuers than the variability over time. Mean Square Error (MSE) due to subjects was comparatively greater than the MSE due to time (63.2 vs. 7.68). Performance of CPR, male sex, < 45 years of age, and prehospital background, correlated with higher quality. Time since last BLS certification and the number of times a rescuer completed a BLS class did not correlate with the quality.

Conclusions: Greater variability in the quality of compressions exists between different rescuers than a rescuer over time. Some participants were not able to deliver ideal compressions from the start, when the effects of fatigue were minimal.

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(A154) A Comprehensive Thrombolysis Service for Patients with Acute Ischemic Stroke Administered Prehospital and in an Emergency Department in Northern Taiwan

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Background: Golden time of thrombolysis therapy in acute ischemic stroke is only three hours. Emergency medical services transport and hospital prenotification were not been strengthened in Taiwan.

Aims: In order to elevate the medical quality of acute ischemic stroke, we developed a Quality Control Circle (QCC) focused on a comprehensive thrombolysis service for patients with acute ischemic stroke administered pre-hospital and in an emergency department.

Methods: QCC activities contained early recognition of acute stroke by EMT, hospital prenotification, early emergency management, activate the stroke team, shorten the time to CT scan and report, and early thrombolytic therapy. There were three policy groups via quality method analysis which these methods aimed to improve the efficiency and quality of management process focused on acute ischemic stroke.

Results: Group 1: After the implementation of QCC, the number of times of pre-hospital notification was six in Mar. 2010, achieve the expected standard. Group 2: Responses were received from 160 people for the pretest and 145 people for the posttest. In the pretest and posttest analysis, significant improvement in the attitudes of the physician group ($p < 0.001$) and general behavior ($p < 0.001$) were disclosed. The case-based educational module of acute stroke was better than the traditional oral lecture especially in the nursing group ($p < 0.001$). Group 3: The rate of administering thrombolytic therapy/total ischemic stroke increased from 3.1% to 10.5 % (from Mar to Apr, 2010) after running the organized service. These activities reached the goal of expected standard (5%). All above groups were set up into standardization. The thrombolytic rate in effect maintenance was still around 5% eight months later.

Conclusion: Setting up and running a organized thrombolysis service for patients with acute ischemic stroke prehospital and in the emergency department can be a good method to increase the rate of administration of thrombolytic therapy.

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(A155) Acute Myocardial Infarction with Upper Gastrointestinal Bleeding

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Objective: To report a rare case of Acute Myocardial Infarction (AMI) along with Upper Gastrointestinal bleeding (UGIB).

Presentation and Intervention: A 58 year old male with history of black coloured stools was admitted in ER for chest pain and coffee ground emesis. ECG showed an acute inferior wall MI. After doing the necessary interventions, patient was inserted with a nasogastric tube and started on medications in the Emergency for UGIB followed by immediate endoscopy. Endoscopy confirmed presence of multiple superficial Ulcers in the stomach along with Esophagitis.

Conclusion: We support Esophagogastroduodenoscopy (EGD) prior to cardiac catheterisation in patients with AMI associated with overt Upper GI Bleed. This results in fewer complications as compared with direct catheterization

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(A156) Performance Indicators: Technical, Physical and Mental Readiness

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The purpose of this presentation is to report the results from a series of standardized exercises administered to experienced, disaster-emergency-responders on their “operational readiness.” Based on original research with Olympic athletes, these results include: a frontline-perspective of challenges in a disaster; a quantitative definition of “readiness;” and the creation of related performance indicators. A growing body of literature has drawn attention to the significance of mental-readiness skills in attaining peak performance in challenging situations. For example, we know that top-level athletes have particularly well-honed