

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  $35.5 \pm 11.0$  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

mental-readiness skills and that this fact has often separated those who win a gold medal from those who do not. In recent years, this research has been extended to other occupations, including the field of surgery, policing, and now disaster-emergency-response, and similar results were found. For example, in the study entitled “Gold Medal Policing: Mental Readiness and Performance Excellence” (McDonald, 2006), peak-performing police officers demonstrated excellent technical and physical skills but excelled in mental readiness skills. Traditionally, the focus of most core-competencies has been on the technical and physical skills necessary to perform the duties. Given what we now know about the significance of mental-readiness skills, we can specifically develop and formally recognize these skills. That is, in addition to seeking the technical and physical skills required of a job, particular emphasis is placed on refining the mental skills that ultimately makes the difference between satisfactory performance and peak performance. The goal of any field-training, is to produce a competent, independent, functioning frontline-responder. Such a responder will demonstrate concrete, observable “performance indicators.” Current research on peak performers has been integrated into developing comprehensive performance indicators. This outcome can benefit the recruitment, selection, training and evaluation of professions seeking to enter into the unique world of disaster emergency medicine.

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#### (A157) Interprofessional Education as a Vehicle to Instill Teamwork Mentality for Disaster Preparedness and Response in Healthcare Professional Students

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There is a crucial need for teamwork in disaster management. Gaps in collaborative efforts resulted in significant loss of life and property during recent disasters. Such losses could have been minimized with enhanced teamwork. Unfortunately, the current US healthcare system fosters a fractured structure where health professions work in isolated silos. While coordinated disaster management has done much to overcome this, the silo mentality still inhibits maximal achievement toward the four phases of emergency and disaster preparedness and response. Since 2007, Western University of Health Sciences (Western U) has embarked upon an initiative focusing upon the concept of patient-centered, collaborative care in students from the beginning of the clinical education process. The intent of the program is to instill in all students non-technical competencies that promote teamwork such as communication, collaboration, and understanding scope of practice. The long term vision is to develop a three phase program (case based, team training and clinical experience) that will take the student through an awareness level to an application level of the competencies. The second phase of the program utilizes the TeamSTEPPS® training to instill these competencies in students. The application and assessment of the teaching points will be through community and patient safety exercises that include topics such as disaster preparedness and response. In conjunction with the

TeamSTEPPS® training, the students from the nine professional programs (DO, PA, PT, PharmD, Graduate Nursing, Vet Med, Dental, Podiatry, and Optometry) will also be exposed to principles and practices of disaster response. By intensifying teamwork principles as the basis of disaster preparedness, the response pool for disaster response will be amplified, and future healthcare practitioners will be more aware of teamwork strategies necessary in a disaster setting. The intent of this presentation is to introduce this academic model including early outcome data.

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#### (A158) Preventing Disasters: Public Health Vulnerability Reduction as a Sustainable Adaptation to Climate Change

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**Background:** Global warming is predicted to increase the number and severity of extreme weather events. (IPCC 2007) But we can lessen the effects of these disasters. “Critically important will be factors that directly shape the health of populations such as education, health care, public health prevention and infrastructure.” (IPCC 2007) A comprehensive approach to disaster risk reduction (DRR) has been proposed for climate change adaptation. (Thomalla 2006) DRR is cost-effective. One dollar invested in DRR can save \$2-10 in disaster response and recovery costs. (Mechler 2005) Disasters occur as a result of the combination of population exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity to reduce or cope with the potential negative consequences.

**Discussion:** By reducing human vulnerability to disasters, we can lessen—and at times even prevent—their impact. Vulnerability may be lessened by: 1) reducing human exposures to the hazard by a reduction of human vulnerability, 2) lessening human susceptibility to the hazard, and 3) building resilience to the impact of the hazard. (Keim 2008) Public health disasters are prevented when populations are protected from exposure to the hazard. Public awareness and education can be used to promote a “culture of prevention” and to encourage local prevention activities. Public health disasters may also be mitigated through both structural and social measures undertaken to limit a health hazard’s adverse impact. (IPCC 2007) Community-level public health can play an important part in lessening human vulnerability to climate-related disasters through promotion of “healthy people, healthy homes and healthy, disaster resilience communities.” (Srinivasan 2003)

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#### (A159) Core Competencies for Emergency Preparedness Education for Health Profession Schools

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**Background:** The possibility of natural disasters and public health emergencies coupled with the possibility of terrorism clearly support the need to incorporate emergency preparedness