

health and medical emergency response protocols or programs have prepared health responses to protect the health of communities in such events.

Aim: This study performed a retrospective health risk assessment on two recent events where such impacts unfolded, namely the 2015 southeast Equatorial Asia smoke haze disaster and the 2016 Melbourne thunderstorm asthma epidemic. The primary objective was to test if the characterization of health risk could have been identified earlier and catastrophic levels of mortality and morbidity reduced.

Methods: The study employed a two-staged retrospective health risk characterization assessment. The first step applied the UNISDR (2017) framework for health risk disaster assessment combining a thematic and targeted word literature review to identify the level of health and medical risk knowledge prior to each event. The second stage applied a risk characterization matrix developed using ISO and Australian Health Department semi-quantitative health assessment standards.

Results: The 2015 southeast Equatorial Asia smoke haze disaster risk assessment was characterized as an extreme health risk and the 2016 Melbourne thunderstorm asthma epidemic characterized as a high health risk.

Discussion: Innovative medical response approaches are urgently needed to mitigate the growing health risk to whole populations from natural hazard disasters compounded by deteriorating natural ecosystems and the physical environment. This requires emergency medical and health teams to recognize the two-tailed human health risk from natural disaster hazards, along with investment in advanced planning, environmental risk surveillance, specialist training, technical guidance, and multi-sector coordination.

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An Integral Hospital Response Protocol for Emergencies and Disasters from the Emergency Department

Prof. Elisa N. Saleme^{1,2}, Luz A. De la Sierra MPH², Jose L. Kramis MSM², Pedro Arguelles MD¹, Prof. Hector Montiel¹

1. The American British Cowdray IAP Medical Center, Mexico City, Mexico
2. National Institute of Public Health, Cuernavaca, Mexico

Introduction: Mexico has suffered multiple social and natural events that tested its response capacity. Hospital units of the third level of care are an axis of response and a central reference. Guaranteeing their integral and organized response promotes risk prevention and mitigation strategy in emergencies and disasters.

Aim: To analyze the national and international regulations and the existing documents about emergency and disasters related to a hospital with the identification of the critical actors in the response.

Methods: This research consists of a cross-sectional and descriptive study with a mixed methodology (qualitative and quantitative), that generates a protocol for response in a third level care hospital. Quantitative analysis was carried out using central tendency measurements based on a surveys (training, knowledge) performed in the hospital services that provide a

critical response with the ED in emergencies or disasters (ED, ICU, Supplies, Nursing, Operating Room, Security, Hospital Admission, Crisis Committee). In the quantitative analysis, the staff were interviewed about their experience in responding to previous events (to the same critical services), recognizing importance and points of improvement with a discourse analysis methodology.

Results: With the information collected and based on the protocols of Safe Hospital program (PAHO/WHO) we generated a protocol organized by the ED that involves massive victims.

Discussion: Regulations oblige hospital units to have protocols of action in critical situations linked to Safe Hospital program, so it is a great tool for planning. All the surveyed personnel consider that it is important to have a plan that allows for immediate steps to ensure quality and timely patient care, considering it an ethical and social obligation. Analysis suggests that continuous training and the contribution of an operational plan per service provide security and better prognosis to the victims. The protocol includes all critical response services with a clinical practice guide.

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Inter-Authority and Cross-Border Cooperation Using the Tetra Digital Radio Network

Dr. Tom Silfvast, Mr. Tomi Pekkonen

Helsinki University Hospital, Helsinki, Finland

Introduction: The Tetra digital radio network enables a secure and encrypted environment for verbal and minimal data (SDS, Unit Alert) communication. In Finland (population 5.6 million), the technology has been in use since 2002, and the network currently has close to 40,000 end-users representing several authorities including emergency medical services and health care, police, fire and rescue services, Border Guard, Customs, and defense forces. The national dispatch authority uses the network to dispatch and communicate with EMS, police, and rescue services, and inter-authority talk groups have been designed to enable direct communication between each or all actors as needed. On a daily basis, the network transmits more than 7.5 million messages and 150,000 verbal contacts. The system has proved to be extremely stable during mass casualty incidents needing simultaneous actions by hundreds of individuals representing several authorities. Finland, Sweden, and Norway have common borders in the north, which EMS units routinely cross on a daily basis responding to urgent missions. Both Sweden and Norway have nationally implemented the Tetra communication network, but are using different operators.

Methods: The need to facilitate communication between Tetra end-users in the Nordic countries using each other's networks resulted in an inter-system-interface (ISI) solution enabling network roaming. Between Finland and Norway, the mechanism was launched late in 2017 and is being implemented between Finland and Sweden in 2018.

Results: Pending configuration of necessary talk groups, the system will be functional and in use in 2019.

Discussion: Based on agreements on cross-border emergency assistance between Nordic countries in mass-casualty and other major incidents, the countries have developed national capacities to deploy response teams to neighbor countries for on-scene assistance and medical evacuation. Planning of necessary talk groups is in progress, and practical testing will be performed during the Barents rescue exercise hosted by Sweden in 2019.

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The Integration of a Unique QR[®] Code and Video to Improve the Correct Application of a Hemorrhage-control Tourniquet by a Naïve Population - A Feasibility Study

Dr. Paul Rega¹, Mr. Shaun Vallejo², Mr. John Accumanno³, Dr. Brian Fink¹

1. University of Toledo, Toledo, United States
2. Sparta Systems, Hamilton, United States
3. Cardinal Spellman High School, Bronx, United States

Introduction: The use of tourniquets by the civilian population has been deemed a critical aspect of the initial response during an active shooter situation. Tourniquet deployment in public-access must be accompanied by education. Studies indicate that the act itself is not an intuitive process and enclosed instructions may be inadequate. However, civilians for diverse reasons may not avail themselves of accepted training programs.

Aim: To develop an alternative means of “Just-In-Time” education to enable a naïve responder to apply a commercial tourniquet efficaciously.

Methods: A video (~40 seconds long) was created highlighting the actual application of a C-A-T[®] (Combat Application Tourniquet) on a human model. It was uploaded to YouTube on a public channel. A QR[®] code was generated using <https://www.qr-code-generator.com>, embedding the link for the YouTube[®] video. An appropriately-sized QR[®] code was printed and applied with packaging tape (Scotch[®]) to the exterior wrapping of a C-A-T[®] device. The C-A-T[®] with code was then accessed with the iPhone[®].

Results: With the iPhone[®] camera app activated and focused on the C-A-T's QR[®] code, a request popped-up to open “YouTube.com” in Safari. When pressed, the full-screen video appeared immediately with audio of excellent quality.

Discussion: The use of a QR[®] code and its video link is a feasible option to provide “Just-In-Time” training to a naïve civilian population who are responding to an active shooter situation. This offers the naïve responder two options of immediate education: the enclosed instructions and the QR[®] code. Redundancy in communications is essential in any emergency response. An important limitation of this innovation is the inability to obtain Internet[®] access and therefore, the availability of the enclosed instructions is still critical. Research to prove that this innovation will allow the application of a tourniquet to proceed expeditiously with few errors is currently underway.

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Introduction of Japanese Association of Disaster Medicine (JADM) Disaster Medical Coordination Support Team

Mr. Yoshiki Toyokuni¹, Dr. Yuichi Koido¹, Dr. Hisayoshi Kondo¹, Dr. Tomohiko Mase², Mr. Shota Kasai¹

1. Japanese Association for Disaster Medicine, Chuo-ku, Japan
2. Iwate Medical University, Yahaba, Japan

Introduction: The Japanese Association for Disaster Medicine (JADM) Disaster Medical Coordination Support Team (DMCST) was formed in 2016 when Japan experienced Kumamoto earthquake to support other disaster medical assistance teams in terms of headquarter operation logistics.

Aim: Introducing medical association-based disaster medical support team.

Methods: JADM DMCST was formed by an association member who had experience in disaster medical headquarter operation and logistic support. Disaster medical headquarter tends to have a gap between acute phase and sub-acute phase due to an alternation of disaster medical assistance team. To keep disaster medical management at medical management headquarter, experienced manpower requires. JADM DMCST provided assistance to fill those gaps.

Results: For 2016 Kumamoto Earthquake, 107 members responded as a JADM DMCST, 78 members responded for 2018 West Japan Torrential Rain Disaster. Most of the members responded to the medical headquarter of affected prefecture's, city's, and medical region's headquarters. Members provided logistic support in headquarter operation, gathered medical needs information, helped medical team dispatch coordination, gathered evacuation shelter information, provided heat stroke support for evacuees, assisted deep vein thrombosis management, provided AED delivery operation, and helped statistical information analysis based on WHO standards.

Discussion: JADM DMCST could provide medical management support at each headquarters without time span restrictions which the most of disaster medical assistance team has. Since all members were experienced in disaster medical management, they could connect and keep providing medical assistance to the affected people. At the time of disaster, disaster medical management headquarter is always short handed due to a large amount of incoming information. All this information was managed by the support team. Although JADM DMCST contributed to support headquarter management, each member had to pay for his/her transportation, hotel, food and any devices required for headquarter operations. Therefore, improving member's responding condition is next problem to solve.

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An Introduction to Coastal Wilderness Medicine: BEACCHEs

Dr. Upuli Pahalawatta², Dr. Amanda Dawson¹

1. Central Coast Medical School, University Of Newcastle, Gosford, Australia
2. Central Coast Local Health District, Gosford, Australia

Introduction: Beginning Education at Central Coast Hospitals (BEACCHEs) was developed as an experiential