

management continuum, from planning and mitigation to response and recovery.

Results: The NDPC's responsibilities fall into the categories of all-hazards preparedness, chemical, biological, radioactive, nuclear and explosive (CBRNE) response, and general nursing practice. All-hazards preparedness includes ED staff training, policy and procedure development, and liaising with hospital emergency manager to coordinate hospital-wide efforts. CBRNE response includes the training and maintenance of a patient decontamination team, a high-risk infectious disease team, and their equipment. General nursing practice addresses research, nursing indicators as they apply to disasters, promoting evidence-based practice, and community outreach.

Discussion: A dedicated Nurse Disaster Preparedness Coordinator has allowed transition from intermittent larger exercises to a regular and frequent exercise schedule and better application of full-scale exercises. Overall, the creation of the role has strengthened hospital readiness for mass casualty incidents while alleviating the vast scope of emergency management responsibilities for a large suburban hospital.

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The Role of Emergency Medical Team: Experience Acute Response in Earthquakes and Tsunami at Palu, Central Sulawesi, Indonesia, 2018

*Dr. Handoyo Pramusinto, Dr. Agung Priambodo,
Dr. Andreas Dewanto*

Sardjito Hospital, Yogyakarta, Sleman, Indonesia

Introduction: The natural disasters of the earthquake and tsunami occurred in Palu, on September 28, 2018, at around 17.02 WIB. The earthquake measured 7.7 magnitude with the epicenter at a depth of 10 km in the direction of 27 km northeast of the city of Donggala, followed by a tsunami along the coast of Talise town of Palu. Some of the victims of the disaster have died, and in addition to many deaths, there were reported trauma cases such as fractures, torn wounds, and other injuries where many did not receive medical help.

Aim: To revitalize hospitals in Palu with the medical assistance team.

Methods: Sardjito hospital formed a medical team sent to the disaster area which consisted of 22 members from various disciplines (anesthetists, orthopedic surgeons, general surgeons, neurosurgeons, internal medicine doctors, pediatricians, general practitioners, anesthesia nurses, emergency nurses, surgical room nurses, sanitarians, sterilization officer, technical officers, and nutrition officers). The ICS informed the targets of this emergency response that the following must be accomplished within 2 weeks: revitalize the health care facilities and deliver health care. The sanitarian officer coordinated dealing with the problem of the former corpse in Bhayangkara Hospital by doing disinfectants in the area of the former mortuary. Sardjito Hospital's medical team revitalized health services in Bhayangkara Hospital by providing 24-hour emergency services and surgery.

Results: The medical team of Sardjito general Hospital gave medical service in Bhayangkara Hospital and Torabello Regional Hospital. The total number of treated patients was 158, and most cases of surgery were orthopedics.

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A Sense of Trust, the Norwegian Way of Improving Medical On-Scene Managing Major Tunnel Incidents: An Interview Study

*Johan Hylander Mr.^{1,2}, Britt-Inger Saveman PhD^{1,2},
Lina Gyllencreutz PhD^{1,2}*

1. Department of Surgical and Perioperative Sciences, Center for Disaster Medicine, Umeå University, Umeå, Sweden
2. Arctic Research Centre, Umeå University, Umeå, Sweden

Introduction: Norway is a country with many road tunnels and therefore also has experience with rescue operations in tunnel environments. Major incidents always challenge involved emergency services' management skills. Oslo, Norway has a specially trained medical on-scene commander, a function already existing in police and rescue service. Intra-agency communication and management of personnel are essential factors for a successful rescue effort.

Aim: To investigate the medical management provided by the specially trained Norwegian medical on-scene commander in relation to tunnel incidents.

Methods: Interviews were conducted with six of the seven medical on-scene commanders in Oslo. The collected data were analyzed using qualitative content analysis.

Results: An overarching theme emerged: A need for mutual understanding of the tunnel incident. The medical on-scene commanders established guidelines for response in collaboration with the other emergency services. By creating a sense of trust, the collaboration between the emergency services became more fluent. Socializing outside of work resulted in improved reliance on their counterparts in the other services. The management also included that the medical on-scene commander supervised his personnel on site by providing support using knowledge of the risk object and surrounding area.

Discussion: A forum for the emergency services on-scene commanders where they share ideas and knowledge, improve the on-scene intra-agency communication, and trust is desirable. A culture of trust between the organizations is needed for a mutual understanding. Further research on this subject is needed in other contexts and countries.

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Sleep in Emergency Services Workers: What Do We Know and Why Does It Matter?

*Professor Sally Ferguson¹, A/Professor Brad Aisbett²,
Dr. Alexander Wolkow³, Dr. Sarah Jay²,
A/Professor Nicola Ridgers², Dr. Grace Vincent¹*

1. Central Queensland University, Wayville, Australia
2. Deakin University, Melbourne, Australia
3. Monash University, Melbourne, Australia

Introduction: Emergency service workers perform physical work while being subjected to multiple stressors and adverse, volatile working environments for extended periods. Recent research has highlighted sleep as a significant and potentially modifiable factor impacting operational performance.

Aim: This presentation would (a) examine the existing literature on emergency service workers' sleep quantity and quality during operations, (b) synthesize the operational and environmental factors that impact sleep (e.g., shift start times, shift length, sleeping location, smoke, noise, heat), and (c) assess how sleep impacts aspects of emergency service workers' health and safety, including mental and physical health and performance.

Methods: This presentation would be based on a narrative review conducted by the authors which used a systematic search strategy of health-related databases. Articles that were not relevant, duplicate or from non-peer-reviewed sources were excluded.

Results: Sleep is restricted during emergency service deployments, particularly when shifts have early start times, are long duration, and/or when sleeping in temporary accommodation (e.g., tents, vehicles). Shortened sleep impairs cognitive but not physical performance under simulated emergency services conditions.

Discussion: Depending on the organization and jurisdiction, these findings warrant re-evaluation of existing policies, formalization of beneficial but currently ad-hoc practice, or provide support for current procedures. Work shifts should be structured, wherever possible, to provide regular and sufficient recovery opportunities (rest during and sleep between shifts), especially in dangerous working environments where fatigue-related errors have more severe consequences. For agencies to continue to defend local communities against natural hazards, strategies should be implemented to improve and manage emergency service workers sleep and reduce any adverse impacts on work.

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Social Media in Disasters

Dr. Constance Doyle¹, Dr. Sharon Mace²

1. St Joseph Mercy Hospital, Ann Arbor, MI, United States
2. Cleveland Clinic, Cleveland, OH, United States

Introduction: Individuals may not receive messages via usual sources. Social media such as Facebook, LinkedIn, Twitter and social networking groups have been useful in the notification, information dissemination, safe notices, and reunification.

Methods: A survey of the literature and of social media sites to determine what possibilities of notification, information exchange, marked safe, and reunification information that can be helpful in disasters.

Results: Social media is useful during all phases of a disaster: pre-disaster notification, information dissemination during disasters, and safe notices/reunification post-disaster

Discussion: Social media is internet-based and requires a device that needs power. There is widespread internet access to various forms of social media, such as email, various broadcast sources,

and social networking sites. Social media may provide pre-disaster warnings (weather alert app, reverse 911), evacuation/sheltering information, blocked routes, open gas stations, stores with supplies, hotels/motels with rooms, and shelter locations. Social networking groups were full of messages informing others they could shelter someone fleeing the California wildfires and recent hurricanes. Volunteers can be alerted and responses collected via social media groups. Social media may reach individuals earlier than official announcements, although sometimes accuracy may be in question. Rumor and malignant information source as well as inaccurate information are possible and may need to be managed. Separation is common during disasters. Knowing if their loved ones are safe and well, then reunifying is critical, especially for the vulnerable: children/infants, elderly, and disabled. Reunification systems need safeguards for vulnerable individuals who may be exploited or abused during disasters. In previous disasters (Hurricanes Maria, Mark, and others; California wildfires), when usual communication was nonfunctional due to downed power lines or damaged/destroyed substations; social media was deluged with individuals giving names and identifying information for family and others and asking whether anyone has seen or heard from them.

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Standardized Measurement of Capillary Refill Time using Novel Technology

Dr. Johan Junker¹, Dr. Carl-Oscar Jonson¹, Dr. Joakim Henricson²

1. Center for Disaster Medicine and Traumatology, and Department of Clinical and Experimental Medicine, Linköping University, Linköping, Sweden
2. Division of Drug Research, Department of Medical and Health Sciences, Linköping University, Linköping, Sweden

Introduction: In a patient going into shock, blood is redistributed from the periphery to the central circulation, making an assessment of skin perfusion useful in a prehospital setting. Capillary refill time (CRT) is the time required for a pressure blanched skin site to reperfuse. Currently, CRT is tested by manually applying pressure for 5s to the skin and observing the time before reperfusion. Guidelines state that CRT should be 2–3s in a healthy patient. Shortcomings in this procedure include lack of standardization of pressure, subjective assessment of the time for reperfusion, and not accounting for the patient's skin temperature.

Aim: To develop a standardized objective procedure for testing CRT in the prehospital setting.

Method: The study protocol was approved by the Ethics Committee at Linköping University (M200-07, 2015-99-31). An electro-pneumatic device exerting constant force (9N) over 5s was developed. CRT was measured using the Tissue Viability Imager (Wheelsbridge AB, Sweden) which relies on polarization spectroscopy. To simulate hypothermic conditions, healthy volunteers were subjected to low ambient temperature (8°C). Blood loss was simulated using a custom-built lower body negative pressure (LBNP) chamber. In both scenarios, the CRT test was carried out on three test sites (finger pulp, forehead, and sternum).