

Results: CRT on the finger pulp and sternum was shown to be increased following the hypothermic conditions, but not on the forehead. Skin temperature on the three sites followed the same pattern, with the forehead being virtually unchanged. Tests performed during LBNP revealed an apparent effect on CRT following the simulated blood loss, with prolonged CRT for all sites tested.

Discussion: A successful methodology for objective assessment of CRT was developed, which was validated on healthy volunteers following hypothermia or simulated blood loss. Ongoing work will investigate a combination of hypothermia and blood loss to more accurately simulate the prehospital setting.

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Strategies to Decrease Nurses' Stress in a Federal Medical Station (FMS) Medical Needs Shelter in the U.S. after a Hurricane Disaster

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Introduction: National Disaster Medical System (NDMS) Disaster Medical Assistance Teams (DMATs) are used to provide medical care when local and state resources are overwhelmed in response to natural and human-made disasters. The stress these professionals experience during these events requires intentional and therapeutic interventions to support emotional and mental resilience. Evidence-based interventions will be presented.

Aim: DMATs were deployed after Hurricane Maria to work in a Federal Medical Station (FMS), at the Coliseum Bencito, Manati, Puerto Rico. The FMS was operated through a collaboration of federal agencies and non-government agencies. Community infrastructure was impacted, including two damaged area hospitals, overwhelming available resources with increased patient care demands. The facility provided acute care and short-term services around the clock for a 10-day period, serving several hundred clients, in and around the municipality of Manati.

Methods: Several strategies were utilized to decrease stress levels while nurses worked at the FMS included having a safe and secure environment, sharing stories with peers, taking scheduled breaks, utilizing physical activities (Zumba), and having designated sleeping areas. Additional strategies used for clients were relief supply choices, allowing one person to stay with special needs client, and bereaved care.

Results: Nurses were able to decrease stress levels to themselves and clients while working with community partners providing acute and chronic health care needs at the area where health care services were impacted. Verbal and written feedback was provided during formal and informal meetings as well as receiving client comments on the services given at the facility.

Discussion: Contribution to practice-heightened emotional responses in a disaster setting are expected and should be a focus of intervention even with health care providers. Nurses were able to employ disaster nursing knowledge, including mental

health strategies in this setting and be able to better address the needs of others.

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Study of Guardians' Recognition of Children's Safety After a Disaster

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Introduction: In Japan, after an earthquake, or when there is a heavy downpour, transportation is affected and guardians of children may not be able to reach home in time from the office. In elementary schools, because the guardian is unable to come and pick up the child, the teacher needs to ensure that the children are protected, and therefore, bears enormous responsibility. Since commuting times to work are long, guardians need to instate measures for the safety of their children.

Aim: This study aims to clarify guardians' recognition of children's safety in the event of a disaster, and examine the corresponding challenge they face in terms of commuting distance.

Methods: The subjects are 2,181 guardians of children in four elementary schools near places where landslides had occurred in Hiroshima city in 2014. The questionnaires distributed throughout the school produced 1,027 valid responses. Guardians were divided based on commuting distance into two groups; one of whom were within 3-km commuting distance and the other of more than 3 km. The two groups were compared for their recognition of children's safety using a chi-square test.

Results: Children's safety in school was a concern for 73.9% of guardians. The safety of school buildings in case of a disaster was a cause of concern for 80% of guardians who are close commuters, and 73.9% of guardians whose commute distance is longer ($P = 0.015$). The fact that children cannot return home was a cause of worry for 33.9% of guardians whose workplace is nearby, and for 29.9% whose workplace was distant ($P = 0.044$).

Discussion: Most parents, especially guardians going to work far away, do not recognize that they cannot reach home, and therefore, need to think about providing safety measures for their children in the disaster.

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Study on the Effectiveness Evaluation of Personal Protective Equipment for Health Care Staff Trained with Graphical Interpretation and Operation

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Introduction: Proper use of personal protective equipment (PPE) is essential when facing emerging infectious diseases.

Proper training methods can promote the use of the PPE correctly.

Aim: To explore the effect of the training method of sequential operation training on medical staff to master PPE penetration and removal skills, and to study the memory attenuation after training.

Methods: Fifteen medical staff with no experience of PPE operation in a hospital were trained to wear PPE in accordance with WHO standards by illustration and sequential operation method. The training included 30 minutes of theoretical teaching and 60 minutes of practical exercises. At the end of the training and 1 week after the training, the training objects were evaluated for PPE operation. A 2.5 x 2.5 cm fluorescent agent was applied on 6 parts, such as hands, chest, abdomen, and knees, to simulate contamination. After taking the PPE off, the parts of the whole body and the inner layer of clothing that were fluorescently contaminated were recorded. The whole operation process was recorded by video to evaluate whether the operation was correct. The error rates of two operations and the contamination position and frequency were compared.

Results: The error rate of the operating PPE after training was 18.6%, rising to 31.9% after 1 week ($Z=16.0$, $P<0.05$). After the training, the average number of contaminated PPE removal was 1.96 ± 1.56 , which rose to 2.96 ± 2.03 one month later. The difference was statistically significant ($Z=8.92$, $P<0.05$). The main vulnerable sites are the wrist, chest, abdomen, and left calf.

Discussion: Illustrative sequential operation training is an important means to improve the way for medical staff to wear PPE, but it must be completed more than once to ensure that medical staff can firmly master the skills of wearing and removing PPE.

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A Study on the Process of Donning and Doffing Personal Protective Equipment of Health Care Workers (HCWs) in China

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Introduction: Personal protective equipment (PPE) is a necessary item in the period of unknown and high risk emerging infectious disease. It is not only the necessary requirement of strict isolation but also the last line of defense to protect medical staff.

Aim: To determine the frequency and sites of contamination of personnel during the process of using Chinese PPE.

Methods: Recruit 56 health care workers (HCWs) who worked in front-line clinical to test PPE issued by the Chinese Center for Disease Control for preventing Ebola virus. Eight batches of HCWs were divided to conduct simulations of contaminated PPE removal using fluorescent lotion. Then the frequency and sites of contamination of personnel were recorded after removal of contaminated PPE. The method of visual observation was used to determine contamination.

Results: The frequency of easily contaminated parts included: left hand and wrist (7 times), left calf (7 times), front chest center, left and right chest (6 times each), and left abdomen (5 times). Mistakes in the process of wearing PPE included: clothing touching the ground (20.00%), N95 air mask tightness not checked (13.33%), glove air-tightness not checked (4.44%), protective clothing zipper not checked (4.44%). Mistakes in doffing PPE included: clothes touching the ground or the inner surface is polluted (20.00%), the wrong method of removing N95 mask (14.44%), touching the pollution goggles mirror with hands (12.22%), incomplete washing steps, insufficient time and frequency of hand hygiene (11.11%).

Discussion: It is necessary to carry out training on PPE donning and doffing for Chinese medical workers.

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A Study to Determine the Nature and Risk Factors for Road Traffic Injuries

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Introduction: In 2010, an estimated 1.3 million road traffic injury (RTI) deaths occurred worldwide, accounting for about 2.5% of all deaths. Mortality in serious injuries is 6 times worse in a developing country such as India compared to a developed country. Strengthening and undertaking research on the public health burden and impact and understanding the risk factors of trauma is the need of the hour.

Aim: To identify the nature of injury in terms of causes and severity of injury.

Methods: Using a quantitative approach, a retrospective cross-sectional survey was conducted at the emergency and trauma center in Ram Manohar Lohia (RML) Hospital, New Delhi. The information of all the injured patients seeking health care during the past one year from October 2015 - September 2016 at Emergency and trauma center was collected from the trauma registry forms filled at the time of registration.

Results: A total of 1952 cases of road traffic injury sought health care during the study period. The average number of cases reported per day was five. Maximum of the cases (40%) were reported between 12-6PM. Among the injured, 82% were males and the majority of victims were between 20-30 years age group followed by 30-40 years.

Discussion: Trauma services need to be coordinated in infrastructure and human resources so that the right patient is taken to the right hospital at the right time. This calls for a lead agency at the district, state, and finally national level. Safety education regarding road safety should be imparted, especially to all victims, relatives, and the general public to make the care comprehensive. Students in schools and colleges should also be the target for intense safety education.

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