

decontamination. The patient was extubated and discharged without sequelae.

Results: To our knowledge, no other human cases of transdermal cyanide poisoning have been reported. Cyanide interferes with mitochondrial oxidative phosphorylation pathways to cause toxicity and death if untreated. However, its effects via transdermal exposure are often delayed compared to exposure via more conventional inhalational routes. This makes recognition difficult and compounds the challenge of long turnaround time for blood cyanide tests. Increased transdermal absorption is possible through intact skin if moistened by sweat.

Conclusion: The potential for transdermal HAZMAT absorption from exposure to toxic fumes is underrecognized. It is crucial to maintain vigilance given the challenges in diagnosing transdermal cyanide toxicity and importance of initiating treatment early.

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Current Disaster Triage Methods in Mass Casualty Incidents

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Introduction: Triage in a disaster scenario centers around doing the greatest good for the greatest number of people. There are a variety of triage systems, and to this date there is no US national endorsement of one system because triage is a dynamic procedure and there is no fixed rule for it. The Simple Triage and Rapid Treatment (START); Sort, Assess, Life-saving interventions, Treatment/Transport (SALT); Sacco; CareFlight; JumpSTART; and Pediatric Triage Tape (PTT) triage systems are discussed with emphasis on how they perform.

Method: There are approximately 20 adult and two pediatric triage systems that exist for primary disaster triage. The focus is on six primary triage systems. A literature search was performed using textbooks and original research.

Results: A basic assignment to immediate, delayed, minimal, or expectant can sort a large group of casualties in a matter of minutes, but improper category assignment can lead to under-triage or over-triage.

When assessed by a trained paramedic arriving at a Level 1 pediatric trauma center, SALT was found to be the most accurate triage system at 59% compared to JumpSTART, CareFlight, and TriageSieve. All triage systems exhibited under-triage rates of at least 33% and SALT had the highest over-triage rate at 6%. In another study, the START triage system was found to be 85% sensitive and 86% specific in predicting critical injury in designated trauma patients.

Conclusion: Mass casualty incidents are unfortunately becoming more common as the increasing numbers of violent attacks produce an overwhelming number of victims. One triage process may not work in all disasters, but first responders should be trained to evaluate for the most critical patients in a sea of evolving patient presentations. Furthermore, randomized, controlled

trials in real-world conditions are nearly impossible to perform given the specific circumstances of disasters.

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Delphi Process Recommendations for Pediatric Disaster Medicine Training Curriculum Key Competencies

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Introduction: Children differ from adults, developmentally, physiologically, and psychologically. Additionally, children lack legal agency, and thus rely on adults to gain access to the health-care system and other resources. Though children are often the face of disaster relief, the desperate needs of children can fall through the cracks during disaster response. Many training programs for disaster responders do not give pediatric concerns and issues the appropriate attention they deserve. Pediatric disaster medicine is often minimally addressed in emergency medicine residencies and prehospital provider training. Furthermore, pediatric disaster supplies and protocols are often lacking and insufficient to meet the needs of children during and after disasters.

Method: This is a modified Delphi study. An initial set of pediatric disaster medicine competencies from a systematic review of PubMed, EMBase and the gray literature will be presented to an initial group of Subject Matter Experts (SMEs) comment, additions, and edits. This modified set of competencies will then be distributed to a large group of providers with experience in the field. Through a series of surveys, each competency in the curriculum will be rated. Those competencies which achieve a high overall rating will be reported.

Results: Data collection and analysis expected to be completed by April 2023.

Conclusion: This modified Delphi study will establish and prioritize a set of core competencies for pediatric disaster response based on expert recommendations. The use of such gold standard core competencies to develop discipline-role-specific pediatric disaster training can increase pediatric disaster workforce capacity and competency critically needed to improve pediatric disaster response.

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Disaster Medical Responder's Course for Training of Field Medical Teams in Singapore

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Introduction: Casualties need to be triaged, stabilized and treated before they can be evacuated to the hospital. However, when Field Medical Teams (FMTs) arrive at the First Aid Post (FAP), the staff has to perform outside of their usual settings. There are also differences in the conception of medical operations, organization of the FAP, availability of medical equipment and supply, as well as means of communication, command, and control which can affect their performance and eventually the optimal survival of casualties during a mass casualty incident.

Method: Guided by Kern's model for curriculum development, Disaster Medical Responder's Course (DMRC) was developed. The curriculum focused on disaster response operations and processes; roles and responsibilities; command, control and communication; as well as supplies and resources. The content was taught through interactive lectures and skill stations. Course evaluation was based on the Kirkpatrick Model. A feedback form evaluated the reaction of the participants as to whether the course was relevant, if they learnt new knowledge and skills, and if they could apply these to their roles as FMTs. A tabletop exercise evaluated learning with participants working collaboratively.

Results: DMRC has been sustainable since 2013 with six to eight courses per year. There had been numerous revisions of the content and delivery to keep up-to-date with the latest concept of operations, best practices from the literature, as well as educational methodologies. The last update was in 2020 in response to the COVID-19 pandemic where course schedule and mode of delivery were adjusted to comply with the safe management measures.

Conclusion: FMTs will require training so they can function to their maximum capacity and capability. In Singapore, DMRC is the course for this unique and important training of FMTs. DMRC plays a pivotal role in ensuring the preparedness and operational readiness of FMTs for mass casualty incidents.

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Hypothermia Management, an Evaluation of a Novel Lightweight System.

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Introduction: Accidental hypothermia remains an important contributory factor to the mortality of trauma patients in both civilian and military environments. As a component of the 'lethal triad' it poses a significant problem in patients at risk

of hemorrhage from traumatic injuries. Systems used to mitigate hypothermia in the prehospital environment must strike a balance between weight: size ratio and optimal performance.

Method: This study compared three hypothermia mitigation systems; two leading products and the novel Xtract™SR Heatsaver, over a three-day trial period. Seven subjects were placed in a closed system, held at around 0°C, to promote the onset of mild hypothermia. Individuals with a tympanic temperature recording of < or = 35°C were placed into one of the three systems. Recordings of aural temperature and a numerical perceived comfort score were made every 15-20 minutes to assess rate of rewarming and subject's perceptions of the process. An additional study was carried out by an experienced consultant in military and civilian emergency medicine, on day three of the trial, to determine the ease of clinical assessment of individuals placed inside the Xtract™SR Heatsaver prototype.

Results: On all three days, subjects placed in the Xtract™SR Heatsaver recovered from their hypothermic state faster than those placed in the other systems. Clinical assessment could easily be performed on a patient placed in the Xtract™SR Heatsaver system.

Conclusion: Results demonstrate that the new Xtract™SR Heatsaver system is superior with regards to reducing heat loss, increasing patient comfort and allowing for clinical assessment. The study also highlights the importance of the use of adjuncts such as heat cell blankets and insulation mats alongside hypothermia mitigation systems deployed in the prehospital environment. Furthermore, data gathered provides scope for future research into nuances surrounding the effects and onset of hypothermia.

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Using Ambulatory Care Sensitive Conditions to Assess Primary Health Care Performance during Disasters

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Introduction: Ambulatory care sensitive conditions (ACSCs) are health conditions for which appropriate primary care intervention could prevent hospital admission. ACSC hospitalization rates are a well established parameter for assessing the performance of primary health care (PHC). Although this indicator has been extensively used to monitor the performance of PHC systems in peacetime, its consideration during disasters has been neglected. The World Health Organization (WHO) has acknowledged the importance of PHC in