

term “developing country”, 438 articles were retained. Less than 1% (0.69%) citations in PubMed dealt with developing country disasters. Half of the manuscripts (46.5%) were found to be original research articles (36.1%) or reviews (10.4%), while more than a quarter (29.5%) were commentaries. 97.4% (149/153) of all ‘original research articles’ were Level IV or V evidence. A fifth (20.3%) of the authors of all manuscripts on developing world disasters were from the developing world (82/404); Predominant themes (29.1%) were missions, healthcare provision and humanitarian aid during the acute phase of developing world disasters.

Conclusion: Less than 1% of all disaster-related publications are about developing world disasters. Also, the developed world, authors four-fifths of the articles about developing world disasters, and contributes the predominant perspective. Aid for sustaining long-term disaster research may be a more useful investment in mitigating future disasters, than short-term humanitarian aid missions to the developing world.

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(A108) Pediatric Disasters: Key Elements for Improving Care

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80% of children are seen in non-Pediatric Emergency Departments (EDs). In a disaster, most children and their caregivers will go to the closest or their regularly identified ED for treatment. In disasters, the preservation of the Pediatric Tertiary Infrastructure for the sickest and most injured children is critical. Surge capacity for pediatrics may involve both ante-grade and retrograde distribution of pediatric patients and health care staff to preserve Tertiary capacity. Reverse Triage of stable pediatric patients to other hospitals with adapted units and staff can decompress tertiary facilities. General hospitals can allow an expanded care for pediatric patients. Surge capacity needs to be addressed to allow non-pediatric facilities to surge for pediatric patients. Disaster Credentialing by immediate cross-credentialing of appropriate health care staff needs to be reciprocal and internet based to allow appropriate staff to attend pediatric patients. Pediatric consultants can augment healthcare staff to allow input into expanded care roles. Pre-hospital providers should have more pediatric training. Rotated regional caches of pediatric equipment would expedite safe pediatric disaster site care and pre-hospital transportation to definitive care. Pediatric patients should routinely be included in disaster drills and in all-inclusive disaster plans, rather than in separate drills and plans. Pediatric patients are usually accompanied by caregivers who may need care as well. Secure tracking and reunification of unaccompanied minors needs to be addressed to allow tracking across jurisdictional boundaries. Limited access to data on children, and credentialing of shelter staff would preclude access by anyone without a specific need to know. There are no clear uniform liability statutes for care in declared disasters as well as no uniform agreements for reimbursement for medical care. These issues are an important facet of disaster care that still needs to be addressed.

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(A109) Systematic Literature Review on Pediatric Sleep Disturbance Management Post-Disaster: Implications of Post-Disaster Pediatric Clinical Management in Developing Countries

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Introduction: Sleep disturbances are common symptoms during the immediate and long-term aftermath of exposure of traumatic events. While stress affects sleep in all age groups, due to differences in physiological, psychological, and socio-behavioral risk factors, the clinical management of pediatric patients with sleep disturbances post-disaster might be different. This study aims to systematically review scientific literature on the clinical management of pediatric sleep disturbances post-disaster and its clinical implication in developing countries. **Methods:** A keyword-based, systematic review was conducted for scientific publication in academic and disaster literature databases (Medline, PUBMED, Academic Search Premier, Google Scholar, ELDIS, PsycINFO, PILOTS and RELIEFWEB) until October 2010. Abstracts of all the hits were inspected to remove non-relevant articles, and all relevant articles were reviewed and scored by two reviewers to determine relevancy before being included in the final study database. Quality, relevance, and applicability of the reported literature were examined critically with the EBM level of evidence and EPPHPQ (2003) assessment tool.

Results and Discussion: The literature disproportionately emphasized the clinical effects and psychological impacts of traumatic events on pediatric patients, and most reported studies were reported as a subset within PTSD study literature. Management of younger children, gender differences, clinical effectiveness of cross-disciplinary management modalities, and experiences in middle- and low-income countries were extremely limited. While principles of sleep hygiene and clinical guidelines for management of adult sleep disturbance are available, the application of clinical effectiveness and appropriateness of these guidelines in pediatric population must be examined further.

Conclusion and Implications: Currently, there is limited literature on the acute management of pediatric sleep disturbances post-disaster in developing countries. Evidence-based studies are needed to identify the appropriate clinical approaches to support the pediatric population with sleep disturbances post-disaster.

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(A110) Cardiac Trauma in Children

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Heart trauma is a severe form of thoracic trauma with an incidence of 7–14%. Heart trauma can be either open or blunt, with the latter more prevalent during a disaster. Possible open heart injuries include: (1) pericardial injuries; (2) superficial myocardial and coronary vessels injuries; and (3) penetrating cardiac wounds. The variants of blunt heart trauma include: (1) heart concussion and contusion; (2) rupture of the heart wall and

intracardiac structures; (3) rupture of cusps and cords of the heart valves; and (4) cardiac septa (i.e., post-traumatic heart lesions). The latter are characteristic of injuries caused by a fall, and/or a crushing event. The course of heart trauma is severe, and is complicated by the development of shock and catastrophic hemodynamic disorders due to the sudden occurrence of post-traumatic heart lesions and infarction. Thus, verifying cardiac trauma can be complicated. Diagnosing and assessing the severity of heart trauma requires the measurement of intra-arterial and central venous pressures, chest radiography, electrocardiography, pericardial puncture, echocardiography, magnetic resonance imaging, cardioangiography, and measurement of heart enzymes. One-hundred twenty-seven patients ages 2 to 42 years with open (92.1%) and blunt (7.9%) cardiac trauma were treated. Of these patients, 16.5% were children and teenagers. The challenges of treating heart trauma include simultaneously carrying out anti-shock treatment, surgical operation, and resuscitation measures. If post-traumatic heart lesions are diagnosed, surgical correction should be performed despite cardiac decompression. The use of cardiopulmonary bypass is essential.

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(A111) Major Trauma in a Swedish Paediatric Population – A Survey of Children Admitted to a Neuro Intensive Care Unit (NICU)

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Purpose: To describe the demographics, mechanism, pattern, and severity of injury, prehospital and hospital care (first 24 hours) and the patient outcome in severely injured children in a NICU. This study was made to complete the study of Swedish children admitted to a paediatric intensive care unit (PICU) due to major trauma in the same region and during the same period. **Method:** The medical records of 124 traumatized children (0–16 years of age), admitted to the NICU in Gothenburg 1992–2001, were retrospectively examined. The Injury Severity Score (ISS), Glasgow Paediatric Coma Scale (GSC), Revised Trauma Score (T-RTS/RTS), Paediatric Trauma Score (PTS), Trauma Score Injury Severity Score (TRISS) and Paediatric Risk of Mortality Score (PRISM) estimated the severity of injury.

Results: About 7/100 000 children with severe injuries were admitted to the NICU each year from 1992–2001 inclusive. Epidemiology showed a similar pattern as in other OECD countries. Severity of injury was recorded as an ISS median of 17. Mortality rate in our series was 6%.

Conclusion: Major trauma with admission to a NICU is rare in Swedish children. With management in conjunction with a paediatric centre, these children have a good survival rate.

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(A112) Awareness and Preparedness of Western Children's Hospitals for Disasters

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Disasters involving children are becoming more and more frequent. Thus, optimal preparedness will be a challenge for

every Western pediatric disaster specialist. However, for any appropriate decision to be made, there must be a practical tool for accurately evaluating the levels of specific disaster awareness and preparedness. This tool is based on the idea that child injury prevention campaigns [n = 6] are usable as a platform for the simulation of specific pediatric disaster scenarios, and that different simulations might be able to modulate overall awareness and overall preparedness levels, as well as affect the training provided. Data are gathered from a disaster phase-related (Haddon-Matrix) set of questionnaires answered by key disaster response personnel [n = 58]. Overall awareness for a pediatric disaster scored highest for the “in the world” scenarios, with less, but with similar scores for “in the country” and “in the region” scenarios. Overall preparedness scored low for “in the world”, with higher scores for “in the country” and “in the region”. Both, overall awareness and overall preparedness scored inconsistently for “in the hospital” in the first instance, but later in the matrix, “in the hospital” had the highest scores. In general, basic knowledge about disaster plans is moderate, and knowledge about existence and activation of preparedness measures is above average. Individual position-taking and feelings of personal competency in position-taking is low, especially among junior staff. Currently, only a group of seniors are able report participation in a specific training. This platform is an upgradable tool for the awareness of and preparedness for pediatric disaster assessments, regarding phases, locations, and training, with promising trends for their modulation, especially among junior staff.

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(A113) A Pediatric Surgeon's Viewpoint of a Concealed Disaster

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Childhood is one of the most vulnerable parts in a human's life. Thus, any physical and psychological harm against children requires special attention, especially if inflicted and not accidental. Such children should be considered multi-trauma victims and managed by a multidisciplinary team and trauma algorithm. In this team of specialized carers, the pediatric surgeon will import his/her expertise on general management and treatment and simultaneously refer basic knowledge to more junior doctors that might be in charge in the future. Fifty-eight injured victims (mean age = 1.5 years of age, range = 1 day–18 years of age, male:female ratio = 1:1) were analyzed in this study. Their injuries were subcategorized into battery (13), assault (11), neglect (3), sexual abuse (2), prevention failure (6), career-related (19), and miscellaneous (5). All victims were first seen by a pediatric surgeon before receiving multidisciplinary consultations. Treatment results and modalities varied according to the complexity of the diagnoses requiring a well-trained and skilled pediatric surgeon. Accompanying post-traumatic stress disorders