

development process, when applied, will significantly advance pediatric preparedness. Ultimately, these pediatric specific measures must exist and be used to assess current levels of performance and guide resource allocation and targeted improvement efforts.

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### (A127) 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 pediatric centre, these children have a good survival rate.

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### (A128) 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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### (A129) 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 within the children as well as psychological distress among the parents and grandparents were quite frequent. Besides medico-surgical treatment, empathic care is essential. In the majority of cases the children, benefited from pediatric surgical care.

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### (A130) Advantages of Apparatus of External Fixation in Severe Injuries of Extremities in Children

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**Purpose:** To study advantages of external fixation in severe injuries of extremities in children.

**Material and Method:** 305 children at the age from 3 to 17 years with polytrauma (ISS > 18) were studied. From them skeletal injuries took place in 198 patients, cranioskeletal trauma - 125,

multiple bone fractures – 56, bone fractures + visceral trauma – 24. 44 children had open bone fractures or fractures accompanied with vast defects of soft tissues. Operative interventions in polytrauma are divided into urgent, elective and delayed. Urgent intervention (according to vital indications) are conducted together with anti-shock therapy in massive blood losses (injury of spleen, liver), crushing of lungs, cardiac tamponade, intracranial compression. Elective interventions are performed after stabilization of patient's state and after bringing him out of shock.

**Results:** Sets for external fixation were used in acute period of trauma, in early and late posttraumatic period. Type of sets depended on character of injury and followed steps of treatment. Indications for external fixation in acute period and catabolic phase of traumatic disease were: 1. multiple fragmental fractures, 2. defects of bones, 3. vast defects of soft tissues, 4. long bone fractures accompanied with severe brain trauma. Indications for external fixation in late period were malunion, in postpond – ununion, deformations and shortening of extremities.

**Conclusion:** The usage of external fixation was an effective approach in treatment of children with severe complicated injuries of extremities. Advantages of external fixation in conditions of polytrauma were undisputable: management in force effects, absence of secondary dislocations, good conditions for debridement and follow restorative treatment, mobility of patients.

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### (A131) Surgical Help to Children in Disasters and Wars

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**Purpose:** To describe results of experience in providing surgical aid to children in technological and natural disasters in various countries of the world: Haiti, Algeria, Armenia, Afganistan (three times), Georgia, Egypt, Russia, Indonesia (twice), Iran, Pakistan, India, Japan, Gaza strip, Chechnya, and Yugoslavia.

**Materials and Methods:** The Russian specialized team consisting of highly qualified pediatric specialists (traumatologists, neurosurgeons, plastic surgeons, specialists in wound treatment, anaesthesiologists-reanimatologists and others if necessary) work at local hospitals in the disaster zone. All of them work as volunteers. The most serious pediatric victims were concentrated in one or two regional hospitals. The volunteer specialists work on a twenty-four hour basis together with local doctors. Every day they examine patients, control wound bandaging, and perform surgeries. For long tubular bone fractures metalosteosynthesis is used. Modern techniques are used for Crush syndrome and for extended and purulent wounds (water-based ointments, early autoplasty). Currently, the main difficulty in many cases is primary treatment of extensive wounds with their complete closure and the many indications for amputations. Conservative and sparing techniques are not often used.

**Conclusions:** Pediatric victims in technologic and natural disasters must be helped by pediatric specialists. Our experience in the countries to which we have responded have revealed that there are not enough local specialists who can provide highly professional aid to children. There is no known coordinating structure in the

world to efficiently organize specialized pediatric help to children in disasters and wars.

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### (A132) Animals and Refugees

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Disasters caused by natural and human-made hazards often result in mass-movement of populations. Within these movements, companion and production animals can have significant impacts on the internally displaced persons, refugees, and disaster managers. The humanitarian agency Sphere recently identified and highlighted the fact that animal welfare and protecting the livestock of rural communities (before and after disasters) is crucial to the survival of those disaster-impacted communities. Those who are faced with the decision to move will consider the impact and risk/benefit evaluation of housing, losing companion animals, or the loss of production animals necessary for food security and economic survival. Animal impacts also include the potential to spread zoonotic or animal transboundary diseases, raise security concerns within camps, loss of future breeding stock, feeding, housing, and maintaining accountability. Issues involved with animals and refugees in the evacuation decision process, during movement, and in ad hoc, developing, and mature refugee camps will be discussed.

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### (A133) Emergency Response and Vulnerable Older People: Some Keys for Better Practices

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Emergency response and vulnerable older people: some keys for better practices Danielle Maltais, Ph.D. professor and Taha-Abderrafie Maala, M.Sc student, Social Work Teaching Unit, Department of Human Sciences, University of Quebec in Chicoutimi (UQAC). In the event of a natural or technological disaster, certain groups of people, some of elderly, are more vulnerable than others because they do not have easy access to the community resources. For example, several older people, especially those with a physical or cognitive incapacity and those with a low income, do not generally have a car available which can hinder their evacuation during a flood, an earthquake or a hurricane. Moreover, several elders live in older buildings not built to resist to shocks of all kinds. Older people, particularly those with a physical or cognitive incapacity, those with a low income or those without a social network belong to groups at risk to undergo wounds, to die or develop post-disaster health problems. Considering this, several researchers and national or international government and private as well as non-profit organizations such as World Health Organization, the International Red Cross or HelpAge International produced several guides on intervention aiming to support workers caring for the elderly during a disaster. The purpose of this communication is to present the main outstanding facts and recommendations of these various documents in order to heighten the participants' awareness