

an out-of-hospital CRA in Galicia and were assisted by the emergency system staff, from June 2002 to February 2005 were included.

**Results:** Thirty-one cases were analyzed. Time to CRA-CPR was <10 minutes in 32.2% and >20 minutes in 29.0%. A total of 22.6% of children received bystander CPR. The first recorded rhythm was asystole in 67.7%. Bag-mask ventilation was used in 80.6%, and 87% of patients were intubated. A peripheral venous access was achieved in 67.7% and intraosseous access was used in 16.1% of patients. Statistical analysis indicates a low and non-significant relationship between intubation and bystander CPR with survival. After initial CPR, restoration of spontaneous circulation was achieved in 38.7%. In 32.2%, CPR was unsuccessful. Of 21 patients who arrived at a hospital, 11 were dead before admission (35.5%), and 10 (32.2%) were admitted. Four died in the hospital (12.9%), and six survived to hospital (19.4%).

**Conclusions:** Pediatric CRA characteristics and CPR results in Galicia are comparable to references from other communities. Programs to increase bystander CPR, to improve basic CPR skills of laypersons, and update life support knowledge of healthcare staff.

**Keywords:** cardiorespiratory arrest, cardiopulmonary resuscitation, out-of-hospital; pediatrics

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#### (G56) Pilot Study for a Pediatric Trauma Registry in Greece

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Trauma registries are useful for monitoring the issues regarding serious injuries and for shaping and evaluating relevant health policies and clinical management guidelines. This feasibility study was conducted in three general and pediatric hospitals in Greece (Athens, Thessaloniki, and Patras) between October 2007 and August 2008. The inclusion criteria were: age <18 years, admission <24 hours and diagnosis of trauma, burn, or near drowning. The data were collected by pediatric surgery residents according to a standard questionnaire translated and modified from the US National Pediatric Trauma Registry. A total of 809 cases were reported; 66.6% were boys. Nearly 51% were from falls, followed by 20.6% traffic-related crashes. The

most frequent was injury to the head (27%). Multiple injuries from trauma comprised 5.3% of admitted patients. Trauma admissions represented 7–10% of surgical emergency department visits and remained stable throughout the collection period. Less than 50% of serious accidents resulting in admission occur in "safe" areas (home 42.5%, school 10.4%); while for 66.7% of children injured in a car accident, no safety measures (car seat or safety belt) was used. A total of 69% of cases were transported by private vehicle, while in 74% of cases, no medical action was taken at the scene.

Limitations include the different starting dates for data collection in the three hospitals, while a particular weakness refers to the poor data regarding the deaths of children.

Central registration and triaging of incoming pediatric trauma patients, as well as a re-organization of the EDs is vital. A study focusing on pediatric deaths due to injury should be performed. Continuing training of the EMS personnel on the management of pediatric trauma patients is required. Re-evaluation of the prevention materials to target boys and all education levels should be performed, as well as intensive health promotion for child safety in vehicles.

**Keywords:** Greece; pediatrics; trauma; trauma registry

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#### (G57) Developing Methodologies to Assess Resource Needs and Ability to Provide Interventions and Care for Children in Disasters, Terrorism, and Public Health Emergencies

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**Introduction:** In emergency preparedness, there is the need to prospectively develop an approach to which interventions can be provided with available resources and the maximal amount of clinical effectiveness that can be attained by staff. **Methods:** A panel of pediatric emergency preparedness experts employed a previously validated evidence-based consensus process with a modified Delphi process for topic selection and approval. Interventions were chosen such that resources and staff efficiency would not exceed previously published data for non-disaster emergency care, but allowed for standard emergency preparedness planning alterations in standards of care such as the assumption that usual numbers of staff would care for a disaster surge of four times the usual number of patients.

**Results:** Using standard emergency preparedness assumptions of limited resources and staff efficiency, the panel agreed on both methodologies for resource allocation and feasible interventions. A number of standard interventions would not be feasible and included detailed recording of vital signs, administration of vasoactive agents, prolonged resuscitation, and central venous access.

**Conclusions:** By employing this approach to resource utilization, combined with the unique aspects of pediatric care, we can improve planning and responses. This can be accomplished by understanding the needs of the population, learning how to focus on pediatric needs and the expectations of the community with regard to care of children, adopting what has been learned in prior events, and

developing prospective recommendations regarding essential interventions that can be performed in a disaster.

**Keywords:** emergency preparedness; guidelines; pediatrics; resource utilization

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### (G59) Medical Aid to Children Injured in Traffic Crashes in the Moscow Area

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**Introduction:** In 2008, 2,106 traffic crashes involving children occurred in the Moscow region. The burden of damages in the Moscow area is higher than in the city of Moscow due to the high speeds of automobiles on country roads. Children in the Moscow area have received medical aid at small municipal hospitals.

**Methods:** Since 2004, children have been evacuated from the crash site to municipal hospitals by emergency medical services. After stabilization, patients are transported by a specialized brigade of the Centre for Disaster Medicine by automobile or helicopter to the children's hospital of Moscow. The crew of medical helicopters consists of two pilots and an expert in resuscitation. The automobile is equipped with a portable analyzer of respiratory gases, electrolytes of blood, and a satellite antenna for telemedical consultations.

**Results:** From 2004–2008, 645 children were consulted. Of these, 592 were hospitalized in Moscow clinics; 499 were evacuated by automobile, and 97 by helicopter. Of the children, 57% were evacuated within the first day after trauma in 2004, compared to 83% in 2008. At the beginning of the program (2003), in the Moscow area, 108 of 1,331 children died (index -7.50), this index was 5.58 in 2008.

**Conclusions:** The medical evacuation children from the Moscow area to pediatric clinics with disaster medicine services in the city of Moscow has lowered the consequences of traffic crashes.

**Keywords:** children; emergency medical aid; medical evacuation; pediatrics; traffic crashes

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## Keynote 5

### Psychosocial Activities with Children Impacted by War and Natural Disasters

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Armed conflicts and natural disasters affect children in many ways. In addition to their direct effects on children's physical and psychological health, wars and natural disasters

cause the destruction of natural resources, health and social services, planned development, and cause increased poverty—all of which worsen children's well-being. Children's chances for optimal development are severely disrupted. Choice and design of psychosocial interventions must be based on the assessment of a number of factors such as: type of the event, number of individuals affected/number of responders available, victim's characteristics (their age, risk factors, cultural background), sociopolitical setting, etc.

The emphasis of the presentation will be on specific challenges in designing psychosocial interventions following a "one time event", such as most natural disasters, compared to chronic (prolonged duration) and/or cumulative (frequent and intense) traumatization, such as armed conflicts.

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## Keynote 6

### Keeping Abreast of Change

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We all can agree that Human Survival and Health are the objectives and the measures of success of disaster reduction and humanitarian assistance. A majority, if not all of us, also would agree that disasters and crises reflect the ways societies structure themselves and allocate their resources. With these two points in mind I would submit that any disaster, indeed, any crisis, is characterized by changes of the status quo. Change (in the weather, in the tectonic fault, in the structure of a building, etc.) is one determinant of the event, and changes are the main features of its impact: loss of lives and assets, increase in suffering, etc. Change brings risks and opportunities that must be tackled. The faster the change, the higher the risk.

There are three major drivers of epidemiological change: (1) climate and environmental changes; (2) demographic and social transition; and (3) economic and geopolitical transition. Each of these drivers carries specific factors of risk. For all three, we can recognize common (human) primary causes. Each of the three interacts with the others in patterns of increasing complexity and widening scope, e.g., the interaction between climate change, migration, and financial crisis.

Climate and environmental change brings: (1) Increases in natural and man-made hazards, such as new, extreme climatic events; loss of the environment's carrying capacity, e.g., in water and cultivable soil that result in "resource wars"); and changes in vectors' ecologies; and (2) increases in vulnerabilities, such as the absence of collective memory, greater environmental fragility, and forced movements and concentrations of people. The need for new coping/mitigating strategies is self-evident, but it meets with two primary obstacles: who will DESIGN them? and Who is READY to PAY for them?

Demographic and social transition brings: (1) Increases in man-made hazards including: accelerated social mobility,