

receive satisfactory treatment in disaster situations. Experience has shown that mortality and disabilities in children are much less if they are treated by pediatric specialists. In the world, there currently is only one specialized team (in Russia) that provides the medical aid to children in disasters, wars, and terrorist events. Similar teams must be created for regional and national needs under the World Health Organization aegis in various countries. In regions, that often are exposed to various disasters, training courses should be organized to teach rescuers, adult general surgeons, and traumatologists how to provide medical aid to children.

Keywords: children; pediatric specialists; preparedness; terrorism; training

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Hospital-Based Pediatric Disaster Triage Algorithm: A Collaborative Effort from New York City's Pediatric Disaster Advisory Group

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Objective: Recognizing that children become high-risk patients during disasters, a committee was formed to develop a hospital-based, pediatric triage algorithm.

Methods: Local healthcare providers with expertise in pediatric emergency medicine, emergency medicine, public health and planning, infectious diseases, and social work corroborated in a Delphi-like process to develop recommendations.

Results: Two salient elements of care emerged from this process: (1) clinical criteria to determine triage priorities; and (2) patient flow process. This model was presented in a regional disaster-planning meeting for public comments and recommendations.

This is multi-tiered triage process that separates patients initially, using a visual assessment. An iterative second assessment is made from a more detailed history and a physical examination. Patient care and management is provided at each tier. If decontamination is needed, it will be performed prior to definitive identification and the separation of patients. In addition, the algorithm provides a triage process for hospitals that routinely care for children, as well as those that do not. Concise supplemental information is provided to bridge the pediatric knowledge of the providers. **Conclusion:** This is one of the first known hospital-based triage algorithms for pediatric disasters and serves as a framework for identifying patients based on their level of acuity. It includes basic pediatric, physiological, and developmental guidelines for staff who are unfamiliar with caring for pediatric patients.

Keywords: algorithm; disaster; hospital; pediatric; triage

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Surgical Treatment of Soft Tissues and Bones Complicated with Surgical Infection in Children in Case of Mass Casualties

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Objective: The purpose of this study was to increase the effectiveness of treatment of soft tissue and bone wounds that are complicated by infection in children in case of mass casualties by applying primary and early reconstructive or plastic surgery.

Methods: A total of 477 child victims of earthquakes were treated at various sites. The children were admitted to the nearest medical institution and were treated by a mobile, pediatric, multifunctional team made up of highly qualified specialists. All children had large, soft tissue wounds at various locations on their bodies.

Results: In 175 children (36.7%), crush syndrome was diagnosed. In 43 children (9.0%), there were open fractures of long bones. Mistakes typical for the first stage of surgical treatment have been outlined. Steps for complex wound treatment include: (1) radical surgical wound treatment; (2) intensive therapy; (3) extracorporeal detoxication; (4) topical wound treatment with multicomponent ointments; (5) osteosynthesis with outer fixation; and (6) early reconstructive and plastic surgeries. Healing with primary intension was seen in 96.6% cases. In 40 patients (8.4%) there was consolidation of long bone fractures. In three cases, Ilizarov technique was applied successfully.

Conclusion: Complex treatment of wounds of soft tissues and bones in child victims of earthquakes must be conducted by pediatric, multifunctional teams at hospitals. Primary and early reconstructive and plastic surgeries minimize the rate of disability and restore anatomical and functional integrity of the damaged areas.

Keywords: children; earthquake; pediatrics; reconstructive surgery; soft tissues

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Three Years of Experience in the Children Referral System in Georgia

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Introduction: The Georgian Center of Disaster Medicine provides transportation for critically ill patients of all ages. Since 2001, thousands of patients have been transported from hospitals in nearly every region in Georgia. Medical teams are specially trained in current standards of basic life support, advanced life support, trauma management, and pediatric advanced life support. Six ambulances are supplied with all the required equipment and medications.

This presentation reports on three years (2003–2005) of experience of the system's experience with the pediatric population and emphasizes the importance and significance of such a referral system. The pediatric population in Georgia includes children from ages one month to 14 years.

Results: The total number of children cared for by the Georgian Center of Disaster Medicine during the three years was 1,126. In 2003, the total number was 264 (23.4%); in 2004, the total number was 448 (39.8%); and in 2005, the total was 414 (36.7%).

The age distribution during the three years was divided into three age groups: (1) 311 patients (27.6%) were <1 year old; (2) 248 patients (22.0%) were 1–3 years old; and (3) 567 patients (50.3%) were 3–14 years old.

There was a total of 1,009 discharges (89.6%) and 117 deaths (10.4%). Of these deaths, 38 (14.3%) occurred in 2003, 45 (10.0%) in 2004, and 34 (8.2%) in 2005. Of the 1,126 children attended to during the three-year period 963 (85.5%) were transported. A total of 163 (14.4%) underwent observation, management, and stabilization without requiring transportation.

Conclusions: Medical teams are providing safe transportation of critically ill patients due to the skilled medical staff and necessary equipment resulting in improved patient outcomes. Since 2003, there has been a dramatic extension of this activity and considerable reduction in deaths during transportation. Of the deaths that occurred soon after the arrival of transport team, 52.0% were due to the terminal conditions of the patients caused by major trauma, head trauma, poisoning, sepsis, and burns.

Keywords: Georgia; hospitals; medical teams; pediatric; transportation
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Neurotrauma Structure: Its Diagnostic Peculiarities, and Medical Aid to Children in Various Earthquakes

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Introduction: The quality of treatment in children with neurotrauma depends on timely diagnostics and qualified medical aid. The purpose of this study was to determine the role of professional and timely applied medical aid to child victims of earthquakes suffering from neurotrauma.

Methods: A total of 486 children with neurotrauma (one month to 16 years of age) who survived earthquakes in Algeria (2003), Pakistan (2005), and Indonesia (2006) were examined. Of these, 35 were operated on for depressed skull fractures, eight were operated on for intracranial hematomas, and 24 were operated on for spine fractures and spinal cord trauma.

Results: In 61% of hospitalized children, light brain injury (BI) was observed. Many simply received a dressing on their heads, and then were sent home due to mass casualties. Children with intracranial hematomas were operated on within the first hours or days after the trauma for the most part—about 50% died. During daily rounds in the hospitals, a few children with subacute intracranial hematoma were taken for treatment.

Conclusions: To have better results in children with neurotrauma, hospitals must timely invite neurotraumatolo-

gists to participate in the care delivered. It is essential to early identify depression skull fractures and to provide adequate surgical treatment. Specialists must repeatedly examine all of the children with head traumas within 1–2 days after the event. Unsatisfactory results in children with neurotrauma were due to late diagnosis, late surgery, lack of specialists or equipment, and inadequate transportation.

Keywords: children; earthquakes; hospital; neurotrauma; surgery
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Responding to Biological and Radiological Events: Pediatric Simulation Using the US Strategic National Stockpile Ventilators for Resuscitation

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In response to a demonstrated lack of training in pediatric ventilator care, a training program for physicians, nurses, and respiratory therapists in Chicago, Illinois, was developed by the Children's Memorial Hospital to integrate pediatric simulators and ventilators into a mock biological event. Federal preparedness funds for the program were provided by the Chicago Department of Public Health. Ninety clinicians from fifteen Chicago hospitals attended one of seven three-hour training sessions in August and September, 2006.

Objectives of the simulation program were to discuss pediatric specific issues related to biological and radiological casualties, list the category A bioterrorism agents, identify patients with potential for respiratory failure and initiate mechanical ventilation in children using LP-10 and UniVent Eagle SNS ventilators. Didactic lectures included pediatric issues in biological and radiological agents & ventilator specific content. Psychomotor training included small group sessions with a "hands on" simulation of a botulinum toxin attack with subsequent need for ventilation. Participants responded to the changes in the simulated patient's condition and prepared ventilators with appropriate pediatric settings.

Hospitals were encouraged to register for the sessions in groups to enhance "team training" and the opportunity to simulate a biologic event with co-workers in a non-stressful environment was very valuable.

Pediatric emergency physicians and a respiratory therapist instructed and provided ventilator manuals, a Bio-Terry Quick-Vu II reference card (MASCAP, Inc.) and an Emergency Management Pocket Guide on Radiological Terrorism, (CDC, 2005).

Of the participants, 90% rated the program's achievement of objectives as "Strongly Agree" with the remaining 10% rating it as "Agree".

Keywords: biological; pediatrics; radiological; resuscitation; Strategic National Stockpile; United States; ventilator

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