Keywords: anti-personnel landmines; hospitals, role of; injuries; landmines, clearing of; planning

PN1-5
Modern Technology for the Removal of Landmines

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Outline:
1. Global Problem
2. Current technology
3. Why current technology is not adequate
4. The characteristics of the proper technology
5. JAHDS efforts

The most reliable estimates of the number of landmines currently in the ground in post-war areas in the world today range from 60 to 110 million in 70 different countries. However, this quantity of mines is not the point. A family of four requires 1/2 hectare (1/2 the size of a soccer field) of land to produce a ration of rice that will allow them to survive for one year. If there has been even one mine incident in their 1/2 hectare of land, the local people will be afraid to use it for farming purposes. So, it doesn't matter if the 1/2 hectare of land in question contains one mine or 100 mines. The local people are denied the use of that arable land for their survival.

The most effective demining technique in the world, at the present time, is detection of a metal signal with a World War II vintage metal detector, location of the landmine with a prodder, and destruction of the landmine where it is found with an explosive charge.

The major problem with this technique is twofold. First, the metal detector cannot tell the difference between a shell fragment, a piece of barbed wire, a soda can — common examples of false positives, and a landmine. The current ratio of false positives to actual landmines detected runs from about 150 to 450. You can imagine how this slows the process of landmine clearance to a crawl.

The appropriate hand-held detection technology, which does not yet exist in a field-practical form in the world, must be able to determine the size, shape, material composition, and orientation of an object that causes a signal register in a detector.

For the past seven years, JAHDS has been researching this problem, expending great effort, both in engineering time and money, as well as in dispatching technical advisors to mine-affected countries to understand this problem. We hope to field a prototype within this year that will satisfy the above-mentioned, appropriate criteria.

Keywords: anti-personnel mines; demining; detection; false positives; land, arable; landmines; removal

Plenary Session-I
Children, Disasters, and Wars
Monday, 10 May, 15:50–18:00 hours
Chair: ***Leonid Rochal, Ernesto Pretto***

PL1-1
Plenary Session 1-1: Problems of Children in Disasters and Wars

Prof. Leonid M. Roshal, MD, PhD, DrSC (Russia)
Chair, International Task Force on Pediatric Disaster Medicine and Wars, World Association for Disaster and Emergency Medicine (WADEM)

Our previous experience in disasters and military and political conflicts indicates that the medical aid provided to children must be specialized and delivered as close to the disaster site as is possible. It has been useful to teach and train rescuers, paramedical personnel, physicians participating in the first responses about the peculiarities of rendering medical aid to children; especially those associated with the prophylaxis and treatment of the crush-syndrome, cardiac and pulmonary insufficiency, infusion therapy, psychological help, and cosmetic repair. The most positive results occur when the afflicted children are concentrated in specialized departments provided with the proper staff and equipment.

Children's doctors usually begin by this work — enthusiasts. Currently, along with the actively functioning International Committee for Children in Disasters, we began organizing regional committees for the countries of the Central and South America, Africa, Middle Asia, and Asia.

We hope that this Congress will show its interest in this problem.

Keywords: children; conflict; crush syndrome; disasters; insufficiency, cardiac/respiratory; regional committees; special care; war

PL1-3
Treatment of Children with Severe Compression Trauma

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International Committee for Children in Disasters, WADEM

During earthquakes in Armenia (1988), Georgia (1989), and Sakhalin Island (1995), the incidence of compression injuries in hospitalized patients was 24%. Fractures of extremities prevailed in 90% of cases, and they were accompanied by ischemic neuritis. Fractures of the lower extremities were 3-4 times higher than were those of upper extremities and fractures of the long tubular bones were found in 15.6% of the injured.

The most common surgical intervention performed was fasciotomy (32.9%). Purulent surgical complications developed in 11.0% of children after fasciotomy.

The best results were achieved using "subcutaneous" technique. The number of amputations in children with compression trauma was 2.1% in Armenia and 10.7% in

Sakhalin Island.

Both conservative and surgical techniques were used in treatment of children with compression injuries. The most appropriate methods used included skeletal extraction, intrafocci, and closed intramedular osteosynthesis.

According to our experience, multi-organ functional failure as a manifestation of crush syndrome complicated treatment in 21.6% of the children. In the most difficult cases, the method of extracorporeal blood purification was used in 10.1% of children with the crush syndrome. The mortality in this group was 10.7%.

Conclusion: Compression trauma in children is characterized by high incidence of disabilities and high mortality.

Keywords: children; compression injuries; crush syndrome; earthquake; fractures; multi-organ failure; orthopedics; purification, blood; techniques, surgical; treatment

PL1-4
Children in Disaster

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Children in disaster present emergency workers with specific problems. The youngsters are not "mini adults", and cannot be treated as such. Yet, equipment prepared for use at major incidents rarely includes more than a token item or two designed specifically for use with a child. Most medical response teams would be able to deal with a handful of young victims, but very few could manage large numbers of child casualties.

This paper will discuss the history of disaster in Britain to illustrate how often large numbers of young victims can be expected. At Rotherham, in 1841, 64 children were drowned as they celebrated the launching of a ship. A few years later, at Yarmouth in 1845, 79 people, mostly children, died when the newly opened bridge they were standing on collapsed. At a Sunderland theatre in 1883, 183 children were killed in a crush as they rushed to the building's single exit after a magic show. And when a TNT plant exploded in East London in 1917, at least one-third of the 73 fatalities and 1,000 injured were children. In more recent years, we have witnessed the horror of Aberfan, where a slagheap swept down a mountainside, engulfing a school and killing 116 children and 28 adults. Few will have forgotten the horror of Dunblaine, where 17 infant school children and their teacher were shot dead in the school's gymnasium.

This paper will highlight how responders to disaster must expect that a significant proportion of victims will be children, and will examine the special needs of paediatric patients. It will argue for the provision of emergency paediatric packs to be maintained and available at strategic locations. It also will call for the availability of mobile paediatric medical teams. These specialist teams would assist at incidents involving groups of children, particularly those with physical handicaps or learning difficulties, but with minimal injuries, where transport to an Accident Department would be inappropriate.

Keywords: children; disasters; equipment; history; paediatrics; supplies, cache of; teams, mobile

PL1-6
Earthquake in Armenia — 10 years Afterward

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As the result of the devastating earthquake in Armenia in December 1988, there were more than 3,000 injured children, which comprised 27.2% of all victims. Most of the injured children received their primary help and treatment in different hospitals of Armenia and the former Soviet Union. Later, the most severely injured children underwent orthopedic and rehabilitation treatment, as well as fitting with prostheses in different hospitals of the USA, Germany, France, Israel, and Canada. Long-term follow-up and treatment were needed for patients with limb amputations (57 kids), spinal cord injuries (7 patients), and children with severe limb paralyses after crush-injury (>150 patients).

During past 10 years, all of the injured children recovered psychologically and physically as much as possible. With the help of different international organizations (International Federation of Red Cross and Red Crescent Societies, German and Bavarian Red Cross, MSF, etc.) and the Governments of different countries, many general and children's hospitals, rehabilitation centers, and prosthetic-orthotic workshops were built and equipped in earthquake area. At the same time, many newly founded, local non-governmental organizations (NGOs) continue psychological and social rehabilitation of earthquake victims and children with different types of disabilities.

Keywords: Armenia; earthquake, Armenia; children; non-governmental organizations (NGOs); orthotics; orthopedic; primary treatment; prosthetics; rehabilitation; support

PL1-7
Rehabilitation of Disabled Children Who Suffered During Earthquakes

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Experience from consistent medical care administered to children who suffered severe compression injuries during the earthquakes in Armenia in 1988, Georgia in 1990, and on the island of Sakhalin in 1995, provides evidence of residual pathological changes. Approximately 24% of the hospitalized patients experienced compression trauma during the earthquakes, and injuries of the extremities prevailed in 90% of the cases. There were 2,645 children