hospitalized after the earthquake in Armenia, and only 56 of them (2.1 %) had amputations. During the Sakhalin earthquake, the number of amputations was 12 out of 112 admitted patients (9%). Each of these children needed correction and changes in their prosthetics 1-3 times during the year following the provision of the first prosthetics. Later, the prosthesis exchange was done within 6-12 months during the child's growth period.

Disabled children had medical and social rehabilitation in hospitals and camps for recovery treatment, as well as education and proper professional orientation. Rehabilitation became more difficult when a child had lost his parents, or s/he had to change residence and his/her usual environment was disturbed. The optimal rehabilitation of the patients who suffered during disasters requires advanced planning for the long-term and expensive state programs that aim at the social rehabilitation of invalids.

Keywords: amputations; children; disability; fractures; injuries, compression; prosthetics; rehabilitation; trauma

PL-1-8
Rehabilitation of Children with Crush Syndrome

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We observed 17 children, age 2 to 13 years injured at the time of the earthquake. All children had crush syndrome of extremities of various degree of weight. Five children had fractures of extremities, and nine children had acute renal failure with the duration of anuria from 3 to 22 days. All of the wounded had traumatic or hypovolemic shock. During the period of intensive therapy of the children, 77 operations including seven amputations of lower extremities in six of the children, 33 procedures of hemodialysis, 20 episodes of plasmapheresis, three hemofiltrations, and 60 hyperbaric oxygen treatments were executed. A total of 143 litres of fluids and preparations of blood were administered.

The stages of the children's rehabilitation can be divided into three parts: 1) functional (including mobility); 2) psychological; and 3) social adaptation. The elements of the medical physical culture began from the first days of their stay in the intensive care department. It was included respiratory exercises, massage of intact parts of the body with the subsequent expansion of the intensity and duration of the procedures. The complex of physiotherapeutic procedures included variants of microwave therapy, ionophoresis of medicine preparations, lazer therapy, and others. To a smaller degree water procedures were used. In connection with the development of neuropathy of the lower extremities of 11 of the children, special recover therapy was conducted by common orthopedic and neuropathological specialists. Of the four children with amputated extremities, the functional recovery depended on qualitative formation of individual prostheses. This work was executed for three months in Japan under the invitation of its government. At end of the treatment, each of the four invalids could move independently.

Very important for the successful treatment of these children was the provision of psychological support without exceptions for all of the children. The younger children developed psychological damage easier; it was manifested in the first weeks by psychoasthenia, and was activated in parallel with recovery of the children, expansion their mobility and other functional capabilities. The older children had suffered the sudden loss their homes, relatives, and customary image of life. Some developed advanced reactive conditions with a prevalence of depressive syndromes. The help of psychiatrists appeared the most valuable in acute period of treatment. The most important positive psychological factor was the appearance of relatives (live parents were found only for four of the 17 children) whose presence had a stabilizing effect on the children's psyche.

The most complex problems were the social problems. Only with help the directed policy of the State, the chapter of Khabarovsk region's administration managed overcome the difficulties. All of the children found homes and developed a sense of life and reliance for the future.

Keywords: amputations; children; crush syndrome; depression; loss; psychosocial reactions; rehabilitation; social condition

General Session-V
Complex Disasters
Monday, 10 May, 16:00–17:30 hours
Chair: ***Eric Noji, Maseteru Shindo***

G-20
Advance Deployment and Organization of Activity of a Field Multiprofile Hospital (FMH) in Local Armed Conflicts

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In health responses to military operations, Field Multiprofile Hospitals (FMH) have a particularly specific role. This paper presents studies of the types of casualties, the characteristic properties of the affected people cohort, and the capacity for evacuation.

Medical care delivery to the affected in armed conflicts is not a general practice for civilian medical units, including the Field Multiprofile Hospital (FMH) of ARCDM "Zaschita". The FMH had a unique experience with such military activity during the conflict in the Chechen Republic from 1994-1995. In those years, the FMH teams worked in localities such as Mozdok, Tolstoi-Yurt, Znamensky, and Grozny. The teams participated in health response activities following acts of terrorism in Budenovsk, on the Chechen-Daghestan border (Pervomajsky), and during the military operations within the area of the Sunzhi station (1996).

During the period of work, depending on the specific medico-tactical situation, the FMHs tasks, the principals of its operation, and the variants of deployment have been amended accordingly.

By summarizing the experience gained, three basic variants of the FMHs operation in an armed conflict were identified:

1) Deployment of a surgical hospital on the basis of a local medical facility;
2) Deployment of a self-supported surgical hospital; and
3) Deployment of a self-supported multiprofile hospital.

Our experience indicates that the FMH of ARCDM "Zaschita" is well adapted for operation under such conditions, as its organizational and staff structure and medical equipment promote administering any type of medical care, including secondary care. The chief of FMH is capable of urgent responses to the changing situation, and can modify the task set to that medical unit in a timely fashion.

Keywords: armed conflicts; casualties; deployment; evacuation; field multiprofile hospital; hospital; military operations; organization; war

G-21
Effect of a Refugee Crisis on District Health Care: A Case Study from Karagwe District, Tanzania

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Background: In April 1994, approximately 160,000 Rwandan refugees suddenly arrived in the Karagwe District in NorthWestern. The refugees settled in large refugee camps in the district where they stayed until their sudden repatriation in December 1996. Medical assistance to the refugees was provided by several international organizations in co-operations with the United Nations High Commissioner for Refugees (UNHCR). The crisis had profound positive and negative socio-economic effects on the host society. Less is known about the impacts on the health care of the host society. The present study focuses on the effects of the crisis on Nyakahanga Hospital, the district hospital of Karagwe.

Methods: During a field visit to Nyakahanga in February–March 1998, statistical data from hospital records were collected and analysed. Structured and unstructured interviews were conducted with key informants and staff who had worked at Nyakahanga throughout the crisis. The following indicators of quality of obstetric care were analysed: 1) in-hospital maternal deaths; 2) stillbirth rates; 3) the percentage of deliveries done by Caesarian sections; and 4) the number of uterine ruptures.

Results: The most striking effects of the refugee crisis on the hospital was a severe loss of experienced medical personnel, especially qualified midwifes. Most of these health workers left for better-paying employment in the refugee camps. Thus, an increased workload, including obstetric emergencies and major surgery, had to be dealt with by a reduced number of experienced staff. The findings suggest that this situation led to a deterioration of quality of care at the hospital reflected by a statistically significant (p <0.001) increase in both hospital maternal mortality rates and stillbirth rates. The material support received by the hospital from various aid organizations was insufficient, poorly coordinated, and was received too late to be of value. The negative effects of the crisis on hospital care persisted for more than one year following the repatriation of the refugees.

Conclusions: As a result of the refugee crisis, the quality of medical services at the district hospital level deteriorated despite some support from relief agencies. Low-income countries with fragile health-care systems and a permanent shortage of qualified medical personnel host most of the world's refugees. In planning for future interventions in refugee catastrophes, it is essential that relief organisations give appropriate assistance not only to the refugees, but also to the existing health-care system of the host country.

Keywords: aid; health care; host countries; obstetrics; quality; refugee camps; refugees; relief; repatriation; socio-economic effects; Tanzania; UNHCR

G-22
Contribution to the Study of International Law Concerning Natural and Technologic Disasters: Problems Posed by Unidentified Patients Crossing National Boundaries after Large-Scale Disasters

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This study deals with legal problems posed by organising aid as a result of natural or technologic disasters. Such disasters not only require exceptional medical organisation, but also specific international co-ordination, so that emergency teams may arrive early on the scene.

Moreover, these teams need to be managed properly on site, so that efficient co-operation allows the victims to be treated, and the injured who need it, to be transported to the medical institutions of neighbouring countries. While the sending of international medical aid is now well-understood, the crossing of frontiers by unidentified victims in peace time remains a major problem of international law. Any decision to allow such a victim to cross a boundary must respect all of the established identification techniques, of which the Interpol formula is the reference. Bilateral and multilateral agreements should be designed to allow such crossings in circumstances of force majeure.

This study presents model agreements such as those existing between France and Switzerland and those defined in the Convention of American States. Planning ahead for an appropriate response to the inevitable disasters of the future implies the definition of new specific agreements, so that efficient international aid may become a reality for all victims of large-scale natural and