combined traumas were in similar proportions.

The children with the crush syndrome were the most severely compromised patients. Most often, the crush injury was localised to the ankle (30%), thigh (28.6%), head (23.8%), or forearm (7%). Of all children with crush syndrome, 12.6% required amputations. Positive results were seen in children who had fasciotomy with early plastic surgery procedures to the skin. Acute renal insufficiency has been reported in 27% of children with crush syndrome.

Despite generally positive results of treating child victims, we could have had even better results if all children had been concentrated in one hospital, and had had, from the beginning, qualified pediatric help.

Key words: amputations; children; crush syndrome; earthquake; injuries; pediatricians
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Principles of Rendering Medical Aid to Children in Disasters

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Our experience in rendering medical aid to children in emergency situations in many countries of the world (Afghanistan, Armenia, Egypt, Georgia, India, Iran, Japan, Russia, Turkey) has enabled us to formulate some principles that should help to decrease mortality and morbidity rates among injured children:

1. Medical aid should be rendered by pediatric specialists
2. Specialized medical aid in case of disaster should be as close to the site of disaster as possible
3. Pediatric intensive care specialists and pediatrician-traumatologists, as well as physicians who have had special training courses on rendering medical assistance to children in extreme situations and having a proper license should work in the disaster areas
4. Transportation of an injured child to a hospital should be done only if the child is transportable, and only after all preliminary intensive care measures are performed at the site
5. Children from a disaster area must be concentrated in one, or at most, two hospitals. The time of transportation, if all necessary curative measures are performed simultaneously, is of no importance. It is important for the child to be hospitalized at a specialized pediatric hospital that has many types of pediatric specialists on emergency therapy, traumatology, plastic surgery, pediatric surgery, and nephrology. This hospital should be equipped with a modern laboratory and other equipment like a computerized tomographic scanner, renal dialyzer, etc.

Key words: children; credentials; disasters; intensive care; pediatricians; principles; specialization; transportation; treatment
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SWEDE: A Management System with Internet Technology Support for the Health Care System in Emergency and Disaster Situations

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The Swedish National Board of Health and Welfare has introduced SWEDE, a new management system to ensure a high level of preparedness for major emergencies and disaster situations. The SWEDE system is based on a general protocol and a computerised information system—IS Swede. The protocol standardises terminology, enabling emergency personnel to cooperate and coordinate activities during major emergencies and disasters in a more efficient way. The protocol is understood and accepted by the health care system, and is similar to those used by police and rescue services. The information system includes patient information as well as information on available resources.

New equipment has been introduced in ambulances. Information is sent on-line to receiving hospitals using the Mobitex® system and Internet technology. In situations of disaster or during a state of alert, this system provides continuous access to relevant information.

One important part of the SWEDE concept is that it is used daily and, when situations escalate, it is already in place and can be mobilized rapidly. Where introduced, the IS Swede today is used routinely in all situations involving an ambulance. The information is sent to a central database then directed to the receiving hospital by encrypted Internet. The hospital receives advance information about the accident, the patient(s), and the treatment being given at scene and during transport. In disaster situations, the management group can also use the IS Swede to direct the ambulances to those hospitals having the necessary resources.

Currently, the system has been introduced in four county councils in Sweden. Other county councils, as well as the Swedish National Defence, are considering the system and it is proposed that 75% of all county councils in Sweden should have the SWEDE system in use at the end of 2005.

Key words: ambulances; disaster; emergencies; information systems; Internet; management systems; structure; Sweden; terminology
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Amendment in the Regulations of the Emergency Plan ("Red Plan") in Case of Major Accidents with Limited Consequences in a City

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The "Red Plan" is a one of several emergency plans destined to help numerous victims. A decree details the circumstances in which the plan can be launched and just how it should develop at a regional or "department" level

(France is divided into "departments"). The various texts that have successively established the rules concerning the organization of the Red Plan on a local level and national level have been analyzed, and the differences they reveal have been stressed in the light of the events that have lead to its evolution.

The first emergency plan for numerous victims elaborated in the Paris area dates back to 1975. The first Director of Medical Assistance had been named one year earlier. At the time, the regulations were those of the Paris fire brigade, and anticipated three situations: Blue Plan, 10 victims; White Plan, 20 victims; and Red Plan, 50 victims. Later, these three were grouped into a single category: the Red Plan, with three "functional chains" for collecting, selecting/treating and evacuating.

The first actual application of this system occurred in 1978 after a gas explosion in rue Raynouard, and it was obvious that there were many flaws in the functioning of the Plan. These flaws were further exposed after responding to two additional explosions involving the emergency teams, and to spontaneous evacuations done by passersby and policemen. One year later, another gas explosion in rue Saint-Ferdinand provided the opportunity to implement the Red Plan. Since then, the lessons learnt during the major interventions and from the regular training have prompted regular updates in the regulations. The 1986 terrorist attacks in Paris made it clear that it was necessary to integrate the SAMU (urgent medical aid service) into the Red Plan, a decision that proved satisfactory later with the 1987 and 1988 train accidents, primarily that of Gare de Lyon. The new series of terrorist attacks in 1995 was the occasion to improve the way victims are cared for, thanks to the creation of a center for those implicated in the accident, and a specification in the role of the emergency medical-psychological department. In 1999, a new step was made due to the special geographical context of the Paris region, when an "interdepartmental" (interregion) Red Plan was adopted along with a new medical file.

Conclusion: Emergency aid was born from the war experience. The application of the regulations to actual and major accidents with limited effects has generated the conception of a more effective emergency plan, whose regulations should remain flexible in order to encourage regular evolutions.

Key words: casualty collection; chains, emergency aid; evacuation; functional; multiple casualties; plan; planning; preparedness; regulations; SAMU
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Sydney 2000: Olympic Stadium Medical Programme

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The Sydney 2000 Olympic Stadium is the world's largest ever purpose built Olympic facility, with a capacity of 118,000 people. Over the course of the Olympic programme, (8 days of athletics competition as well as the Opening and Closing Ceremonies), more than 1.9 million people passed through the turnstiles of the Olympic Stadium. Meeting the challenge to provide timely, effective, and efficient emergency care to all people in the stadium is discussed. It begins by looking at the challenges that needed to be overcome; it details the operating plan that ultimately was put in place; it outlines the disaster preparedness programme, the resources committed to implementing the programme, and the results achieved.

Ultimately, the plan involved over 100 medical staff providing medical care for over 100,000 people for each session of competition. How this was carried out is detailed and the activity of the programme is presented: 100–120 people treated per session: 50–60 of these needed basic first aid, and 50–60 needed more formal medical intervention (detailed medical assessment and invasive interventions). Ultimately, 5–7 people per session were transferred by ambulance to a hospital. No one died.

Key words: first aid; interventions; mass gatherings; medical care; Olympics; plan; preparedness; stadium; staffing
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Fifty-month CEP-Experience in an Area of a Half-million People

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Introduction: Following the education as Coordinating Emergency Physicians (CEPs) according the Bavarian Rescue Laws (BRLs), we formed a voluntarily acting CEP group in our rescue region in Western Bavaria in January 1996. The group was accredited by the authorities in May 2000. To improve the performance of our missions, we analyzed the system capacities according J. de Boer[1] and tried to implement M. Villareal's QC tools.[2]

Methods: From January 1996 to February 2001, we handled 50 missions that were prospectively registered and analyzed since June 1997. According to de Boer's Criteria for Disaster Preparedness, we calculated the capacities of our rescue chain using the elements: (1) medical rescue capacity, (2) medical transport capacity, and (3) the local hospital treatment capacity according to the number of available hospital beds. We did these calculations to be prepared for the EMS management of the World Exhibition of Fire Brigades, which took place in our city in June 2000. M. Villareal's tools for QC were tested on scene and in postevent meetings to gain best information and feedback for our learning curve as CEPs.

Results: In total, we served 23 missions during daytime (4 in the morning, 19 in the afternoon), and 27 missions were necessary during the night. Regarding the reasons for the calls, there were 24 fire alarms, 14 accidents (cars, railroad, aircraft), 4 poisonings, 5 explosions or bomb alarms, and 3 during mass gatherings. Of these missions, 41 were graded as events of first degree (according to Villareal's staging system) and 9 required additional manpower like SEGs (special acting groups) so that these events were graded as 2nd degree casualities according to Villareal.

From the total number of 3,724 hospital beds, a theo-