

PN7-2

The Disaster Manual in a Multi-Media Style

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Japan experienced two major disasters in 1995: the Great Hanshin Earthquake and the Sarin Attack in the Tokyo subway system. These events inspired our society to prepare for major disasters in the future; various institutes and organizations in our country are making efforts to bluish up their disaster manuals. When we make our own protocols for disaster management, we must have large amount of information and knowledge on protocol of other related institutes and organizations. We also have to keep the laws and ordinances in mind, and moreover, each information should be updated frequently.

Printed documents no longer will meet such demands, and will be replaced by computer-based electronic media. In our institutes, our hospital manuals for disaster management are under the way of instituting electronic versions. Besides circulating as printed matters among hospital staffs, we write our manual as a hypertext markup language (html) file, and some of the information is launched from our internet and intra-net servers. Our manual also includes disaster protocols for other related institutes, agreements with other organizations, and disaster-related laws and ordinances. The disaster manual in a computer-based, electronic, multi-media style will be a regular form in the next century.

Keywords: computers; disaster management; disaster manual; hospitals; laws; information systems; multi-media; ordinances; preparedness; protocols

PN7-3

Disaster Telemedicine — Part I: The Evolving Role of Telemedicine and Telecommunications in Disaster Response

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Disaster management utilizes a variety of technological modalities to accomplish a complex array of tasks. Although casualties have often been involved, there are few reports of telemedicine (medicine performed at a distance through the use of telecommunications) applied in disaster situations. Appropriate application of telemedicine has the potential to enhance future disaster medicine efforts. Therefore, it is helpful to review the history of its use in actual disasters or similar scenarios for added guidance. The post Cold War decade of the 1990s has allowed the United States space program and the military to re-focus their robust technology capabilities to support

natural disaster and international complex human emergency response activities. A series of improvements in space and ground-based technologies has resulted in an evolving communications infrastructure that provides a window into how these advanced technologies and telemedicine processes can serve as essential disaster management tools for the new millennium and provides the core knowledge of lessons learned. The current challenge is to relate these lessons to Disaster Medicine planning and begin to effectively utilize disaster-appropriate telemedicine tools.

Keywords: complex human emergencies; Disaster Medicine; military; process; responses; technology; telemedicine

PN7-4

Disaster Telemedicine — Part II: Future Applications of Telemedicine and Telecommunications in Disaster Medicine

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Disaster events always have been a fact of life. Success or failure of a disaster response often is determined by timely access to communication and reliable information. The rapid progress and future course in telecommunications indicate that lack of communications no longer needs be the paralyzing factor in a disaster scenario. This is important especially for medical response where time is of essence to save lives. This presentation explores various telecommunications tools that can enhance medical response in a disaster, and includes those associated with telemedicine (providing medical care from a distance through telecommunications). Disaster telemedicine systems need not be special or sophisticated — the challenge is to match the right systems with a given disaster plan or scenario. Communications pathways (including new Low Earth Orbit satellite systems), information technologies, artificial intelligence, computer miniaturization, and advanced sensor systems are described. Their advantages, disadvantages, and future potential are discussed in order to gain a better perspective of which tools might best fit Disaster Medicine's needs today and into the new millennium.

Keywords: communications; computers; disaster; Disaster Medicine; plans; response, medical; telecommunications; telemedicine

PN7-5

Are You Prepared to Make Tactical Decisions? Training Using Computer-Aided Simulation

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In every emergency situation and accident, the action consists of a series of important decisions, what to do, how

important it is to do, who will perform that task, which resources I can use in completing this task, and what I shall do next? The success of action is dependent on just these decisions. Very often, the situation is difficult, and there is an obvious discrepancy between resources and needs. These decisive decisions are based on knowledge, observations, actual circumstances, and strength of will. These features of an individual leader of action are expected without organising the corresponding training or education to reach this level of preparedness.

The strength of mind to make decisions in priority order and use of resources in a critical situation can not be reached during theoretical lectures or reading from books. One must get interactive training in real or simulated emergency situations. To get wide experience in decision-making in real emergency situations is a dangerous way of learning for the casualties of these accidents. For example, wrong decisions concerning the priority order for treatment of the victims can result in an unnecessary loss of someone's life. It is much better to learn in simulated, interactive situations, where you will have much safer chance to learn by trials and errors.

I have collected my reportable experience in this particular issue from numerous training sessions with medical students using an interactive computer program for accident tactics (TRIAGE). This simple DOS-based program provides the trainee with a simulated accident scene and the task to take care of casualties. The trainee acts as a leader of the group, and has the obligation to make all decisions on the use of emergency care resources and equipment. The decisions include all of the features of the real situation, what to do, in which order the task is completed, who will perform the task and how the resources are utilised? All the decisions are collected in computer memory for final scoring and analysis. There is a progression of difficulty degree in the relation of resources and needs.

There is an obvious difference between persons in the preparedness to make sharp decisions in similar situations. Some persons have an inborn ability to act logically and according to the overall situation. They do not lose their limited resources or time in unnecessary tasks, but have a firm touch to concentrate only in the most important obligations. There also are those students who seem to be too weak to make decisions on priority order, but work with non-essential and non-urgent tasks forgetting to move forward. I assume that these trainees with a weak personality could learn to make sharper decisions with a continuous interactive training of tactics. The utilisation of the feedback is important in this aspect. The features of this computer simulation software will become more and more advanced in order to create more natural simulated situations.

Keywords: computers; decision-making; disasters; interactive simulations; learning; multi-casualty incidents; simulations; software; training; triage

Poster Session I

Wednesday, 12 May, 10:00–11:00 hours

P-1

Natural Approach to Ophthalmological Aid in Disasters

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Introduction: The number of disasters, in which the open parts of the body, especially the eye, were affected primarily by secondary wounding projectiles and fire, has increased lately. Therefore, it is necessary to study how the eye is affected in disasters, and to determine what measures need to be taken to provide first and specialized aid at various stages of evacuation. The purpose of this study was to work out a set of measures to provide ophthalmological aid in natural accidents and disasters on the basis of examination of the clinical manifestation of eye injuries.

Methods: A total of 7,378 patients with eye injuries inflicted in three types of disasters were examined: 1) An explosion of canisters with inflammable materials at a railway station in Yekaterinburg; 2) an explosion and fire on an oil pipeline at Ufa; and 3) an earthquake in Armenia. All of the patients were examined using generally accepted ophthalmological methods.

Results: It was established that pathological changes in the injured eye depended on how the injury was inflicted: 1) mechanical injuries connected with the shock wave caused penetrating eye wounds with intraocular foreign bodies; 2) burns related to explosions and subsequent fires mainly caused injuries of the eyelids; and 3) natural disasters, such as earthquakes, caused mainly mechanical injuries of the eye.

Conclusion: Ophthalmologists must be present on the site of disaster at the stage of sorting victims in order to determine the urgency and volume of specialized aid. Mixed teams including ophthalmologists must be formed at general medical centres to avoid overlooking eye injuries.

Keywords: disasters; earthquakes; explosions; eyelids; eyes; injuries to; foreign bodies; intraocular; multi-casualty incidents; ophthalmology

P-2

Eye Burns in Disasters Caused by Fire

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Burns usually are the most severe injury in accidents caused by explosions and fires. The purpose of this study was to study the eye injuries caused by a gas pipeline explosion in Ufa that occurred while two passenger