

merged osteosynthesis in connection with increased swelling of an extremity.

Key words: amputations; aseptic necrosis; crush syndrome; earthquake; fractures; infections; treatment

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Being on the Alert in Hospital Services: Estimate of Preparation of the Emergency Staff for Facing an Influx of Victims

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Introduction: In the anticipation of a great number of victims following a catastrophic event, every hospital has an intervention plan ready to face that exceptional situation. The aim of that plan of alert of in-hospital services (MASH plan) is to optimize the reception and the treatment of the victims of that particular catastrophe, and take care of the usual emergencies at the same time. It also must allow for the reception of the victims' families. The emergency staff represents the first line in the good development of an exceptional situation. Every member of that staff, whichever his/her charge is, should know the existence of the MASH plan, how it works, what has to be reorganized in his/her service, and the part s/he has to play, as modest as it can be.

Methods: A survey was conducted in February 2001, among the emergency staff of Saint-Vincent, a 170 bed General Hospital in Lille, to identify what knowledge of the MASH plan they had. That survey consisted of 20 simple questions essentially aiming at four main points: (1) the alert, (2) the practical organisation of the emergency service, (3) the reception of the victims, families, and people involved, and (4) the part everyone must play.

Results: The survey was completed by 92.8% of the emergency staff (65/70). The average longevity was 4.7 years. The name "MASH" was unknown to 16.9% of the staff; 36.9% of the staff had no idea where the reception of the victims is, and 90.8% had no idea where the reception of the families is. A large majority (87.7%) of the respondents didn't know their part in case the MASH plan is started, and only 7.7% know how to reorganize the emergency service in that case.

Conclusion: Considering these points, information sessions have been organized to improve the efficiency of the staff in case of an influx of victims. The staff will be reevaluated using the same questionnaire, the objective being to get 50% right answers for each question. The members of the emergency team will be asked to update and improve the Saint-Vincent hospital MASH plan.

Key words: emergency department; families; hospital; MASH; multiple casualties; organization; plan; preparedness; training

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The Impact of Euro 2000 on Activities of All Emergency Departments of the City of Brugge

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Introduction: Organization of huge sports events always is associated with an increase in medical risks. Public authorities warn hospitals to increase the number of medical doctors and nurses in the Emergency Departments during these events. Political authorities are put under high public pressure to ensure an increased medical deployment.

In the city of Brugge, three qualifying football matches and one quarter final were played. No game was considered risky by the organizing committee. A literature review defined the expected risks, and hence, the resources that needed to be deployed. Prior football games with severe mass riots were analysed regarding the effective hospital admission rate. This analysis helped us decide to use the daily emergency medical care to provide the backbone for medical deployment. Three mobile intensive care units were deployed in the stadium. In addition, we used the usual provincial disaster plan to upgrade our medical supplies in case of mass casualty emergencies.

Methods: During the whole tournament, both emergency departments of the city of Brugge collected data about Euro 2000-related pathology. Data regarding the pathology treated in the stadium as well as for all patients admitted to the hospital were reviewed.

Results: These data confirm that the organization of a European football tournament does not increase significantly the activities in the emergency departments of a "play-city". Only 24 Euro 2000-related patients visited the emergency departments during the whole tournament. The majority of their pathologies were alcohol-related. The daily increase in patients never exceeded 8%. Only two patients had to stay in the hospital for a period of more than 12 hours. Even analysis of the data of the days that the home nation, Belgium, was playing did not show any statistical increase in admittance rate of patients.

Conclusion: We conclude that political instances as well as public opinion put high pressure on the medical authorities during major sports events. However, the data collected proved that preparedness and a higher level of alertness is sufficient to guarantee a high level of medical safety.

Key words: alcohol; emergency departments; mass gatherings; patient loads; sports events

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Do Computer Programs Perform Better Than Human Regulators in Mass Casualty Disasters?

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Introduction: An on-site observation of an actual Red Cross mass casualty disaster by one of the authors of this article who specialized in "Industrial Logistics Management" aroused doubts about the regulator's efficiency, both from a medical as well as from a logistics point of view. During a postexercise discussion session, the authors decided to form a small study group with the primary aim to formalize the important task of the mass casualty disaster regulator within a framework of a decision sciences and management approach.

Methods: A case game "Dis_Strat" was developed, describing an oxygen-tank explosion on a factory site at the precise moment that one of the company's busses leaves the industrial site. The explosion is supposed to have injured some 40 shift-workers. For didactical purposes, however, the simulated task of the candidate regulator has been limited to the 12 U1 and 13 U2 victims. They have to be evacuated by a certain, but not a priori, fixed number of ambulances to a set of 16 possible hospitals with known medical specialties and specific admittance characteristics. The pedagogical aspects were tested and improved through several trial runs at three different universities by staff members, all specializing in the field of industrial logistics management. As the case game was clearly conceived as a highly sensitive multicriteria problem with only vaguely described strategy objectives, the authors were compelled to develop also a computer program "Dis_Strat_Eva" to evaluate the results of the trainees' respective possible dispatching approaches. Furthermore, the study's aim intended to compare and benchmark the trainees' performances with "Best Practices" obtained by medical specialists of the regulator's task in cases of mass casualty disasters.

Results: The case game has been organized five times for participants of the European "Leonardo Community" program in "Logistics Management". The preliminary results of our experiments in the manual simulation of the human regulator's task, show an unexpected high disparity of solutions, this due to: (1) first time confrontation by the participant with such an assignment; (2) the differences in the perceived policy criteria; (3) the difficulties to agree on concrete measurement means of commonly accepted policy criteria; (4) the existence of a high number of variety of theoretically well-known dispatching heuristics; and (5) the lack of a trainees' capability to transfer and use knowledge from well-known fields of applications for unexpected or even apparently unrelated problems.

Conclusions: The multicriteria assignment of the regulator's task in mass casualty disaster problem has to be more clearly defined and imposed by the competent authorities, if one does not want to leave the initiative for the choice of the dispatching strategies to a regulator. Training in the use of appropriate dispatching heuristics seems essential. An expert-like computer simulation is an inevitable necessity and a pedagogically valuable tool for the debriefing session.

Key words: computers; control; coordination; decisions; disaster; dispatching; exercise; mass casualties; regulators; simulations

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Experience in International Relief Activities for Gujarat Earthquake 2001 in India

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Introduction: Kobe University dispatched its medical team, KUMT, which consisted of two emergency doctors, to Gujarat, India from February through December, 2001 to provide medical advice and assistance to Gujarat Earthquake victims. In this video session, we will share our experiences in this catastrophe.

Results: KUMT visited two municipal hospitals in Ahmedabad, where many trauma patients were transported from neighboring cities and hospitalized. Some of them needed splinting for bone fractures and treatment for wound infections and sepsis. KUMT provided suggestions and advice based upon its knowledge from experience in the Kobe earthquake of 1995.

From 03 through 07 February, an ad hoc team named "Play It By Ear" comprised of the two medical doctors of KUMT, a firefighter paramedic from the USA, an Indian pharmacologist as interpreter, and a car driver, investigated medical care in the most devastated area in Gujarat state. The team contacted control centers and/or hospitals in cities and towns such as Bachau, Rapar, Gandhi Dham, Anjar and Bhuj, and interviewed them regarding problems they had at the time. Their official response was that everything was under control; the supplies of food, water, and manpower for medical care were sufficient, and that no village was left without medical service. Many NGO groups contributed to the disaster medical relief for the victims. However, better coordination is required to coordinate the functions of many NGO teams properly. More appropriate supply distribution was required.

At Bachau, the team joined Indian Medical Association to check remote villages, where several days had passed since one medical team had checked the residents by using a mobile hospital. We treated approximately 30 patients who suffered from sickness, bone fractures, and infected wounds. Hospitalization or more frequent medical care such as dressing changes and debridement for wounds were essential.

The devastated area that should be covered from the point of medical care was scattered and was more widespread than was present following the Kobe earthquake.

Conclusion: KUMT has achieved its initial goals with collaboration of Gujarat Government. Domestic and foreign medical relief by GO and NGO teams were well-mobilized and activated. Better coordination is needed for them as is the more efficient supply distribution should have been carried out.

The first priority for the government must be to provide temporary houses for victims to sleep and live. More frequent health care surveying and checkups are required, especially in remote areas, in order to avoid preventable diseases, deaths, and epidemic outbreak.

Key words: coordination; India; hospital; international;