

within a few minutes, in one of the arrival rooms. After having received initial assessment, reclassified patients were transported to different hospitals according to their pathology and the institution's capacity. After 55 minutes, no patient remained in the airport and the evacuation was concluded.

Conclusion: The exercise demonstrated coordination and registration errors, as expected during a first experience. Overall, the main objective was performed successfully. New drills are projected for April and August 1993.

6

Aircraft Crash Drill: Analysis by Video Recording

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Introduction: Accurate detailed analysis of compound, continuous events are difficult to obtain. Reports from a mass-disaster location, even by experts, differ and are subjected to personal interpretation. Judging a drill of an aircraft disaster at the airport for the purpose of learning and locating weak points is no exception. It may be biased by personal attitudes and limitation of human performance.

Methods: Ben-Gurion Airport, Israel's international airport, conducts an annual drill simulating a Boeing 747 that crashes into the ground leaving 400 injured and a huge fire, forcing the airport authorities to recruit more than 100 ambulances, extra police force, address the objective of the drill was to study the performance of the emergency systems thoroughly, the drill was videotaped from three strategic points. Cameras were posted at the top of a high building, in a helicopter, and on the ground. Time and date were printed during the recording for the sake of continuity and analysis. Detailed, frame-by-frame analyses were conducted a few days after the drill.

Results: The videotapes clearly showed the response time of the various rescue teams, the events from the crash until the first organized attempt to perform triage, and the process of sorting and evacuating patients. Real-time analysis in loading two severely injured casualties into an ambulance and the utilization of resources was undertaken. Crucial minutes from the recording will be a part of this presentation.

Conclusions: It is recommended that videotapes from drills, or from real events as recorded by the media, should be analyzed by experts as soon as possible after the event.

7

International Developments and Challenges in Airport Disaster Management

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and Disaster Medicine
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Objective: To outline international trends in aviation safety,

aircraft crash management, and the medical response to airport hijacking and terrorism.

Presentation: While there is significant global improvement in aviation safety, the challenge remains to improve the medical response to aircraft crashes and airport emergencies. The work of the International Civil Aviation Organization (ICAO) in teaching airport emergency planning, particularly in developing countries, will be described, in addition to the problems encountered in disaster exercises and disaster mismanagement.

Conclusion: A quality model of aircraft crash management can serve to teach undergraduate and post-graduate medical students in a wide variety of disaster situations.

8

In-Flight Medical Emergencies on Commercial Aircraft

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Objective: To outline the range of medical problems suffered by passengers and crew on commercial aircraft, and the training and medical equipment needed to cope with these problems.

Discussion: With the increasing number of elderly passengers using air transport on long-haul routes, there is a greater need for appropriately trained flight attendants to provide standardized medical care.

Standards for emergency care delivery during flight vary markedly among different carriers, as do emergency provisions in airport terminals. This paper will challenge those airlines with substandard emergency care provisions to re-examine their need to prepare for and cope with a range of medical emergencies during flight.

9

Integrated Medical Emergency Planning for Airports and Aircraft Incidents

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Introduction: The aviation industry has a requirement under the International Civil Aviation Organization codes to provide the necessary planning and response to airport and aircraft incidents to cope with a mass-casualty situation or disruption to airport operations.

Objective: No airport emergency response alone is sufficient to cope with all phases of response to a mass-casualty incident. Consequently, the airport procedures must be integrated with the community disaster/emergency plan to enable the community alerting and response measures to be effective.

Method: As airports generally are part of the community, planning representatives of the community emergency plan need to be integrated on airport emergency planning (AEP) committees and an airport representative likewise on the commu-

nity emergency committee. Joint exercising and testing of the AEP with airport and community responders should occur at frequent intervals.

Conclusion: Airport emergency plans, which dovetail into the community emergency plans, attract a total community response to emergency incidents, which—through its effectiveness—can return the airport to normal operations with minimal delays. AEP can also provide an appropriate response in the treatment of mass casualties.

10 Medical-Injury Panorama after Different Types of Civilian Aeroplane Accidents

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Objective: With regard to disaster preparedness, it is important to identify what medical resources are needed at both the accident scene and the receiving hospitals after airplane accidents.

Methods: Study of the medical consequences from three different types of aircraft accidents with survivors.

Results: The medical-injury panorama is quite different in an airplane accident without fire compared to one with fire. In the first case, if there is a violent crash, there are not many survivors and accordingly rather limited need of medical resources. If there are many survivors, the impact has been comparatively small, and the number of life-threatening injuries low.

If there has been a fire, but no or only a small impact, there can be many victims in need of advanced medical treatment, but evacuation of the victims must be possible. A major problem, other than the burns, is the poisonous gases and heavy, black smoke, which make the evacuation of the injured extremely difficult. These conditions affect the visual, respiratory, and cerebral functions.

BASICS AND PLANNING

16 Basics in Disaster Medicine

de Boer J

Disaster Medicine studies the medical and organization problems of disaster. It is a young branch of medicine and confusion still occurs because relevant terms are used in different ways. The foundation of any science is definition, classification, and measurement. If Disaster Medicine is to grow and progress, it also must have a consistent and recognized definition, classification, and measurement of disasters. By using the criteria “casualties” and “discrepancy between number of casualties and its treatment capacity,” a simple definition of a disaster has been formulated. The classification scheme is based on variables which are directly related to disaster, either to its origin or to its effects. By quantifying or weighing these variables and summing the individual scores, a disaster severity scale can be constructed, which runs from 1 to 13. This approach could provide a firm foundation for the science of disaster medicine, on which basis further development can be confidently expected.

In the event of general international agreement on the definition, classification, and the associated Disaster Severity Scale, it should be possible to assess more accurately, the gravity of a given situation. Additionally, more precise registration would allow scientific comparison of disasters and perhaps also provide an answer to the question of whether the incidence of disaster occurrence is increasing with the growing world population and technology.

A limitation of the practical use of this scoring system is that it can only be applied retrospectively. For this reason, the medical severity index has been introduced. This index not only indicates the breaking point between accident and disaster, but also quantifies the medical severity instantaneously.

Moreover, the index can be used in the disaster preparedness phase for estimating the requirements needed to produce a desirable capacity within the various links in the chain of medical care from the disaster site to the hospital bed.

The methodologies used are described.

17 Why Disaster Medicine?

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The chances that medical and paramedical personnel will be confronted with the effects of disasters rise as the world population grows and as technological and social developments increase. There also are indications that the number of natural disasters is increasing and that this change is possibly linked to human-made environmental changes. The objectives of Disaster Medicine are to prevent, reduce, and mitigate the effects of disasters on the health of affected populations and to restore, as soon as possible, health services and facilities to the pre-disaster situation. A different medical approach is necessary to