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Comparative Analysis: EMS/ Rescue Response to Six Air Crashes

Anderson PB

Rural EMS Institute
Lincoln, Nebraska, USA

Introduction: An analysis was conducted of the emergency medical and rescue response to six airliner crashes that occurred in the United States during 1986–1992. The airliner crashes selected for the study all had a high percentage of injured survivors, trapped victims, and also fatal injuries.

Objective: To determine if lessons might be learned from each crash that would assist other localities in preparation for multiple-casualty, airliner crash incidents.

Methods: The analysis included a detailed review of reports by the United States National Transportation Safety Board (NTSB), and interviews with local officials including on-scene command officers, emergency medical and rescue team members, along with emergency and trauma physicians and hospital officials.

Results: The analysis resulted in the determination of the magnitude of response and degree of EMS/Rescue effectiveness for airliner crashes that occurred as follows: 1) Denver, Colorado, November 1987; Continental Airlines McDonnell-Douglas DC-9; 2) Kahului, Maui, Hawaii, April 1988; Aloha Airlines Boeing 737; 3) Sioux City, Iowa, July 1989; United Airlines McDonnell-Douglas DC-10; 4) Cove Neck, New York, January 1990; Avianca Airlines Boeing 707; 5) Los Angeles, California, February 1991; US Air Boeing 737 and Skywest Swearingen Metroliner (collision); and 6) Flushing, New York, March 1992; US Air Fokker F-28. Results of the comparative analysis showed differences in the adequacy of EMS and rescue manpower, equipment, triage, treatment of patients (basic and advanced life support), extrication of trapped victims, transport by ground and air vehicles, radio and other forms of communications, incident command posts, and related parameters.

Conclusions: Important lessons have been uncovered from this comparative analysis of six airliner crashes that show a need to modify and improve EMS and rescue procedures.

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Avianca Flight 52: Lessons Learned

Henry MC

Department of Emergency Medicine
State University of New York at Stony Brook
Stony Brook, New York, USA

Objective: To describe the crash of Avianca Flight 52 and res-

cue of victims on 25 January 1990, as well as lessons learned which may improve future rescue efforts.

Methods: Direct observations, videotapes of rescue operations, disaster critiques, and reports of hearings and courtroom deliberations were analyzed.

Results: Avianca Flight 52 crashed after running out of fuel. Authorities investigated a misunderstanding among the flight crew and air traffic controllers regarding the fuel supply. First-responders to the scene attended to victims. The crash became a closed disaster after initial failure to establish a perimeter and subsequent convergence clogged the narrow roadways. Nearly all victims were transported to local hospitals. Rescuers were credited with an outstanding effort under adverse conditions.

Conclusion: Wide distribution of an inexpensive disaster kit to all EMS, police, and fire response vehicles is recommended to guide initial actions of first responders at a disaster scene including early perimeter control. With air transportation, disaster plans should include distribution of patients to more distant specialty hospitals to avoid overloading local hospitals. Standardization of terminology for low-fuel situations may prevent similar disasters.

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First Aircraft Accident Drill in Minister Pistarini Airport

Muro MR, * de Echave JL, * Vigliola A, ** Gollo C, ** Colmenero J***

* Emergency Direction, Buenos Aires Province

** Minister Pistarini Airport Medical Services
Accident Prevention Office

*** Eziza Regional Airport
Buenos Aires, Argentina

Objective: To describe the first accident drill developed in Minister Pistarini International Airport.

Methods: The exercise took place at 1400 h, on 14 and 15 December 1992 at the largest airport in Argentina (45 years after it opened). The exercise was planned to improve and train personnel in preparation for accidents that occur at the airport. The mock accident required treatment of 68 survivors and two fatalities at a mock crash site on runway N-11, one of six airport runways. The exercise depicted an air crash using a passenger bus to simulate a piece of fuselage. Pieces of debris were placed along the last 400 meters of the runway. The drill involved several different personnel departments at the airport: medical services, firefighters, accident prevention, operations, the Zonal Ezeiza Hospital, and the Buenos Aires Province Emergency Direction.

Results: All of the victims were carried to the stabilization area after initial classification in the field. This area was established,

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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.

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Aircraft Crash Drill: Analysis by Video Recording

Eldad A, Donchin Y, Lev B, Frank Y

Israel Defense Forces Medical Corps, Israel Airports Authority
Hadassah University Hospital
Jerusalem, Israel

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.

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International Developments and Challenges in Airport Disaster Management

Fahey M

Consultant, International Civil Aviation Organization
Past-President, World Association for Emergency
and Disaster Medicine
Christchurch, New Zealand

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.

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In-Flight Medical Emergencies on Commercial Aircraft

Fahey M

Consultant, International Civil Aviation Organization
Past-President, World Association for Emergency
and Disaster Medicine
Christchurch, New Zealand

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.

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Integrated Medical Emergency Planning for Airports and Aircraft Incidents

Williams EW

The Victorian Academy for General Practice
Toorak, Victoria, Australia

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-