

The Avianca Plane Crash: An Emergency Medical System's Response to Pediatric Survivors of the Disaster

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ABSTRACT. *Objective.* On January 25, 1990, a jetliner crashed on Long Island, New York. Twenty-two children survived the crash. The purpose of this study was to evaluate the emergency medical system's response to these pediatric survivors.

Methods. A questionnaire was sent to all local, acute care hospitals to determine their specific pediatric capabilities and to rank them as level I, II, or III pediatric centers; level I centers are tertiary care facilities. A second questionnaire was sent to all hospitals that received pediatric survivors to collect specific clinical information for each patient. Based on this clinical information a Pediatric Trauma Score (PTS) was assigned to each patient. Children with a PTS ≤ 8 are considered to be at increased risk of trauma-related mortality. The assigned PTS was compared to the level of the pediatric center to which each patient was transported.

Results. Of 25 children on board the plane, 22 (88%) survived the crash; of 135 adults on board, 70 (52%) survived ($\chi^2 = 9.9$, $P = .002$). Seven children had a PTS ≤ 8 ; only 1 of these high-risk patients was transported directly to a level I pediatric center, and only 2 of the 5 high-risk children initially transported to level III facilities were transferred to higher level pediatric centers.

Conclusions. Pediatric survivors were neither adequately triaged nor transported to appropriate facilities which could optimize their care. Possible explanations for this include (1) unique features of the rescue operation, (2) limited pediatric training of prehospital personnel, and (3) deficiencies of the regional disaster plan. Emergency medical services systems and disaster plans can be made more responsive to children's needs by (1) acknowledging that children have special needs requiring referral, (2) improving the training of prehospital personnel in pediatric emergency care, (3) classifying ill and injured children according to appropriate triage criteria, (4) recognizing existing tertiary care pediatric centers as the optimal location for the treatment of critically ill and injured children, and (5) designating these centers as the appropriate transport destination for critically ill and injured children. *Pediatrics* 1993;92:105-110; *disaster planning, emergency medical services, Pediatric Trauma Score, prehospital care.*

ABBREVIATIONS. EMS, emergency medical services; EMT, emergency medical technician; PC, pediatric center; PTS, Pediatric Trauma Score.

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A successful response to a disaster requires the coordination of personnel and resources from multiple agencies which interact according to a well-formulated disaster plan. Emergency medical technicians, paramedics, police, and firefighters working at the scene coordinate their efforts with health care personnel at local and regional hospitals to provide optimal medical care for the victims. Patients with special needs such as those with multiple trauma or burns may require treatment at specialized centers.

Children also have special needs. Pediatric trauma experts are developing the concept of pediatric trauma centers,¹⁻⁴ and emergency medical services (EMS) systems are beginning to address appropriate equipment, staffing, and training requirements for management of the medical care of ill and injured children.⁵⁻¹⁰ Although Leonard¹¹ and Holbrook¹² have raised concerns about how medical care would be delivered to children in a disaster, there has been no evaluation of the medical care actually delivered to pediatric victims of a disaster.

On January 25, 1990, an Avianca jetliner carrying 160 passengers and crew crashed in Nassau County, a suburban area on Long Island, New York. Twenty-five children were on board and required medical attention.

The purpose of this study was to evaluate the emergency medical system's response to child survivors of this disaster. Our hypothesis was that the pediatric survivors were not adequately triaged or transported to the most appropriate hospitals.

DESCRIPTION OF THE EMERGENCY MEDICAL SERVICES SYSTEM AND DISASTER PLAN

Emergency medical services in Nassau County are provided by the county police department's Ambulance Service Bureau as well as local fire departments and ambulance squads; mutual aid agreements exist between these agencies. Prehospital care personnel include career employees and volunteers. The majority of prehospital personnel are emergency medical technicians (EMTs) who provide basic life support. There are also advanced EMTs who are qualified to perform intubation, defibrillation, and administration of intravenous medications. Ambulances are the principal means of transport, although the county also utilizes police-operated helicopters, primarily for transport of trauma victims from motor vehicle crashes. Two tertiary care hospitals in the county operate specialized neonatal and pediatric teams to provide interfacility transports.