

Transportation Incidents: Two Examples of Ship Disasters in the Channel

Dr. Karel Vandeveldre

Emergency Department Sant Jans Hospital, Brugge, Belgium

On 06 March 1987, the ferry Herald of Free Enterprise transporting 543 passengers and crew, 42 trucks and 84 cars, capsized one mile outside of the harbour of Zeebrugge. Within hours, a large rescue operation started at three operational levels. On board of the wreck, rescue was done by rudimentary means. Helicopters transported victims from the wreck to a nearby military harbour, while boats were directed towards an empty pontoon. At the pontoon, emergency care was provided, and further transport was organized to surrounding hospitals. The available resources made it possible to start Advanced Life Support (ALS) at the triage station, where 21 medical teams received more than 250 victims within hours after the event. The majority of casualties were due to immersion, while most of the injuries were minor orthopedic trauma, bruises, and cuts, which easily were treated. A few victims with cardiac arrest and hypothermia were referred to a hospital for further treatment. Meanwhile, the normal emergency care in the region was secured.

On 14 December 2002, the Tricolor, a cargo ship transporting 2,000 cars and with "shoebox" construction similar to the ferry, sunk after a collision a few miles out of Zeebrugge. The crew was rescued. Despite all kinds of warning systems, 10 near collisions and two real collisions occurred within two weeks after the accident.

The similarities between the two accidents helped to identify some important issues:

- Too much traffic in this area;
- Negligence of ship owners;
- Risk of a larger number of victims; and
- Environmental repercussions.

Keywords: accidents; advanced life support; ferries; immersion; rescue; transportation

Prehosp Disast Med 2002;17(s2):s41.

Symposium: Mass Gatherings

Chair: Dr. Judith M. Fisher, MD

What to Advise? That is the Questions: Planning for the Health Implications of Large Public Gatherings—A Preventive Approach

R.I. Fawcett

In March 1997, Emergency Medicine Australia conducted a workshop entitled "Mass-Gathering Medicine" at the Australian Emergency Management Institute at Mount Macedon. The purpose was to develop a broad set of guidelines to facilitate the planning for, and response to the health implications associated with large public gatherings. The resulting document, "Safe and Healthy Mass Gatherings," was published in 1999 as part of the Australian Emergency Manuals Series—Part III: Emergency Management Practice, Volume 2, Specific

Issues, Manual 2.

This paper highlights the preventive measures and health responses associated with mass gatherings such as air shows, rock concerts, festivals, and sporting events. Topics include pre-event planning, site access and perimeters, spectator management and crowd control, stages, platforms and other performance venues, temporary structures, and security. Public health issues include healthcare provision at the event, safety, and contingency plans for high-risk events such as automobile races and air shows. This material will draw upon experience with the planning and implementation of the health response plan for the Airshows Downunder International Airshow, held in February of alternate years (1997, 1999, 2001, and 2003 currently in planning phase), at Avalon near Geelong.

Keywords: air shows; concerts; festivals; large public gatherings; mass gatherings; sporting events

Prehosp Disast Med 2002;17(s2):s41.

Mass-Gathering Medical Care in the Stockholm Area—A Review

Lennart Malmström, MD

Head of EMS Department, Karolinska Hospital, Stockholm, Sweden

Festivals, fairs, concerts, parades, and rallies are some of the many events that cause large numbers of people to gather in one place. Whether the event lasts a day or a week, it's clear that the people attending may require organized medical care. Most of the medical needs are minor, but the team may have to treat patients with cardiac arrests and other serious problems including trauma. Careful planning and integration of emergency physicians' efforts with local hospitals and the emergency medical services system allow for an optimal delivery of health care, from the routine incident to a mass casualty event. This report critically reviews the provision of medical care at mass gatherings in the Stockholm area, especially the relationships between crowd size, certain characteristics of the event, and the frequency of patients seeking medical aid.

Conclusion: Type of event, weather conditions, and the size of the mass gathering have a significant effect on the numbers of spectators seeking medical care. Mass casualty incidents provide valuable lessons for the prehospital provider. A re-evaluation of large-scale rescue operations, which require a complex network of agencies, communications, and on-scene triaging, frequently exposes common weaknesses and errors. This report provides guidelines for more effective mass casualty management.

Keywords: concerts; crowd; festivals; large public gatherings; mass casualty; mass gatherings; parades; rallies

Prehosp Disast Med 2002;17(s2):s41.

E-mail: lennart.malmstrom@ks.se

Medical Support During the European Union Summit in Gothenburg, Sweden, June 2001

Kristina Johnsson, MD; Per Örténwall, MD, PhD; Anneli Kivi, RN; Annika Hedelin, RN

Centre for Prehospital and Disaster Medicine, Gothenburg, Sweden

Objective: Numerous authors have shown that a variety of

factors affect the amount and type of medical emergencies during mass gatherings, including type and duration of event, weather, and size and mobility of the crowd. During the European Union (EU) summit, 15 and 16 June 2001 in Gothenburg, Sweden, approximately 50,000 people participated in 43 protest marches. Clashes between police and protestors occurred on some of these occasions. This paper attempts to analyze the number and character of injuries and medical complaints in relation to the EU summit, and to describe the organization and function of the healthcare services during the meeting.

Methods: Medical records were collected of patients who presented with injuries and other types of medical emergencies in relation to the summit at different healthcare stations.

Results: In total, 143 patients sought medical care; 53 were police officers. Most patients had minor complaints, but a few were seriously injured. Nine patients were hospitalized.

Conclusion: During the EU summit, the number of people who needed medical care was in the same range as previously reported from other mass gatherings. Threats and civil disturbances caused difficulties in estimating the need for health care. Most patients had only minor injuries.

Keywords: European Union summit; mass gatherings; police; protesters; Sweden
Prehosp Disast Med 2002;17(s2):s41-42.

Medical Aspects of Unexpected Multiple Mass Gatherings in the Streets during 2002 FIFA World Cup Soccer Game in Korea

Soon-Joo Wang;¹ Han-Deok Yoon²

1. Hallym University Sacred Heart Hospital, South Korea
2. National Emergency Medical Center, South Korea

Medical support plans for mass gatherings and disasters were prepared during 2002 FIFA Worldcup Soccer Games in Korea, but multiple unexpected mass gatherings of large numbers of Korean supporters in the streets occurred. The total number of participants in the streets was approximately 22,000,000 during the six days that the Korean team played. The medical aspects of and influences on medical care system of these mass gatherings was analyzed retrospectively.

Data were collected from the national emergency information system managed by National Emergency Medical Center, and detailed clinical data were collected from five hospitals in different regions close to the mass gatherings. Variables collected and analyzed included: (1) Number of persons transported; (2) Traffic accidents; (3) Resuscitation efforts and number of deaths at the emergency departments (ED); (4) Number of patients who visited the EDs; (5) Severity of patients; (6) Proportion of acute and chronic patients; and (7) Admission and transfer rates. The results were compared to statistics of the prior year.

The proportion of acute patients during the Worldcup game increased ($p > 0.05$). Also, the rates of resuscitation effort and mortality in the ED increased. The severity of patients increased, especially in the number with an acute coronary syndrome and acute hemorrhagic stroke. The number of patients visiting an ED per day, proportion of traffic accident patients, and rate of admission did not increased meaningfully.

Multiple, unexpected, mass gatherings of large numbers of participants in the streets can occur in the case of large, famous sports events. Emergency medical teams should be prepared for unexpected mass gatherings, and bear in mind that the patients can be more acute, more severe, and require more critical care.

Keywords: mass gathering; medical aid; sports event; Worldcup
Prehosp Disast Med 2002;17(s2):s42.

Disaster Plan for Mass Casualties during 2002 FIFA World Cup Games

Yuchi Koido

The recent host countries of FIFA World Cup games (FIFAWC) already have established the nationwide emergency medical system for a stadium incident during mass gathering. Past histories of mass casualties during international football games led us to recognize the necessity for concrete and practical planning, preparedness, and certain simulation training. As the first step, in order to establish the medical management plan for mass casualty during the 2002 FIFAWC, the Japan Committee for Planning/Management of Disaster in 2002 FIFAWC (JCPD) was organized in April 2000, by Japanese Association for Disaster Medicine (JADM), The JCPD developed the "Guidelines for Planning/Management of Disaster in 2002 FIFA World Cup Games" in March 2001, and distributed them to the organizations at each of the venues. Since then, the JCPD has requested the Ministry of Health, Labor, and Welfare of Japan (MHLW) to take the initiative for establishing a nationwide system. The health research team made the concrete "model plan of medical management for mass casualty" for each venue to be included in the 2002 FIFAWC. Each venue was to have planning and preparedness with common concepts among the 10 domestic venues by 29 January 2002, and also conducted demonstration training in stadium on 09 February 2002. After this, the JAWOC also recognized the necessity to develop a plan immediately for disaster. Currently, the health research team continues to arrange a disaster manual for each venue.

The preparation for a disaster is presented along with how it worked during 2002 FIFA World Cup games

Keywords: disaster; exercises; mass casualties; mass gatherings; plans; venues, multiple; World Cup

Prehosp Disast Med 2002;17(s2):s42.

Task Force Session: Medical Response to Terrorism

Chairs: Dr. Jeffrey Arnold;¹ Dr. Per Ortenwall²

1. Assistant Professor of Emergency Medicine, Tufts University School of Medicine, Springfield, Massachusetts USA; Co-Chair: WADEM Task Force on Medical Response to Terrorism
2. Centre for Prehospital and Disaster Medicine, Gothenburg, Sweden; Co-Chair: WADEM Task Force on Medical Responses to Terrorism