



Providing Care at Mass Gatherings

Although we often feel that nothing could be less organized than a busy shift in our emergency department, this pales in comparison to providing care at a mass gathering. The lecturer will introduce the participant to the logistics and patterns of medical care and the problems that are likely to be encountered.

- Explain the medical and legal issues involved in spectator care at mass gatherings.
- Discuss the process for implementing care systems at mass gatherings.

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FACULTY

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I. Course Description

- A. Although we often feel that nothing could be less organized than a busy shift in our emergency departments, this pales in comparison to providing care at a mass gathering.
- B. This course will introduce the participant to logistics and patterns of medical care and the problems that are likely to be encountered.

II. Objectives

- A. At the conclusion of the course, participants will be able to:
 - 1. Explain the medical and legal issues involved in spectator care at mass gatherings.
 - 2. Discuss the process for implementing care systems at mass gatherings
- B. Participants will be given the opportunity to ask questions and discuss implications of the information presented, if time permits.

III. Course Outline

A. Introduction

- 1. **Definition** – A mass gathering is defined as any collection of greater than 1000 people at one site or location. Although this is a fairly general definition it applies to all types of events (concerts, airplanes, sporting competition, cruise lines, etc.) where a large number of people are crowded into a fairly limited area somewhat isolated from EMS.
- 2. **Woodstock 99** – Was the 30th anniversary of the first Woodstock held in Bethel, NY which drew 500,000 people. The 25th anniversary drew 350,000 and this year's festival, held in Rome, NY brought 250,000 people to this three-day event (\$180 for a 3-day pass). Logistics for this concert included 2,500 portable toilets, 425,000 hot dogs, 212,000 pounds of French fries, 470,000 ice cream bars, 2 million soft drinks, 330,000 gallons of water, and 68 generators pumping 17 million watts of power. Medical support included 500 doctors and nurses, 500 support staff, 1000 volunteers, X-ray equipment, medical labs, 22 ambulances, 4 life support buses,

and 4 truckloads of medical supplies (including 5000 Band-Aids).

3. **Sporting Events** – During the 1993 – 1994 sporting season, over 165 million people attended NBA, NFL, and NCAA events.

B. Factors affecting patient volumes

1. Setting of the event

- a. Indoor vs. outdoor
- b. Access routes – to and from the site
- c. Size of the crowd
- d. Duration of the event
- e. Extremes in temperature
- f. Mobility of the crowd
- g. Number and visibility of the aid stations and medical treatment facility.

2. Nature of the event – helps to anticipate the type of patients that will be seen

- a. Rock Concerts – drugs, alcohol, minor trauma
- b. Sporting events – major and minor trauma (mostly of athletes), environmental (heat/cold), exhaustion
- c. Demonstrations – injuries, tearing agents (tear gas, pepper spray), violence
- d. High profile events – all of the above along with the threat of terrorism.
- e. Local medical care capabilities – events held in remote locations will expect to provide a higher level of care than those located near medical facilities.
- f. Examples:
 - **Indianapolis 500** – largest single day event attendance in the world, with over 400,000 people attending on race day. The infield hospital sees an average of 139 patients or 0.35/1000 and the First Aid stations treat an additional 400 attendees. The breakdown of patients seen include 16% for intoxication, 15% lacerations, 11% pre-existing conditions, and 8.5% heat illness.
 - **Collegiate Football Games** – The stadium at the University of South Carolina seats 74,000 people. On site medical personnel treat an average of 1.08 +/- 0.37 patient per 1000 attendees. Of those treated, 48% complained of

headaches, 16% were for trauma, 10% nausea, vomiting, diarrhea, and 7% were environmental. Alcohol is banned in the stadium. At the University of Arizona a study was done looking at the impact of banning alcohol on the incidence of injuries and illnesses seen among spectators. The injury and illness rates per 10,000 fans prior to the ban were 2.95 in 1983, 2.45 in 1984, 1.92 in 1985 and 3.48 in 1986 when the ban went into effect.

- **Concerts** – the degree of medical care required at concerts depends more on the music type, than the overall attendance, temperature, or location (indoor verses outdoor) of the event. In a study of 405 major concerts in Southern California, patient load varied from 0 per 10,000 attendees at 53 concerts to 71 per 10,000 attendees at a punk festival that turned into a riot. On average, the patient load at rock concerts was 2.5 times greater than non-rock concerts. In addition, the incidence of altered mental status was almost 5 times greater at rock concerts as compared to non-rock. Trauma-related complaints predominate at both rock and non-rock events (as does general medical illness complaints). In this series, four cardiac arrests occurred, all at classical music concerts.

3. Quality of Food Preparation – a variety of foodborne outbreaks has occurred when crowding and primitive sanitary facilities have co-existed. Mass outdoor gatherings at festivals, summer camps, refugee camps, and camps for migrant workers have been the sites of large outbreaks of shigellosis. These outbreaks have been attributed to poor hygiene, inadequate sanitary conditions, and lack of portable water.

C. Operational Issues

- 1. Support staff** – Management of any large event requires a large number of support staff, including security personnel, ushers, volunteers, and public relations personnel.
- 2. Command Center** – Every mass gathering requires a designated command center to control all communications and management issues. The command center should be staffed by representatives from security, volunteers, ushers, public relations, parking, facility management and

maintenance, medical operations, and athletic or program directors.

3. **Transportation** – a variety of issues need to be addressed:
 - How does the patient get to the triage/treatment areas?
 - What route will the patient take to get there?
 - What directions need to be provided to the crowd directing them to the triage/treatment areas? Do these instructions need to be provided in more than one language?
 - Where will the triage/treatment areas be located?
 - Where will the ambulances be staged and how many should be kept on site?
 - What roads are available to ambulances and how will they be kept clear?
 - Where will backup vehicles be obtained?
 - Where will patients be taken and how will these hospitals be notified?

4. **Equipment** – a variety of equipment and supplies will be needed at the various treatment areas. Most of these items are available on well-stocked BLS or ALS vehicles. Necessary items include:
 - Automatic defibrillators
 - Airway equipment (Ambu-bags, intubation equipment, oral and nasal airways)
 - Cricothyrotomy supplies
 - Oxygen equipment
 - Nebulizer (with connectors)
 - Medications (i.e., atropine, 2-Pam, naloxone, morphine, lidocaine, D50, epinephrine, albuterol, adenosine, nitroglycerine, aspirin, furosemide, and diphenhydramine).
 - Bandages
 - Immobilization devices
 - IV fluids and supplies
 - Syringes, needles, and biohazard containers
 - Stethoscope and blood pressure cuff
 - Thermometer
 - Radio communication

5. Medical Support – Are Physicians Necessary?

- a. Con – Mass gatherings are typically collections of well people and physician-level care is rarely required, especially if transport time to hospitals is less than 15 minutes. Unfortunately, during events where physicians were not on-site or available in the planning process, prehospital personnel often gave out medical advice without medical control. In addition, triage decisions were made without physician input, no arrangements were made for medical control, and no standard of care existed.
- b. Pro – There is a large diversity of medical problems that present during mass gatherings and serious problems do occur unexpectedly. In addition, when physicians are present (especially emergency physicians) there is reduced pressure on local hospitals and EMS because more problems are treated on site. Physicians also provide better care at remote sites and there is typically improved disaster response as well as improved public image. During the Olympics in LA 29% of the patients were seen by physicians. 26.3% of persons treated during the Olympics in Atlanta were seen by physicians.

D. Medical Planning

1. **Determine the level of care necessary** – Transportation only; BLS only; Treatment without transport; ALS
2. **Determine the characteristics of the potential patient population** - plan to provide maximum care with the resources available.
3. **Planning Assumptions:**
 - Patient volume – 0.12 – 6/1000 spectators
 - Cardiac arrest – 0.3 – 4/million spectators
 - 1 Physician for every 5000 - 50,000 attendees
 - 1 Paramedic/EMT or 2 Paramedics for every 10,000 attendees
 - 1 ambulance for every 20,000 attendees
 - 1 mobile aid team for every 20,000 attendees
 - 3 – 5 minute response time positively impacts patient outcome
 - Basic aid should be made available to any attendee within

- 4 minutes at full capacity
- Bystander CPR should be provided by all staff (this requires training of all volunteers, ushers, security, etc.)
- ALS should be available within 8 minutes by paramedics under medical control
- Patients should be evacuated to a definitive care facility within 30 minutes

4. Patient Care Flow – from the occurrence of the medical problem to the site of treatment

- a. Logistics - All ushers, volunteers, and security personnel should be equipped with communication devices and know how to contact the command center for assistance. These individuals should be cross-trained in First Aid and CPR.
- b. Command Center – coordinates the following:
 - Pre-positioning of response teams
 - Assessment of chief complaint
 - Prompt dispatch of appropriate emergency response teams
 - Supplying adequate support, including security, transport, equipment, etc.
- c. On-scene Patient Care – Patients should be quickly extricated from the scene and be provided care based on protocol or medical control. All patients should be transported to the designated treatment site or facility, as appropriate.
- d. Staffing of Treatment Facility
 - Nurses, physicians, physician assistants, EMTs, paramedics, Red Cross volunteers, medical students and residents, and legal scribes
 - Modified medical form is required and should be completed for all patient encounters. These forms should include the patient's name, age, gender, complaint, drug allergies, PMH, date and time of treatment, tentative diagnosis, and disposition. A formal QA should be performed on all charts.
- e. Transportation from the event – will require a combination of EMS and helicopters (if access roads are

limited or potentially congested).

E. Special Considerations

- 1. Public Health** – These officials need to be involved in the planning process from the beginning. The potential for major health emergencies is a real threat. Public health is responsible for ensuring:
 - Proper food handling practices
 - Safe and adequate water supplies
 - Proper solid waste management
 - Appropriate tourist accommodations
 - Cleanliness and safety of swimming pools
 - Special on-site sewage disposal

- 2. Communications** – systems need to be in place to ensure proper communications to the public attending the event, within the treatment facilities, and with the area-wide EMS system.

- 3. Terrorism** – The purpose of terrorism is to terrorize. The further the target from the terrorist's grievance the greater the sense of terror or fear. Large public events, especially those receiving media attention, are potential terrorist targets. At a minimum, preparedness should include the following:
 - Awareness training on the Medical Consequences of Terrorism tailored to the needs of security personnel, first responders, and medical providers.
 - Insure EMS and hospitals are prepared to treat contaminated victims.
 - Stockpiling of antibiotics and antidotes (atropine, 2-PAM, cyanide kits)
 - Ensure appropriate supplies of personal protective equipment are made available
 - Treatment protocols are developed

F. Conclusion

IV. To Contact Dr. Levitin

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