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# Disaster Preparedness In The Caribbean: A Trinidad Experience

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## Abstract

**Aim:** To assess the strengths and weaknesses of managing a disaster by analysis of the events of Machel Montano show tragedy of November 2000.

**Method:** Data was collected immediately on all patients attending the Accident and Emergency department as a result of the collapsed stand at the Machel Montano Real Unity Concert. The communication, administration, staff and patient response were assessed to document details of the disaster.

**Results:** Over a 90-minute period 133 patients arrived at the Accident and Emergency department. Doctors at the concert assisted in triage and the Emergency Health Service ambulances (EHS) were well equipped and with trained staff and provided efficient transport for all of the severely injured.

Medical, nursing, radiology and laboratory staff response was excellent. Patient co-operation was very good and this assisted efficient management of the tragedy. All areas were satisfactory with the exception of the limited number of ICU beds (4) and operating theatres (2) available.

**Conclusion:** All our islands should have a relevant, practical disaster plan. Operating theatres and Intensive care units are potentially weak areas. Good radiology services are extremely important.

## INTRODUCTION

At the General Hospital, Port-of-Spain, we have engaged in disaster preparedness and drills for several years, but no real disaster had occurred to test the depth of our resources. The coup of 1990 provided a steady stream of casualties over some three days, however our Health Service was challenged with the occurrence of the collapsed stand at the

Machel Montano Real Unity Concert in November 2000. This paper seeks to examine the management of this disaster and assess our strengths and weaknesses in coping with it.

## PATIENTS AND METHODS

Data was collected immediately on all patients attending the Accident and Emergency department as a result of the collapsed stand at the Machel Montano Real Unity Concert.

Two authors who were on site at the accident and Emergency department collected all the data on patients who came on the night of the disaster. The age, sex, type of injury and management (treated and discharged or admitted) were recorded for all patients. Time from admission to initial treatment was noted. The management of the disaster was documented as follows:

1. Communication and Administration
2. Response
3. Staffing Requirements
4. Patient Response

Although a final questionnaire was not administered informal communication with about 25% of the patients provided some information on their assessment of the treatment they received.

Data on the triage at the site was gleaned from interviewing two doctors who were actually at the show and assisted there. Data on transport was obtained from the Emergency Health Service ambulances and by questioning some patients and their relatives.

### **COMMUNICATION AND ADMINISTRATION**

When the stand collapsed with some 3,000 people it was announced on radio. By fortunate coincidence, the Registrar on duty at the Accident and Emergency Department, General Hospital, Port-of-Spain heard the announcement and immediately notified the consultant in charge. The Chief-of-Staff was informed and he called out all the doctors on duty (Consultants, Registrars, Senior House Officers and Interns), additional nurses, radiographers and laboratory technicians. This effort though coordinated by the Medical Chief-of-Staff was carried out by the hospital telephone operator (as recommended by the hospital). Fortunately, the 4 doctors present on the stand that collapsed were not injured and were able to assist. Also two executive members (both doctors) of the North West Regional Health Authority were present in an adjacent stand, witnessed the event and were able to coordinate efforts at the site. Unfortunately, cellular phones were not working well at that time and effective communication between the Accident and Emergency Department and the site of tragedy was not possible. It was therefore not possible in the early stages to obtain information concerning the number of persons injured and the severity of the injuries.

However, the citizen band radio system used by the EHS, with a unit based in the Accident and Emergency Department permitted excellent communication within about 20 minutes of the accident.

Although the Accident and Emergency administration and Chief-of-Staff were at the hospital before patients arrived; all the other senior administrators were reached within one hour. The Minister of Health, Chairman of the North West Regional Health Authority (NWRHA), CEO of NWRHA and consultants in Neurosurgery, General Surgery, Orthopaedics and Anaesthetics were present. The Assistant Matron and the Night Sister, who were also present mobilized the ward and theatre attendants, cleaners and additional nursing staff. Radiographers, radiologists and laboratory technicians, were called out and responded well.

### **RESPONSE**

Although 133 patients arrived over a period of 90 minutes there were enough doctors and nurses to ensure effective triage and all patients with major injuries were seen immediately. No patient waited more than about 3 minutes to be seen and assessed. An observation ward in the Accident and Emergency was opened immediately, this served to house 15 patients who were being monitored, but seemed unlikely to need admission.

Radiography services were excellent. Within 1 hour of the accident, 4 x-ray rooms, 1 ultrasound machine and the CT scan were all operational. The critical care area was cleared and ready for anyone presenting with life-threatening trauma. Fortunately, only four needed these services.

### **STAFFING REQUIREMENTS**

Although only 8 nurses were on duty at the Accident and Emergency Department, 14 others were called from the wards and were therefore immediately available. Daily paid workers who come to clean at night were asked to assist as attendants. Thus, a potential shortage of porters was avoided. Wheelchairs normally kept on the wards and stretchers from the operating theatres were brought to the Accident and Emergency Department and fulfilled all the needs of this emergency.

### **PATIENT RESPONSE**

Patients and their families were extremely cooperative. Many less severely injured patients seemed to understand the need for triage and readily allowed the more severely ill to be seen first. In addition, relatives and friends willingly assisted with lifting, moving and transporting patients.

**RESULTS**

Over a 90-minute period 133 patients arrived at the Accident and Emergency department. Doctors at the concert assisted in triage and the Emergency Health Service ambulances (EHS) were well equipped and with trained staff and provided efficient transport for all of the severely injured.

Medical, nursing, radiology and laboratory staff response was excellent. Patient co-operation was very good and this assisted efficient management of the tragedy. All areas were satisfactory with the exception of the limited number of ICU beds (4) and operating theatres (2) available.

A detailed examination of the 133 casualties revealed 70% (93) were treated and discharged 30% (40) were admitted. Overall, 23 (17%) males and 110 (83%) females were seen.

Of the 93 cases seen and discharged, there were 18 (19%) males and 75(81%) were females. Age range was 15-58 (mean of 30 years). Of these, 83 (89%) were soft tissue injuries. There was 1 fractured coccyx, 1 mild head injury, 1 fractured 6th rib and 1 case of costochondritis. Six patients left before having their final assessment.

Admissions accounted for 40 (30%) cases. There were 35 (88%) females and 5 (12%) males. Of the females, there were 20 soft tissue injuries, 11 fractures; [1 scaphoid, 1 fibula, 4 ankles, 1 radius, 1 tibia, 1 femur, 1 proximal phalanx of the index finger and 1 cervical spine injury (old Jeffersons’)], 2 cases of Hysteria, 1 deep laceration to the hip area and 1 obstetric case. Of the males, there was 1 fracture (radius), 1 rotator cuff injury, 2 soft tissue injuries and 1 ENT case.

The fractured femur and tibia were the only two cases, which had prolonged hospital stay. The obstetric case was a suspected mild accidental haemorrhage with no threat to the fetus. Two CT Scans and 3 emergency abdominal ultrasounds were performed.

**Figure 1**

Figure 1. Scene showing part of collapsed stage with mass confusion.



**Figure 2**

Figure 2. Injured person being transported by crowd on a spinal board.



**Figure 3**

Figure 3. Fire officers assisting an injured person



**Figure 4**

Figure 4. Persons in the crowd transporting the injured.



**Figure 5**

Figure 5. An injured person being transported by onlookers and helpful persons.



**Figure 6**

Figure 6. Injured person being transported by crowd on a make-shift spinal .



## **DISCUSSION**

Though a most unfortunate occurrence, the tragedy of the Machel Montano's concert was a triumph for our health services. At the General Hospital,

Port-of-Spain we have engaged in disaster preparedness and drills for several years, but no real disaster occurred to test the depth of our resources.

The nature of the trauma was generally not significant with 70% of the injuries being discharged and 30% admitted. The height of fall was not great. There was no free fall and everyone involved was on the collapsed stand. No one was underneath and there was no fire or explosion.

It was fortunate that there were doctor's on site, as well as ambulance (EHS) services. Only a small percentage of the 3,000 persons were injured.

Overall, the transport and Ambulance (EHS) services were excellent. There were well-trained personnel, good citizen band radio communication and transport was assisted by friends and families.

At Hospital there was an excellent staff response, which included on-call doctors, nurses, nursing assistants, laboratory technicians, attendants, cleaners and clerks. There was an existing shortage of blood, but none was required. The potential for problems of major trauma was present, since there were only 2 operating theatres and 4 ICU beds available.

### **CONCLUSION**

Based on the above findings, all territories should have a disaster plan to cope with large numbers and severe injuries. Authorities must be prepared to make structural and functional adjustments within the institution receiving the casualties.

The accident site, Emergency Department, Radiology services, and operating theatres are likely to be the most tested in these situations. In our setting and in the Caribbean the operating theatre, Intensive Care facilities and availability of blood are the deficient areas, and plans should be instituted to deal with major trauma and a greater number of casualties requiring emergency surgery and intensive care in our Caribbean islands.

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