II ACTIONS

II-1 The mission

→ Provide emergency support to health services on Montserrat
- → Provide emergency care to casualties
- → Stabilization of casualties
- → Organize Medivac Procedures
- → Advise Mass Casualty Management Plan

II-2 Available means

■ LOCATION

The hospital had to moved to the northern part of the island and had been relocated in a farmer school in St John's
The hospital compound is composed of 3 concrete structures. One houses the wards with curtains separating the male, female and obstetric wards with a bathroom off of the male ward. The second structure houses the administrative office, the long term care ward (Margetson Memorial) and the Laboratory The third structure houses the kitchen, Medical Records and the Pharmacy The Dental Clinic is housed in a wooden building on the compound. Surrounding this are several prefabricated buildings that had been intended to serve other functions for the hospital but had quickly been utilized to provide accommodation for the Island's displaced population Several portacabits are dispersed on the compound.

The casualty and the operating theater are about a mile from the ward.
The casualty is opened 24 hours / 24 hours
Every morning, a doctor and two nurses are present.
In the afternoon and at night, a nurse is always there and a doctor on duty is called if necessary (phone or beeper).

Plan of the casualty:

■ DIAGNOSTIC TOOLS

- X-Ray: a X-Ray technician is available everyday
- Ultrasound machine is in a bad state, of limited use due to lack of training
- EKG
- Laboratory. these tests are available (manual methods).

Hematology: Hb
WBC
Diff
Group
Crossmatch
Prothrombobin time
Partial thromboplastin
Bleeding time
Clotting time

Biochemistry: Glucose
BUN
Creat
RA
Mono
LE serology
CRP
Pregnancy test

■ PATIENT ASSESSMENT AND THERAPEUTIC TOOLS

CRASH CART

Right side:

Oxygen small cylinder

Left side:

Suction unit (Laerdal)
Suction tubes

Upper level:

* Defibrillator (Seward Medical London SE1)
  - paddles
  - lead
  - patches

* Sphygmomanometer

* Cardiff infant inflating bag

1st drawer: Drugs

MEDICATIONS	DOSAGE	STOCK	EXPIRED
Anectine	20 mg/l	1	9/97
Adrenaline	1 mg/ml	4	7/98
Atropine	0.6 mg/ml	2	6/98
Aminophylline	10 ml	3	5/97
Bicarbonate	50 mg (50 mEq) 8.4%		7/97
Buscopan	20 mg/ml	6	6/98
Benztropine	1 ml/mg		10/97
Calcium gluconate	10 % 10 ml	3	7/99
Pro-Dafalgan	2g	1	4/99
Dexamethazone	4 mg/ml	6	12/98
Dextrose	10% 500mg	1	1/96
Digoxin	500 mcg/2ml	3	9/97
Dopamine	200 mg/5 ml	4	6/99
Ergometrine	0.2 mg 1ml	5	
Furosemide	20 mg/2ml	1	2/99
Furosemide	20 mg/2ml	3	9/99
H20		3	
Haloperidol	5 mg/ml	5	4/98
Hydralazine	20 mg	4	12/98
Hydrocortisone	100 mg	3	7/97
Hypnovel	10 mg/2ml	7	10/97
Ismelin	10 mg		
KCl	1.5 g	3	3/98
Lidocaine	5% 2 ml	1	1/98
Mersalyl	10 % 2 ml	5	
Metoclopramide	10mg/2ml	5	12/97
MgSulfate	50%	2	6/98
Narcan	400mcg/ml	5	2/98
Pentazocine	30 mg/ml	4	8/98
Phenergan	50 mg/2ml	3	12/97
Piriton	10 mg/ml	3	7/98
Valium		4	5/99
Vitamine complex	injection	3	4/99
Vitamine K	10 mg	4	11/97

2nd drawer:

Needles
Syringes
Tubes

3rd drawer:

- Endotracheal set
- Suction chest kit (2)
- Gloves
- Minitrach set

Lower level:

Fluids.

* Ringer Lactate
* Dextrose 5%
* SSI 0.9%
* SSI + Dextrose 5%
* H.E A. (Elohes
* Mannitol

I V. lines:

- I V. pump
- I.V lines

In the Emergency room there are also equipment for suturing, dressing, plasters.

CASUALTY STOCK

Adrenaline	1mg/ml	0	
Aminophylline	250mg	4	6/98
Atopine	0.6mg	4	6/98
Benztropine	1mg	5	10/97
Bicarbonate	8 4%	0	
Chlorphenidrate	10mg/1ml	6	7/98
Chlorpromazine		10	6/99
Dexamethazone	4mg/ml	19	12/98
Digoxin	500mcg/2ml	14	9/97
Furosemide	20mg	5	9/99
Furosemide	20mg	3	12/99
Haloperidol	injection	21	4/98
Histac	56mg	9	10/97
Hydralazine	20mg/ml	14	6/97
Hydralazine	20mg/ml	4	12/98

Hyocine Butylscopolamine	20mg/1ml	6	11/97
Iron dextran	50mg/1ml	0	
Lignocaine	1% 50ml	0	
Methergin	0 2mg	5	01/98
Metoclopramide	10mg/2ml	4	6/98
Metoclopramide	10mg/2ml	4	12/97
MgS	1mg/1ml	9	6/98
Narcan	injection	5	2/98
Pentazocine	30mg/ml	14	8/98
Phenergan	50mg/2ml	18	12/97
Phenoitoine	250mg	3	6/98
Piriton	10mg	25	7/98
Prochloperazine	12.5mg	10	01/98
Prochloperazine	12.5mg	20	5/98
Valium	10mg/2ml	1	10/97
Valium	10mg/2ml	20	2/00
Valium	10mg/2ml	10	12/98
Vitamine Bcomplex	injection	0	
Vitamine K	10mg/ml	5	11/97

■ MAINTENANCE

Housekeeping comes everyday to clean up the casualty. It is a hard job because of the quick accumulation of ash and dust.
For the sterilization, there an autoclave and potable pressure sterilizer

■ OPERATING THEATRE

The equipment of the operating theater seems to be quite good and functional:

- Operating table
- Scialitic light
- Ohmeda 7000 Ventilator Anesthesia system
- Kontron Instrument (Ventilator)
- Oxymeter
- Dynamap
- Crash Cart
- Suction unit (3)
- Electrosurgical unit
- Air-conditioning
- Also Cystoscope and Rectoscope

Most of the medications are past their expiration dates

Presently, there is no more surgeon on the Island.
However, a Montserratian surgeon who is based in Barbados visits the island during two or three days every fortnight.
During the time I spent in Montserrat there were 4 surgical patients. All were done under local anesthesia by the visiting surgeon (cases of lump left breast, left forearm kyst, sebace kyst, abscess).

Since the surgeons left, surgical patients have been send to neighboring islands Data is not available for these patients.

Surgical cases from April to August 97·

Month	Surgical Cases
Apr-97	13
May-97	12
Jun-97	15
Jul-97	9
Aug-97	10
Totals	**59**

(See annex for the graph)

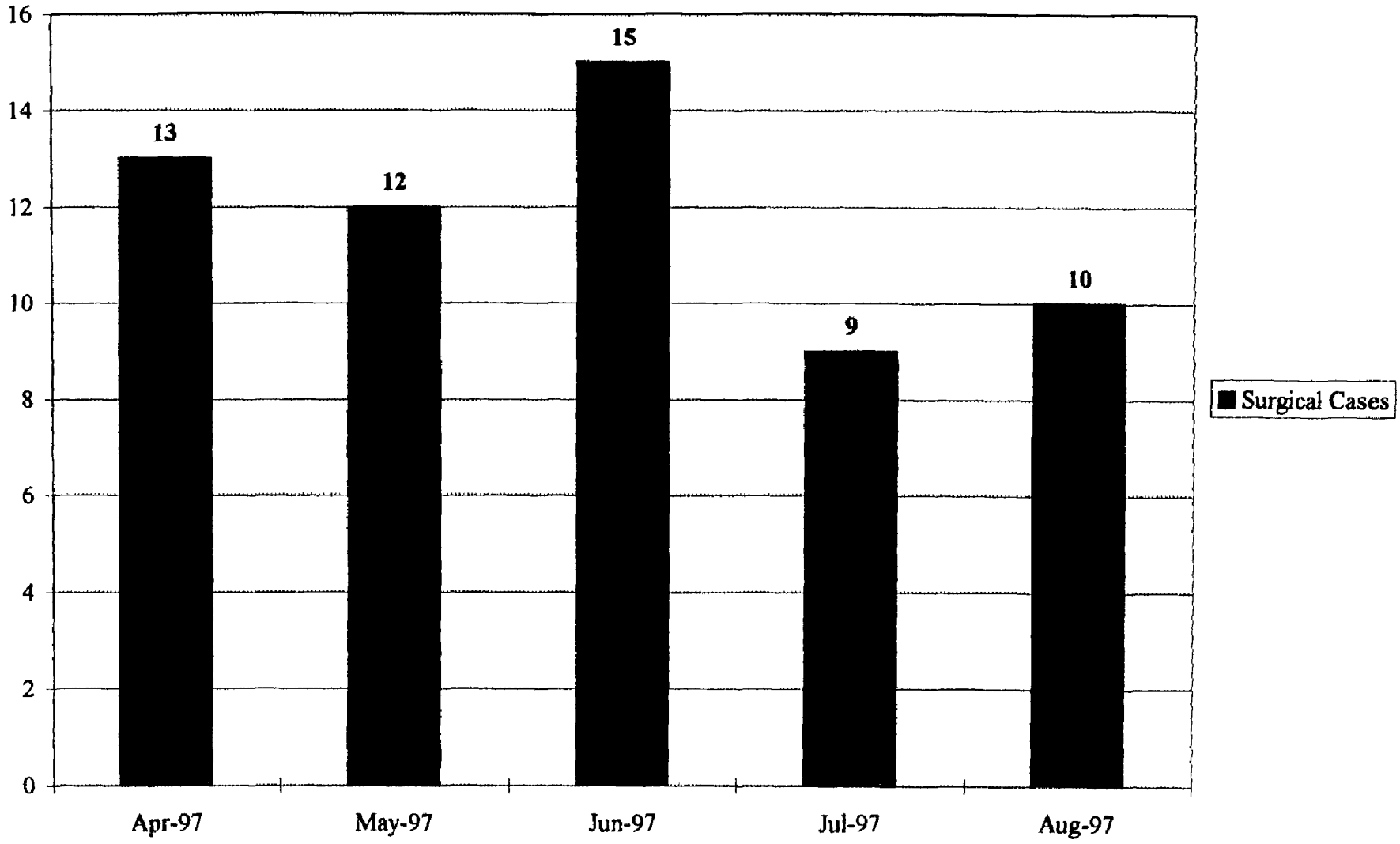
■ WARDS

There are 32 beds and 2 cribs.
The ward is divided in male, female, obstetric and pediatric.
There are nurses on duty 24 hours / 24 hours.
There is a crash cart with a defibrillator, oxygen and emergency medications.
Oxygen stock are managed by the people in the ward.
Bed occupancy is low with many of the occupied beds used by social cases, homeless without significant medical needs

Activity of the ward

Data was not accessible at the time of this report.

Surgical Cases (Dr. Prakash)



■ PHARMACY

The pharmacy is open 8am to 4pm Mondays thru Fridays with a pharmacist on call affter hours.
The pharmacy is located on the hospital compound.
It provides an essential list of medications for both hospital and outpatient use
Computerization of the pharmacy has facilitated the compilation of this report.

■ OTHERS

The kitchen, Margetson Memorial Home, administrative departments and dental office are within easy access to the wards

There is also ambulance available to pick patients up from the casualty to the ward, and to transfer surgical patients to the Theatre. The ambulance is stocked with oxygen and stretchers.

Blood with cross typing is available at the lab.

- Results

Total number of cases

The total number of cases from June versus October 97 has decrease by just over 9% (568/513).
With evidence that the activity is slowing down on the week-end.
A maximum of 35 cases a day was reported in June and 30 in October.
A decrease in cases in the last week of each month on the graph by week are due to the less than a 7 day week
There were approximately 120 cases per week in both June and October.

Gender
The total number of female cases consulting the casualty has decreased from June to October (around 20 %), but the total number of male cases has not significantly altered.
In patients > 15 years of age; female cases decreased (20%) and male cases increased (27%).

Diagnosis

For June and October, the most important diagnosis group were:

- Traumatic injuries (26.64%) which include lacerations, orthopedic problems, wounds, eye injuries, road injuries, and head injuries
- Upper and lower respiratory tract infection (23.96%)
- Other or unknown diagnosis (15.63%)
- Gastroenteritis and Digestive Tract Disorders (7.86%)

For June versus October, there is an increase of cases of respiratory tract infection and asthma (10%), and diabetes consultations (300%).
Also, there is a decreased of the cases of trauma injuries (30%), high blood pressure consultations(36%), and digestive tract disorders (23%).

Age Groups

For June and October, the ***age group*** the most involved in casualty cases is 19-59.
Traumatic injuries in this group represented almost 70% of all of the cases.

For the respiratory tract infection and asthma, 33% were under 5 years of age, 21 % were between 6-18 years of age, 36% were between 19-59 years of age, 7% were more than 60 years of age, and 3% have no age registered.

II-3 Activity of casualty

No statistics are presently available about the activity of the casualty, clinics or overall health care
A small retrospective study of casualty cases was done.
It would be pretentious to say that it is a study It has been done to ask questions and to initialize further investigation

- Aim

Obtaining a database and information about casualty activity ⇒

→ to have precise information about the casualty services (importance of respiratory diseases and digestive tract diseases since ashfalls and evacuation of people,....)
→ to begin a statistical database for further investigations
→ to create the basis of an Alert System
→ to mobilize other health centers (clinics, ..) to begin basic statistics in order to have a global heath assessment

⇒ to improve the heath care and to aid decision makers.

- Tools and method

  - *Population:* Every patients who came to casualty.

  - *Method:* Retrospective collecting of date, age, sex, diagnosis of every consultation.
    Different physicians visited the patients at casualty, the choice of the diagnosis coding after reading the medical report has been made by the author.

  - *Time:* June and October 97
    Only two months were studied due to limitations in time.
    The months of June and October were chosen because following the major pyroclastic event at the end of June a voluntary evacuation scheme was implemented impacting the islands population.

  - *Tools:* Case Registry from casualty department
    Coding of diseases were established by a British doctor who came earlier this year, providing a continuity of coding to facility comparisons between past and future data collection.

For the respiratory tract infection and asthma, 33% were under 5 years of age, 21 % were between 6-18 years of age, 36% were between 19-59 years of age, 7% were more than 60 years of age, and 3% have no age registered.
For the Gastro-enteritis and digestive tract disorders, 23% were less than 5 years of age, 15% were between 6-18 years of age, 52% were between 19-59 years of age and only 10% were more than 60 years of age.

No significant differences concerning the age groups were found between the two months

Graphics

Graphic showing the number of cases by day and by week for the three main diagnosis are annexed to this report. It may be of interest to compare them with the activity of the volcano and with the quantity of ash-fall. At the time of this report, this information was not available

Pharmacy statistics

The number of patients coming from casualty represent 55% of the pharmacy patients in June 97 and around 70% in October 97
The number of all of the new prescriptions decreased from June to October by about 30%.
The number of prescription per patients is 2.16 in June, and 2.1 in October.

■ Discussion

This retrospective study does not adjust for changes in the population due to the absence of accurate population figures for June 1997. Also, the clinics are not included in these statistics and therefore provides incomplete case information.

However, even with the limitation of the study it suggests that the number of cases of respiratory tract infection have increased over the last 3 months. It is recommended that a prospective study should be done.

Many cases of asthmatic bronchitis has been seen in the casualty especially in children under 5 years of age.

The impact of the volcanic activity has to be assessed. In October 97, a program of measurement of the ash-falls was begun and should be factored into any future studies

Also, the geographic origin on the island of the patients who went to casualty was not studied. Information concerning case origins would be of interest in making plausible correlation with the ash-falls.

The analysis of the data is limited, but in the light of the unavailability of more comprehensive data it serves to highlight areas on which to focus It would be unwise to put too much value on the collected data as representative of the islands health situation The incorporation of data from clinics, and the MVO would provide a better basis for analysis of the existing data.

II-4 Medivac

II-4-a Individual Medivac

PATIENT

↕

MEDICAL TEAM

↕

Dr. COOPER	**Mr. CARRINGTON**
Tel: 491-4520	**Tel: 491-5891**
Beeper: 492-8813	**Beeper: 492-4378**
Fax: 491-	**Fax: 491-8777**

Dr. Van Alphen Coordinator for Emergency et Disaster Management for the Caribbean based in Barbados Tel: 1-246-436-6448 / 1-246-426-4261

✈ Guadeloupe

↳ *Emergency Medevac, ICU, Surgery*
↳ *Very specific consultations*

Dr. LUPERON Tel: 011-590 89 11 00
(SAMU 97-1) Fax: 011-590 83 29 66

Mr. RIZOT Tel: 011-590 92 78 73 (H)
(Prefecture) 99 39 25 (W)
Fax: 011-590 81 58 32

✈ Antigua
↳ *General surgery, Obstetric, specific consultations*

Dr. K.K. Singer Tel:
(Orthopedic Surgeon) Fax:

Dr. Raj and Dr. Rani Tel

(Physician) Fax

⇨ St. Kitts & Nevis
↳ *Specific consultations, Surgery, Gyneco-obstetrics, Ophtalmology*

Dr. Tel
( ) Fax

VECTOR

Helicopter

Mr. Tel
Fax:

Mr. Tel:
Fax:

Ship

Mr. Tel:
Fax:

Mr Tel
Fax:

Plane from Antigua

Mr Tel:
Fax:

Mr. Tel
Fax:

II-4-b Medevac Bag

It has been decide to create with the approbation of the emergency staff a Medivac bag in order to secure the transportation of patients off island It should be used in addition of a oxygen cylinder and a suction unit

MEDIVAC BAG

(Green bag)

Exterior pocket:

- Sphygmomanometer
- Pocket cast
- Arm lock
- Baxter solution
- Shapsafe

Blue pocket: Respiration

- Intubation set:
  - endotracheal tube # 5 6 7
  - laryngoscope
  - batteries
  - lubrication (xylocaine gel)
  - tape
  - swab for fixation (ribbon gauze)
  - guide
  - syringe 10cc
  - adapter
  - gloves
- Bag valve mask (Ambu mask)
- Adapter
- Nebulazer
- Guedel tube
- Chest exsufflation kit

Orange pockets: Circulation

- Fluids
  - Ringer lactate
  - Elohes (H E.A.)
  - Dextrose + S S I
  - Mannitol
- IV lines
- Peripheral line dressing with transparent membrane

Lower red pocket:

- scissors
- light

Red middle pocket:

- tape
- dextrostix + lancettes
- swabs
- bandage

Left green pocket:

- gloves
- face mask

Right green pocket:

- swab

Central table:

(side one)

- syringes
- drugs
- stethoscope
- scissors
- tourniquet
- bistouri
- tape
- blade depressor

Central board

Medication	Strength	Quantity	Expiration
Adrenaline	1mg/ml	4	Jul-98
Atropine	0 6mg/ml	2	Jun-98
Chlorpheniramine	10mg/ml	1	Jul-98
Dexamethasone	4mg/ml	2	Dec-98
Dextrose	10%	1	May-99
Dextrose	50%	1	Jul-98
Diazepam	10mg/2ml	2	May-99
Digoxin	0 5mg/2ml	1	Oct-2000
Dopamine	200mg/5ml	2	Jun-99
Furosemide	20mg/ml	2	Sep-99
Haloperidol	5mg/ml	2	Apr-98
Hydralazine	20mg/ml	2	Dec-98
Hydrocortisone Succinate	100mg/vial	2	Jul-2000
Lidocaine	1% 50ml	1	Jun-99
Lidocaine prefilled syringe	100mg	1	Sep-99
Metoclopramide	10mg/2ml	2	Jun-98
Midazolam	100mg/2ml	3	Oct-97
Narcan	400mcg/ml	2	Feb-98
Pentazocine	30mg/ml	2	Jun-99
Potassium Chloride	40mEq/20ml	1	May-98
Prodafalgan (paracetamol)	1gm/vial	1	Apr-99
Promethazine	50mg/2ml	2	Dec-97
Water for injection	5ml	2	

Position on the board

Narcan	Adrenalin	Atropine	DXM	Furosemi	Hydralazi	Chlorpro
2	4	2	2	2	2	1

Dopamine	Digoxin	H2O	Valium	Hypnovel
2	1	2	2	3

Metoclopramı	Haloperidol	Diclofenac
2	2	3

II-4-c The Special Flight

I was asked by the Volunteer Evacuation Office to assist in the preparation and realization of a large Medivac of special needs patients There were 34 patients with around 35 relatives sent to the United Kingdom

Date of departure	**Age**	**Sex**	**Past Medic History**
Wednesday	77	Female	heart problem (Digoxin, lasilix) Wheelchair
W	76	F	left side paralysis, blind, diabetes Wheelchair Catheter
W	81	Male	High Blood Pressure heart failure regular irregular pulse Wheelchair
W	61	M	Cannot walk Wheelchair
W	73	F	Cannot walk Wheelchair Catheter
W	39	F	Psychiatric high blood pressure diabetes poorly controlled
W	50	M	Physically disables dysphasic Wheelchair
W	81	F	Stroke Wheelchair catheter
W	55	M	High blood pressure Wheelchair
W	67	F	Stroke Wheelchair
W	20	M	Epileptic poorly controlled on medication
W	23	F	Mitral valve disease heart failure Digoxin Lasilix
W	74	M	Congestive cardiac heart failure Wheelchair

W	71	F	Stroke Wheelchair
W	72	F	Stroke Wheelchair
W	60	M	Stroke Wheelchair
W	35	F	Blind Wheelchair
W	84	F	Confused
W	86	F	Diabetes and high blood pressure senile dementia Wheelchair
W	60	M	Diabetic on insulin Catheter
W	67	M	Blind arthritis Wheelchair
W	75	F	High blood pressure diabetes Wheelchair
W	65	M	Diabetes on insulin Wheelchair
Thursday	21	F	born handicapped, cannot walk Wheelchair Catheter
T	86	F	Blind Amputation right leg confused Catheter
T	37	F	Psychiatric (schizophrenia)
T	76	F	Fractured hip cannot walk Wheelchair catheter
T	42	M	Physically disabled Wheelchair
T	83	F	Diabetic cannot walk ulcer on left foot Wheelchair
T	41	M	Physically handicapped unable to communicate Stretcher catheter
T	81	M	Blind diabetic Wheelchair
T	75	F	Mentally ill
T	63	F	Asthmatic diabetes on insulin
T	39	M	Psychiatric

The entire Medivac took two days The first group went by ferry to reach Antigua on Wednesday and stayed over night at a hotel Those who required more assistance left Montserrat on Thursday by ferry just before the flight A special flight from the United Kingdom was waiting and all of the patients with a medical team boarded without event on Thursday night in Antiqua They left Antigua on time and arrived in Newcastle without incident

The Red Cross from Montserrat and Antigua, the Montserratian Defense Force, the Rescue of Antigua, the Medivac team and the coordinators were efficient and succeeded in the safe transfer of these patients to the UK

(The Montserrat Reporter 7 November 1997)

SPECIAL NEEDS PERSONS RELOCATE TO BRTIAIN

65 disabled, sick and elderly persons, and family members, were flown out on a chartered flight financed by Her Majesty's Government from Antigua arriving safely in London today. The passengers were taken to Antigua over two days Tuesday and Thursday on the French ferry Anttilles Express.

The Boeing 707 jet equipped with trained personnel and appropriate instruments necessary for a trip of this kind had also on board at least one medical doctor in Dr. Eggman from Samu, French Guiana and several nurses. Dr. Eggman accompanied the disabled persons from the beginning of their journey in Montserrat.

Reports reaching the Reporter from Health Ministry officials here in Montserrat said that everyone arrived safely in Lancaster, England today.

Above: Neville Frith is helped by Nurse Fioni and his sister Joyce to board the ferry
Below: A disabled lady is having her stretcher positioned on the ferry seats

II-5 Mass Casualty Management

The coordinators of the disaster preparedness management (including Mass Casualty team) reported the readiness of the Mass Casualty team, and that the team could make a prodigious demonstration of knowledge and theory They reported having completed a simulation exercise on the 17th of February 1997 which was successful They also reported that on the 25th of June 1997 the implementation of the Mass Casualty Plan was successful

In order to assess the Mass Casualty Plan, I asked the coordinator for a simulation exercise. After fifteen days of adjournment (people were off the island or ill), I diplomatically proposed two dates for a simple exercise that I prepared. They chose the later date giving them two days to preparing for the simulation

The aim of the simulation was to train new team members and demonstrate the set up of the Advance Medical Post. It was not intended to embarrass them with a difficult scenario . Since the 25th of June 1997, they had not set up the Advanced Medical Post, nor reviewed any steps of the plan which was written in July 96. Many of the people trained in Mass Casualty Preparedness have left or are off the island this month. Therefore, because of the lack of training it was proposed that one deputy from each team of the plan was called the day before the exercise to be on stand-by, to be sure that the minimum number of people could be present during the setting up of the Advanced Medical Post which is a crucial step in the plan.

On the day of the simulation, the exercise had to be canceled because the coordinators of the Plan did not initiate the simunlation. The Red Cross officer, the British health officer, the doctor of the red area ,the pharmacist, the storekeeper and several of the nurses were ready However the phone cascade was never activated. The AMP was not set up because they didn't know where to put it up and they had no contingency plan for the placement of the AMP. They were unable to find a solution. It must be said that they had no tent, no location predetermined, and no motivation to find a solution. Also, they did not have transportation available for the transport of the AMP supplies to the intended site.

The reasons given for the unpreparedness of the team was the number of new members, many of which have not really been trained in Mass Casualty Management, and the unavailability of a location for the AMP

The only way to be ready for a mass casualty event is multiple and frequent training simulations and the ability to accept constructive criticism on how to improve the system.

A good contribution can be expected from the Montserrat Defense Force, the search and rescue team which will be up-dated by several British fire officers who are on

the island for two weeks and the Red Cross But without the input of the Health sector effective management of a mass casualty event can not be achieved

So at the time of this report, contrary to public reports on the radio and opinions of the Mass Casualty Coordinators, the Mass Casualty Team has not demonstrated readiness for a real mass casualty event. This must be improve without delay.

The weakest points in the plan are the Advanced Medical Post and the management and organization of the team.

Due to lack of communication between the team and lack of investment in the simulation there are still many unanswered questions concerning the set-up and management of the AMP. Decision making skills have not been demonstrated. Without clear leadership management of a crisis would be impossible.

The management of a mass casualty disaster must not be improvised the day of the disaster, nor should the setting up of the AMP wait till a real disaster.

RECOMMENDATIONS

1. A simulation exercise at least once a month.
   Because of the intense activity of the volcano, the frequently changing scenarios, and the frequent turnover of staff, this has to be done as often as possible. Frequent training will act as a means of motivating the participants.
2. Set up a meeting to discuss the most evident problems
   Location(s) of the AMP
   Lighting (generator) for the possibility of an event during the night
   Transportation of AMP supplies
3 From the meeting, plan a simulation to deal with the possible scenarios
4. Conditions for the simulations should vary (at night, raining etc.) to indicate possible new problems to be solved.
5. These scenarios should be done with as many people as possible to ensure that even if the coordinator or people in charge are off the island, somebody else will be able to take their place.
6. Non-health professionals should be consulted for input
   The engineer who is building the new hospital should be consulted for the AMP placement
7 The pharmacy should be officially in charge of the AMP stores because they are more involved than the storekeeper.
8 Simulations should not be canceled for any reason since problems faced in a simulation are possible in a real event.
9. The population should be involved in the exercises

The aim of these simulations is to ensure that the team will be ready at any time if something happen, and to be sure that the most evident problems are solved before an event The team needs more practices in skills and decision making than in theory

The senior medical officer who will succeed me could be in charge of this program with the cooperation of the entire medical and paramedical staff

II-6 Formation

In order to optimize the care of the patients, a few lectures on patient assessment (Burn care), equipment use (cardiac monitoring, defibrillator) has been done for the nurses Protocols have also been established in collaboration of Dr. Anand (asthma attack, advanced cardiac life support)

Success of the formations given was demonstrated by the excellent management provided by the nurses, of a serious burn casualty The patient was evacuated to Guadeloupe two days after admission.

Three 2 hour lectures on first aid and burn care was provided to the entire staff of the Montserrat Vulcano Observatory. They were very interesting in the course because of potential risks inherent in their jobs and the possibility of being able to provide first aid assistance since they would most likely be first on the scene during a mass casualty event due to the volcano. The MVO was provides a first aid bag at the completion of the course.

FIRST AID BAG
(Red bag)

Exterior pocket:

- Sam Splint pocket cast
- Gloves
- Sterile Burn Sheet
- Baxter solution (3)
- Wrapmaster
- Collar

(Side one)

Blue pocket

- Adapter
- Guedel tube (2)
- Oxygen face mask

Orange pocket

- Sterile First Aid dressing

Yellow pocket:

Left one:

- Baxter solution
- Eye solution

Central one:

- Burn casualty sheet
- Scissors
- Tape
- Bandage

Right one:

- Burn sterile bag

(Side two)

Left green pocket

- Bistouri
- Elastoplast
- Minitransparent dressing

Right green pocket

- Contour bandage

Blue pocket

- Dressing sheet
- Burn sheet

Red pocket

- Swab cooling against swollen joint
- Scissors

Oxygen kit (not already)

- Cylinder
- Spanner + Manometer

Finally a 2 hour discussion was held with the Montserratian students currently studying french. (about 12 people) Topics of discussion included France, the French Department overseas, French Guiana, and emergency care in France and in French Guiana The meeting was organize by Pat RYAN who is the French teacher at the secondary school and the official translator in French

III Future

III-1 Evacuation of Central area

After reading the reports of the MVO, flying over the southern zone and living a few weeks in Montserrat, I cannot consider that the central zone is a safe area. Also, the risk of a mass casualty disaster in this area has to be considered very seriously. Because the mass casualty plan has not been effectively demonstrated, an emergency evacuation of the central zone would be tragic. If this has to happen, problems like water supplies (most of the springs are in this area), lodging people would be actually difficult to solve. Also, the limitation of roads to the north would make such an evacuation more difficult and risky.

If the mass casualty plan has to be activated, there is several plausible locations: heliport, buildings at the hospital, or the secondary school on the beginning of the east road. Furthermore the AMP should be ready to be set up anywhere with protection against the elements. The evacuation of the island by boat will be dangerous and sometimes impossible because of harbor conditions and variable weather. Some adaptation to the port would be useful.

The risk of a mass casualty with another origin (e.g. car crash) have to be consider as well.

III-2 Provision of a surgeon

The activity of surgery is decreasing because there is less and less population on the island. When a surgery consultation has to be consider, the patient can be send to the neighboring islands. In an emergency, the helicopter and the ferry can be utilized. With the proper equipment (some additional equipment like electric syringe or "dialaflot" could be add) and a qualified doctor, a patient could be manage until the medivac is possible (night, ash, bad weather). The operating theater could also be used if a patient needs to be under ventilator.

But, the risk of a very serious patient needing surgery in emergency without any possibility of medivac in emergency is plausible. The risk is however low and the presence of a surgeon in this case could not actually justify his presence on the island for the entire year.

III-3 Out-break of diseases

Even if currently the island has not seen the outbreak of an epidemic, the risk of an outbreak of some transmitted diseases is not low because of the overcrowding in the shelters, especially with the elderly shelters which pose a greater risk. Also, there are at least two patients with Tuberculosis on the island who have been treated. But it is not known if their treatment have been completed nor if compliance to protocols has been achieved. Their current status is unknown.
The development of statistics and early alert protocols could control this problem.

III-4 Social problems

This aspect has to be consider because the social life has decrease, the economic situation is not good The threat of the volcano has resulted in many people losing their possessions and in some cases their family members and friends due to relocation and death. This has had an impact on the social and mental health of the population resulting in the apparent increase in the number of drunk people, and unemployed persons.

III-5 The following Medical Officer

The first priority should probably be for the next Medical Officer to address the mass casualty preparedness plan He will need to be actually in charge of this program.

ANNEX

i Mass Casualty Advance Medical Post Phone list
ii Mass Casualty Simulation Plan
iii Disaster Preparedness Plan Mass Casualty Plan for the Pharmacy
iv Casualty Cases by Day *graph*
v. Casualty Cases by Week *graph*
vi Casualty Cases *Data*
vii Casualty Cases by Diagnosis for both months *graph*
viii Casualty Cases by Diagnosis Comparison of months *graph*
ix Casualty Cases by Diagnosis *Data*
x. Casualty ARTI Cases by Day *graph*
xi Casualty ARTI Cases by Week *graph*
xii Casualty ARTI Cases *Data*
xiii Casualty Trauma Cases by Day *graph*
xiv. Casualty Trauma Cases by Week *graph*
xv. Casualty Trauma Cases *Data*
xvi Casualty Digestive Tract Disorders by Day *graph*
xvii. Casualty Digestive Tract Disorders by Week *graph*
xviii. Casualty Digestive Tract Disorders *Data*
xix. Casualty Cases by Gender *graph*
xx Casualty Cases by Gender *Data*
xxi. Casualty Cases by Age *graph*
xxii Casualty Cases by Age and Diagnosis *graph*
xxiii. Casualty Cases by Age and Diagnosis *data*
xxiv. Pharmacy Statistics *graph*
xxv Pharmacy Statistics *data*
xxvi Patient Assessment and Management Formation
xxvii. Burn Care Formation
xxviii. Asthma Protocol
xxix. Analgesic Protocol

ADVANCED MEDICAL POST TEAM

TEAM 1	NAMES	ADDRESSES	TEL. NO. & BEEPER NO	PICK UP-POINT
CO-ORDINATOR	ALMAE O'GARRO	PALM LOOP	491-5144 H 491-2802 W	
TRIAGE NURSE	VIOLET BROWN	DAVY HILL	491-5204 H 5258 W	
TRIAGE CLERK	FLORENCE SWEENEY	BAKER HILL	491-5526 H 491 2843 W	
RED AREA				
DOCTOR	DR ANAND	OLVESTON	491-7318 H 2828 W	
NURSES	MARY ANN GERALD-RYAN	ST JOHNS	491-5353 H 2836 W	
	NAOMI FARREL	ST JOHNS	491-6433 H 5218 W	
	JEANETTE BRADE	GERALDS	491-5529 H 5436 W	
FIRST AIDER	DOROTHY GREENAWAY	ST PETERS	491-5774 W	
YELLOW AREA	ICILDA STANLEY	SWEENEYS	491-7113 2836	
	MARY COOPER	MANJACK	491-5439 2699	
GREEN AREA	ELAINE HAZELL	CUDJOE HEAD	491-5258 2836	
	KATIE BUFFONGE	BAKER HILL	491-8613 5436	

TEAM 1	NAMES	ADDRESSESS	TEL. NO. & BEEPER NO.	PICK UP-POIN
FIRST AIDERS	BEVERLY WEST	BAKER HILL	491-3288 5181	
	CATHERINE FENTON	ST PETERS	491-5774 2798	
	CARLTON O'GARRO	PALM LOOP	491-5638 492-9524	
	DENISE WILLIAMS		491-3271	
	IONIE YEARWOOD	BRADES		

Scenerio

Pyroclastic Flow in Old Towne
Ash falling in Woodlands
Evacuation of Central
(poor visibility due to heavy ash fall in Woodlands)
Daytime
Weather
Calm Seas

Questionnaire

- Alerting Process initial assessment (confirmation: where ?when ?how many?)
  - MVO
  - Flying team

- Phone cascade

  - Listing (record time and response of contact)
    - Medical /paramedical
    - Administrative (Montserrat and UK)
    - Police/Defense Force

  - If the phone line is down, what are they going to do?
  - Radio networks?
  - Sending messengers?
  - Else?

  - If there is no transportation?
  - Is the road is down?

- Field Area Pre-Indentification
  - Impact Zone
  - Command Post Area
  - Advance Medical Post Area
    - Where? Why?
  - Evacuation Area
  - VIP and Press Area
  - Access Road
    - Map?
  - Safety Measures (Fire? Police?)
    - Accommodations for central zone refugees

- Command Post
  - Communication Network
    - Radio Skills
    - Information Management
    - Decision Making Skills
      - Ask help from Guadeloupe?
      - Request total Evacuation? (Timing)

- Advance Medical Post
    - Timing/Setup
    - Draw a plan(map) of area
    - Are areas well defined
        - Entrance
        - Red
        - Yellow
        - Green
        - Black
        - Supplies
        - Exit
    - Availability of lighting (What will happen if the event occurs at night?)
    - Availability of roof/protection from elements
    - Availability of electricity/ Need for electricity
        - Generator?
    - Availability of Supplies
        - Medication/Bandages/oxygen/burn kits etc.
        - Organization
    - Availability and preparedness of Staff
    - Availability of administrative post (clerks)

- Management of Victims
    - Efficiency
    - Coordination between Command Post and the AMP and other authorities (Montserrat and UK)
    - Timing/ repetition of situation assessment
        - Search and Rescue
        - Triage
            - Ability to tag correctly
            - Organization
        - Treatment
            - Organization of supplies
        - Evacuation
            - Availability of transportation
                - helicopters
                - boat
                - transport to boat and/or helicopter (ambulance)
            - Timing / stabilization of patients before transfer

- Report
    - Regular status report

Scenerio

Pyroclastic Flow in Old Towne
Ash falling in Woodlands
Evacuation of Central
(poor visibility due to heavy ash fall in Woodlands)
Daytime
Weather
Calm Seas

Casualties: (100)

Black	10
Red	20
Yellow	30
Green	40

Red

10 severe burns with burned airways
5 head injuries with unequal pupils
3 major external bleeding
2 with shock status

Yellow

20 severe burns without airway involvement
5 femur/pelvic fracture
5 compound fractures

Green

10 minor fracture
30 minor wounds and burns

Advice to give the press concerning situation/ Use of the press to control the situation.

- Hospital Response
  - Laboratory (blood)
  - Pharmacy
  - Ward (Red via helicopter/ Yellow to ward)
  - Casualty

- Other
  - Team rotations
  - Food/drink
  - restrooms

1	3 Burns w/airways 10 minor burns/wounds 2 deaths 5 Severe burns
2	5 Severe burns 2 Head injuries w/unequal pupils 3 Burns w/airways 5 minor Fractures 0 deaths
3	3 Femur fractures 1 major external bleeding 3 Compound fractures 1 shock status 3 deaths 4 Severe burns 10 minor burns/wounds
4	5 Minor fractures 2 Burns w/ airways 1 Major external bleeding 1 Shock Status 2 Head injury w/unequal pupils 3 Severe burns 1 Femur fracture 1 Compound fracture 5 deaths

5	2 Burns w/airways 1 Head injury w/unequal pupils 1 Major external bleeding 2 Severe burns 1 Femur Fracture 1 Compound Fracture 10 Minor burns/wounds 0 deaths

		YELLOW	BLACK
1		5 Severe burns	2
2		5 Severe burns	0
3		3 Femur fractures 3 Compound fractures 4 Severe burns	3
4		3 Severe burns 1 Femur fracture 1 Compound fracture	5
5		2 Severe burns 1 Femur Fracture 1 Compound Fracture	0