

**BASIC DOCUMENT**

**CARIBBEAN REGIONAL WORKSHOP FOR NURSES**

**on**

**THE ROLE OF THE NURSE**

**in**

**DISASTER PREPAREDNESS AND RELIEF**

**May 12-16, 1980**

**Barbados**

**Pan American Health Organization  
World Health Organization  
January 31, 1980**

## P R E F A C E

At the time of the onslaught of Hurricane David in Dominica on August 29, 1979, ten (10) senior nurses from the Caribbean Region, the Nursing Officer, CARICOM Secretariat, and four (4) PAHO nursing advisers were present, and were called upon to provide needed assistance.

Following this experience it was clear that nursing personnel in the Region needed to be more educationally prepared to adequately carry out their role and functions during times of disaster.

An urgent request was made at that time by the regional nurses, for PAHO to convene a Regional Workshop toward this end. It was further requested that if possible, those regional nurses who were present in Dominica at that time be invited as participants.

In fulfillment of this request, plans were made to convene a Regional Workshop May 12-16, 1980 in Barbados. In cooperation with the Disaster Preparedness and Relief Unit at PAHO Headquarters, a Planning Committee met in Barbados during the period January 28 - February 1 to develop the content, administrative aspects, and Basic Document for the Workshop.

### ACKNOWLEDGEMENT

Appreciation is expressed to the following persons who constituted the Planning Committee:

Ms. Maria Barker, Nurse-Midwife Adviser, PAHO

Mrs. Grace Burke, Area Nursing Adviser, PAHO

Ms. Marion Harding, Nursing Officer, CARICOM Secretariat

Mrs. Judith Isaacson, Short-Term Consultant in Disaster Nursing, PAHO

Mrs. Gloria Noel, Nursing Adviser, PAHO

Ms. Una Reid, Nursing Education Adviser, PAHO

Ms. Jean Springer, Senior Nursing Sister (Ag.),  
Queen Elizabeth Hospital, Barbados

Mr. Seymour Barnes, Area Health Education Specialist, PAHO

Special thanks are also expressed to:

Dr. Claude de Ville, Chief, Disaster Preparedness Unit, PAHO/WHO

Dr. Mervyn Henry, Caribbean Program Coordinator, PAHO/WHO

for their respective roles and support in this endeavour.

## CONTENTS

	Page
I. Introduction	
II. Disasters	1
A. Types	1
B. Impact	2
1. On the Nation	2
2. On the Community	2
3. On the People	4
4. On The Health Care Delivery System	4
C. Historical Caribbean Disasters	6
III. Post Disaster Health Problems	7
A. Disaster-related injuries, health, and environmental problems	8
B. Pre-existing health conditions, illnesses, and injuries	9
IV. Role of the Nurse in Disaster	11
A. Pre-Disaster Phase	11
B. Immediate Post-Disaster Phase	11
C. Post-Disaster Restorative Phase	11
D. Functions and responsibilities, placement, required knowledge, skills, attitudes	12 - 1
- planner	12
- provider of nursing care	12
- administrator	13
- health educator	13
- triage officer	14
- crisis intervenor	14
V. Bibliography	15

## I. Introduction

In the Caribbean, nursing personnel constitute the largest category of health workers, and as such carry the burden for the delivery of health care. Very often, particularly in the rural areas of these island territories, they are the only health workers available to deliver ongoing health services to the community.

There is an ever-increasing demand for nursing services, particularly by vulnerable groups such as mothers and children. This has led to the need for expansion of the role of nurses to include certain functions traditionally carried out by physicians. These functions include physical assessment, diagnosis, prescription of medications, and various treatment measures.

At the central and intermediate levels of the health sector, nursing personnel have a vital role to play in the planning and programming of health services and in managing and educating health personnel for their respective roles.

The Caribbean area has long been known to be particularly vulnerable to both natural and man-made disasters. In 1979 alone, disasters occurred in the Caribbean due to hurricanes, volcanic eruption and floods.

During the immediate aftermath of a disaster, the health sector assumes a priority role, and it has been clearly demonstrated that the greatest demand for nursing services is during this period.

This includes not merely the application of bandages and other treatment measures, but clinical decision making and administrative functions as well.

Participation in the restoration/rehabilitation process i.e. the re-establishment of health services, particularly nursing services which were disrupted by the disaster is also a major function.

Educational preparation is required for nursing personnel at all levels within countries for their role during the pre and post-disaster periods as follows:

- At the administrative level for meaningful participation in multi-disciplinary short, medium, and long term planning towards restoration of hospital and community services.
- At the intermediate level for the effective deployment and supervision of staff and efficient delivery of patient care.
- At the peripheral level for their role in public health education, and for their greatly expanded clinical role, particularly in remote rural areas.

Their responsible assumption of duties within the context of a multi-disciplinary team effort during the planning stage, the immediate crisis, and during the restorative process at central, intermediate, and peripheral level is of utmost importance.

## I. Disasters

### Definition of Disaster

Disaster is an occurrence that causes human suffering or creates human needs that victims cannot alleviate without assistance. These situations include storms, floods, earthquakes, droughts, hurricanes, fires, explosions, collapsed buildings, transportation wrecks, volcano eruptions..

(Adapted from American Red Cross Disaster Series Booklet. Attachment 2 page 6. Issue May 1976.)

### A. Types of Disaster

Disaster may be classified as:

<u>Natural</u>	<u>Man made</u>
Hurricane	Fire - electrical, industrial
Tropical storm	
Flood	Explosion - gas
Earthquake	War - Civil, coup d'état, World wide
Volcanic eruption	
Epidemic	Transport - land, air, sea
Landslide	Collapsed buildings
Famine	
Tornado	

(American Red Cross Disaster Series Booklet. Attachment 2 page 6. Issue May 1976.)

B. Impact of Disaster

1. On the Nation

a) Economic

- Increase in unemployment
- Loss of revenue due to disruption of industries and cash crops
- Increase in importation of goods and supplies
- Decrease or no exportation of goods

b) Resources and Services

- Decrease in manpower due to dislocation of persons, injuries, and death.

c) Disruption of Normal Services

These may include all transportation, communication systems, damaged facilities, shift in priorities in relation to health care.

d) Psychological Effect on the Nation

Effects may be negative or positive. Negative effects include continued dependency on other nations for assistance. Positive effects occurring may be technical cooperation among developing countries, unification of forces within the nation in the rehabilitative effort, fostering stronger and/or developing new relationships with other nations, thus serving as a vehicle for change.

2. On the Community

a) Interruption of Services

- 1) Electricity - due to disconnected wires, uprooted or dislodged poles.

Interruption of Services (cont'd)

ii) Transportation: Land - destroyed vehicles, road blocks, erosion of roads, land slides

- air: no air communication, blocked and/or damaged runway

- sea: destroyed boats, damage to deep water harbours

iii) Gas: Disconnected pipe lines

iv) Communication systems: Radio, television, newspaper, telecommunication, telephone, meteorological centre, and airport communication may be disrupted causing limited or no dispersion of information nationally or internationally.

v) Law and Order: Looting, stealing, promiscuity, and rape may be markedly increased.

b) Destruction and Damage of Property

i) Housing: Complete or partial damage to buildings and homes causing dislodgement, dislocation, and loss of personal property.

c) Possible shortage of water, food, supplies

i) Water: Disconnected and damaged pipelines, leaking or destroyed cisterns, contaminated reservoirs by debris and sewage.

ii) Food: Damage to existing food distribution centres, agricultural crops, and spoilage which may result in rationing and famine.

iii) Supplies: General - these include household articles, medical.



d) Psychological effect on the Community

Effects may include feelings of helplessness, and hopelessness depending on the severity of the disaster. Community members may react by showing signs of depression, fear, anxiety, hyperactivity and psychosomatic disorders.

3. On People

a) Injury and Death

Injuries may vary in type and severity depending on the nature of the disaster. The number of deaths is in relationship to level of preparedness, time and type of disaster.

b) Family separation

Dislocation of families may occur as a result of allocation of victims by age and sex in shelters; time of day; and season.

c) Loss of home and possessions

This includes crops, livestock and personal effects leading to economic problems. Psychological trauma resulting may manifest itself in the form of anxiety, fear, aggression, and grieving.

4. On the Health Care Delivery System

a) Staff affected resulting in shortage of manpower

Health care workers and families may themselves be victims and this may lead to a shift in priorities regarding health care delivery.

b) Buildings affected where Services are normally delivered

Buildings such as clinics, hospitals, pharmacies, and laboratories providing services to the community may be partially or totally destroyed.

c) Interrupted transportation particularly, for victims

Destruction of vehicles, shortage of petrol, blockage of roads and lack of manpower, will lead to interruption and reduction of transportation for victims.

d) Shortage of blood, medications, and supplies

A shortage of blood may occur depending on the number and severity of injured victims. There may be a reduction in the number of donors.

Damage to laboratory equipment and lack of personnel will further compound the problem. Storage areas for medication and supplies may be damaged, and there may be an insufficient quota to serve the number of victims requiring service, including insufficient medical personnel to prescribe and dispense medications.

e) Cumulative stress and exhaustion on the health team

Health manpower may be limited leading to long hours of health care delivery to a large number of victims, excluding provision for periods of rest. Conflict of loyalties between family and profession may be present.

f) Continuing injuries presenting during the clean up phase

When the disaster covers a wide area, and transportation is disrupted, health may be seen as a secondary and victims may delay seeking medical attention until a later stage.

g) Normal health care problems continue

Victims may present with chronic medical conditions such as diabetes, mellitus, and hypertension. Provision must be made for continued treatment of these medical problems.

h) Inadequately prepared volunteers (professional and lay)

Volunteer health care workers from various nations, categories and levels may flood the disaster area. Assignment of duties may be inconsistent with the level and experience of the volunteer.

i) Lack of Coordination and leadership or vice versa

This may occur among the various levels of health care workers. Distribution of health services, may be duplicated, fragmented and overlapping.

j) Unreliable information which may be difficult to verify and confirm

Misinterpretation of information due to lack of knowledge, and absence or scarcity of records in particular situations may occur. Difficulty in verifying and confirming information may be caused by lack of systems of communication, information and records.

k) Diminished Resources

Human: Doctors, Nurses, Laboratory Technicians, Social Workers, Health Educators, Red Cross Volunteers and St. John's Ambulance Volunteers.

Physical: Medical buildings, medical equipment, and vehicles.

Maternal: Medical supplies including drugs.

C. Historical Caribbean Disasters

Types: Transportation, fire, hurricane, flood, air crash, volcanic eruption, earthquake, landslide, oil spill, tropical storms.

Recent disasters occurring in the Caribbean:

1970 "Christina" - Drowning, St. Kitts, approx. 170 deaths, approx. 100 survivors

1976 Cubana Air Crash - Barbados, 73 deaths - no survivors

1978 Jones Town Tragedy - Guyana, 900 deaths

1979 Floods - Jamaica, 40 deaths

1979 Hurricane David - Dominica, 40 deaths

1979 Hurricane David - Santo Domingo, approx. 600 deaths.

### III. Post Disaster Health Related Problems

#### A. Disaster-Related Injuries, Health and Environmental Problems

Disasters vary in their degree of unpredictability and suddenness of onset; in degree of preparedness possible; and in the extent and nature of injuries and related health and environmental problems.

Those Disasters which occur suddenly, for example, earthquakes, explosions, electrocution, transportation accidents and fires, produce a large number of injuries. On the other hand, disasters which are usually preceded by a warning and/or alert tend to produce less severe injuries. However, the spread of communicable diseases is a greater threat and greater care is needed for vulnerable groups such as infants and young children, the aged, the chronically ill, and expectant mothers.

Injuries, Health and Environmental problems vary in nature and complexity according to the type of disaster. The nurse must be on the alert for those illnesses and injuries which are less obvious and for which the disaster force may be indirectly responsible. Though not apparent in the immediate emergency, these problems may be lessened or prevented to some degree by early recognition.

Of significance too, are emotional problems and psychosomatic disorders which can arise as a result of social dislocation, feelings of hopelessness and helplessness, and loss of family, friends and possessions which victims of the disaster may experience. The related problems which can result from communal living in "shelters" without proper supervision cannot be ignored or underestimated. These include promiscuity, rape, increase in sexually transmitted diseases and unwanted pregnancies.

Table 1 below describes some of the varying kinds of injuries, health and environmental problems which may occur in relation to different types of disasters. The Management of specific types of injuries will be covered in the section dealing with "Management of Mass Casualties."

Table I

- 8 -

DISASTER-RELATED INJURIES, HEALTH AND ENVIRONMENTAL PROBLEMSBY TYPE OF DISASTER

Type of Disaster	Injuries Expected	Potential Health Problems	Environmental Problems
Explosions	Fractures - All types	Upper Respiratory Tract Infection	Disruption of electricity and water supplies
Electrocution	Lacerations - extensive	Febrile conditions	resulting in inadequate or no water supply.
Transportation accidents	- superficial	Skin infections	
Civil unrest	- heat	Communicable Diseases	
Flash flooding	- chemical	Secondary wound infection	Vector and Rodent Infestation
	Contusions	Emotional Disturbances	Water contamination
	Penetrating wounds, nail punctures	Psychomatic Disorders	Poor food hygiene
	Gun shot wounds	Chronic Illness	Inadequate solid and human waste disposal
	Foreign bodies	Conditions of the Aged	
	Shock	Obstetrical	
	Concussion	Related problems -	Inadequate or no facilities for embalming and/or burying dead.
	Asphyxiation	- promiscuity	
		- rape	
		- increase in sexually transmitted disease, unwanted pregnancies	
Hurricanes	Lacerations	As above	As above
Floods, drought	Contusions	Nutritional deficiencies	
	Shock	Gastro-Intestinal disturbances	
	Fractures - all kinds	Cardiac conditions	
	Penetrating wounds particularly	Genito-urinary conditions	
	nail punctures		
	asphyxiation		
Epidemics	None anticipated	Outbreak and spread of communicable diseases	As above
		Malnutrition	

B. Pre-Existing health conditions, illnesses, and injuries

The nurse should bear in mind that in addition to health problems which occur as a direct result of a disaster, she will be required to provide care to persons with pre-existing health conditions, illnesses, and injuries.

Among these are the following:

- 1 - Hospitalized patients who are at varying stages of illness, ranging from the acutely ill to those convalescing; or ~~these~~ perhaps undergoing diagnostic screening.
- 2 - Patients in long-term nursing homes or geriatric institutions who are under medical supervision.
- 3 - Patients in specialized health care facilities such as psychiatric hospitals, leprosariums, institutions for the handicapped, and children's homes.
- 4 - Persons with chronic illnesses who attend hospital outpatient departments, public health clinics, or private physicians.
- 5 - Persons at home with chronic or acute illnesses but not under care
- 6 - Pregnant women

It is of utmost importance that the nurse include such persons when prioritizing care to be provided, and not limit her services solely to those with disaster-related illness or injury. In some instances, the disaster may exacerbate pre-existing conditions and such persons may even require priority attention above certain disaster victims. Examples of the latter might include asthmatics, persons with cardiac conditions, pregnant women near term, psychiatric patients, hypertensive and diabetic patients.

With respect to hospitalized patients, depending on the nature of the disaster, the decision should be taken to discharge as many persons for which it is deemed medically safe provided there is provision for their shelter and maintenance after discharge. This action is important in order to increase the availability of hospital beds for disaster victims.

Care to be provided to persons at home may vary from extensive care requiring eventual hospitalization, to simply the provision of emotional support or the supplying of maintenance medication such as insulin, digitalis, etc. which may have been lost or destroyed during the disaster.

Following earthquakes or hurricanes, health care institutions may be severely damaged or destroyed. This may result in dislocation of in-patients. If feasible, health personnel who normally provide care in these institutions would be the most logical persons to assist with their identification, relocation to other sites or shelters, and for continuity of care. This would be particularly important with respect to psychiatric patients, the elderly, and young children.

#### IV. The Role of the Nurse in Disaster

Professionally, nurses are responsible for leadership in planning, organizing, directing and providing nursing services during disaster.

In addition to established nursing practices, the nurse must have special knowledge, skills, and certain attitudes to function effectively in disaster. (See Table II)

##### Pre-Disaster Phase

The nurse should assume a direct responsibility and active role in the formulation of a disaster nursing plan of action. The nurse must facilitate the integration of this plan into the over-all disaster plan of the country.

##### Immediate Post-Disaster Phase

The plan will be implemented within the framework of the national plan, and under the direction of the nurse coordinator or supervisor. Several nursing roles and functions, identified on Table II, are requisite for meeting the needs of the affected community.

##### Post-Disaster Restorative Phase

The nurse continuously assesses the situation, adapting nursing roles as necessary, and gradually returning nursing services to pre-disaster stage.

On a long-range basis, the nurse must evaluate the strengths and weaknesses of the disaster nursing plan, and take corrective action where indicated.

Furthermore, the nurse should be aware of the necessity of follow-up assessments and counseling to identify delayed or deferred health problems in the community. Depending on the extent of the disaster, physical and socio-economic dislocation could occur. In this restorative phase, the aim is to alleviate and reduce dislocation. Rehabilitation should commence as soon as possible.



# FUNCTIONS AND RESPONSIBILITIES, KNOWLEDGE, SKILLS AND ATTITUDES, BY PLACEMENT IN DISASTER NURSING

Functions and Responsibilities	Placement	Knowledge	Skills	Attitude
<u>PLANNER</u>				
- pre-disaster plan development with committee assistance	Ministry of Health, Hospital - Preferably with Leadership role	- disaster-imposed needs	- planning and coordinating ability	leadership qualities
- teach professionals and para-professionals specific disaster training courses		- existing disaster plans in nation and institutions of health care	- communication skills - teaching skills	assertive diplomatic
- identify human, physical and material resources				politically aware
- schedule drills to test plan periodically, implement and evaluate drills		- to plan and conduct drills		maturity
- develop and update record-keeping system for disaster				
- prepare nursing protocols for disaster				
- prepare logistical checklists				
- integrate nursing plan into overall plan in nation			- lobbying skills	
<u>PROVIDER OF NURSING CARE</u>				
- nursing procedures	Shelters Aid Stations Hospitals Clinics Homes Mobile Units	First Aid CPR Crisis Intervention Techniques	Nursing Skills CPR Crisis Intervention Techniques First Aid	flexible innovative calm professionally ethical and moral
- emergency care				
- reports and records				
- psychosocial care				empathetic

Functions and Responsibilities	Placement	Knowledge	Skills	Attitude
<u>ADMINISTRATOR</u>				
- accountability	Disaster Headquarters	Existing Action Plans	communication skills	assertive
- staffing		Staffing patterns for disaster	leadership skills	diplomatic
- budgeting		Budgeting for disaster	ability to prioritize	confident
- logistics		Requisitioning and allocation of supplies	quick decisions	calm
- recruiting		Administrative principles		
- records/reports				
- liaison with other areas of disaster relief, i.e. PR/PI, food distribution, sanitariums				
- delegation of duties				
- coordination with other agencies				
<u>HEALTH EDUCATOR</u>				
- provides instruction	Community	Available local resources	teaching skills	patience
- makes referrals		Variety of disaster topics, i.e. water immunizations safety	communication skills	perceptive
- clarifies issues, rumors, superstitions, etc.		Socioeconomic and political	resourceful	understanding
		Situation of country/community		non-judgmental

Functions and Responsibilities	Placement	Knowledge	Skills	Attitude
<u>TRIAGE OFFICER</u>				
- sorting mass casualties	Disaster Site	Triage Principles	Public Relations Skills	authority
- tagging	Hospitals	Trauma Nursing proficiency	Decision-Making Skills	courage
- coordinate priority transport and available health care institutions	First Aid Stations			objective
				efficient
				impartial
				alert
				assertive
				emotionally stable
<u>CRISIS INTERVENOR</u>				
- provides "psychological first aid"	First Aid Stations	Stress Management	Communication Skills	empathy
- reduce stress	Shelters	Crisis Intervention Techniques	Ability to assess potential crises	patience
- provide coping mechanisms	Hospitals	Community Resources		understanding
- referrals to mental health resource if necessary	Clinics	Human Behavior in Disaster		flexibility
	Morgues			calm
	Homes			stable
				mature
				non-judgmental

B I B L I O G R A P H Y

1. American Journal of Nursing, "When Disaster Happens - How Do You Meet Emotional Needs?" ~~C. Lucia~~ Rudy, et. al. Vol. 77, No. 3; 454-6; March, 1977.
2. American Red Cross, "Guidelines and Procedures: Disaster Health Services," Feb., 1976.
3. American Red Cross, "Providing Health Services in Disaster," May, 1976.
4. Caribbean Disaster Preparedness Seminar, Executive Summary, St. Lucia, West Indies, June, 1979.
5. Davis, Lorraine F., "Introduction to Disaster Nursing," Precis 9.01, Dept. of National Health and Welfare, Emergency Health Services, Canada.
6. de Ville, Claude, "Evaluation and Recommendations on the Emergency Preparedness and Disaster Coordination Activities of the Pan American Health Organization," Brussels, June, 1976.
7. Licross/Volags Steering Committee for Disasters, When Disaster Strikes and Help is Needed: A Handbook, Geneva, 1972.
8. Nursing Journal of India, "Guidelines for Nurses in Disaster Preparedness and Relief," 69(6); 141-2, June, 1978.
9. Savage, P.E.A., "Disaster Planning: A Review," Injury, Vol. 3, No. 1, July, 1971.