A DISASTER ORGANIZATION PLAN FOR ST. JOHNS HOSPITAL, ST. PAUL, MINNESOTA

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Virginia Ann Reid

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A DISASTER ORGANIZATION PLAN FOR ST. JOHNS HOSPITAL, ST. PAUL, MINNESOTA

By

VIRGINIA ANN REID

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CHAPTER I

INTRODUCTION TO THE PROBLEM

The need for hospital disaster planning is no longer idle talk. Hospitals, today, are having it brought home to them forcefully that indecision and the lack of planning for emergency situations can be disastrous professionally and costly from a public relations standpoint (1).

A local disaster such as a tornado, flood, or industrial explosion might occur at any moment, without advanced notice. In disasters of any magnitude, people turn to hospitals for help. The task of providing immediate medical and hospital care for casualties as the result of a disaster falls directly on the hospitals, the doctors, and the nurses within the stricken area. The disaster's impact on the medical resources of the community is immediate and demanding, whether or not these resources are prepared to care for mass numbers of casualties.

Dr. Dean A. Clark, Consultant to the Committee on Disaster Planning of the American Hospital Association, said at the New England Hospital Assembly in Boston, Massachusetts in March, 1956:

> Disaster planning is not the product of the imagination of a science fiction writer, but rather the basic realization of a possibility which exists in the country as a whole and in every city and community. The hospitals, themselves, are ultimately responsible to develop a workable program for the handling of mass casualties as the result of a community disaster. (2)

Provisions for adequate hospital care at the time of a disaster in the community is a responsibility that is inherent upon the hospital. The efforts of a hospital which lacks a definite plan to meet emergency situations are almost certain to result in confusion and a haphazard program that will, in effect, endanger the quality of patient care within the hospital. Therefore, there must be adequate and realistic plans in all hospitals that have been made well in advance to meet these demands (3).

During the past eight years almost every issue of the journals dealing with hospital administration such as Hospitals, Modern Hospitals, Hospital Management and Hospital Topics, has contained one or more articles on the various aspects of the functions of hospitals in a disaster situation. The frequency with which such articles have appeared in the literature gives some indication of the importance and the need for the adequate planning of hospital functions and facilities in a time of disaster.

HISTORY OF HOSPITAL DISASTER PLANNING

General. The first federal movement toward disaster planning occurred in 1950. At this time, in retrospect of the lessons taught by World War II, it became apparent that the safety of the civilian population of the United States could no longer be taken for granted under the brutal concepts and practices of total war. This realization led to the conclusion that in future wars our country must be prepared to defend the home front just as effectively as the front lines in the

combat areas. In keeping with this new concept and upon recommendation of the National Security Resources Board under the chairmanship of W. S. Symington, the defense of the United States' home front was strengthened by former President Truman and the Congress by the establishment of the Federal Civil Defense Administration (Public Law 920 approved January 12, 1951). This agency was given the mission to prepare comprehensive plans for the protection of the major cities of this country in the event of an attack by an aggressor. As this work progressed, the scope of the Federal Civil Defense Administration was broadened to also include natural disasters (Executive Order No. 10427, January 16, 1953, Public Law 875) (4).

Surveys were made by the Federal Civil Defense Administration and its components at the state and local levels. These surveys quickly revealed that the United States not only lacked the means to cope with the effects of a major natural or man-made disaster, but that in our states, counties, and cities there were not plans for meeting the needs of such a situation. These studies showed also that our shocking unpreparedness for disaster extended to the same or even greater extent among the hospitals and their medical staffs (5).

The disclosures of the Federal Civil Defense Administration were heeded by the American College of Surgeons, the American Medical Association, and the American Hospital Association. For example, in June of 1954, the American Hospital Association's Board of Trustees created a Committee on Civil Defense and told it "To explore with the Federal Civil Defense Administration the role to be played by hospitals in the

event of a national emergency." This action by the Association was in recognition that hospital planning for civil defense should be high on the order of priority of its activities (6).

One of the tasks undertaken by this Committee was to investigate the type of planning hospitals should do to prepare for their role in nuclear attack. During its investigation the committee came to realize that civil defense was but one dramatic aspect of hospital disaster planning. As a result of its studies concerning the role of the hospital in responding to community disasters, the Committee's original frame of reference was broadened and officially recognized in a title change from the Committee on Civil Defense to the Committee on Disaster Planning.

This Committee conducted a survey among the 6,970 hospitals registered with the American Hospital Association in September of 1954. The Committee asked three questions that involved disaster planning in these hospitals:

1. Do you have a written plan for the mobilization of the employees and the medical staff of your hospital?

2. If the answer is "yes" to the above question, does the community have a master plan for a community disaster within which the hospital plan is integrated?

3. Is your hospital represented on a disaster planning committee for your community?

The results of these questions showed that only 32 per cent of all of the hospitals in the United States had a written disaster plan, and only 27 per cent of the hospitals had integrated the hospital plan with

the community plan. Forty-two per cent of the nation's hospitals were represented on a community committee for disaster planning (7).

Although the officers of the American Medical Association, the American College of Surgeons, and the American Hospital Association were untiring in their efforts to induce their members to prepare themselves to render adequate medical and hospital services in the event of a catastrophe, the response of the members was very slow. There was little or no improvement in this situation until the Joint Commission on the Accreditation of Hospitals at its meeting on January 28, 1956 decided to put an end to the delays. In accordance, and in order to stimulate the hospitals to action, The Joint Commission on the Accreditation of Hospitals prescribed a new requirement for accreditation. This standard made it mandatory for every hospital seeking accreditation by this Commission to develop an adequate disaster plan, to implement the planning by providing the necessary equipment and supplies, and to assure the efficiency of the plan in the event of a disaster by means of a continuous training program for hospital personnel in their respective duties in such an emergency (8).

Background of disaster planning at St. Johns Hospital, St. Paul Minnesota. St. Johns Hospital is a 250 bed community hospital. It is located one-half mile from the center of downtown St. Paul, Minnesota, on a bluff overlooking the lowlands of the Mississippi River and the main railroad yards of the Upper Midwest. Although this hospital is one of three hospitals located on the east side of St. Paul, it is the

only general hospital in this area that is equipped to handle a general emergency situation. The two other hospitals are specialty hospitals—one for the treatment of crippled children and one for the treatment of mental patients. The area that St. Johns Hospital serves includes a large industrial section (Minnesota, Mining and Manufacturing Company, Hamms Brewrey, Whirlpool-Seeger, Co., etc.) and a large suburban area (Figure I).

St. Johns Hospital employs 213 nurses and other professional people as well as 361 non-professional people (Table I). The Medical Staff includes 56 doctors of which the majority are general practitioners. This hospital does not have an intern or student nurse training program.

Because of its location, the area it serves, and pressure from various medical associations, the Board of Directors of the hospital had become increasingly aware of the necessity for disaster preparedness. Therefore, a Hospital Disaster Planning Committee was established during the winter of 1956 to coordinate the development of a disaster plan for the hospital. There were twelve members appointed to this committee representing most of the key positions in the hospital's administrative organization. At the same time a Medical Staff Disaster Committee, composed of eight doctors, was established to assign physicians to disaster positions within the hospital in cooperation with the Ramsey County Medical Society and to establish standard medical care procedures to be used in times of emergency situations.

Basically, these committeess did not function well because of inadequate preparation for the job and because there was no clear

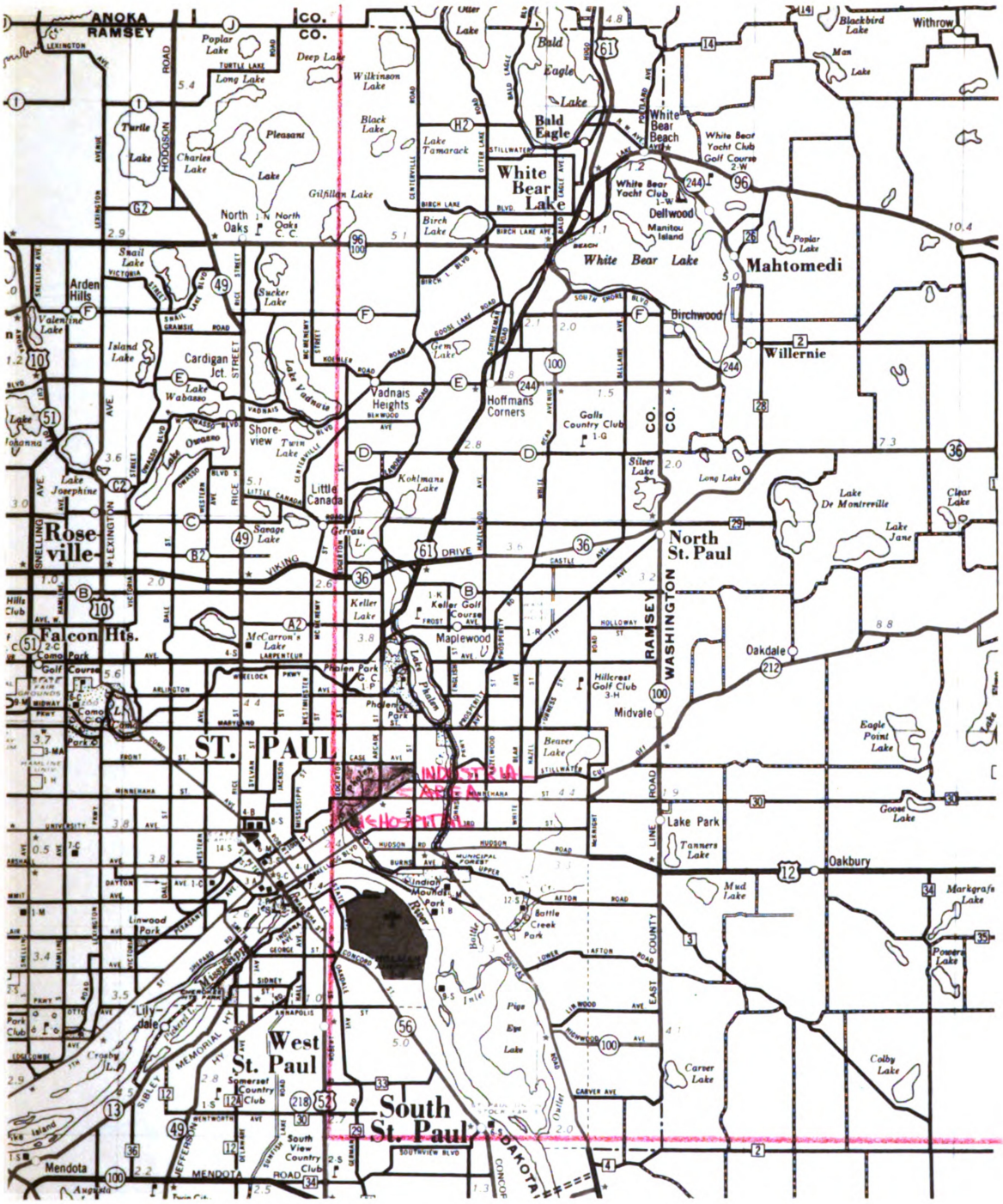

FIGURE 1

A MAP OF ST. PAUL, MINNESOTA SHOWING THE INDUSTRIAL AND SUBURBAN AREA THAT ST. JOHNS HOSPITAL SERVES

TABLE I

ST. JOHNS HOSPITAL PERSONNEL AS OF DECEMBER 31, 1957

Peraonnel	Department Heads	Professional or Supervisory	Non-professional
Nursing			
Reg. Nurses	4	159	
L. P. N.			25
Aides			108
Ward Secretaries			11
Ward Clerks			6
Orderlies			15
Surgery and Anes.	1		2
Dietary	1	6	64
Laboratory	1	12	2
X-ray	1	8	2
X-ray Students			6
Physical Medicine	2	6	6
Pharmacy	1	2	2
Housekeeping and Linen	1	1	52
Plant Operation and Maintenance	1		17
Business Office	1	1	15
Admitting		1	8
PBX and Receptionist		1	13
Purchasing and Stores	1		2
Medical Records	1		5
Total	16	197	361

definition as to what the scope of the problem was to be. The Committee became bogged down on questions such as:

1. How many battery operated lights should there be on hand in the hospital in case of a power failure?
2. What should be done about stockpiling narcotics for use in an emergency situation?

Eventually, questions such as these must be answered, but the prime objective, the development of a hospital disaster plan, was never achieved. The committees, also, did not consider the inclusion of community agencies such as Civil Defense and the Red Cross in their planning. Representatives of agencies such as these could and should have offered valuable help and assistance in the development of such plans.

Even though the committees did not develop an over-all plan, some things were accomplished:

1. On review of the facilities of the hospital, it was felt that the hospital could handle effectively 100-200 disaster victims.
2. A survey was made to determine:
    a. The number of beds that could be put into emergency use.
    b. The amount of surplus linen and bedding on hand.
    c. The amount of certain other supplies such as bed pans, thermometers, etc. generally kept on hand.

As a result of this survey 50 army-type cots were purchased, 50 linen packs (sheet, blanket, pillow) were made up, and an emergency drug box was stocked. These items were stored in a

central location within the hospital that was easily accessible and provision was made for routine periodic checks of these supplies.

3. A complete roster of employees and medical personnel and their telephone numbers was made up and given to the switchboard operator for posting.
4. The medical staff was given assignments as to their responsibilities in case of an emergency situation.
5. A list of the names and telephone numbers of the various suppliers of hospital items was developed.

As can be noted from this discussion, no complete plan was developed and, at this time, St. Johns Hospital still lacks an adequate, over-all hospital disaster plan. It is felt that the Committees' work should be re-evaluated and a new approach to the problem be taken.

DEFINITIONS OF TERMS USED

Disaster. For purposes of this study, a disaster is a massive accident which throws upon the medical system of a community a sudden excess of patients in urgent need of emergency treatment and at a rate greater than the medical and administrative system is normally adjusted to absorb (9). Examples of such types of accidents might be floods, tornadoes, fires or explosions. Specifically, a disaster can be defined as any situation in which the victims of said situation reach a hospital in such numbers, or so concentrated in a period of time, or with such severity of injury or disturbance that their prompt, adequate hospital

care creates demands upon the hospital which cannot be met by the hospital's routine treatment or admission procedures (10).

Because the disaster planning that is discussed in this paper involves St. Johns Hospital in St. Paul, Minnesota, the types of potential disasters in this area (11) are:

1. Floods. Because the Mississippi River flows through the heart of the St. Paul area, this is the most likely type of disaster and the most devastating.
2. Tornadoes. The tornado is the most destructive of natural-caused disasters in this area. The extent of damage or possible area involved is completely unpredictable.
3. Fires. Fires of disaster proportions are always a potential danger in a crowded municipality. The slum areas contain the greatest likelihood or potential widespread destruction where many frame structures containing great numbers of people are crowded into small areas.
4. Explosions. As evidenced by a recent Minnesota Mining and Manufacturing Company explosion, great damage may result from chemical or heating plant explosions in areas of concentrated population. Apartments, hotels, industrial plants, and office buildings are likely spots for such incidents.
5. Wrecks--bus, train, airplane, etc. St. Paul is a substantial transportation center for the above types of travel which cause a continuing possibility to exist for accidents in such travel resulting in damage to persons and property.

6. Epidemics. The St. Paul Health Department gives careful attention to water supplies, milk distribution, and the handling of food, but typhoid epidemics have occurred in connection with the floods. Also, epidemics, such as the Asian Flu during the winter of 1957, cause great strains to be placed on the medical facilities of the community.

Disaster Plan. A disaster plan is a well-organized, flexible plan of action to be used by a hospital at the time of an emergency resulting from a natural disaster. This plan of action is worked out in advance of the disaster situation to cover all phases of the management of mass casualties within the hospital. The expected disaster never happens, so no disaster plan can meet all the situations in every detail.

Disaster Situations (12): In general the disaster plans of a hospital should provide for two major types of action at the time of an emergency.

1. Evacuation. This term refers to the movement of patients and personnel from the hospital to another place for various purposes and in varying degrees in as rapid and safe a manner as possible under the existing disaster situation. This includes the procedure of discharging certain types of patients from the hospital either for their own safety or to free additional beds for casualties being admitted to the hospital.
2. Expansion. This term refers to the emergency procedures of increasing the capacity of the hospital's facilities and services for rendering casualty care.

In any type of disaster, regardless of cause, the hospital's response would usually involve either one or both of these actions in varying degrees. Outlined below are basic disaster situations that may be faced by a hospital and the hospital's response to the situation:

Disaster Situations	Hospital Response
1. Minor disasters, external. Community disasters involving relatively small numbers of casualties as a result of storm, fire, flood, etc.	Expansion of the hospital treatment areas to care for the casualties.
2. Major disasters, external. Community disasters involving large numbers of casualties as a result of storms, fire, floods, etc.	Expansion of reception and treatment areas to care for the casualties. Evacuation of some in-patients to free beds for incoming casualties.
3. Disaster Threats--disaster threatening the community such as impending storms, tornadoes, floods etc.	Precautionary expansion or evacuation, either partial or total. "Alert" notification to the staff and outside cooperating agencies. Preparation of reserve equipment and supplies.

STATEMENT OF THE PROBLEM

The Problem. The problem to be dealt with in this paper is the development of a guide to be used in the preparation of a disaster plan for St. Johns Hospital, St. Paul, Minnesota.

The Purpose. The purpose of this guide is to help the administrative staff of St. Johns Hospital to prepare a disaster plan that will promote sound, orderly mobilization of the hospital to an emergency status as the result of a natural disaster. This plan should be:

1. Flexible to the extent that it can be quickly adapted to meet emergency situations resulting from natural disasters.

2. Provide for the rapid admission of a large number of casualties to the hospital.
3. Provide for the initial and continued medical care of the casualties and the critically ill non-casualty patients.
4. Provide for the protection of patients already in the hospital and their evacuation if necessary from the hospital.
5. Provide for the continuation of hospital services under adverse conditions such as the disruption of water, power, electricity, communications, etc.
6. Easily integrated into a community plan for disaster preparedness.

Limitations of the Problem. It is necessary to limit the scope of the problem to a comprehensive review of the special problems and needs which a disaster situation imposes on a hospital. Experience, as evidenced by reports of many disaster situations, indicates that the essential provisions of a hospital disaster plan should include policies, facilities, equipment and supplies, and special methods and procedures.

There will be no attempt made to develop a "master" plan that could be used for all hospitals. There has been much demand on the part of hospital administrators, as can be noted by the literature, for a so-called "master" plan on the disaster functions of a hospital. As desirable as such a plan might be, it has been found neither advisable or feasible. It has been and will continue to be impossible to develop a single plan which would cover all of the variations and requirements

of individual communities and hospitals. This presentation will be limited to a suggested plan for one institution--St. Johns Hospital located in St. Paul, Minnesota.

While it will be briefly recognized as a definite need in planning for emergency situations, community disaster planning will not be discussed in great detail. The discussion that will be presented on community planning for disasters will be limited to the need for community planning and the present status of community planning in the St. Paul area.

Another part of planning for emergency situations in a hospital that is extremely important but which will not be covered in detail is the responsibilities of the medical staff in disaster planning. This type of planning must go on jointly with over-all hospital planning, but it is not within the knowledge of the author to adequately cover the subjects of disaster assignments of physicians and the treatment of disaster victims.

Finally, the disaster planning that is discussed in this paper will be limited to planning for disasters that occur outside of the hospital. Internal disasters such as fires or explosions within the hospital do occur, but because this type of planning calls for a different approach and because St. Johns Hospital has a plan covering this type of disaster it will not be covered within the scope of this problem.

Organization of the Study. The material that will be covered in the preparation of the proposed guide will be a discussion of the three

essential provisions of disaster plans:

1. Policies
2. Facilities, equipment, and supplies
3. Special methods and procedures.

This material will be based on the findings of other hospitals that have been reported in the current literature, a review of actual disaster plans that have been developed by specific hospitals throughout the country, and the needs of the particular institution under consideration.

Finally a proposed disaster plan will be developed using the suggestions presented above and those proposed by the American Hospital Association in a phamplet, Principles of Disaster Planning for Hospitals, published in 1956 (13). The purpose of this handbook is to "provide hospitals with an outline of the general principles of hospital disaster planning which will serve as a guide and a checklist to be used in developing their specific plans." Actually, this is the only official basis that has been developed that a hospital has for help in planning for emergencies. However, it is too general and must be adapted to a specific situation. The principles outlined in this phamplet are:

1. Appoint a hospital disaster committee.
2. Appoint a medical staff disaster committee.
3. Prepare a preliminary, general disaster plan.
4. Prepare detailed departmental disaster plans.
5. Prepare standard emergency medical care procedures.
6. Review and integrate the detailed departmental plans and requirements into an over-all master plan.
7. Coordinate the hospital's disaster plan with the community disaster plan.
8. Distribute copies of the master plan to all employees, the medical staff, the board of directors, and to community officials, other hospitals and community disaster agencies such as Civil Defense and Red Cross.

9. Give employees and the staff their disaster assignments and instruct and train them in their disaster responsibilities.
10. Develop procedures to orient and train new employees and staff members in their disaster responsibilities.
11. Begin to carry out other aspects of the disaster plan that require a longer period of time to accomplish.
12. Conduct frequent and periodic drills and exercises under various simulated disaster situations to practice the disaster plan, to test its effectiveness, and to maintain constant readiness.
13. Carry out periodic review and revisions of the hospital's disaster plan to make improvements and changes as needed or as indicated.

These principles will be employed in the development of the suggested disaster plan for St. Johns Hospital with particular emphasis on Principles one, two, three, four, six, and twelve.

SUMMARY

During the past eight years it has become more and more evident that hospitals must be prepared to care for casualties that result from a disaster in the community such as flood, tornado, transportation wreck, fire, epidemic, or explosion. The purpose of this paper is to develop a guide that can be used by the administrative staff of St. Johns Hospital in planning to meet disaster situations. This guide will contain basically four main topics:

1. Policies
2. Facilities, equipment, and supplies
3. Special methods and procedures
4. A suggested disaster plan for St. Johns Hospital.

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CHAPTER II

FACTORS WHICH MODIFY A HOSPITAL'S FUNCTION IN A DISASTER

When planning the emergency operations of a hospital during a disaster situation there are two modifying functions that must be considered in order to develop a well-coordinated plan of action:

1. Community planning,
2. Medical staff planning.

COMMUNITY PLANNING

The disaster plans which have been developed recently in compliance with the action of the Joint Commission on Accreditation of Hospitals show that most of these plans cover only the second phase of casualty management--the care of the seriously sick and wounded in hospitals (1). While it is understandable that hospital officials should be primarily concerned with the internal functions of their institutions in a major emergency, some of these officials have given little or no thought to the fact that the efficiency of their hospitals' services in a disaster is conditioned indirectly at such times by the services of other agencies for which they are not responsible. Community disaster planning is an essential part of a successful response to major disasters. A hospital cannot do its best job of saving lives unless the community has established a practical disaster plan for other agencies such as police, Civil Defense, Red Cross, fire department, public health, etc.

Two lessons with respect to community planning have been learned from past disasters (2):

1. All disaster efforts must be centrally directed and coordinated to insure the full and equitable use of all the community's hospitals and health resources. The first phase of casualty care includes the search for the sick and injured in the disaster area, the administration of first aid, the assignment of casualties to specified hospitals, and the transportation of the casualties to the designated hospital. Too often one or two hospitals have carried the full brunt of the disaster impact when others nearby available to assist have not been utilized. The centralized coordination of this work is vital because promptness determines to a large extent the final fate of the casualties.
2. Other community resources must be drawn into disasters in a planned manner to provide assistance and support to hospital efforts. Community agencies such as police, fire department, public health departments, Civil Defense forces, Red Cross, fraternal organizations and others, should have supporting roles outlined in advance. The scope of these supporting roles should be clearly defined by mutual agreement among all agencies involved. If this is not done and these agencies fail to perform their respective duties in the disaster area promptly and efficiently, their deficiencies will slow up the first phase of casualty care and this in turn will affect the work of the hospital unfavorably.

In spite of the fact that the fulfillment of the above listed vital functions in disaster management is not the direct responsibility of the individual hospital and is in effect beyond their control, hospital officials must realize that they cannot develop effective hospital disaster plans unless they know how those who are responsible for these functions propose to implement them. If hospitals are expected to accomplish their mission and objectives, they must have the support and help of many other agencies and individuals in the community. Experience has shown that the various agencies and individuals who are needed, in addition to hospitals, to cope with the destruction caused by a disaster, cannot function effectively if they work independently of each other. It is also recognized, that in order to get the best possible results, the work of these agencies and of the hospitals must be fully coordinated under a single command. These requirements are not automatically met. In order to fulfill these complex and extensive needs there must be an all-inclusive plan which has been accepted and will be supported by all concerned.

Some other functions that require community participation include:

1. Police and traffic control.
2. Supplementary personnel, staff, supplies, and equipment.
3. External communications.
4. Tagging procedures for casualties.
5. Identification cards for authorized personnel.
6. Transportation of casualties and evacuated patients.
7. Provision of alternate sources of essential utilities. (3)

In St. Paul, Minnesota there are four groups that are currently involved in the medical care of the community: The Red Cross, Civil Defense Agencies, Governmental Agencies including the Police, Fire, and Public Health agencies, and the hospitals. At the time of this writing there has been no coordinated organization for community disaster planning.

The Twin City Regional Hospital Council has requested that all of the hospitals under its jurisdiction submit their disaster plans. In a letter received from this organization it was stated that the plans received from the hospitals of the area are "few and far between" and "frankly not of much value." Only nine of the 27 hospitals in the Twin City area that were contacted have a written plan. Six are currently working on such plans. None of the plans have been rehearsed under a similated situation nor have they been integrated with any other organization in the community.

The governmental agencies such as the police, fire, and public health departments make ambigious statements such as:

> The governmental responsibilities in the time of disaster is in general the same as in normal times--the protection of life, health, welfare, and property, and the maintenance and repair of public property. Disasters do not change the legal responsibilities of government but rather increase the need of meeting them promptly and adequately. (4)

There are no plans of action for these agencies in a catastrophic situation.

The Civil Defense organization in the St. Paul area, while responsible for planning for natural disaster as well as nuclear disaster, has concentrated their efforts and training to only the latter situation (5). Actually the only agency within the St. Paul community

that is ready to meet a disaster situation within the community is the St. Paul Chapter of the American Red Cross (6). This Chapter has functioning units that are well organized and which are continually meeting many catastrophic situations. Unfortunately while the Red Cross has the organization, the authority to function in a natural disaster, and in this community, is the logical coordinating unit, it has not been successful in gaining the cooperation of the governmental agencies, the Civil Defense, and the hospitals.

While it is not within the scope of this paper to develop a community disaster plan, it is important to re-emphasize that the disaster plan of St. Johns Hospital to be completely effective must be coordinated with the other community health and welfare agencies under a centralized authority.

MEDICAL STAFF PLANNING

Dr. William T. Fitts, Jr., Associate Professor of Surgery at the University of Pennsylvania, in a talk before the American College of Surgeons, said, "Less than 10 per cent of the nation's hospitals are organized to cope efficiently with mass disaster. . . . This lag in planning is chiefly the result of apathy on the part of the doctors." (7)

The medical staff of a hospital has one of the most important roles in the planning and the handling of mass casualties resulting from a disaster situation. It makes no difference how efficient a hospital is in receiving patients and expanding its facilities if there is no organized and trained medical staff.

To help overcome this apathy on the part of the doctors, the American Hospital Association suggests that the medical staff by-laws of a hospital be revised to include a statement about disasters and disaster planning. For example the following paragraph is suggested as one which could be included in the rules and regulation section of these by-laws:

> Medical Staff Disaster Assignments. All doctors have been assigned to various posts in the hospital and it is their responsibility to report to their assigned places. No physician will perform any duties other than those assigned. The chief of the (disaster emergency) medical and surgical services in the hospital and the director of the hospital will work as a team to coordinate activities and direction. In cases of evacuation of patients from one section of the hospital to another or evacuation from the hospital premises, the chief of the medical and surgical services during the disaster will authorize the movement of patients by direction of the director of the hospital and the chief of the medical and surgical services. All policies concerning patient care will be a joint responsibility of the chief of the medical and surgical services and the director of the hospital and in their absence the deputy chief and the alternate in administration are next in line of authority respectively. (8)

Probably one of the reasons for the apathy of medical staffs is that in many communities physicians often are members of the staffs of two or more hospitals. This fact poses a major problem with respect to determining on which hospitals' disaster staff the physician will serve. To overcome this problem, the following statement was adopted by the Board of Trustees of the American Hospital Association on September 19, 1955:

> The medical staff should be assigned to a specific hospital in a community by the local medical society for purposes of treating mass casualties in an emergency situation. (9)

When the local medical society has made an assignment of doctors to specific hospitals within a community, a professional medical staff disaster committee should be established within the hospital to plan the physicians' responsibilities for disaster situations. This committee should include key members of the medical staff such as the Chief of Staff, the Chiefs of Clinical Services, Heads of Diagnostic and Therapeutic Departments as well as other members of the medical staff (10).

The functions of this professional (medical staff) disaster committee should include (11):

1. Planning for the professional handling and care of mass casualties by:
    a. Assigning physicians to disaster positions within the hospital.
    b. Conducting training and educational programs for physicians on the management of mass casualties.
    c. Supervising programs for the training of nurses, nurse aides, technicians and other personnel within the hospital in the medical aspects of handling mass casualties.
    d. Establishing standard emergency medical care procedures for the hospital.
2. Briefing of the hospital medical staff to insure complete familiarity on the part of all concerned with the total hospital and medical plans.

3. Coordinating the activities of this committee with the over-all hospital disaster committee to insure availability of facilities and supplies to meet the requirements of the professional activities.

The successful development of the total hospital disaster plan will depend, to a large extent, on the degree of support and promotion the concept of disaster preparation receives from the medical staff (12).

SUMMARY

Any hospital--no matter what size or what location--should be prepared and organized to meet a large influx of patients from a civilian disaster. The hospital as a vital community health center cannot afford to neglect this responsibility if it is to discharge its complete obligation. There is only one way to accomplish this goal and this is planning in advance. Planning in advance involves close teamwork between many groups within the hospital and the community. Within the hospital there must be close liason between the administrative staff and the medical staff. Outside the hospital, a hospital disaster plan will not be complete until such groups as the local Civil Defense, the Red Cross and the governmental agencies have been consulted and the utilization of their services provided for in one central authority.

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CHAPTER III

THE DEVELOPMENT OF THE OVER-ALL DISASTER PLAN AND RELATED POLICIES

An over-all disaster operating plan must be developed by the hospital as one of the first steps in planning for an emergency. An over-all plan should:

1. Show the relationship between the departments of the hospital at the time of a disaster,
2. Show the general assignment of hospital space for the disaster functions,
3. Specify the procedures and policies that should be followed by all employees and workers in the hospital at the time of an emergency, and
4. Help to coordinate all of the disaster planning activities of the hospital.

GENERAL

Before a hospital can formulate a concrete disaster plan, the board of directors of the hospital must be interested in and must support this activity. One of the primary duties of the governing board of a hospital is "to determine the policies of the institution with relation to the community needs." (1) Disaster planning is recognized generally by governing boards as a vital function of their institutions.

When disaster planning has been approved by the Board of Directors, the responsibility for the actual planning is delegated to the Hospital Administrator. Because this planning covers every facet of the hospital, it is obvious that the Administrator cannot do all of the planning by himself. More important, though, as many persons as possible should be brought into the planning functions. It is by this method that interest in disaster planning is fostered and developed in all of the hospital's employees. Therefore it is suggested that disaster planning begin by the appointment by the Administrator of two advisory committees (2) within the hospital:

1. The Medical Staff Committee on Disaster Planning.
2. The Administrative Committee on Disaster Planning.

As has been already stated, it is not within the scope of this paper to discuss the details of the medical staff planning for emergencies. However, the activities of this committee must be properly coordinated with the Administrative Committee on Disaster Planning by the hospital administrator.

ADMINISTRATIVE COMMITTEE ON DISASTER PLANNING

The composition of this committee should include:

a. The Administrator, Chairman
b. The Director of Nurses
c. Radiologist
d. Pathologist
e. Dietitian
f. Pharmacist
g. Hospital Auxillary Representative
h. Other Department Heads
i. Member of the Medical Staff
j. Member of the Governing Board (3)

The functions of this committee (4) should be to:

1. Coordinate the development of the hospital's disaster plan. It should be pointed out that the disaster committee is envisioned not only as a coordinating group but also as a policy making group. The detail of the actual planning is delegated to others who submit the results of their efforts to the committee for approval. The coordination of the plan is obtained by the Disaster Committee by:
    a. Supervising the plan preparation,
    b. Assigning the planning and emergency operational responsibilities to key people in the hospital,
    c. Implementing the planning provisions.
2. Coordinate the hospital's disaster plan with the over-all community disaster plan.
3. Supervise the conduct of frequent drills to practice and test the plan under various simulated disaster situations.
4. Review and revise the hospital's disaster plan at regular intervals.
5. Be responsible for the hospital's continued preparedness for disaster.

Before the disaster committee can expect to delegate detail planning responsibilities to key personnel, they must develop a general disaster plan as a guide to be used by these people. The objective of this general plan is to establish policies and procedures to be followed by the entire hospital staff at the time of an emergency (5).

Full authority for establishing disaster policy must be delegated to the disaster planning committee by the hospital's governing board and administrator to insure a flexible and well-operating plan at the time of a disaster.

Any disaster plan is worthless unless it is clearly understood by all concerned that the established policies will be followed at the time of a disaster. However, the policies established by the planning committee should be flexible. If a policy modification is dictated and justified by the disaster requirements, the Chief Control Officer at the time of an emergency should have the authority to make the needed change.

The disaster committee has the responsibility of informing and training all hospital personnel in the operation of the general disaster plan. Not only do the hospital employees need to be given copies of the plan and to be informed about the plan, but copies of the plan must be distributed and thoroughly discussed with the medical staff, the Governing Board, community officials, other hospitals, and community disaster agencies such as Civil Defense and the Red Cross.

THE GENERAL PLAN

It is believed that the general plan must be simple and easily understood. The following areas that are discussed form the basis for such a plan.

Organization of the hospital at the time of a disaster. The following two charts outline a suggested functional organization showing:

1. What the relationship of the hospital should be to the over-all community plan, (Figure 2) and
2. What the relationships of the disaster functions of a hospital are to the Chief Control Officer in a hospital, (Figure 3).

Chief Control Officer. The following persons, in the order listed, (or any other combination desired) should be placed in charge of the activation of the disaster plan and the over-all coordination of the activities of the various disaster functions with the medical staff:

1. The Administrator
2. The Director of Nursing Service
3. The Comptroller
4. Other designated Administrative Assistants.

Whoever is the acting supervisor at the time of the disaster notification should be in authority and should keep that authority until someone higher in the chain of command arrives on the scene (7).

Full authority must be vested in the Chief Control Officer or his alternate to direct all operations pertaining to the conversion of the hospital to a disaster status and the effective care of casualty and non-casualty patients during a disaster (8).

The functions of the Chief Control Officer should be to (9):

1. Determine the magnitude and type of disaster from official sources.
2. Activate the various stages of the disaster plan as needed.
3. Act as the central authority for all situation and policy changes in the disaster plan.

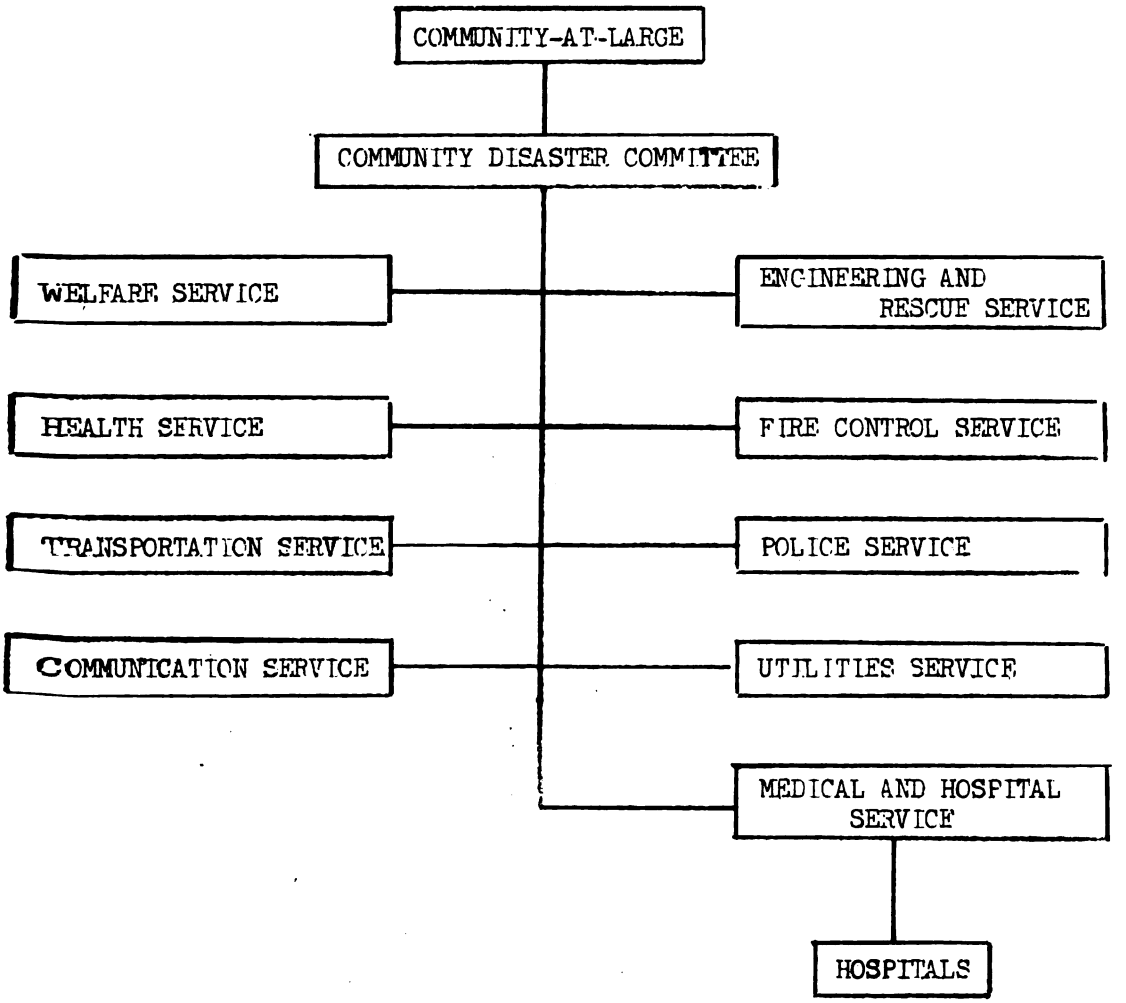

FIGURE 2

SUGGESTED ORGANIZATION AND COMPOSITION OF A COMMUNITY DISASTER SERVICE

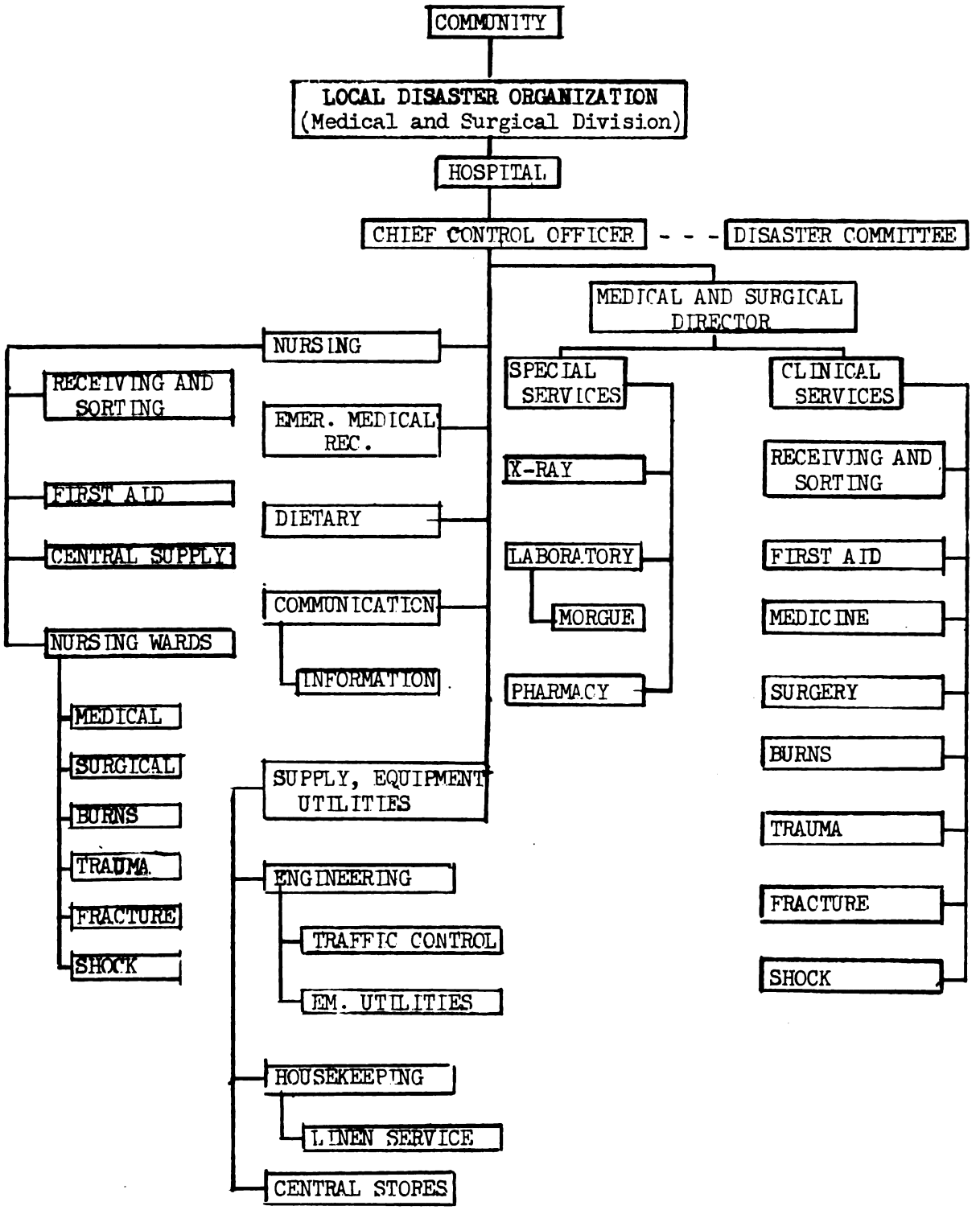

FIGURE 3

SUGGESTED DISASTER ORGANIZATION OF A HOSPITAL

4. Direct and coordinate the operation of the disaster plan.

5. Direct the expansion of the hospital facilities.

6. Authorize procurement of needed supplies, equipment and personnel not anticipated in the pre-disaster planning.

It is obvious that the Chief Control Officer can not, at the time of a disaster, assume all of the responsibility for all of the functions of a hospital. Therefore, in the pre-disaster stage, pre-planning and responsibility for the various functions of the hospital during an emergency must be delegated to key personnel by the disaster committee. When these assignments are made, provision should be made for a "succession of command" for every key disaster position for use in the event that the regularily assigned person is unable to get to the hospital or cannot serve for any other reason.

The Chief of the Medical Staff or his alternate is delegated the responsibility for the professional work and general supervision of the members of the medical staff.

The functions that must be assigned to key personnel for pre-planning and emergency operational responsibility are (10):

Function	Purpose
1. First Aid Post	To provide emergency medical care for ambulatory casualties.
2. Ambulance Reception	1. To provide for the reception and unloading of ambulances and other vehicles bearing casualties. 2. To separate ambulatory casualties from those who are seriously injured.
3. Receiving and Sorting	1. To receive all casualties who enter the hospital.

Function	Purpose
	2. To determine the extent of the injuries. 3. To determine the priority for treatment.
4. Emergency Medical Records	To provide simplified but adequate emergency admission and medical treatment records.
5. Surgical Section	1. To perform essential emergency operations. 2. To perform less urgent surgery when condition and time permit.
6. Ward Sections: Shock, Trauma, Medical, Surgical, Fractures, Obstetrics and Gynecology	1. To provide initial and continuous medical care for casualties. 2. To provide medical care for non-casualty patients.
7. Nursing Service	1. To provide adequate nursing service to all emergency areas on the basis of planned casualty accommodation. 2. To direct the activities of volunteers assigned to patient care. 3. To staff emergency ward areas.
8. Evacuation of pre-disaster patients.	To make room for a larger number of casualties.
9. Morgue	1. To receive bodies of those who expired in the hospital and those who died on admission. 2. To provide means for implementing the identification of bodies.
10. Laboratory	1. To match blood in preparation for transfusions. 2. To perform other essential laboratory functions when time permits.
11. X-Ray	To provide x-ray information essential to life-saving.
12. Pharmacy	1. To supply all treatment areas and emergency patient care areas with essential drugs. 2. To supply other areas as needed.

Function	Purpose
13. Central Supply	To supply the operating rooms, admission areas, treatment areas with essential sterile goods.
14. Dietary	To provide prompt emergency food service to a large number of casualties, hospital personnel, and volunteers.
15. Supply	1. To provide initial supplies for the first aid post, admission areas, and other emergency patient care areas. 2. To procure authorized supplies and equipment needed.
16. Maintenance and Engineering	To maintain essential utilities in time of emergency.
17. Traffic Control	1. To exclude unauthorized persons from the hospital. 2. To keep hospital approaches open for the use of ambulances or other emergency vehicles. 3. To maintain an orderly flow of traffic within the hospital.
18. Housekeeping	1. To set up all disaster areas. 2. To maintain such housekeeping functions as are necessary and possible under the conditions.
19. Linen Service.	To provide essential laundry service for surgery and patient care areas.
20. Emergency Communications.	1. To give fast notification to off-duty personnel of the disaster. 2. To alert personnel on duty. 3. To establish a message center.
21. Public Information Center.	To furnish information concerning casualties to relatives and the press as soon as the information is secured.

Function	Purpose
22. Volunteer Personnel Office	1. To provide a central place where unassigned hospital personnel may report for duty. 2. To provide for the screening of volunteers. 3. To facilitate an orderly assignment of personnel and volunteers to areas of greatest need.

Standard operating procedures must be developed for each of these key functions by the persons who have been delegated these responsibilities. These standard operating procedures must be approved by the Disaster Committee before they are incorporated into the over-all emergency plan.

It is felt that by careful planning and good understanding most of the situations that will occur at the time of a disaster will be answered. However, not all of these situations can be anticipated. Any major change of procedure within any of the disaster functions should be cleared with the Chief Control Officer or the Chief of the Medical Services.

Disaster Warning. The hospital generally learns that a disaster has occurred in the community from a source outside of the hospital. This outside source usually lacks the full knowledge of the situation. Therefore, no matter how or by whom the first notification of disaster is received, this information must be directly communicated to the Chief Control Officer (11). Unless the notice to the hospital that a disaster has occurred in the community is received from an official source or an unquestionably reliable private source, the Chief Control Officer should delay activation of the disaster plan until he has

verified the correctness of the report. A semi-alert should be established by this officer until accurate details are obtained. The semi-alert should inform key personnel that a disaster situation may exist and that they should be prepared to activate the disaster plan. The authentication of the claim that a disaster has occurred can be obtained in a few minutes from an official source and this delay will have no appreciable effect on subsequent preparations of the hospital for service if there has been a disaster.

In areas where there has been community disaster planning, official warning and notification procedures have been developed for hospitals. In communities where there is no coordinated planning for disaster, the police department is a reliable primary source of information that may be counted on 24 hours per day.

Phases of the Disaster Plan. There should be developed a plan of action that is simple, flexible, and sufficiently extensive to cover the most destructive of disasters. The requirements of lesser disasters can be provided by dividing the plan into different phases on the basis of casualty load. Each phase or stage that is discussed below should be covered by appropriate standard operating procedures for each function of the hospital during disaster.

The following is taken from the "Disaster Plan" of Harper Hospital in Detroit, Michigan (12).

Plant "A"-Alert. This phase of the disaster is initiated at the order of the Chief Control Officer in those instances when disaster is imminent and the hospital has had advanced warning and when waiting for vertification of a disaster warning. This is a stand-by phase.

Plan "B" refers to the disaster plan which will be put into effect on the order of the Chief Control Officer. Plan "B" may or may not be preceded by Plan "A," depending upon whether or not the hospital has had advance warning of the disaster and could effect an alert. Plan "B" should be carried out in stages as set forth here. Each stage should be put into effect at the specific order of the Chief Control Officer. These stages are:

Stage 1: When more than 10 but less than 25 casualties have been received or their arrival is anticipated.

Stage 2: When more than 25 but less than 50 casualties have been received or their arrival is anticipated.

Stage 3: When more than 50 but less than 75 casualties have been received or their arrival is anticipated.

Stage 4: When more than 75 casualties have been received or their arrival is anticipated.

Notification of Personnel at the Time of a Disaster. When the disaster situation has been verified through official sources, the Chief Control Officer should give instructions to the person or persons responsible for alerting on-duty personnel and calling in off-duty personnel and members of the Medical Staff.

To facilitate the notification of personnel an up-to-date list of key personnel, in order of priority to be notified, should be developed and kept at the hospital switchboard. This list should contain both the business and home telephone numbers of the key personnel. The priority call list might be arranged by departments something like the following:

Priority Call List (13)

Day (7:30 am to 5:00 pm)

1. Notification should be given in this order:

Nursing Department	Pharmacy
Housekeeping Department	Central Supply
Storeroom	Medical Records
Operating Room	Business Office
Anesthetists	Nursing Floors
X-Ray Department	Engineering
Laboratory	Dietary
	Chaplin

2. Notify the priority list of physicians who have disaster assignments within the hospital or call the Physician's Exchange.

Night (5:00 pm to 7:30 am)

1. Immediately notify all departments with staff on duty.
2. Notify the Medical Staff
3. Notify the following key personnel off-duty:

Administration	Anesthetist
Nursing Director	Pharmacist
Housekeeper	Stores Clerk
Laboratory Hear	Engineer
X-Ray Head	Chaplin
Operating Room Supervisor	

Generally there are three methods by which on-duty personnel in the hospital can be notified (14):

1. The Paying System. This system may be used to advise all personnel that a disaster has occurred and that the hospital must be prepared to receive casualties. Each time a new phase of the disaster plan has been declared by the Chief Control Officer, the hospital is advised by the same system. In order to avoid alarming patients already in the hospital, a paying code should be developed that is familiar to all hospital employees. For example, the Telepage operator should page in

a calm voice as follows: "Plan 'A' Stat, Plan 'A' Stat, Plan 'A' Stat." This page should be repeated three times at approximately one minute intervals. When a new disaster stage has been declared by the Chief Control Officer, the Telepage operator should substitute the appropriate stage number in her page--"Stage 2 Plan 'B' Stat, Stage 2 Plan 'B' Stat, Stage 2 Plan 'B' Stat," repeating the page three times at approximately one minute intervals.

2. The Telephone System. Telephone contact should be used as an alternative method or in those areas of the hospital which do not hear the paging system. In using the telephone contact system, the priority notification list should be used.
3. Messengers. In the event that the paging and telephone systems are out of order, the Chief Control Officer should delegate to messengers the responsibility of alerting key personnel.

Alerting personnel off duty and away from the hospital. There are three methods by which this may be accomplished:

1. By Telephone. If possible, key personnel and others who are vitally concerned with the disaster program should be contacted by telephone. This can be accomplished by the use of the priority list of notification. At the time of a disaster it is not feasible for the telephone operators to notify all of the hospital's personnel by telephone. If the situation warrants the recall of more employees, it is recommended that this be done by the key personnel needing help by using the "triad chain

call" system (15). Under this arrangement and with a roster of personnel at hand, the key person calls three employees who are off duty. Each of these call three other designated employees. In turn each of them calls three more specified members of the department. These chain calls continue until all off duty personnel have been reached. Although it is obvious that some of these employees may not be at home when called, their call assignments can be easily transferred to other employees.

To augment the notification of the medical staff arrangements can be made with a Physicians' Exchange in the community to call the doctors assigned to the hospital's disaster services.

2. By Radio Announcement. Arrangements can be made with the local broadcasting stations to interrupt their programs and announce that "_____ Hospital's employees are to report for duty immediately!" It is obvious that the request for this type of action on the part of the broadcasting stations must originate with the Chief Control Officer of the hospital.
3. By Messenger. It may not be possible to use either the telephone or the radio systems at the time of a disaster. In this case, it might be feasible to use messengers to contact the key personnel of the hospital. Because the area of the city may be wide and the number of personnel large, this system has definite limitations and it cannot be used to contact the entire hospital staff.

Plan for Handling Mass Casualties in the Hospital. Casualty flow in the hospital at the time of a disaster is very important. Experience

in diasters has shown that a continuous flow of casualties from one casualty treatment area to another expedites the treatment and care of mass casualties.

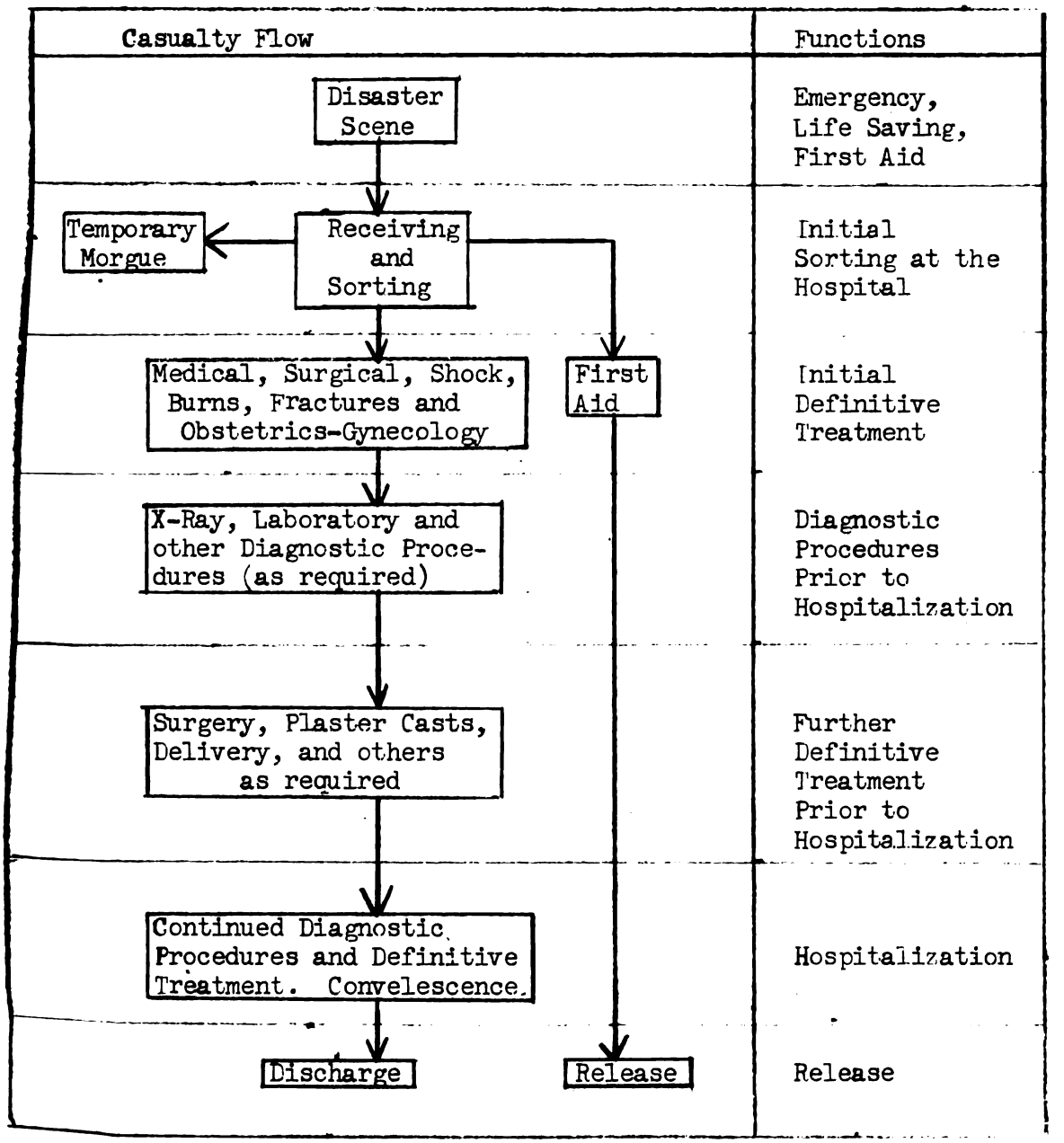

FIGURE 4

CASUALTY FLOW PLAN (16)

Assignment of Hospital Space (17). To expedite the flow of casualties at the time of an emergency, the disaster committee must plan for the expansion of the hospital work areas. This expansion will involve rearrangement or reassignment of present patient areas and the conversion of hospital work space not normally used for patient care to emergency use. This planning must be done in advance so that needed equipment and supplies can be procured. It is desirable that floor sketches of the hospital showing the assignment of space for emergency use be included in the planning material (18).

1. Ambulance Reception Area. In a situation of severe disaster it can be anticipated that many ambulances and other vehicles bearing casualties will arive at the hospital within a short period of time. An area of sufficient size to permit the reception and unloading of several of these vehicles simultaneously is needed. This area should be located adjacent to the admission area. This post should be activated at Stage 1 of the disaster.

2. Receiving and Sorting Area. If possible this area should be spacious and located near the plan-assigned ambulance unloading points. It should be a large single area through which all incoming casualties must pass. No workup, treatment, or identification of casualties should occur at this point. This area should serve as a sorting station where patients are examined, sorted and transferred to specific treatment areas. This station should be activated at Stage 1 of the disaster.

3. Initial treatment areas. Separate areas properly equipped must be planned for:

a. First Aid. This area should be established to provide emergency care for patients with injuries of a relatively minor nature. In consideration of the need to minimize congestion in the corridors and admission area, it is desirable that this station be located in a place where its activities will not interfere with the handling and and admission of seriously wounded casualties. This area should be large enough to accommodate at least 50 casualties at one time. This post should be activated at Stage 2.

b. Other initial treatment areas. Space should be provided for shock, surgical, medical, burn, fracture, obstetric and gynecology wards. These areas should be readily accessible from the receiving and sorting area. They should also be accessible to the operating rooms, laboratory, x-ray and other service areas. These wards should be established at Stage 2 of the disaster.

4. Other Definitive Treatment Areas.

a. Surgery. Operating facilities should be expanded for the accommodation of as many surgical teams as space and equipment permits. If possible expansion of this area should occur in proximity to the present facilities. Use of additional tables in all operating rooms should be considered. The following types of operating rooms should be provided:

1. General (all cases except orthopedic and gynecology).
2. Orthopedic (fractures, dislocations, etc.).
3. Gynecology (spontaneous abortions, etc.).

In most disasters the general surgery rooms will receive the majority of surgical cases (19). However, because of the special equipment requirements, the other surgical areas should be provided if possible. The expansion of Surgery should be activated at Stage 2 of the disaster.

b. Patient Facilities. Expansion of patient facilities to accommodate casualties should be accomplished in stages, each activated in succession as required by the size of the casualty load. The following are some examples of stages that might be used (20):

1. Restrict non-casualty admission to critically ill patients, full term pregnancies, and other non-casualty patients of an emergency nature.
2. Discharge all patients awaiting discharge.
3. Set up cots, fold-away beds, stored hospital beds, etc. in suitable, non-bed areas such as sun porches, patient day rooms, lobby spaces.
4. Further evacuation of non-disaster patients that have been approved for transfer by a member of the medical staff.

5. Reassignment, within the hospital, of non-disaster patients so as to concentrate them in one or more areas.

6. When further expansion within the hospital is impossible transfer movable non-disaster patients to improvised patient facilities in nearby hospital buildings. This evacuation area should be chosen with consideration for traffic problems and suitability for ambulance approach and loading.

c. Morgue. The possibility that the present morgue area will not be adequate must be considered. An area should be assigned for auxilliary facilities which is well removed from the main areas of activity. The location should be near an entrance so that the public can enter to identify the bodies and so that bodies may be removed with a minimum of exposure. This station should be activated at Stage 2 of the disaster.

5. Non-clinical Facilities and Departments.

a. Central Control Station. This area should be assigned to a spot that is located away from the main flow of traffic. The area should be large enough to provide space to hold briefing sessions with key employees and to allow for the control of the operating

procedures of the disaster program. The area should be easily accessable to all personnel concerned. The area should be activated at the notice of an Alert.

b. Communications Center. Anticipated, unprecidented demand for communications requires planning for co-ordination and augmentation of both external and internal communications. This center should be established considering the main telephone facilities and providing room for the accommodation of messengers. Consideration should also be given to space required for the installation of a two-way radio system. This area should be activated at Stage 2 of the disaster.

c. Public Information Center. A place should be provided where relatives, the Press, and the public can come for information concerning casualties. Individuals seeking information should not be permitted to enter the main treating areas of the hospital. This area should be located well away from the planned admission areas and the main flow of casualties. This station should be activated at Stage 1 of the disaster.

d. Personnel Offices. An area should be established where unassigned hospital employees and volunteers report for work. More effective use and distribution of help can be made if these people can be first assembled as a controlled group for screening and

assignment. A place is required where these people can be pooled for assignment to the area of need. The place should be large and chosen with regard for traffic problems. This area should be activated at Stage 1.

Personnel. Specific disaster assignments should be made when planning for an emergency. The disaster assignments should be made in depth, listing a number of alternates for each position. Generally, it is a good idea for the key personnel responsible for the pre-planning of the hospital's functions to make the individual job assignments. All disaster assignments should be by job title instead of using individual names (21). This method is deemed necessary in view of the fact that, when a disaster strikes, the named individual may be on vacation or may no longer be employed at the hospital. If names are used confusion is obviously inevitable.

In a major disaster the hours of work of the personnel will have to be increased. It must be remembered that if the work hours are increased too much, a lag in the work output will result. No matter how pressing the situation may be, personnel must have some rest.

In so far as possible, arrangements should be made to keep the personnel on the premises of the hospital, at least for the first 24-48 hours of the disaster situation or until the situation becomes stabilized. Cots should be made available for rest and sleep.

The disaster plan should specify that the assignment of employees to other than their normal duties may be necessary in a disaster.

For example clerical employees might be reassigned to duty in the Patient Information Center or assigned to help with identification and registration of casualties.

While it is believed that most hospital employees will donate their services at the times of a disaster, the plan must consider that the personnel may have to be paid for overtime if they demand such extra compensation (22).

Two types of identification for employees should be considered for use at the time of an emergency situation:

1. Identification cards (23). In order to assure that the hospital employees will not be stopped and delayed on their way to the hospital, all employees, including members of the medical staff, of the institution should be issued an identification card showing that they are an employee of the hospital.

2. Identifying arm bands. Consideration should also be given to the use of identifying arm bands for all regular personnel and others working in the institution. This procedure should help to reduce confusion within the hospital and should help to reduce the number of unauthorized personnel within the building.

When hospital employees have received notice of a disaster, they should report immediately to the hospital and to their pre-assigned disaster stations. Any employee who is not on duty and who has a specific disaster assignment should report to his department head on arriving at the hospital and from there report to his disaster assignment.

All personnel who do not have specif disaster positions should report directly, upon notice of the emergency situation, to the Emergency Personnel Station for assignment.

All key personnel on duty when an alert or a disaster is declared should report to the Control Center for a briefing period. Key personnel not on duty when the alert or disaster is declared should also report to the Control Office for briefing on arrival at the hospital.

Any volunteer who reports to the hospital should be directed to the Emergency Personnel Office for screening and assignment to a disaster position. These volunteers should also report to this office before leaving the hospital when their work has been completed.

The members of the medical staff, upon arrival at the hospital, should sign into the hospital in their usual manner. On signing in, they should report directly to their disaster station. When their primary assignments are completed, the doctors should report to the Chiefs of their services for possible reassignment.

Traffic Control. To avoid confusion and to minimize the amount of cross traffic, plans should be established for the control of both internal and external traffic. Traffic flow charts (24) should be established to show:

1. External traffic flow, indicating entrances to be used for various purposes.
2. Casualty flow through the hospital.
3. Flow of supplies and other services to treatment areas.

The plans for the control of external traffic should consider the following:

1. Road blocks to keep unauthorized people away from the hospital.
2. Posting guards to direct ambulances and other vehicles arriving with casualties, equipment and supplies.
3. Strict control of vehicular traffic in the casualty receiving area to maintain constant accessability.
4. Direction and control of pedestrians and non-emergency vehicular traffic on all roads leading to the hospital.
5. Screening of persons seeking admission to the hospital area and directing authorized personnel and visitors to the proper entrances.

Internal traffic control plans should consider the following:

1. Employees should be stationed at critical points within the hospital for control and direction of traffic.
2. Personnel should be instructed to use stairways to free elevators for transportation of casualties. All automatic elevators should be run and controlled by an operator at the time of a disaster.
3. Cross traffic should be restricted as much as possible.
4. Closing of all entrances to the hospital except those that are to be used for a specific purpose.
5. Unessential entrances that cannot be locked should be guarded to prevent the entrance of unauthorized personnel and to direct visitors, supplies, volunteers, etc. to the proper entrances.

Official law enforcement agencies are essential for both internal and external traffic control. Such arrangements as necessary with these agencies should be done in advance through individual contact or through the community disaster planning committee.

Consideration should be given to the preparation and storage of directional signs to be posted in the event of a disaster. These signs should be an invaluable aid in the conservation of manpower (25).

Control of Visitors. Every hospital that has had disaster experience reports that one of the biggest problems they encountered was the hundreds of visitors who rushed in through all doors, swamped the wards and interferred with the care of patients to a paralyzing extent. The lesson to be learned from these reports is that it is of the utmost importance to prescribe and enforce the various measures which are necessary to effect adequate control over visitors to the hospital in a disaster situation.

An example of the measures to follow taken from the disaster plan of the St. Louis County Hospital, St. Louis, Missouri is as follows (26):

1. Restrict visiting to the immediate next of kin of patients who are classed as serious or critical. Admit only one visitor per patient at a time.
2. Stop visitors from entering the hospital grounds by establishing police posts at the entrance to the grounds and at strategic points along the perimeter of the premises. Instruct visitors to park along the streets outside of the grounds.

3. Connect the police post at the entrance to the grounds with the Patient Information Center by installing a two-way radio at that point. This will make it possible to learn quickly the condition status of any patient. If he is not critical or serious inform the visitor that the patient's condition is satisfactory and that visitors are not allowed for this group.
4. If the patient's condition is serious or critical, permit the visitor to enter the grounds on foot; give him a pass which has been provided for this purpose, and direct him to present it to the police officer at the entrance to the Patient Information Center.
5. Upon presentation of the pass, which will be taken up, the visitor will be admitted to the Information Center. The clerk on duty will ascertain from a roster at hand to which division or ward the patient has been assigned.
6. A guide will group the visitors who are going to the same area, will take them to the patients concerned and after five minutes will return them to the Information Center where they will be requested to leave.

Functions of the Chaplin (27). The services of a chaplin will be of the utmost importance for the morale of the patients and the personnel. The chaplin should be summoned at once when it becomes known that a disaster has occurred. In order to assure that all persons who need and desire spiritual consolation will receive it promptly, the chaplin should be authorized to request other clergymen to serve at the hospital.

Admission of Patients. A specific policy should be established regarding the admission of all casualties to the hospital so that there will be no question about determining the casualties' ability and willingness to pay for the cost of their care. At this point no consideration should be given to cost and ability to pay. The main consideration should be the adequate care and treatment of the casualties.

It would be impossible and impractical for one hospital to have to assume the entire casualty load in an extensive disaster. For this reason arrangements should be made through the Community Disaster Committee for coordination with other health care facilities to assure equalization of hospital casualty loads. The Chief Control Officer should have some central community control point where he can receive information and also where he can report the situation in his hospital. By having the hospital work through a central control point in the community, equalization of casualty loads can be accomplished. If there is no community organization the best contact would be the local police agencies.

Financing the Cost of Hospital Services to Casualties. Hospitals generally do not ask for payment for care given in cases that are a result of a disaster. This also holds true in the case of the doctors (28). However, this problem should be solved long before a disaster occurs. This problem requires a thorough study at the community level with the participation of the administrators of all of the hospitals, their boards, the Hospital Council, Blue Cross officials, insurance companies, the legislative body of the community, the American Red Cross, and appropriate Federal and State agencies.

If it is possible to agree on the question of how hospitals will be reimbursed for their services in a disaster, the method agreed upon should be covered in the policies of the hospital disaster plan.

One of the biggest problems in the financing of casualty care is the determination of the point at which "free care" ends and payment of treatment by the patient begins. It is wise to try to determine this point before the disaster situation occurs. Some thinking along this line indicates that this point can be determined when it has been confirmed by the doctor that the casualty victim must be retained or hospitalized for further diagnostic procedures, definitive treatment, and convalescence. This point must become a policy and must be understood by all concerned (29).

Access to Facilities. The sudden need to have access to storerooms and other facilities which a disaster creates makes it imperative to provide some type of key management system. One method (30) by which this can be accomplished is to place a set of keys to all essential sections of the hospital that are not open 24 hours a day in a central location. Generally, this central key depository can be placed under the control of the Nursing Department. Since this department is staffed at all times the keys would be available for use when official notification of a disaster is received.

Supplies and Equipment. Lists of all necessary supplies and equipment should be prepared in advance for each disaster function. These lists should be approved by the disaster committee and subject to the approval of the governing board.

1. General. Almost all hospitals carry enough medical and surgical supplies to carry them through a few hours of a critical situation. However, in planning for disasters, it is essential that the professional groups within the hospital anticipate their needs (31). The best procedure in estimating needs is for these groups to agree on standardized procedures and treatment of certain types of casualties. From the standardized procedures that have been developed, medical supply and equipment lists can be drawn up and there is no reason why at least a representative quantity of each item cannot be kept on hand for when it is needed.

The feasibility of stockpiling medical and surgical supplies in hospitals as part of the disaster plan is open to debate (32). In some disaster programs, a great deal of emphasis is placed on filling chests, boxes and cartons with supplies of every description and placing these disaster boxes in stategic positions throughout the hospital to be used only in case of an emergency situation. Usually these disaster boxes have been clearly labeled with a complete listing of all of the contents. While personnel are oriented in the use of the disaster boxes at the time that they are made up, with the passage of time and the turnover of personnel, the subject becomes forgotten. Occasionally, because there is no control placed on the boxes, items are borrowed and not replaced leaving the packs of little value. Also, hundreds of dollars worth of supplies are in these boxes and they may become obsolete or may deteriorate.

If disaster boxes are made up, they should be (33):

a. Properly stored in a central location clearly marked for disaster and known to all key personnel.

b. Checked periodically to see that the supplies are properly rotated and replaced with fresh stock. This system also insures that usuable supplies are on hand at all times. Freshness is important with antibiotics and certain pre-packaged sterile supplies.

c. Checked at least annually with the professional staffs to determine which supplies, if any, should be deleted or added to the pack.

Although the hospital carries enough medical and surgical supplies and equipment to carry them through a few critical hours, the source of supply should be known for every item on the disaster supply lists. Also it is important to know how long it will take to get a rush shipment at the least convenient time. An accurate, up-to-date listing of sources for essential items should be posted in the storeroom. This list should include:

a. Names of at least 3 persons connected with each source, with the addresses and telephone numbers for contacting them both day and night. These perons should have access to warehouses where supplies are kept. This list might include, hospital supply houses, warehouses, wholesale drug companies, key salesmen and drug stores.

b. Hospitals in neighboring communities. However, it should be kept in mind that other hospitals in the community will

probably be facing emergencies of their own and will not be able to lend much assistance.

c. Names and telephone numbers of such agencies as the Red Cross and the Civil Defense.

2. Food. In reference to fresh meat, vegetables, fruit, etc. it must be remembered that the average hospital rarely carries more than a one or two days supply which will be used up quickly by the increased case load and personnel. A disruption of gas and electrical equipment would aggrevate the problem even more. For these reasons the hospital should carry on hand at least a three day supply of canned food items. Meals can be prepared rapidly from such items with little effort and with the minimum of use of utilities.

3. Beds, cots, bedding, etc. The expansion of the hospital's bed capacity is a common requirement of most disaster situations. With this in mind and to keep the cost of disaster preparation from being excessive, the feasibility of procuring and centrally storing several hundred folding cots must be kept in mind. Stored with the cots should be linen packs that contain one blanket, one sheet, towel, face cloth, and other items considered essential. The actual number of these items can be determined by arriving at an estimate of the maximum number of patients that the hospital can effectively care for in an emergency and then surveying the supplies that are on hand.

4. General considerations. Arrangements should be made for the delivery of supplies to all disaster sections immediately upon notification that the disaster plan has been activated.

If additional inventory supplies and equipment are needed, the person in charge of the division needing the supplies should request them by requisition in the usual manner.

Supplies and equipment in addition to the hospital inventory should not be requested unless these items are cleared by the Chief Control Officer. Only this officer should have the authority to authorize any expenditure for equipment and supplies that are found necessary.

In the event that supplies are needed and authorized from sources outside the hospital, all deliveries should be made to the Central Storeroom. These supplies should be carefully recorded as to material received, name of sender, amount and date before being dispensed to the requesting unit.

Termination of Disaster Operations. Because the Chief Control Officer has the full authority at the time of a disaster, he is the only one that should be allowed to give notice to the various hospital units that the emergency has ceased.

The end of the disaster status of a hospital can be determined by this officer when:

1. Patients cease coming into the hospital.
2. Notification is received from an official community source that all casualties have been transferred from the disaster site.

The emergency status of the hospital cannot be stopped immediately when casualties cease being admitted to the hospital, but gradually the special functions that had been activated at the beginning of the disaster situation can be stopped. The key person responsible for the

function should determine this point when he has been notified that no more casualties will be received and their work is completed.

Evaluation of the Functions of the Hospital after a Disaster has Occurred. As soon as possible after the emergency has ended and all of the casualties have been properly cared for, the Disaster Committee and all key personnel responsible for the operation of all functions during the emergency should be called together for an evaluation of the hospital's experience during the disaster period. At this time arrangements must be made for (34):

1. Records. Permanent records should be established for all casualties treated as rapidly as possible. The patient records should be permanently filed as out-patients or as in-patients.
2. Statistics. Some type of statistics should be prepared to show the number of casualties treated, the types of casualties treated, the supplies that were used, etc.
3. Borrowed supplies. Any supplies that were borrowed must be returned or the agencies from whom they were borrowed must be reimbursed.
4. Finance. Application should be made for reimbursement from any agency who participated in the medical care of the casualties. Settlement should also be made for any emergency supplies that were procured during the disaster period.

The points listed above are important and essential, but more important is an evaluation of the total hospital action during the disaster. It is at this time that the failures of the plan and

personnel can be noted and improvements and changes needed can be implemented. A written report should be required from all key personnel. This report should briefly cover all of the activities of the function, shortcomings of the function, equipment and personnel that were used but had not been anticipated in the pre-planning stages, and any recommended changes.

Training and Rehearsing for Disasters. A disaster plan that exists on paper and that is not familiar to all professional and non-professional employees of a hospital is worthless. The most valuable asset that a hospital possesses is its personnel. Therefore, staff education is as necessary as a clear-cut disaster plan. All employees must learn and understand how to carry out their assignments in changed routines in unfamiliar conditions (35).

Training must be planned for the following groups of personnel:

1. The Medical Staff.
2. The Nursing Staff--regular and part-time
3. All levels of Administration.
4. Non-professional personnel--regular and voluntary.

The purpose of training personnel for disaster is threefold:

1. To review the role of the hospital in a disaster situation.
2. To familiarize staff members with their role in the emergency hospital plan.
3. To afford opportunity for developing group skills necessary to carry out assigned tasks.

The responsibility for arranging for these training programs lies with the Hospital Disaster Committee. Training programs should be planned so that they are held periodically and not just once (36).

If the hospital has an Orientation Program for all new employees, it should consider the possibility of introducing the subject of disaster at this time. The new employees can be given their identification cards, their disaster assignments, and they also can be given some type of a phamplet that briefly describes the total hospital disaster program. This method should be an effective way to begin the training of employees. More specific training can follow later by the use of specified, scheduled training programs.

The training activity for the hospital should take several forms--each form very important in its own right:

1. Review of emergency house orders by department heads and subsequently by them with their staffs.
2. Review of emergency operating orders by professional groups at staff meetings. This would include a periodic revision of the plans to make improvements and changes as needed or indicated by drills or actual experiences.
3. Orientation and training of volunteers such as the Woman's Auxillary or Nurses' Alumni Associations in specific duties and first aid.
4. Mock exercises using portions of the emergency plan. An unannounced test stimulates interest and enthusiasm both before and after the trial. Reluctance on the part of the Medical

Staff and the department heads to spend time in planning can be largely dispelled with the knowledge that the hospital is going to test the disaster plan.

Post disaster critiques of hospital operation in disaster situations have repeatedly disclosed weaknesses in segments of the hospital disaster plan. Drills that have taken place in some hospitals which have attempted testing have invariably led to practical changes in the hospital disaster planning. As a practical measure, it seems that the disaster plan of every hospital should be subjected to rehearsal or drill which will test its workability and the extent to which its provisions are understood by hospital personnel. The Detroit Area Hospital Council has prepared material for hospitals to use to test disaster plans (37). This material, "Testing and Rehearsal of Hospital Disaster Plans," covers three areas (see Appendix A):

1. Standards for hospital testing.
2. Procedures for hospital testing.
3. Complete plan testing.

If trials of the disaster plans reveal any deficiencies in the departmental, the hospital, and the community aspects of the disaster plan, they must be corrected promptly. It is also obvious that if the personnel of the hospital, including the medical staff, is to remain interested and is to remain proficient in its disaster duties, periodic test exercises are an essential requirement.

In prescribing the objectives of the training program, the hospital administration must be realistic. While, theoretically, every employee

should be fully informed and interested concerning the provisions of the disaster plan, the administration must realize that in actual practice this objective is hard to reach in view of turnover. With this in mind, the administration must recognize that the success or failure of the hospital disaster plan depends, primarily, on the proficiency of the department heads, among which changes are less frequent.

SUMMARY

When disaster planning has been approved by the Governing Board of a hospital, it has been found that the actual planning can be most adequately accomplished by the appointment of a Disaster Committee.

One of the main functions of the Disaster Committee is to anticipate the many problems that will have to be met in an extensive emergency. To accomplish this function, this Committee should establish an overall, general hospital plan and policies for meeting disasters.

The general plan should cover such areas as:

1. Organization
2. Responsibilities of the Chief Control Officer
3. Disaster Warning
4. Phases of the Disaster
5. Notification of Personnel
6. Casualty Flow Plans
7. Assignment of Hospital Space
8. Personnel
9. Traffic Control
10. Visitor Control
11. Functions of the Chaplin
12. Admission of Patients
13. Financing the Cost of Hospital Care
14. Access to Facilities
15. Supplies and Equipment
16. Termination of the Disaster Activities
17. Evaluation of the Hospital's Activities
18. Training and Rehearsing for Disasters.

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CHAPTER IV

THE ORGANIZATION AND OPERATION OF CLINICAL AND NON-CLINICAL FACILITIES OF THE HOSPITAL FOR USE AT THE TIME OF A DISASTER

Disaster planning not only includes the preparation of an over-all Hospital Disaster Plan, but detailed plans must be included for the activity of each clinical and non-clinical facility in the hospital. These plans must be developed to indicate when the specific activities are to begin after notification that an emergency situation exists. The plans should set forth:

1. The departmental organization.
2. The location of the area, (See page 45).
3. The activities and procedures to be carried out during an emergency as well as the activities that must be planned for in advance.
4. The personnel required--their duties, assignments, and responsibilities.
5. The emergency supplies and equipment items needed.

The material that is presented in this chapter will be a discussion of the organization of various hospital functions and some of the specific activities, procedures, and problems that must be met. When a specific institution applies this material to its organization, plans then can be made for the actual number of people that will be needed

to carry out the functions and for the types and amounts of equipment and supplies that will be needed.

THE RECEIVING, ADMITTING, AND SORTING AREA

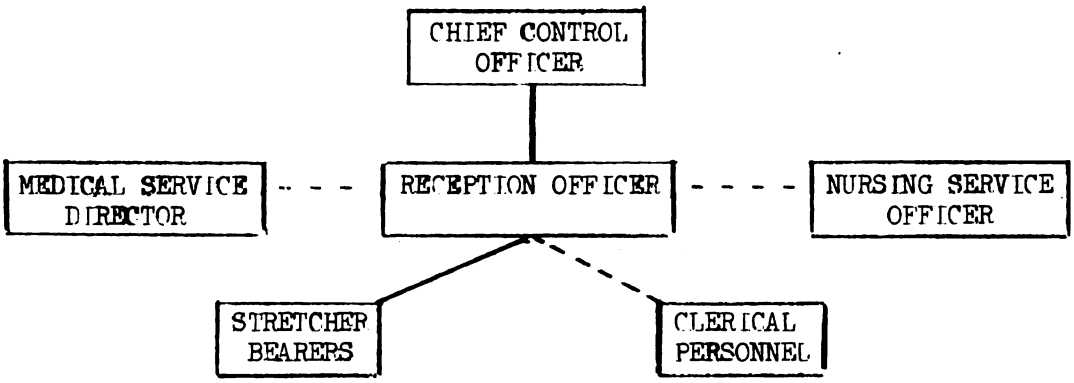

FIGURE 5

SUGGESTED ORGANIZATION OF THE RECEIVING, ADMITTING AND SORTING AREA

The Reception Officer should be responsible for coordinating the activities of the medical, nursing, clerical and other groups that are participating in the reception and treatment of casualties, and in general to see that the immediate needs of these groups are met.

Casualty reception is one of the most important functions in the hospital's disaster plan. Every effort has to be made to coordinate and expedite the activities relating to the reception and subsequent treatment of the casualties (1).

When vehicles bearing casualties are unloaded at the hospital, any casualty requiring assistance should be helped or carried into the reception area by the stretcher bearers. In the reception area the

casualties should be received by the nursing personnel and made as comfortable as possible pending examination by one of the doctors.

To insure that a record is made of all casualties that are admitted, clerical personnel must be assigned to maintain a running "log" of all casualties and to "tag" these casualties for purposes of identification and treatment information. If possible, it is suggested that this operation be completed before the patient is seen by the physician.

All casualties arriving at the reception area must be seen by the doctor that is a member of the Receiving and Sorting Team. This examination is not for treatment but is a procedure by which the sick and the wounded are classified according to types and urgency of conditions presented. The major purpose of this procedure is to properly route the casualties to the appropriate treatment areas. The procedure of sorting is the key to the management of these casualties, for it is only by this means that casualties may be categorized properly and separated so that there will be a minimum time lag between injury and treatment (2). Because this is such an important phase of the casualty care, the doctors and nurses assigned to this division should be the best available. This function requires a high degree of professional skill to make the required clinical judgments (3).

When the doctor has seen the patient, he should see that the information required on the emergency disaster tag is completed--indicating to which treatment area the casualty should be sent and the urgency of treatment.

1. Casualties requiring immediate medical or surgical attention should be transferred to the operating rooms or the appropriate treatment area: burn, trauma, shock, fracture, etc.
2. Casualties requiring only first aid should be directed or assisted to the first aid division.
3. Casualties to be admitted to the hospital, but not in need of immediate medical or surgical attention should be transferred to the appropriate ward.
4. Deceased casualties should be classified, tagged, and transferred to the morgue.

The stretcher bearers and others who are assigned the responsibility for assisting with casualty transportation and control of casualty traffic should concentrate on the importance of carrying out their duties quickly. Congestion in this area should be avoided.

Functions and Procedures:

1. Nursing Staff--see page 99.
2. Clerical Staff--see page 74.
3. Stretcher Bearers.
    a. Upon notification of a disaster the stretcher bearers should report immediately to the Casualty Reception Area for instructions from the Reception Officer.
    b. Collect stretchers and wheel chairs that have been assigned to this service. To implement this function, plans must be made for where this equipment can be easily located.

c. Transfer casualties from the receiving area to the treatment areas as indicated by the nursing personnel. This requires prompt action. Wheelchairs and stretchers should be returned to the reception area.

d. Assist when necessary with the unloading of the casualties by providing physical assistance or a stretcher or wheelchair.

Equipment and supply requirements. These items should include cots, linen, medical and surgical supplies, stationary supplies, wheelchairs, stretchers, and frame stretchers. Plans should be made for the specific items that are needed, the quantity needed, where these supplies are stored, and how the supplies and equipment are going to be obtained.

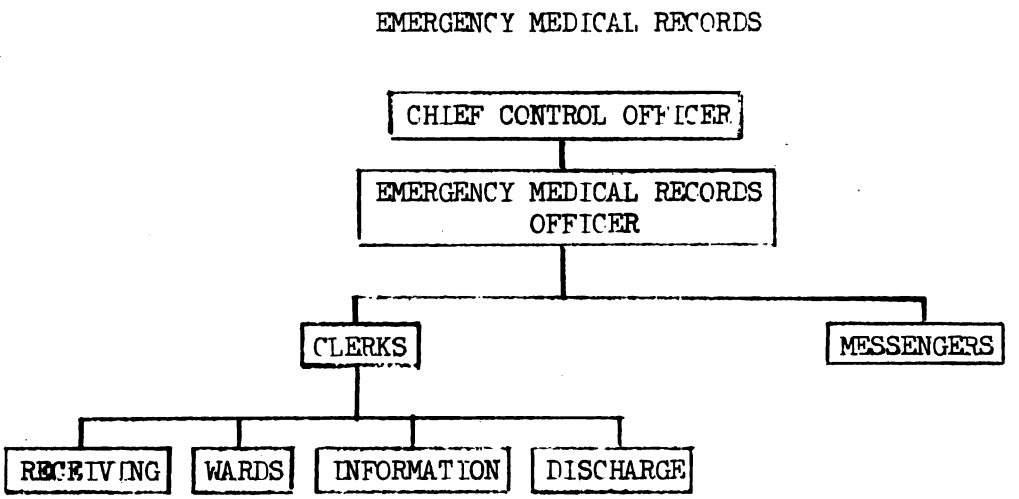

FIGURE 6.

SUGGESTED ORGANIZATION FOR EMERGENCY MEDICAL RECORDS

Types of Records that Should be Kept. There is general agreement that medical records are essential in the identification and treatment of casualties in a disaster situation. It has been recommended by the American Hospital Association that the records should be as simple as possible and that there should be some means of attaching these records directly to the patient so that they do not become lost (4).

In most cases, hospitals have adopted the emergency medical record system recommended by the Federal Civil Defense Administration. This system involves the use of five basic documents (5) (See Appendix B):

1. The emergency medical tag. This tag is made out and attached to the patient either at the disaster site or upon admission to the hospital. It is used for identification purposes, and it generally shows any initial treatment or medication that has been given.
2. The index and information card. This card is filled out in duplicate in the receiving area for use as an information and patient locator card. These cards are to be sent to the Patient Information Center where one card is filed as a permanent hospital record and the other copy used to compile casualty lists or made available for use by either the Red Cross or Civil Defense.
3. The emergency hospital clinical record. This is a folding card type form which is used for noting brief case histories and records of treatment.

4. The records' jacket. This is an open envelope which is attached to the patient and used to hold the patient's records.
5. Hospital disposition log. This is a work-sheet type record which shows where the patient has been sent or transferred.

In addition, it is recommended that the hospital continue to use any standard forms it considers practical and desirable under the circumstances.

There have been objections to the system suggested above because it has gone to extremes in limiting the sizes of the records. The tagging system appears objectionable because it does not provide sufficient space for bare essentials such as the physical, X-ray and laboratory reports, diagnosis, treatment, and a few progress notes. Also, because these are special records which will be used only in a period of disaster they must be especially printed which raises the question of cost.

Because of these objections, some hospitals have rejected the Civil Defense system as inadequate and propose to use their hospital's regular forms and to effect the necessary curtailment of the medical records, not by reducing the size of the forms but by limiting its written content.

The Staff of the St. Louis County Hospital in St. Louis, Missouri has adopted this plan (6). They propose to use the regular hospital forms and restrict the records to five sheets and two half-sheets. The first sheet of the record would be of the usual standard admitting and identity data and the various permit forms would be included. This hospital feels that the permit forms are important because even in a

disaster, the legal aspects of anesthesia and surgery should not be forgotten. The second sheet provides two pages for the recording of findings, procedures and progress notes. The third and fourth sheets provide the customary forms for the management of valuables and clothing. These sheets also have their legal aspects. The two half-sheets are carbon copies of the patient identification and condition data which are designed to be sent to the Patient Information Center.

The St. Louis County Hospital proposes to use a "shop envelope" to keep these records together. This "shop envelope" is described as an envelope with a celluloid front which has a window over the area where the identification data and the condition of the patient will be recorded on the front sheet of the record; the window facilitates the recording procedure. At the top of the envelope is a reinforced "eye" through which a ribbon loop is threaded. By this means, the "shop envelope" containing the patient's records can be securely attached to the arm of the patient.

Either method is acceptable as a medical record, but the second system described seems to be more practical because it makes use of records already used by the hospital and that are familiar to all professional personnel. The only additional expense to the hospital would be to purchase a supply of "shop envelopes" that fit their standard record sheets.

Operations and Policies. The paper work during the emergency should be effected as quickly and as simply as possible, fulfilling only the most essential purposes of a system of records and documentation.

The following elements should be considered necessary:

1. A record of diagnosis and treatment given and prescribed for individual patients for effective and continuing medical care.
2. A record of identity, location, and condition of individual patients for the information of family and friends.
3. The records that have been mentioned to be kept for purposes of compiling statistics and settling accounts.

An efficient system of record keeping should not only minimize confusion, error and distress at the time of an emergency, but also should reduce the confusion that might follow. In an emergency, records should be maintained to keep track of the patient from his admission to his discharge. To accomplish this and to reduce the work load of the nursing staff, record clerks should be located at strategic points throughout the hospital.

1. Admission clerks should identify, tag and list all incoming patients.
2. Discharge clerks should collect all disaster tags, medical records, and list all of the patients as they are discharged.
3. Information clerks should classify and give information to the public, (see page 81). They should also prepare casualty lists and compile information for the later use of the hospital.
4. Messengers should be used to carry records and maintain contact among the various record centers.

Limitations of time and personnel, as well as unforseen occurrences, will require a thorough knowledge by every clerk of what is expected of

him; furthermore, a flexibility and resourcefulness in case duplication prevent his completing his duties as prescribed. Each clerk should bear in mind the basic purposes for record-keeping in an emergency so that he can adjust the details of his duties to the particular circumstances.

Along with keeping the records of each casualty, the responsibility of accounting for the patients' valuables and clothing is generally assigned to these clerks. Procedures should be established for the collection, custody, and identification of the clothing and valuables of the casualties. This procedure should include a system for handling the effects of patients who are deceased. Bags, boxes, sacks or some other type of container for the valuables and clothing should be provided.

Equipment and Supplies. Plans must be made for supplies and equipment, for storage of these items so that they are readily accessable, and for delivery of these supplies to the records sections when needed. The supplies that might be needed include:

Emergency medical tags and jacket
Clinical records
Shopping bags for valuables
Pencils or pens
Skin marking pencils

The supply list should be prepared as soon as the disaster plan has been approved and forwarded to the supply officer to enable him to procure and store these items.

Specific Procedures.

Reception. As the patient is brought into the hospital, he should be immediately tagged with the emergency medical tag. An index and information card should be filled out in duplicate as completely as

possible. Also, a record of admission should be made in the log book by name or tag number. Unidentified, both dead or alive, should be handled as the other casualties, but under the identification information, as much information as possible should be given as to appearance, age, etc. As the index and information cards are filled out, they should be sent by messenger to the Information Center.

Patient Treatment Areas. Clerks assigned to these areas should use the hospital's "Daily Report" sheet to record the name or tag number of every patient that is admitted to their assigned unit. By means of this "Daily Report" sheet the clerks can keep track of the unit's capacity and can send word by messenger to the Receiving Area when the capacity of the unit is approached. Whoever is assigned to the Morgue area should also maintain this "Daily Report" sheet.

When a patient is admitted to the treatment areas, the clerks should put together the medical record for the patient--filling out as much information as possible. These records should then accompany the patient at all times while he is in the hospital.

Valuables and clothing of the patient should be placed in a container of some description and marked with the tag number or name of the patient. These bags should remain with the patient if possible.

Patients who have been sent directly to the operating rooms from the reception area should not have their medical records compiled until they have been transferred to one of the patient areas. At this point the doctor's recommendations and written reports can be incorporated into the medical chart.

Periodically, duplicates of the "Daily Report" sheets should be sent to the Information Center. These sheets have, besides admitting information, up-to-date reports on the condition of the patients. This must be made available to the Information Center. When the information has been obtained from these sheets, they should be returned to the proper treatment area. Movement of patients, discharge of patients, and deaths of patients should be sent periodically to the Information Center. It is suggested that a specific schedule of reporting this information be set up.

Discharge of patients. There should be one central point to which all patients are sent for discharge from the ward and treatment areas. Generally, this point should be established in the first aid area.

1. First aid patients. The doctor in the first aid unit should indicate on the patient's disaster tag the diagnosis and treatment administered. When treated the patient should then be sent to the discharge point where the clerks list him in a discharge log book and remove the casualty tag. This tag is retained and filed as a permanent record.
2. Casualty patients. The same procedure should follow for these patients--the medical records and disaster tags removed from the patient, clothing and valuables checked out to the patient, and the patient listed in the discharge log book.
3. Deceased patients. The removal of a body from the Morgue should require the signature of the undertaker or other person removing the body. Clothing and valuables should also be signed over to

this person. The medical records and disaster tag must be retained permanently and a log book on the disposition of the body should be maintained.

COMMUNICATIONS

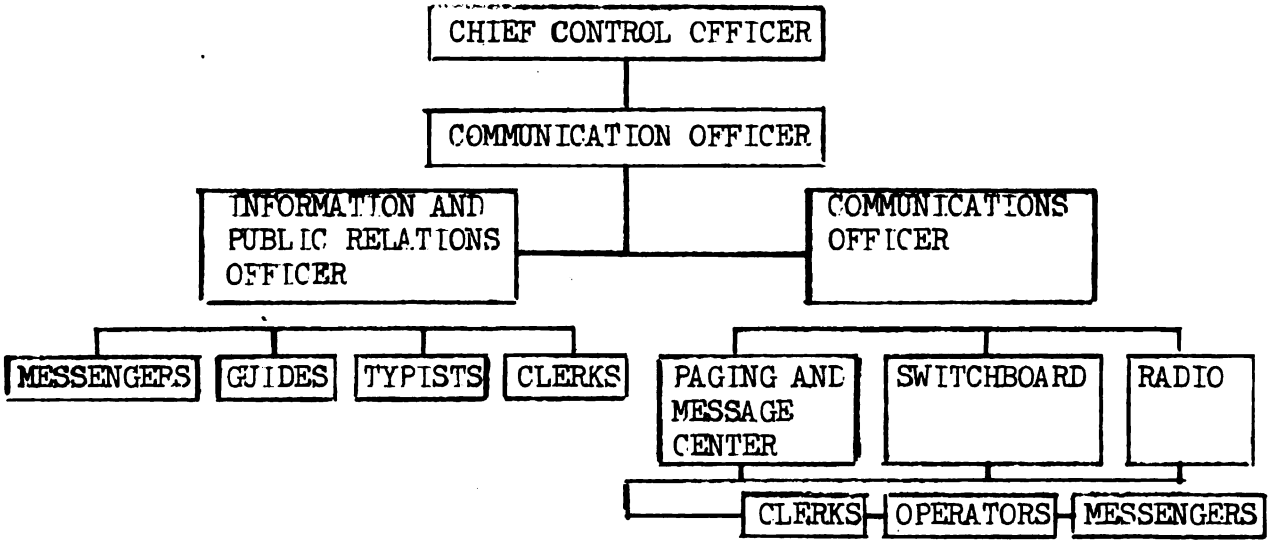

FIGURE 7

SUGGESTED ORGANIZATION FOR THE COMMUNICATION DIVISION

Public Relations. Public relations is very important in the area of visitor and press relations. A disaster inevitably results in the serious problem of frantic relatives crowding the hospital seeking information. Also, at the time of disaster, false rumors and misleading information accompanied by panic and lack of control must be encountered and overcome. In the hospital, Administration must have reliable information and must be able to form a true picture of events.

For this reason, the information center is vital in the disaster organization of the hospital.

The hospital has the responsibility for providing the community, relatives and friends with information about the condition and disposition of the casualties. The Information Center in the disaster organization can accomplish this goal by providing information to the patient's relatives, the Radio, the Newspapers, and the Community agencies.

The control of visitors to the hospital in the time of a disaster was discussed on page 54. This is one method that can be adopted by the hospital.

To be able to release information about the casualties, procedures must be developed to efficiently handle information that is sent to this center by the Medical Record Clerks. Files should be set up to handle the index cards that are sent from the Reception Area and some method must be established for recording on these index cards the periodic reports that are received from the treatment areas, the morgue, and the discharge point. These reports and casualty lists should be available as soon after the first casualties have begun to enter the hospital and at specific times thereafter.

As much as can be done, should be, for establishing good press relationships. It has been suggested that space and telephone service be allocated to these people at the Information Center to facilitate their work. Policies regarding picture-taking and allowing reporters to interview patients must be seriously considered. In so far as picture-taking is concerned, this work should be limited, as much as possible, to pictures of the type that show how the hospital and its personnel

are functioning in the disaster situation. Every possible effort must be made to prevent the release of pictures showing gruesome injuries. If a request is made to take a picture of an individual patient, this must only be permitted if the patient has given his consent to be photographed. If photographers and reporters should desire to visit the treatment areas, they should be accompanied by a guide. The purpose of this guide should be to assure that the reporters will not be refused admission to any of the areas and that if the reporters have any questions pertaining to the functions of the hospital and its personnel, they will be put into contact with the hospital person who is best able to answer their inquiries

The equipment and supplies of this unit will vary with the set-up, but plans should be made in advance for the items needed and how they will be procured at the time of an emergency. A suggested list of supplies and equipment might include:

Equipment:	typewriters	Supplies:	paper
	table and chairs		files for Index Cards
	Information Office sign		pencils and pens
	Notice Board		thumbtacks

Communications. Probably one of the most serious problems in the time of an emergency is the lack of adequate communications. It is, therefore, imperative that concrete thought be given to several alternate means for communicating--externally as well as internally.

1. Telephones. Many authors feel that the telephone is an outmoded (7) means of contacting personnel and agencies outside of the hospital because:

a. People frequently are not at home and time is wasted trying to contact them.

b. Telephone service is frequently interrupted as a result of the disaster situation.

c. Telephone service, if not disrupted, becomes tied up with many unnecessary calls coming into the hospital from anxious relatives and friends.

Nevertheless, the telephone still is one means of communication, and if planning is done adequately, it can be used to great advantage if the service has not been disrupted by the disaster.

As mentioned before, in an emergency, frequently all of the trunk lines of the hospital can become tied up due to an excess of incoming calls. As a result, it is impossible to efficiently use these facilities for emergency external communications. This is a severe handicap. One method that has been suggested to meet this problem is to install a number of "9th level" telephone lines which by-pass the hospital switchboard and which are restricted to only out-going calls (8). Each major department should be equipped with at least one of these special lines. This is especially true of the Message Center and the Patient Information Center.

This type of telephone service should be installed when conditions are normal. These telephones should be of the plug-in type, and they should not be used except in a disaster situation. The improper use of these telephones can be prevented

by keeping the instruments with the other disaster supplies to be issued only upon the activation of the disaster plan. By following such a procedure, as has been described, the cost of these important facilities can be reduced to the installation charge plus a nominal monthly "stand-by" charge.

2. Radio. It is felt by many hospitals that the telephone system for external communication must be supplemented with a short-wave radio network (9). This would insure that the hospital would have a link with the community in case of telephone failure. The Heart of America Radio Club, an organization of ham radio operators, has done a great deal of work in establishing hospital networks (10). The idea behind this program has been to place all hospitals in a community in communications with each other, to establish a central control point, and to establish a twenty-four hour monitoring system of police radio frequencies so that the hospitals will be alerted immediately.

It has been suggested that to establish such a system in a hospital--"Three steps must be taken:

1. Obtain the services of a properly licensed amateur radio operator.
2. Seek the assistance of the Civil Defense Communication Chief of the area.
3. Prepare to spend about $500 for equipment." (11)

Such a system would assure that the hospital would be in constant contact with the community in the time of an emergency.

3. Hospital Paging system. If this system is not interrupted due to a power failure, it is an invaluable system to use in transmitting general information to all divisions of the hospital. It can be used for alerting personnel and making general announcements. It augments the use of the telephone for internal communications.

4. Message Center. Under normal conditions this type of facility is not needed in the average hospital. In a disaster, the situation is different--much time can be wasted locating people, messages can become lost, and communications can break down.

To solve these problems, a message center should be established to act as a clearing house for all incoming and outgoing messages. By this method, the efficient performance of telephone operators and the radio operator is assured.

A system of message management provides that when a call is received, it is transferred to the message center where the message is recorded and transmitted then to the recipient by a messenger. The messenger obtains and records the recipient's answer if there is any. The message is returned to the Message Center and from here it will be relayed to the original sender over one of the outgoing telephone lines or by radio. By the use of this method, the switchboard and radio operators can be relieved of a great work load, their efficiency increased, and long delays caused by tied-up telephone lines eliminated. If at all possible, the radio system and the telephone switchboard should be located at the message center.

SUPPLIES, EQUIPMENT AND UTILITIES DIVISION

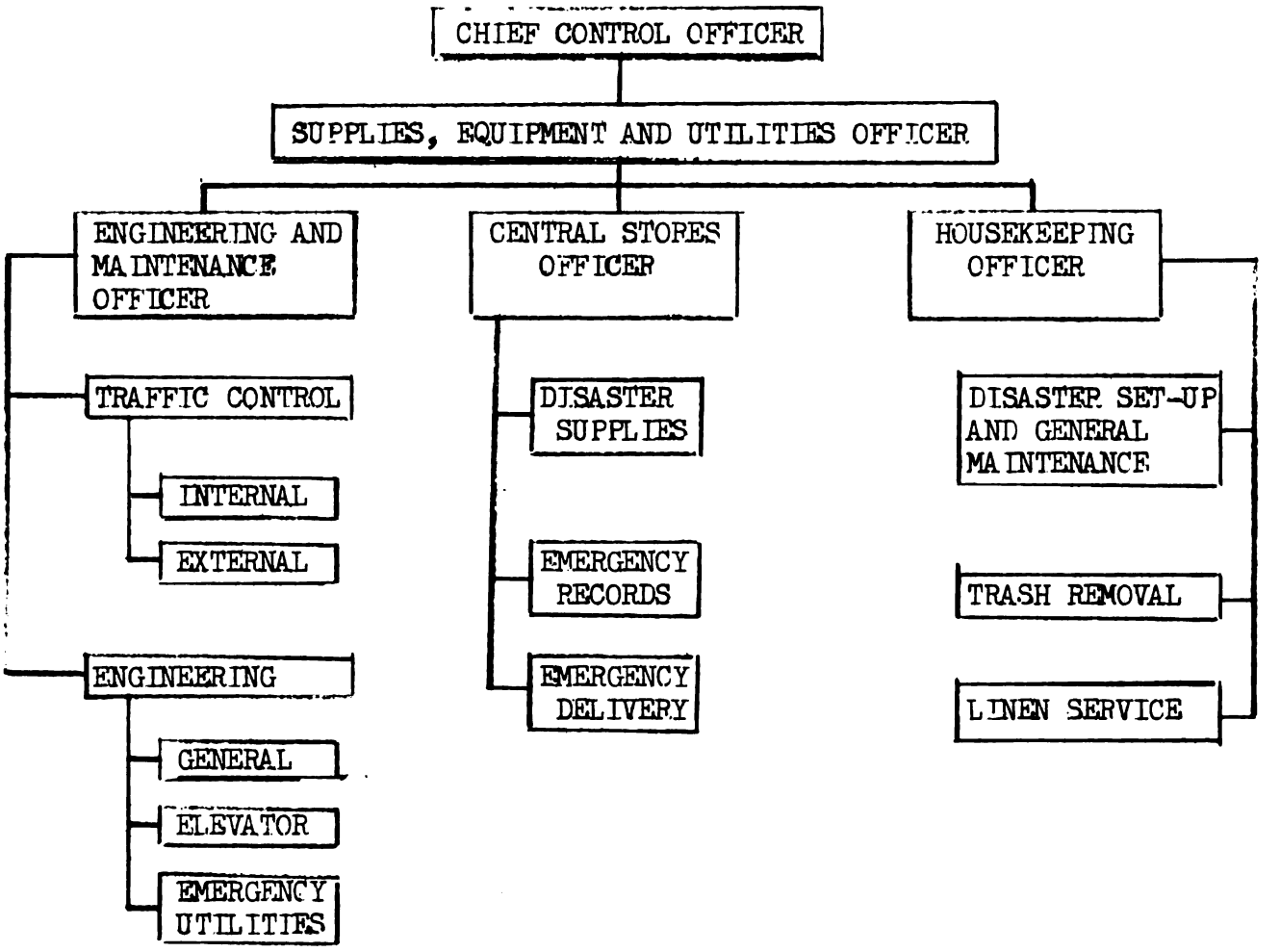

FIGURE 8

SUGGESTED ORGANIZATION FOR THE SUPPLIES, EQUIPMENT AND UTILITIES DIVISION

The operation of the functions listed above are essential in a disaster organization. The responsibility of setting up the disaster units, of providing the supplies and equipment that are necessary in the emergency units, of maintaining the utilities of the hospital, and of controlling traffic requires a great deal of pre-planning.

Housekeeping. Of the three major functions of this department, the most important deals with setting up the disaster areas. For the most part, the disaster areas are planned in divisions of the hospital that are not normally used for patient care. Plans must be developed for what is to be done with the equipment that is usually found in these areas in order to make room for the disaster set-ups. Equipment such as cots, work tables, lights, linen, etc. must be moved in and placed. This department must know specifically where all of these items are stored. It is advisable to prepare floor plans in advance, with the cooperation of other departments concerned. This procedure should help to quickly set up the disaster units when notice of an emergency is given.

It should be remembered, that to set up these areas quickly, it will take all of the manpower that the housekeeping department can muster at the time. After this essential function is over, the majority of this department's employees can be used for other than housekeeping purposes--as stretcher bearers, guides, traffic control people. etc. During the disaster period, only a minimum of normal housekeeping functions should be maintained. This minimum amount of cleaning should be carefully considered so as not to lose sight of proper sanitation. A large problem may develop for this department if there is damage to the hospital's water system. Such damage would curtail or prevent the use of water for cleaning. In this event, the housekeeping department should be prepared to use substitute materials or methods.

Trash removal is, also, an important area to consider. Undoubtedly, with an increase of patients and with any disruption of major utilities, problems of paper and sewage disposal must be considered. (See utilities, page 96).

Linen service is another necessary function that must be planned. In a hospital situation where a commercial organization does all of the hospital's laundry, plans must be made to insure an adequate linen supply in the time of an emergency. Linen supplies routinely stocked in the hospital should be adequate to service the hospital for 48 hours at capacity loads (12). Plans should, also, be considered for reducing the amount of linen that should be used in caring for patients in a disaster period. Also included in the planning should be methods for the delivery of clean linen and the collection of soiled linen from the treatment and patient areas.

Central Stores. Most of the work of this division should be done through the use of advance planning (see page 58). After equipment and supply lists have been prepared for all the disaster functions and approved by the disaster committee, it should be up to the purchasing agent to obtain supplies and equipment that are not available in the hospital's inventory. It would seem wise to set up a disaster stores area for the storage of all of the requested items. If properly handled and controlled by the stores division, disaster boxes can be packed, labeled, and ready to dispense to each disaster unit in the case of an emergency.

When a disaster has been declared, assigned personnel should report immediately to the stores area to dispense and deliver all

pre-planned disaster items. This department should be responsible for maintaining control of all supplies and equipment with the exception of maintenance items, drugs, and medications.

When initial disaster supplies have been delivered, this division should only process requisitions for supplies and equipment from the disaster units for inventory items. Any other supplies or pieces of equipment not available in inventory should only be processed if approved by the Chief Control Officer.

Any equipment or supplies delivered to the hospital during a disaster period should be carefully checked into the Central Stores area. Accurate records should be maintained to account for these items to enable the hospital to properly return or reimburse the sender when the emergency is over.

Engineering and Maintenance.

General. Under this division, the engineers should follow their normal pattern of work assignments--discontinuing any work which is not immediately required. Procedures for requesting maintenance service in the disaster units should follow the existing hospital routines. Direct requests by telephone should be allowed.

Elevator service. The proper control of elevators can only be obtained by manually operating the elevators. Personnel should be assigned to this service and plans detailed for the control and service of the elevators.

Traffic Control. It is the responsibility of this division to implement the general plan for disaster traffic control. Again, to

adequately implement these plans, planning should be done in advance with the cooperation of the community police and the hospital administration, (see page 52).

External traffic control: (in cooperation with the Police Department or other community agency).

1. Maps should be made of the hospital area showing traffic control posts, ambulance entrances, and other vehicle and pedestrian entrances.
2. External traffic control patterns should be established. Traffic control posts should be designated, instructions written for each post, and personnel assigned.

Internal traffic control:

1. Sketches of the hospital floors should be made showing disaster areas, entrances, and traffic flow patterns.
2. Guard posts should be designated, instructions written for each post, and personnel assigned.

General consideration of traffic control:

1. Guard and traffic control personnel should be identified with some type of official insignia or armband.
2. Directional signs should be prepared in advance, stored, and personnel assigned to put these signs up in the event of an emergency.

Emergency Utilities. If there is any break in the utility service into the hospital, plans should have been made in advance to substitute other sources controlled by the hospital if such are available.

1. Reserve light and power supply. It must be recognized that even though a hospital is not located within the area of destruction, its light and power supply may be disrupted by the effect of the disaster on the electric company's distribution system. Without light and power the functions of the hospital are paralyzed. Without electricity there can be no refrigeration, no illumination, and perhaps no heat. The X-ray equipment is inoperative, telephones are dead, and elevators are useless.

Some type of stand-by electrical power is necessary to meet all of the power needs of the hospital except air conditioning. The extent of stand-by power provision varies with the frequency and duration of "outages" on the utility system. Engineering authorities and the American Hospital Association consider the following needs essential: surgery and delivery room suites, stair lighting, partial corridor lighting, exit signs, fire alarm system, boiler plant operation, food and blood refrigeration, partial laboratory service, incubators, and elevators (13). Sources of stand-by power can take several forms:

a. Engine-driven generator. In this system, an engine powered by gasoline, diesel fuel, or other fuel drives a generator which, in turn, furnishes electric power for the hospital circuits. The engine-driven generator is normally installed near the electrical facilities switchboard and must be connected to a fuel storage tank or other device so that it can operate. This machine will start independently upon power failure. The generator costs approximately $100 per kilowatt to install

exclusive of the electric wiring and building to house the generator.* Generator systems are a service problem because they must be ready for service without notice and they are seldom if ever operated between emergency needs to see if they function properly. They normally consume about .15 gallon of gasoline per kilowatt per hour (14).

b. Turbine-driven generator. The turbine is driven by steam from the boiler. This type of power source has definite disadvantages:

    a. If the hospital steam pressure is not high enough for optimum operation, the turbines are not efficient.

    b. In case of a power failure, the steam supply is often lost. By the time the emergency turbine generator can be started, all of the steam is gone; consequently, the power on the burner fails. The cycle is such that there is no steam to operate the turbine which in turn operates the burners.

The cost per kilowatt of a steam driven turbine generator is about $200 a kilowatt (15).

c. Batteries. Normally, battery systems are designed to provide lighting for about four hours. Because batteries furnish direct current, they will not operate most alternating current equipment. They have a definite advantage of immediate change-over, but they are heavy and require good room ventilation to

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*Prices quoted are based on the Chicago area and on average installations.

remove the hydrogen gas they produce (16).

Estimating stand-by power requirements. A good rule of thumb for estimating the size of a disaster power system needed is to provide about one kilowatt per hour per bed.

2. Reserve Fuel Supply and Dual Firing System. When the boilers of a hospital are fired with fuel gas obtained through the mains of the gas company, there is the possibility that the supply of gas may be disrupted by the prevailing distruction in the disaster area. In as much as the hospital would be hard pressed to function without steam for sterilizing or cooking, and would be handicapped by the lack of hot water, it is essential to prevent such a breakdown by procuring and maintaining a secondary fuel source and firing system.

Liquified propane gas can be used as a secondary fuel source for the boilers and as stand-by fuel for the kitchen. Special burners can be purchased in advance for the stoves and installed quickly in the time of emergency (17).

A second source of fuel supply and firing system for boilers could be a stand-by stoker or oil burner system. Provisions must be made, in these cases, for the bulk storage of coal and oil (18).

3. Reserve water supply. The possibility that the destructive effects of a disaster may disrupt the water supply of the hospital must also be kept in mind. A hospital cannot function without water. In order to cope with such a contingency the hospital must provide for a reserve supply of water. During an emergency, water can come from a well (19), it can be obtained from storage tanks or reservoirs, or it can be delivered in tank trucks (20).

Some hospitals have entered into agreements with milk companies or water haulers who, on call, will bring water to the hospital in large tank trucks. Tank truck delivery is somewhat unsatisfactory in that the volume per delivery is small, and the water must be pumped under pressure to a storage tank for holding until time of use. Institutions which propose to use or get water by this method intend to haul the drinking water from the storage tanks by means of a large number of five gallon cans which they have on hand (21).

Storage tanks and reservoirs require maintenance and must be kept full. Wells, also require constant maintenance and, unless they are used, frequently have a tendency to fill to an undesirable level.

Despite their drawbacks, wells are probably the most satisfactory of the three water sources. Mr. John A. Holbrook, Administrative Engineer of Presbyterian-St. Lukes Hospital, Chicago, suggests:

> For economic reasons, a six-inch well is usually the most satisfactory. Under normal conditions, a six-inch well produces about 100 gallons of water per minute. It costs approximately six dollars a foot plus the cost of piping to bedrock. For example, if bedrock is fifty feet below the surface, piping would cost approximately $200. Drilling and piping for a 275 foot well costs $1600 and a pump capable of delivering 100 gallons of water a minute (approximately eight horsepower) would cost another $1200. (22)

He further suggests that a 250 bed hospital would require 30,000 gallons of water per day. If only the patients and the dietary departments are considered, twenty-five per cent of 30,000 gallons of water or 7500 gallons are considered adequate for disaster conditions.

It is suggested that a water conservation policy be prescribed and enforced during an emergency situation.

4. Reserve Toilet and Other Waste Disposal Facilities. This is an embarrassing need that will arise if there is a disruption of the water supply or if sewage lines are not usuable. Without sufficient water, water pressure, or usuable sewage lines, the toilets and other waste disposal units cannot be used. It has been suggested that, "this problem can be solved by the use of bed pans, commodes, and large galvanized cans fitted with tight lids. When these items are in use they should be lined with several thicknesses of paper. The paper-lined bed pans and commodes can be emptied into the larger cans which are deodorized and sanitized by chemical means." (23) Arrangements must be made in advance for the disposal of the contents of such cans with the local public health department.

It has been estimated that in addition to sewage, provision must be made for removing approximately 6½ to 9 pounds of waste per patient per day (24). Much of this waste is combustible, but it is nevertheless a problem. If due to a breakdown in the gas supply, incinerators cannot be operated, garbage and rubbish must still be disposed of in some manner.

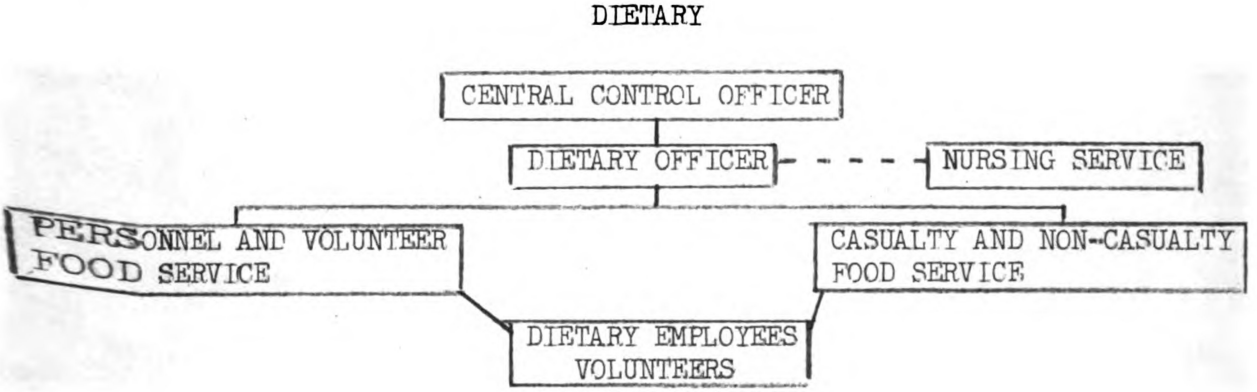

FIGURE 9

SUGGESTED ORGANIZATION FOR THE DIETARY DIVISION

To accomplish the purpose of providing prompt, emergency food service to a large number of casualties, non-casualties, personnel, and volunteers, planning must be done in advance. To provide adequate service at the time of an emergency, the advance planning must include:

a. How notification is going to be obtained by the Dietary Department of the numbers of casualties that need nourishment.

b. How and where the casualties are to be served.

c. What type of food and beverage is going to be served to the casualties and non-casualties.

d. How the personnel and volunteers are going to be served and where they are going to be served.

It has been suggested that plans should be made to simplify the variety in the diet nsually served by planning disaster menus (25). In doing this, estimates can be made for the quantity of staple items that need to be kept on hand to last for at least a three day period. Plans should be made with local food suppliers for prompt delivery of food if the need arises.

The service of food would be greatly hampered if some of the major utilities are disrupted. Therefore, it is essential that plans must be made for:

1. Improvising cooking facilities by the conversion to some other type of cooking fuel. This problem can be met by procuring and keeping in readiness a sufficient number of Colman stoves of the army type along with a one day supply of liquified propane gas (26).

2. Improvising the storage of perishable items if there is no refrigeration. Partial refrigeration can be obtained by the use of dry ice (24). If this method is considered, plans should be made for obtaining dry ice in the case of need.
3. Improvising methods for garbage disposal if there is a lack of water or power.
4. Improvising the service of food by the use of paper goods--plates, cups, etc (25). The use of these items should cut down on manpower needs as well as water needs by partially eliminating dishwashing. However, trash disposal will remain a problem.
5. Improvising methods of delivering food to the patients if there is no elevator service.

The tremendous work load which will be imposed on the hospital's food service by the increased patient and personnel load makes it necessary to suspend the regular meals and the regular hours. In as much as the personnel probably will not be able to observe regular meal hours, provisions should be made to serve food continuously during the emergency period.

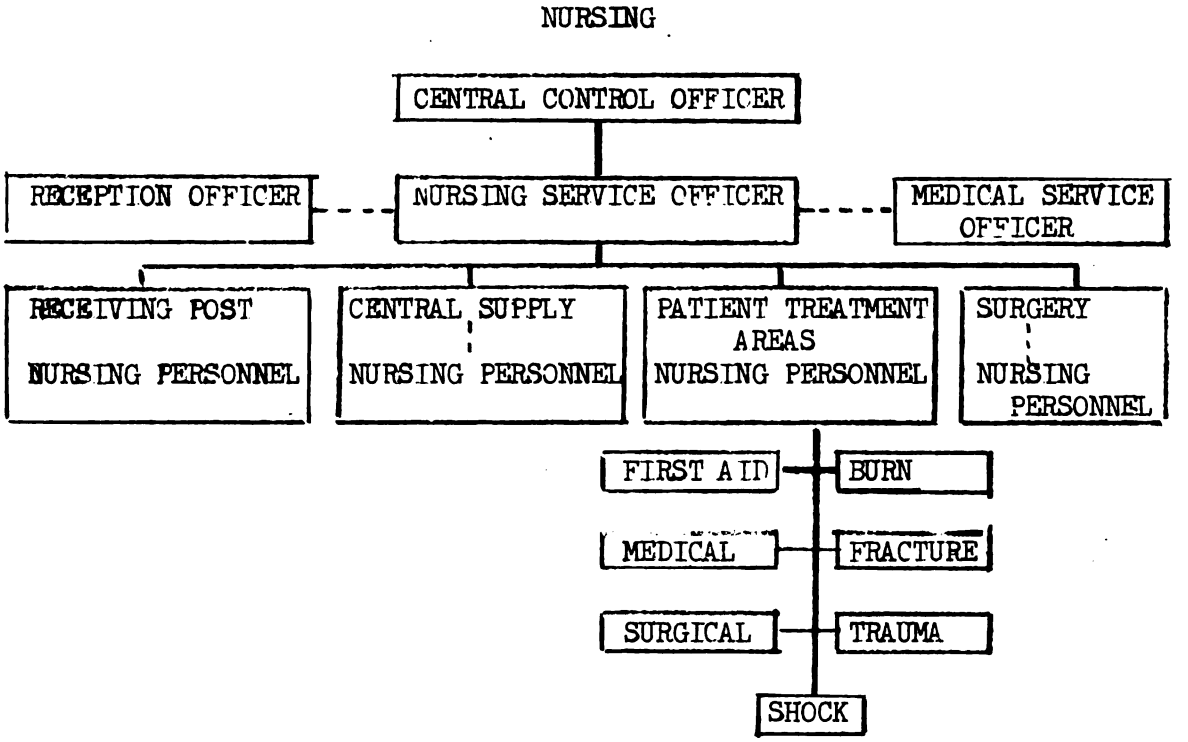

FIGURE 10

SUGGESTED ORGANIZATION FOR THE NURSING DIVISION

The Nursing Service Officer, on notification of a disaster, should supervise the activation of certain vital nursing functions--patient treatment areas, central supply, and surgery. In order to effectively do this, this officer should (29):

1. Determine any additional personnel needs for these areas and request these personnel needs from the Emergency Personnel Office.
2. Supervise the set-up of disaster facilities in the patient treatment and care areas in cooperation with the Housekeeping Service.

3. Supervise the requisitioning of any additional equipment and supplies deemed necessary after the receipt of the disaster packs from the Central Stores.
4. Determine the census of vacant beds in the hospital and supervise the assignment of patients to rooms or beds from the reception or treatment areas.
5. Supervise the nursing care given to casualty patients in the receiving, treatment, and patient areas as well as non-casualty areas.

To accomplish these functions at the time of a disaster, advance planning is necessary in the following areas:

1. Determination of the amount of nursing personnel needed to staff the various nursing areas. This should include the assignment of nurses, nurse aides, and orderlies to specific duties.
2. Determination of the hospital's bed capacity for casualties. When it is said that a hospital has a capacity of 250 beds, it is a mistake to conclude that in a disaster the hospital will be able to admit that many casualties without further preparation. In as much as the casualty load of a hospital as a result of a major catastrophe may be tremendous, consideration must be given to the possibility of removing as many as possible or necessary of the pre-disaster patients by sending them home temporarily. Surveys have shown that as many as 80 per cent of the pre-disaster patients in a hospital could be removed without

jeopardizing their prognosis (30). For planning purposes, however, it is wise to estimate, on an average, that only 60 per cent of the hospital's pre-disaster patients can be evacuated safely.

When evacuation is necessary, it is essential that the decision on who is to be sent home must be made by a senior member of the medical staff whose medical judgment is respected. This determination is a time-consuming task, but it could be expedited by incorporating evacuation information into the Daily Condition Report of Patients. Aside from facilitating the work of the physician who has the task of determining which patients leave, this form will also expedite the actual evacuation procedure in that it enables the grouping of the evacuees according to the general area of their destination. It thus becomes possible to load each evacuation vehicle with patients who are being moved to the same area, and as a result, a great deal of time will be saved.

In planning for the evacuation of patients from the hospital, consideration must be given to how these patients will be physically evacuated. Plans should incorporate the use of automobiles of volunteers or business firms or buses of the public transit system.

When, in a disaster situation, it becomes necessary to expand the bed capacity of the hospital, there will be no time to make "rounds" in order to determine where additional beds

can be placed. If the expansion is to be serviceable, it must not be based on guesswork at the moment of need--it must be made according to a pre-determined plan. It has been found that if existing patient areas are to remain functional, their bed capacity cannot be increased appreciably (31). As a result, the expansion must be effected by the use of such areas as offices, waiting rooms, class rooms, and auditoriums.

Usually these expanded facilities lack many of the essential nursing care instruments. It is obvious, therefore, that the expanded areas would be without value unless they can be equipped with basic items for patient care such as beds, linen, solution stands, urinals, bed pans, etc.

3. Determining procedures for the following specific functions with the Medical Staff. The planning should include standardized procedures, supplies and equipment.

    a. Admission, Receiving and Sorting. The nursing personnel assigned to this area should be organized to make the patients as comfortable as possible and to help the doctors to inspect the patients to determine diagnosis and priority of treatment.

        The nurses and other nursing personnel, following the doctor's directions, should either complete the disaster tags or mark the priority of treatment with a skin pencil on the patient's forehead or other available

conspicuous part of the body. A code (32), such as the following, could be utilized:

1. Priority of treatment indicated with Roman Numerals I, II, III, and IV in accordance with urgency of the case.
2. Treatment team to which the casualties are to be sent indicated with the following capital letters:

   OR - surgical operation
   M - minor surgical
   S - shock
   W - ward
   F - fracture
   B - burn

When the patients have been examined and priority of treatment has been determined, the nursing personnel should direct stretcher bearers to remove the patients from the area immediately.

b. Expansion of the operating room facilities. In a disaster, it is doubtful that the hospital's operating rooms will be sufficient in number for the operative case load. In order to solve this problem it will be necessary to:

   1. Convert the obstetrical delivery rooms into auxillary operating rooms.
   2. Convert the emergency rooms into auxillary operating rooms for minor surgery.
   3. Provide for additional operating equipment.

In cooperation with the medical staff, plans must be made for the conversion of these areas and the additional equipment, supplies, and personnel that will be needed. Plans should, also, include emergency measures to insure an adequate supply of sterile equipment.

During the emergency period, casualties designated for surgery should be brought directly to this division. Insofar as possible, the supervisor of the division should try to see that priority of treatment established in the Receiving Area will be followed.

When casualties are brought into the surgical areas, the nurse should report to one of the surgeons the diagnosis and condition of the patients and request pre-operative orders. To save time, preparation of the patient for surgery should be done on the operating table.

The anesthetist or nurse should record on the disaster records of the patients, a brief statement of the surgical procedure as given by the surgeon. Following the surgical procedure and when the record has been filled out, the casualty should be taken to the appropriate ward by orderlies under the direction of the operating room supervisor.

c. Ward and treatment areas. Nursing personnel assigned to these areas must supervise the set-up of the area as

pre-planned. They are responsible for seeing that the necessary equipment and supplies for the care of the casualties are on hand and that the casualties are made as comfortable as possible.

The nursing personnel should work only under the direction of the physicians assigned to those areas. When the doctor has determined the type of treatment required, the nurses should carry out and supervise the treatment procedures that have been ordered. The personnel in these areas must continue the medical record of the patient by noting on the record any treatment that has been given. If the patient's condition requires that he be transferred to another unit, the personnel in the area are responsible for effecting this transfer.

Irregardless of the admission of a large number of patients to these areas, the highest standard of patient care possible, within the limitations posed as a result of the disaster, should be maintained.

Routine procedures which are not of essential nature such as baths, changing of linen, back rubs, etc. should be reduced to a minimum. In pre-planning the operation of these units, "standing orders" should be considered. The use of "standing orders" wherever possible for the care of similar conditions minimizes

nursing care. These must be planned with the medical staff.

d. First aid area. This area should be well marked and under the direction of a qualified physician. In planning for this area, it should be remembered that a high percentage of the patients will be ambulatory and will require only first aid treatment. A great deal of the emphasis in planning should be placed on equipment, supplies, area layout, and standard procedures so that the patients can be processed quickly and efficiently.

The nursing personnel should work under the direction of the physician in charge, but certain procedures can and should be established to implement the work of the physician.

All patients should be received only from the Receiving Area, but a Discharge Center should be established here for checking out all patients that have been treated.

4. Planning for the Central Supply Function. The Central Supply Room is of primary importance in the event of a disaster. The numerous tasks normally assigned to this area would be multiplied many times over. Therefore, in planning the staff, of necessity, should be considerably reinforced. The main functions of this department in an emergency should be:

a. The maintenance and supply of special equipment.

b. The preparation and sterilization of surgical supplies.

c. The delivery and pick-up of sterilized supplies from the operating rooms, receiving area, first aid area, and treatment wards.

To implement these functions:

a. Volunteers should be utilized under the direction of the regular Central Supply personnel to fold and wrap goods, to perform housekeeping duties, and to act as messengers.

b. Major surgical packs should be reduced in size to shorten the cycle of sterilization.

c. Substitute procedures and materials should be developed as a part of pre-planning in anticipation of the increased demand for sterile goods or the possibility that the present equipment may be completely or partially out of commission.

SPECIAL SERVICES

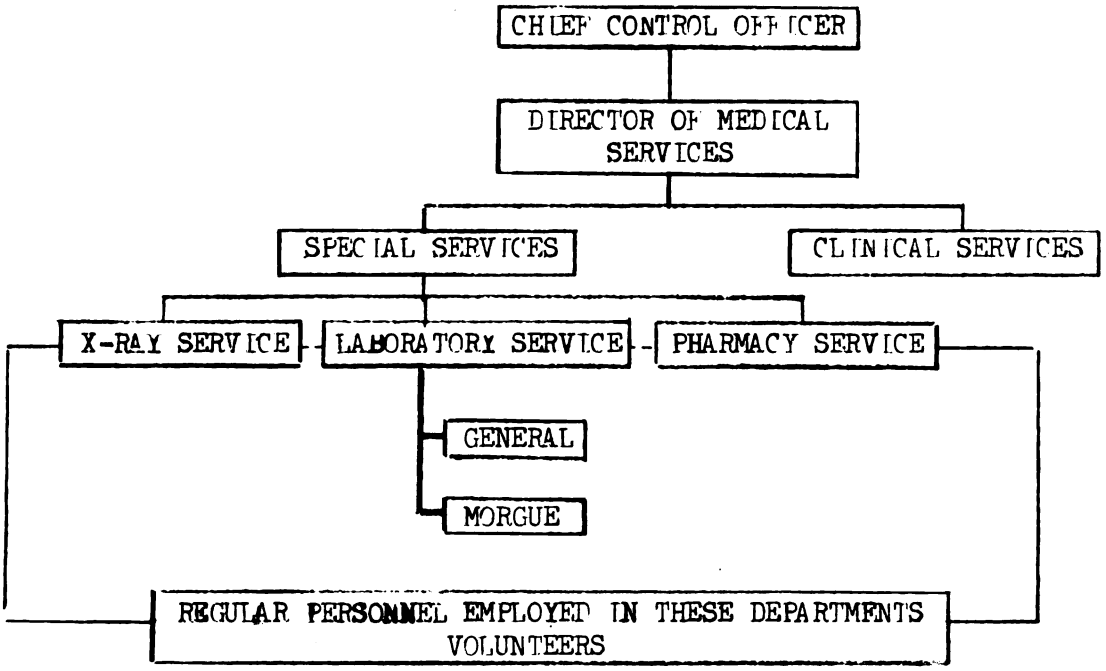

FIGURE 11

SUGGESTED ORGANIZATION FOR SPECIAL SERVICES

The Laboratory, X-ray department, and the Pharmacy should function under the direction and control of the Director of Medical Services.

Laboratory.

General. The pathologist or his alternate should supervise the operation of this department and should specify the priority of activities. Advance provision should be made for the procurement of emergency blood supplies through the American Red Cross. If the hospital has no provision for drawing blood from donors, these people should be directed

to the proper place. Provisions should also be made for the proper storage of the blood if the refrigeration system does not function.

The most essential functions of this department are the typing and cross-matching of blood and the administration of blood to casualties if permitted. This department should, also, perform any other technical tasks if time permits as directed by the pathologist.

The use of volunteers should be considered for non-technical tasks such as washing glassware, collecting specimens, etc. This would free the technologists for more critical work.

Attendants assigned to the Morgue area should be responsible for all casualties admitted to the division. Their responsibilities should include:

1. Expansion of the morgue area to accommodate an increased number of deceased patients.
2. Compiling a permanent record of all deceased admitted to this area and sending such information periodically to the Information Center.
3. Guiding relatives and friends attempting to identify unnamed bodies.
4. Following established procedures in the release of a body to a funeral director or relative, (see page 48).

X-Ray Service. The staffing requirements of this division should be met through the use of regular employees of the department and the possible use of volunteers. In planning the functions of the department during a disaster period the following points should be considered:

1. Plans for processing as many casualties as possible in a short period of time by (33):
    a. Setting up portable equipment in the operating rooms.
    b. Using amateur photographers to develop films.
    c. Developing shortcut, but adequate, methods of wet reading of films and dictation methods of the film findings.
2. Use of volunteers for clerical duties and for transporting patients.
3. A list of suppliers for X-ray equipment and supplies should be maintained so that they can be contacted easily if additional supplies are needed.
4. X-ray supplies should be maintained at levels adequate to accommodate a capacity operation for a 24 hour period of time.

Pharmacy. The regular personnel in this department should be used with the addition of volunteers to act as messengers. During a disaster, all non-urgent dispensing, manufacturing, or recording should be suspended. To insure quick delivery of essential drugs to all essential areas upon the notification of a disaster, drug lists should have been prepared in advance for all of these areas. These pre-planned drugs can then be dispensed by messenger to all of the areas as soon as the disaster alarm has been given. Plans for handling narcotics should be made to insure the proper accounting procedures (34). Arrangements should be made with local drug supply houses so that if the need arises, drugs can be procured promptly.

EMERGENCY PERSONNEL

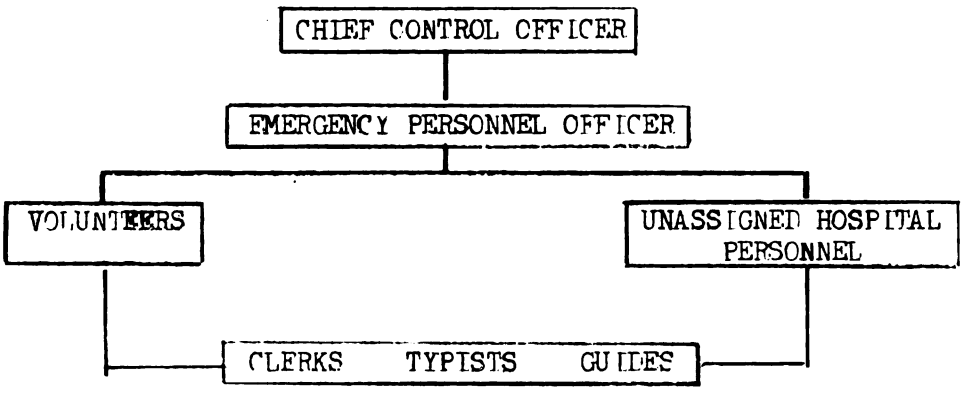

FIGURE 12

SUGGESTED ORGANIZATION FOR EMERGENCY PERSONNEL

In a disaster situation, the Emergency Personnel functions to provide an orderly procedure for the screening and assignment of volunteers and for the placement of hospital workers who do not have any specific assignments.

Unassigned hospital workers should be requested to report to this office when they are notified by the hospital that an emergency exists. Any disaster unit that finds that it needs help should be able to contact this department for additional workers. It would help this department to run more efficiently if the different disaster areas could, in their pre-planning, estimate the additional help that they might need. This would facilitate the personnel function, at the time of a disaster, to make better assignments of the people who report to this office.

At the time when the hospital is desperate for additional personnel, it is easy to understand that the hospital would welcome anyone who would volunteer for work. Under disaster conditions, volunteers are a Godsend, but unless certain precautions are used, they may be more of a liability than an asset.

Volunteers fall into three groups (35):

1. Those who have been trained in normal times by the hospital, Red Cross, or Civil Defense to do specific jobs. The hospital should definitely plan advance recruitment and training through the Red Cross and Civil Defense. Consideration should also be given to training the Women's Auxillaries for help at the time of a disaster.
2. Those whose normal employment gives them skills which are useful in a hospital--retired nurses, engineers, etc., and finally
3. Those who have no training and special capabilities.

In reference to the first two groups, there should be no difficulty in using them to good advantage. The third group will also be helpful, but as there is no time to train them, they must be assigned to simple tasks which after brief instructions, they can perform with little or no supervision. This group can be used as guides or messengers or they would be useful for transporting patients.

When volunteers arrive at the hospital, they should be directed by the Traffic Control personnel to the Emergency Personnel Office. The personnel clerks should obtain their names, addresses and note briefly any experiences or qualifications that they might have.

This procedure will help the Emergency Personnel Officer in making assignments. When assignments have been made, the volunteers should be furnished with identification armbands and then taken by a guide to their assignments. The volunteers should be requested to return to this office to sign off duty when they are no longer needed.

This division should be assigned the function of providing all personnel with identification cards, (see page 51). These cards can also be used to note the employee's disaster assignment. Some type of a system should be developed so that all new employees are assured of receiving an identification card.

Plans should be made for obtaining identification armbands and issuing them to all employees working in the hospital during a disaster, (see page 51).

SUMMARY

Much cooperative thinking and planning must go into the development of standard operating procedures for all of the individual disaster functions. The more people who can be incorporated in the planning, the better. As far as possible, all problems must be thought through and possible solutions sought out. The plans must be simple and easily understood by all concerned. Above all, plans must be made, and they must be flexible!

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CHAPTER V

AN OUTLINE OF BASIC STEPS FOR THE PREPARATION OF A DISASTER PLAN (1) FOR ST. JOHNS HOSPITAL

The organization, policies, and procedures that have been discussed in Chapters III and IV provide the general topics to be considered by St. Johns Hospital in planning for disaster situations. The basic steps to be taken by the hospital in preparing a disaster relief plan will be outlined in this chapter.

I. Organize the Hospital Disaster Committee

A. Appointment of the Committee by the hospital administrator.

B. Members of the Committee should include:

1. Administrator, Chairman
2. Medical Staff Representative
3. Director of Nurses
4. Dietitian
5. Purchasing Agent
6. Medical Technologist
7. X-Ray Technician
8. Comptroller
9. Housekeeper
10. Engineer
11. Representative of the Board of Directors
12. Director of Physical Medicine

C. Purpose of the Committee: To determine policy and coordinate the various aspects of the disaster plan. The detail of the planning should be delegated to others who will submit the results of their efforts to the committee for approval and coordination with the master plan.

D. Duties of the Committee

1. To coordinate the development of the hospital's disaster plan.
   a. Supervision of the plan preparation.
   b. Assignment of planning and emergency operational responsibilities to key persons in the hospital.
   c. Implementation of the planning provisions.

d. Periodic review of the actual plan to revise or further implement the plan, to revise the assignment of duties and to reassign emergency space.

2. To coordinate the disaster plan with that for the community.
3. To supervise the conduct of frequent drills to practice and test the plan under simulated disaster situations.
4. To be responsible for the hospital's continued preparedness for disaster.

II. Organize a Medical Staff Disaster Subcommittee of the Hospital Disaster Committee.

A. Appointment of the Committee by the Chief of the Medical Staff.

B. Members of the Committee should include:

1. Chief of the Medical Staff, Chairman
2. Chief of Medicine, of Obstetrics, and of Surgery
3. Heads of the Departments of Radiology and Pathology
4. Other members of the Medical Staff at large.

B. Duties or Functions of the Committee.

1. Planning for the professional handling and care of mass casualties by:
   a. Assigning physicians to disaster positions in cooperation with the Ramsey County Medical Society.
   b. Conducting training and educational programs for physicians on the medical management of mass casualties.
   c. Supervising programs for the training of hospital personnel in the medical aspects of handling of mass casualties.
   d. Establishing standard emergency medical care procedures for the hospital and the assigned physicians.
2. Briefing the hospital Medical Staff to insure complete familiarity on the part of all concerned with the plan.
3. Coordinating this committee's plan with the general plan for the hospital to insure availability of facilities to meet the requirements of the professional activities.

III. Assignment, by the Hospital Disaster Committee, of space to meet emergency situations.

A. Purpose: Expansion of the hospital's work areas, which involves reassignment of present patient areas and the conversion of hospital space not normally used for patient care to emergency areas.

B. Proposed Assignment of hospital area (see Figures 13 and 14).

1. First Aid Station.
   a. Function: To provide emergency care for patients who are ambulatory and whose wounds are of a relatively minor nature.
   b. Location: The area assigned must not interfere with the handling and admission of seriously wounded casualties. The area should be adequate to handle at least 50-75 persons.

      The hospital auditorium and adjoining Nursing Arts laboratories are recommended for this use.
   c. Facilities available in this area:
      Emergency storage cabinet
      Washroom facilities
      Kitchenette
      Outside telephone lines.
      Facilities for setting up space for record keeping and the discharge of patients.
2. Ambulance Reception Area.
   a. Function: To handle many ambulances and other vehicles arriving at the hospital within a short period of time and to be used as an ambulance unloading area.
   b. Location: Main entrance to the hospital (1st floor level).
   c. Facilities available: It is near the proposed admission area. It has a covered entrance, and it has large double doors to permit stretchers to be easily brought into the hospital.
3. Admission Area.
   a. Function: To provide an area for the reception of all the casualties who enter the hospital.
   b. Location: Main lobby of the hospital and adjacent Gift shop and business offices.
   c. Facilities available: This area is large enough to admit approximately 25-30 patients at one time and is easily accessible to the emergency stockpile of equipment. It is near the proposed ambulance entrance and it is accessible to the other disaster areas of the hospital.
4. Surgery.
   a. Function: To provide space and facilities for the maximum number of surgical teams.

b. Location: General surgery--main operating rooms, the cystoscopic room, and the Recovery room. Fractures--Emergency Room on the ground level of the hospital.

c. Facilities available: These areas are adequate to accommodate seven to eight operating teams. The hallways adjoining can be used for the preliminary preparation of surgical patients.

5. Evacuation Area.

a. Function: To provide an area in which the orderly procedure of dismissing patients can be accomplished.

b. Location: The Nurses' home--lounges and nurses' rooms.

c. Facilities available: This area can accommodate at least 20 patients and it contains all of the essential equipment to provide for the comfort of the evacuated patients.

6. Morgue.

a. Function: To provide space for the reception of the bodies of those who expired in the hospital and those dead on admission.

b. Location: Present area and the ambulance entrance storage area and dock.

c. Facilities: This area is near a major hospital entrance so that the public has access to the area to identify bodies and so that the bodies can be removed with a minimum of exposure to the public view.

7. Communication and Control.

a. Function: To provide for an increased demand for communications, to augment both external and internal communications, to provide a control area, to establish a central station for dispatching foot messengers, and to provide room for auxillary radio communications.

b. Location: Main switchboard and the administrative suites.

c. Facilities: The main switchboard is located in a bad area (main reception area), but with the use of additional space these functions can be adequately accommodated. The administrative suites are located in a strategic place, they are easily accessible to the other areas of the hospital, and there is room to accommodate messengers and additional communication equipment.

8. Public Information Center.
   a. Function: To provide a place where relatives, the press, and the general public can come for information concerning the conditions of the patients.
   b. Location: Occupational therapy office and laboratory.
   c. Facilities: This area is near an entrance that is away from the main admitting area, that is out of the main traffic flow area, and that is near the refreshment area.
9. Personnel Office for Volunteer workers.
   a. Function: To make effective use and distribution of volunteers--a place to pool volunteers for assignment to the areas of need.
   b. Location: Physical Therapy office and laboratory.
   c. Facilities: This area is near an entrance that is away from the main admitting area, that is out of the main traffic flow area, and that is near the refreshment area.
10. Supply Reception and Dispensing Area.
   a. Function: To receive, dispense, and deliver all needed emergency supplies.
   b. Location: Main receiving dock and central storeroom.
   c. Facilities: This area is adequate to carry out the functions. There might be some congestion in the driveways approaching the receiving areas.

IV. Preparation of the Preliminary Master Disaster Plan.

A. General: The best disaster plan will not take all the variable circumstances into consideration. The plan must be simple and flexible enough to be quickly adapted to meet any situation.

B. Some Assumptions to consider.

1. That mass casualties may occur with little or no prior warning and at times when the hospital might be staffed at a minimum.

2. That mass hysteria may occur among people near the hospital necessitating augmented and rigid internal security procedures in the hospital area, based on prior guard-post assignments, instructions, and training.

3. That augmented internal traffic control will be needed to guide ambulatory casualties to proper treatment areas.

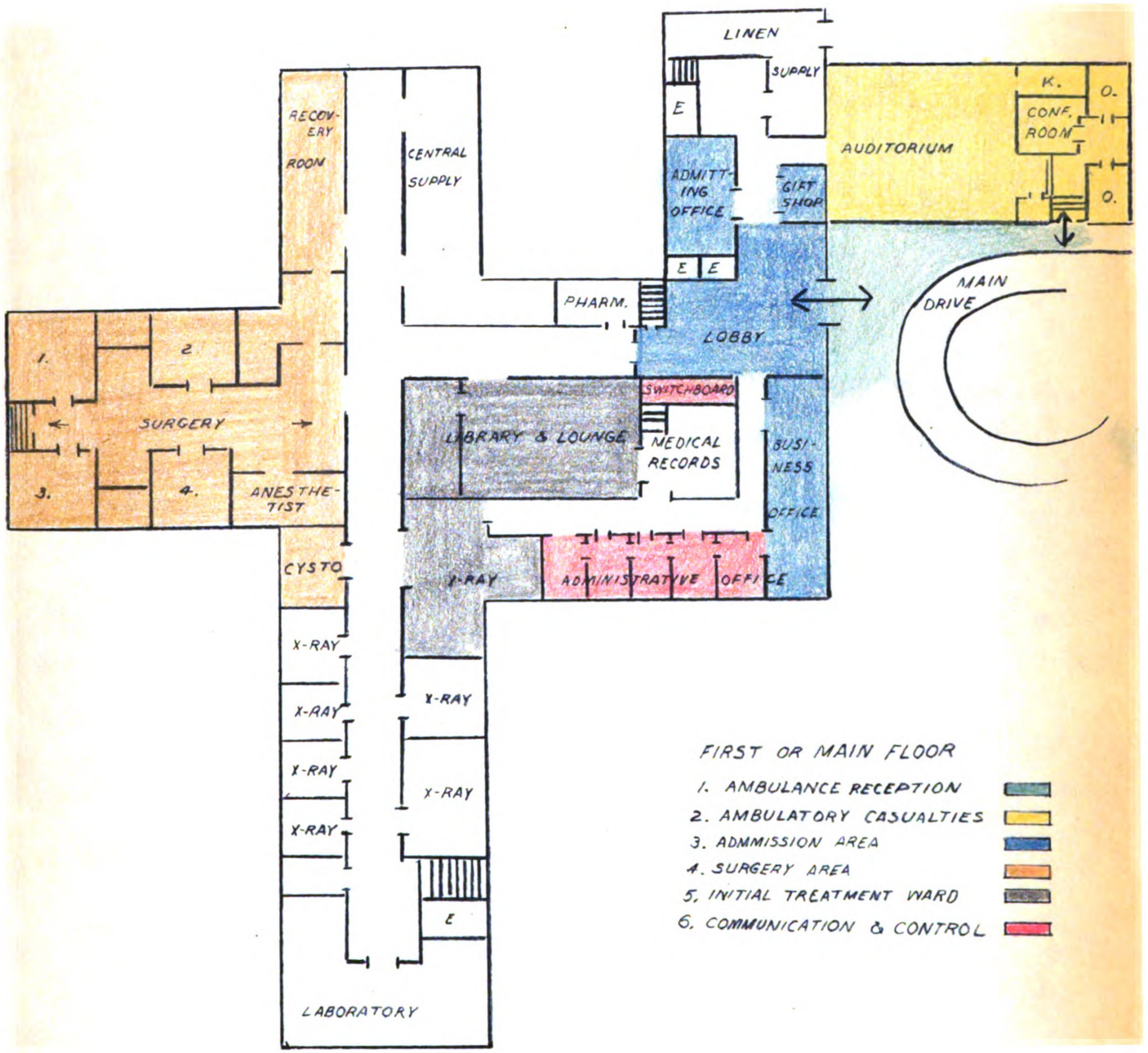

FIGURE 13

FIRST FLOOR PLAN OF THE HOSPITAL SHOWING EXPANSION AREAS

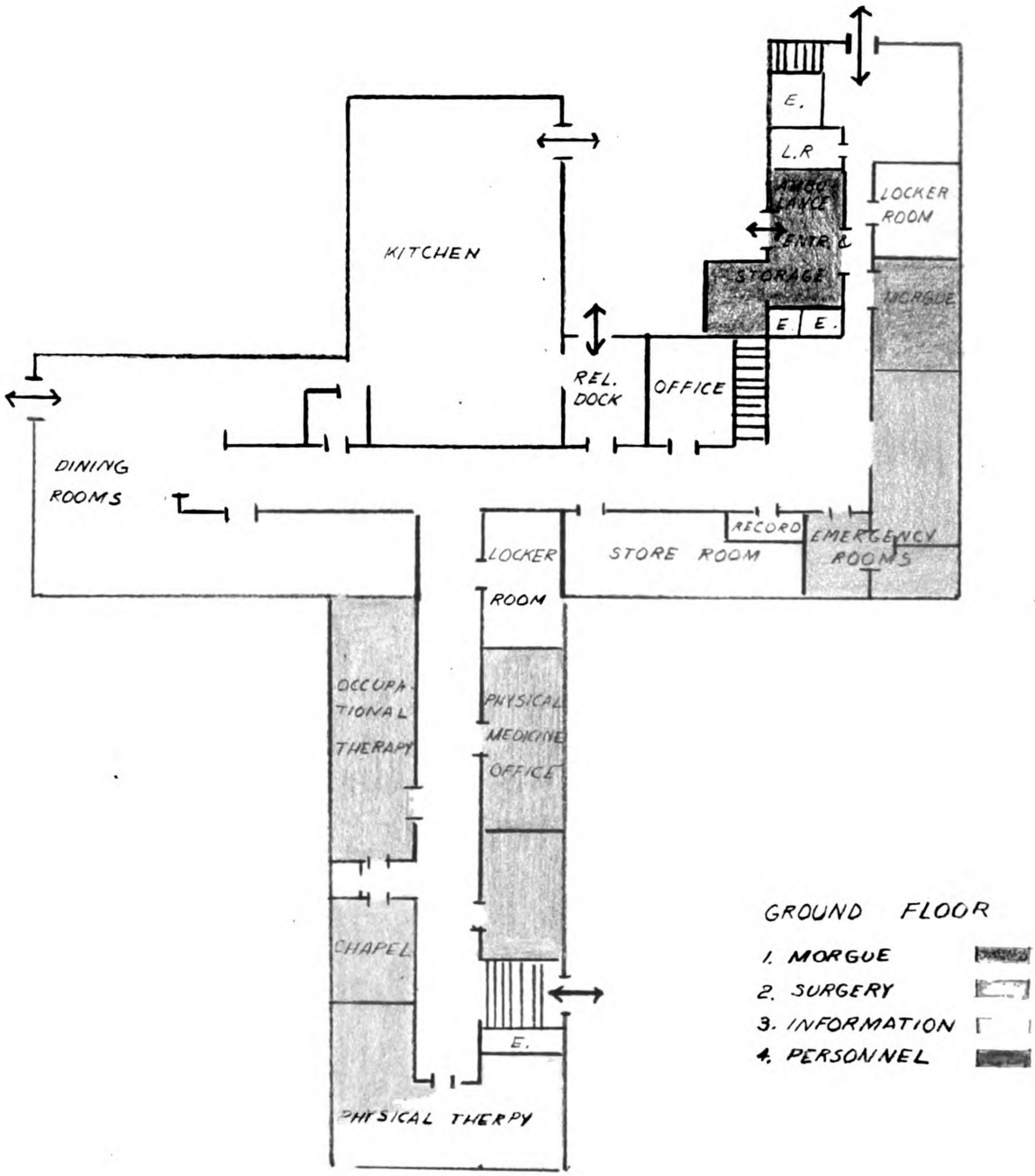

FIGURE 14

GROUND FLOOR PLAN OF THE HOSPITAL SHOWING EXPANSION AREAS

4. That present key officials may be immediate casualties, or unable to reach the hospital, thus necessitating prior instructions for prompt assumption of key roles by other members of the hospital staff.

C. Proposed Master Plan.

PROPOSED MASTER PLAN FOR ST. JOHNS HOSPITAL

NATURAL DISASTER

Introduction. It is the purpose of this plan to endeavor to meet the requirements for emergency medical care in the event of a disaster, regardless of its magnitude, to the extent of the capacity of the hospital assignments.

It is essential that every person having an assignment in this disaster manual do three things:

1. Acquire a general understanding of the entire plan.
2. Develop a thorough working knowledge of the detailed operation of the section to which he is assigned.
3. Become completely familiar with his assignment.

To accomplish these three things, every person must acquaint himself with the "Guide to the Total Plan," which follows immediately, and the section covering his own assignment. In addition, work in some sections is so closely tied to the operation of one or two other sections, it is necessary that persons assigned to these sections which require such close coordination, or which overlap to some extent, read all of the sections which pertain to them.

Guide to the Total Plan

OBJECTIVE: The objective of this section of the disaster plan is to familiarize all persons with the over-all procedure to be followed. Particular assignments and responsibilities are detailed in subsequent sections. In this section are discussed the relationships between departments, the approach to the problem of supplies, over-all traffic patterns, and the general assignments of groups of personnel.

DIRECTOR: The Administrator or his alternate has the responsibility to coordinate the activities of all departments with the medical staff. In the absence of the Administrator, his alternate may be the Assistant Director in-charge-of--Nursing Service. Full authority is vested in this person to direct all operations pertaining to conversion of the hospital to disaster status, and the effective care of casualty and non-casualty patients during a disaster.

The Chief of Staff or his alternate will have responsibility for the professional work and general supervision of the members of the medical staff.

DEFINITIONS:

Plan "A" refers to ALERT. It will be initiated at the order of the Administrator or his alternate in those instances when disaster is imminent and the hospital has had advance warning.

Plan "B" refers to the disaster plan which will be put into effect on the order of the Administrator or his alternate.

Plan "B" may or may not be preceded by Plan "A," depending upon whether or not the hospital has had advance warning of the disaster and could effect an alert.

Plan "B" will be carried out in stages as set forth in this plan. Each stage will be put into effect at the specific order of the Administrator or his alternate. These stages are:

Stage 1: When more than 10 but less than 25 casualties have been received or their arrival is anticipated.

Stage 2: When more than 25 but less than 50 casualties have been received or their arrival is anticipated.

Stage 3: When more than 50 casualties have been received or their arrival is anticipated.

Non-casualty refers to any person who was hospitalized as a patient in this hospital at the time Plan "B" was instituted. It will be used to distinguish these patients from disaster casualties. Casualty refers to any person who is admitted to the hospital for treatment as a result of a disaster.

PREPARATION OF ALL LOCATIONS

All areas of the hospital and emergency units which are being utilized for other than their normal functions will be cleared and set up for their disaster purposes under the direction of the Housekeeping Department, with the assistance of the Maintenance Department, in accordance with each of these department's plans.

If a disaster strikes the community without a prior alert having been declared, then the procedures which would have been carried out

during the alert phase will be followed during Stage 1 and Stage 2 of Plan "B," insofar as necessary and practicable.

TRAFFIC PATTERNS

External Traffic.

Ambulances and vehicles bearing casualties will enter the hospital grounds via the main hospital drive and discharge their patients at the main entrance of the hospital (see Figure 15).

Physicians may drive their cars to the small parking lot near the main entrance. Should this lot become crowded, the doctors may proceed to the parking lot on the right of the main entrance to the hospital.

Employees are urged to approach the hospital via 6th Street and park on the city streets to avoid congestion in the immediate vicinity of the hospital. In entering the hospital the employees must use the entrance to the Physical Medicine Department.

Traffic control in the streets around the hospital will be provided by the St. Paul Police Department.

Internal Traffic.

Normal internal traffic will be maintained, except for elevator service, unless congestion occurs. In the event that traffic control must be instituted, unassigned personnel

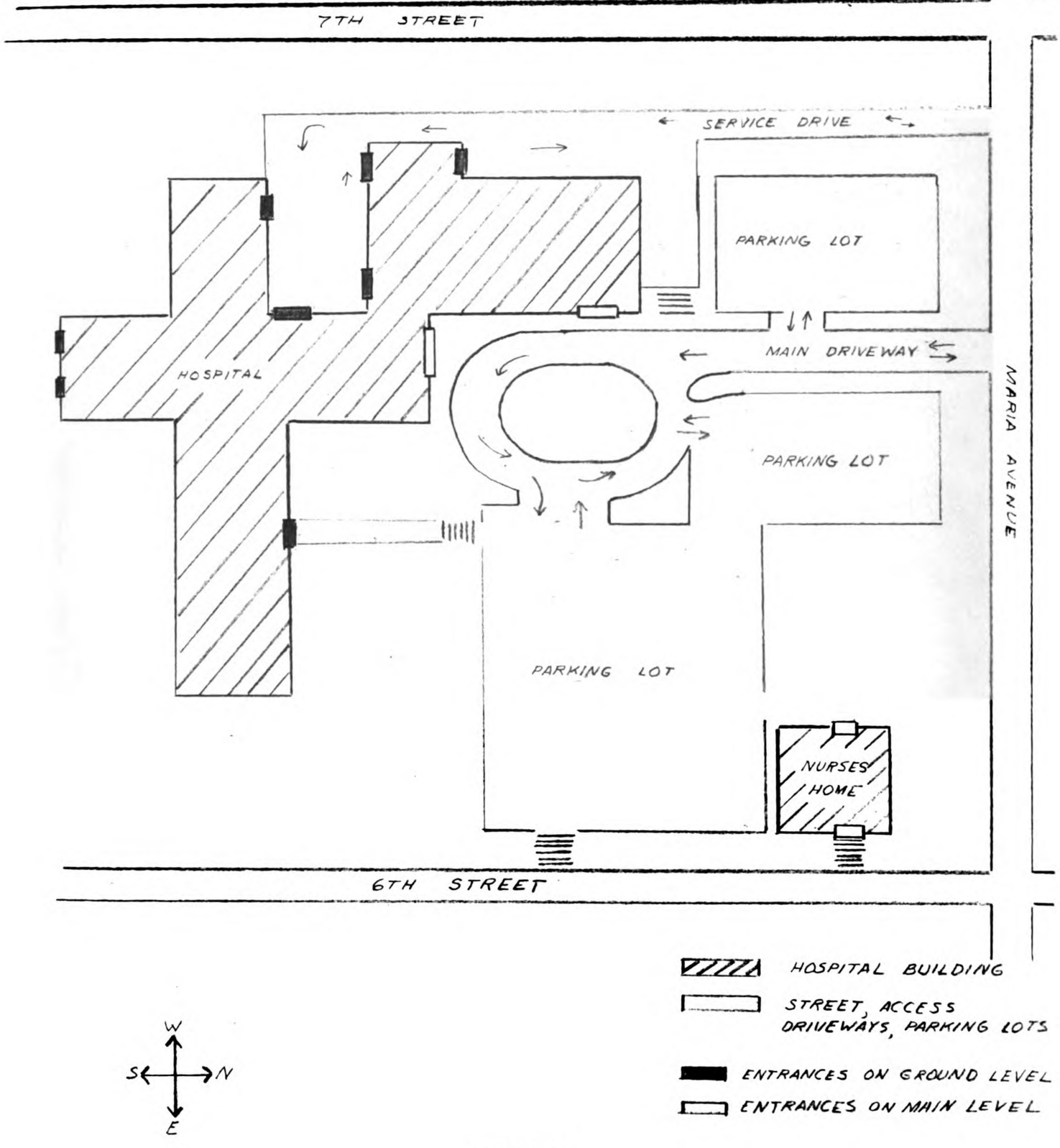

FIGURE 15

PLAN SHOWING ENTRANCES AND DRIVEWAYS LEADING TO THE HOSPITAL

or volunteers will be stationed in critical areas to direct the flow of casualties and personnel.

All personnel will use stairways instead of elevators to free elevators for transportation of casualties or evacuation of patients. Personnel from the Maintenance Department will be assigned to operate the automatic elevators.

Personnel Entrances to Hospital.

Location: Outside door leading to the Physical Medicine Department and the X-Ray Department. Doctors will use this entrance also.

Person in charge: Police officer and volunteers to assure that unauthorized persons do not enter the building. Employees and doctors will be required to show identification cards on entering the hospital.

POLICIES AND PROCEDURES

Evacuation Procedure: Depending on the availability of beds, discharge of non-casualty patients will be carried out in the same manner as patients are routinely discharged. When the need for additional beds becomes critical, the patients (maximum of 20) located in the Minimal Care Division will be evacuated to the Student Nurses's Home.

Admission, Reception and Sorting: Casualties will be received from emergency vehicles at the main entrance for the hospital

where teams of physicians and nurses will sort them to determine which casualties go where and the priority of treatment. No treatment will take place at this point.

The Emergency Medical Record will be started in the Admission and Sorting area for all casualties. When it is determined to which area of the hospital the casualties will be sent, the destination with the priority of treatment will be marked on the patient's Emergency Medical Record and attached to the patient.

SUPPLIES

A list of disaster supplies for each disaster unit should be formulated by the persons responsible for the organization and operation of these units. These disaster supply lists should be filed in the Central Stores area for processing.

Supplies that will be needed immediately for each disaster section including sterile, non-sterile, and pharmaceutical supplies, will be delivered by messenger to all disaster sections immediately after notification that the disaster plan has been instituted.

Emergency supplies will be delivered immediately, without a request, only to those sections which are functioning in areas which ordinarily are not used primarily for the care of patients. The person in charge of each of the regular nursing units should check their supplies as soon as possible after she is notified that an alert or disaster has been declared. Additional supplies will be requested by requisition in the usual manner.

PERSONNEL

If a disaster strikes which affects this hospital, all physicians, hospital personnel, and regular Volunteers who are notified by the hospital will report to the hospital as soon as possible.

All department heads on duty when an alert or disaster is declared will report immediately to the Control Center for briefing. Department heads not on duty when an alert or disaster is declared will also report to the Control Center for briefing on arrival at the hospital.

All other employees on duty who have specific disaster assignments will go directly to their disaster stations. Employees who are not on duty and who have specific disaster assignments will report to their departmental office on arriving at the hospital, and from there will report to their disaster stations. Unassigned personnel will report to the Volunteer Personnel Office.

Attending physicians will sign in and out of the hospital in the usual manner. On signing in, they will report directly to their disaster stations. When their primary assignments are completed, physicians should report to the chiefs of their services for possible reassignment.

COMMUNICATIONS

When an alert is declared, the Administrator or his alternate will request the Switchboard to contact all key personnel and request that

they come to the hospital immediately. A list of key personnel to be contacted should be at the Switchboard. All key personnel will in turn be responsible to contact those persons under their supervision who may be needed.

When an alert is declared, all personnel will prepare for the reception of casualties as outlined in the detailed planning sections. Nursing supervisors and police will be responsible for the direction of all visitors then in the hospital. All patient areas, lobbies, and other public areas will be cleared of visitors as quickly as possible, and will be kept cleared. If there will be any danger from the impending disaster to the visitors if they leave the hospital, the visitors will be directed to the hospital's dining room area.

When an alert is declared, all other personnel will continue to perform their regular duties while awaiting activation of Plan "B" or notice of the "All Clear" signal, to be given on order of the Administrator.

When the Administrator or his alternate officially notifies the Communications Office that an alert status has been declared, the Telepage operator will page in a calm voice as follows: "Plan 'A' Stat." This page will be repeated three times at approximately one minute intervals.

When the Director or his alternate officially notifies the Communications Office that a disaster has occurred, and a disaster status has been declared, the Telepage operator will page in a calm voice as follows: "Stage 1 Plan 'B' Stat." This page will be repeated three

times at approximately one minute intervals. When a new stage has been declared by the Administrator, the Telepage operator will substitute the appropriate stage number in her page.

Internal and external telephone calls will be held to an absolute minimum in order that all telephones will be available for emergency messages. If the telepage unit is effected and does not operate, all departments will be notified by foot messenger (2).

V. Preparation of detailed departmental plans as assigned by the Disaster Committee, (Chapter VI).

VI. Review and integrate the detailed departmental plans and requirements into the over-all master plan (by the hospital disaster committee).

VII. Coordinate the hospital's master plan with the community disaster plan.

A. Community Planning. Community planning is an essential part of successful response to a major disaster. The hospital or hospitals cannot do their best job of saving lives unless the community has established or coordinated practical disaster plans with other agencies such as the police, Civil Defense, Red Cross, fire department, etc.

Two lessons with respect to community planning have been learned from past disasters:

1. All disaster efforts must be centrally directed and coordinated to insure the full use of all the community's hospitals and health resources. Too often one

or two hospitals have carried the full brunt of the disaster impact when others nearby have been relatively unused.

2. Other community resources must be drawn into disaster relief in a planned manner to provide assistance and support to the hospitals' efforts. Community agencies such as the Police, Fire Department, Civil Defense, Red Cross, industry, and others should have supporting roles outlined in advance. The scope should be clearly defined by mutual agreement among all agencies involved.

St. Johns Hospital's disaster plan will not be complete until it has been integrated with an over-all community disaster plan. In the past and up to the present the community agencies and the hospitals in St. Paul, Minnesota have been developing disaster plans on individual bases without any attempt to coordinate the separate plans.

B. Steps to be Taken for Community Coordination of Disaster Plans

1. Through the St. Paul Hospital Council (a council that represents all hospitals in St. Paul) develop a committee to:
   a. Coordinate the nine separate hospital disaster plans.
   b. Develop a master hospital disaster plan.
2. The St. Paul Hospital Council should take the initiative in organizing a city-wide disaster planning committee to coordinate the hospital plans with the separate plans of the community agencies.

a. This committee should be composed of the following representatives:

1. Hospitals
2. St. Paul Chapter of the American Red Cross
3. St. Paul Office of the Civil Defense
4. City Governmental Agencies, such as police, fire, and water departments.
5. Industry, such as Northern States Power Company, Minnesota Mining and Manufacturing Company, Whirlpool-Seeger Company, etc.

b. The following are some of the aspects of hospital planning for disaster that require community participation to be effectively carried out:

1. Centralized coordination and direction of all community efforts.
2. Centralized evaluation of the total disaster problem.
3. Police services and traffic control.
4. Supplementary personnel, staff, supplies and equipment.
5. External communications.
6. Transportation of casualties and evacuated patients.
7. Provision of alternate sources of essential utilities.
8. Disaster warning.

C. Agencies Particularly Concerned in the Coordination Plans.

It is particularly important that the hospitals' disaster plans be coordinated with the St. Paul Chapter of the American Red

Cross and with certain governmental agencies because of the inherent responsibilities and the many facilities of these agencies.

1. Governmental agencies. The governmental responsibility (in this case the city government) in the time of disaster is in general the protection of life, health, welfare and property. Disasters do not change the legal responsibilities of the government, but rather, increase the need of meeting them properly and adequately. This can not be done unless all agencies concerned plan together. The following is a list of some of the government's responsibilities (3):

    a. Protection of persons and property
        1. Warning of impending danger
        2. Enforced evacuation
        3. Rescue
        4. Maintenance of law and order
        5. Public health and sanitation
            a. Water supply
            b. Control of communicable disease
        6. Care of the dead
        7. Traffic control
    b. Provision of usual services
        1. Welfare and health
        2. Transportation
        3. Communications
        4. Removal of debris
        5. Salvage
    c. Restoration of public property
        1. Sewage systems
        2. Water systems, etc.

2. The Red Cross (4). The Red Cross, in accordance with the Congressional Charter under which they operate, is responsible for formulating and putting into operation

disaster preparedness plans. Aid is to be given in whatever form or forms that will contribute most effectively and speedily to rehabilitation. This assistance may include warning, rescue, evacuation, medical and nursing aid, food, clothing and shelter in the emergency period as well as the provision of emergency services as transportation of disaster victims, transportation of supplies and equipment, and communication facilities. In St. Paul the Red Cross has taken the lead in disaster preparedness and it has a very well-organized and functioning unit that should be coordinated with the health facilities of St. Paul.

3. Civil Defense. In the time of a natural disaster the Red Cross operates as a non-governmental agency responsible for disaster relief and those non-governmental phases of responsibility for natural disaster are discharged by the Red Cross. By agreement, the facilities of the Civil Defense authority are committed to the Red Cross and the planning and control of this agency comes under the direction of the local Red Cross Director in the time of natural disaster.

4. Industry. Also of importance is the inclusion of the local industry in the community planning. Industry can assist in a disaster situation by providing transportation to move victims and supplies, electric generators, water from their plants, communications, technical manpower, etc.

IX. As soon as the hospital's plan has been coordinated with other hospitals and the various community agencies, four concurrent steps should be taken by the Disaster Committee of St. Johns Hospital.

A. Distribution of the master plan to all key personnel within the hospital, the medical staff, the Board of Directors, the Community Disaster Planning Committee, and other hospitals.

B. Assignment of the personnel in the hospital to their duties and the instruction and training of them in their duties and responsibilities.

1. When will the personnel be trained--on or off duty?

2. Who will be responsible for this training?

C. Development of procedures to orient and train new personnel in their disaster responsibilities. This should be a part of the hospital orientation program.

D. Begin to carry out aspects of the plan which require a long period of time to accomplish. Such as:

1. Procurement and storage of emergency supplies.

2. Setting up of disaster supply boxes.

3. Provision of alternate emergency sources of water, power, light, heat, and steam.

4. Establishment of external sources for emergency supply and equipment items that are not available in the hospital.

5. Development of alternate internal and external communication facilities such as a telephone trunk at the proposed information and coordinating center which is separate from the switchboard.

6. Preparation of floor plans and directional signs for the hospital.

X. Conduct frequent and periodic drills and exercises under simulated disaster situations to practice the disaster plan, to test its effectiveness, and to maintain constant readiness. These drills should be conducted by the Disaster Committee.

IX. Carry out periodic reviews and revisions of the plan to make improvements and changes as needed or as indicated by the drills or actual experience.

SUMMARY

The eleven steps to be taken in the preparation of a disaster plan that have been discussed in this chapter should lead to a well-organized and functioning plan of action. The steps, outlined, incorporate planning and cooperation by the administration, medical staff and personnel of the hospital as well as cooperation and planning by the hospital with the community.

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2. Harper Hospital, "Disaster Plan" (Detroit, Michigan, March 17, 1958).

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CHAPTER VI

THE PREPARATION OF DETAILED DEPARTMENTAL DISASTER PLANS

The material in this section is presented as an outline and guide to be used in planning the important aspects of the various departmental activities in the time of a disaster. To effectively use the material, the following things must be done for each detailed departmental disaster plan:

1. In planning for personnel, allowance should be made for "depth" in case assigned personnel are not available and for continued operation of specific areas over a long period of time.
2. In planning for the activation of the departmental plans, all of the plans must be made for the various stages of the disaster situation which are:

   Plan "A" - Alert

   Plan "B" - Stage 1
   - Stage 2
   - Stage 3
   - Stage 4

The detailed plans that are included in this section are for the following activities.

1. Emergency Administration
2. First Aid Post
3. Ambulance Reception
4. Admission and Sorting
5. Emergency Medical Records
6. Expansion of Surgical Area
7. Expansion of Ward Sections
8. Nursing Service
9. Morgue
10. Laboratory
11. X-Ray
12. Pharmacy
13. Central Supply
14. Dietary
15. Stores and Supply
16. Maintenance and Engineering
17. Housekeeping and Linen Supply
18. Emergency Communications
19. Information Office
20. Policing and Traffic Control
21. Emergency Personnel Office
22. Evacuation
23. Medical Staff

1. EMERGENCY ADMINISTRATION

A. Planning responsibility of _____(title)

B. Location_____

C. Personnel:

1. Hospital Administrator or alternate (provide 24 hr. coverage)

Name	PHONE NUMBER	ADDRESS
1.		
2.		
3.		
4.		

D. Function:

1. Develop lines of authority for delegation of responsibility.

2. Inform hospital personnel of the disaster plan.

3. Activate the disaster plan.

4. Survey the hospital operation to see that the following activities are proceeding satisfactorily and with adequate supervision.
   a. Admission area preparation
   b. Litter bearers present to unload ambulances
   c. Guards for entrances and driveways
   d. Ambulatory Station
   e. Emergency ward preparation
   f. Surgery preparation
   g. Initial delivery of supplies and equipment
   h. Preparation for the reception of volunteers
   i. Preparation of the Communication and Control Center
5. Direct essential activities during the period of emergency.
6. Determine conditions for:
   Communication Supply
   Blood Personnel
7. Maintain contact with Red Cross, Utility Companies, Police and Civil Defense for:
   Transportation
   Police protection and traffic control personnel
   Delivery of casualties
   Procurement and delivery of supplies
   External communications
   Volunteer personnel
   Blood, etc.

E. Questions to be answered

1. Has someone been designated as a liason officer with the local Red Cross, Civil Defense, etc? Who?_____

2. Are specific emergency responsibilities of key personnel outlined in the standing orders?

3. Are hospital personnel oriented to the hospital emergency plan?

4. Are hospital emergency plans and assignments of personnel reviewed with the staff periodically?

2. FIRST AID POST

A. Planning responsibility of _____

B. Location _____

C. Purpose: To provide emergency medical care for ambulatory casualties.

D. Personnel

1. The amount of personnel needed to staff an aid station will depend upon the circumstances. If the disaster occurs near the location of the hospital, the demand for treatment of ambulatory injured will be heavy; if the disaster is located farther away, this area may be used lightly if at all.

2. A suggested team for the initial staffing of this area, (based on 50 ambulatory casualties), is as follows:
   1 Physician
   1 Nurse
   3 Skilled Aides or Attendants
   1 Clerk

3. Personnel Organization of this area

Title	Number	Address
1.		
2.		
3.		
4.		

E. Function

1. Treat minor lacerations, minor fractures, first and second degree burns, hysteria, sprains, and contusions of a relatively minor nature.

2. Initiate and complete medical records.

3. Discharge patients at the conclusion of treatment.

F. Questions to be answered and implemented

1. Are signs or identification for this station available?

2. If the station is established at a main entrance, will other entrances be locked or guarded so patients cannot just wander in?

3. If answer to No. 2 is "yes," will signs and directional signals be posted at the closed entrances directing the ambulatory injured to the aid station?

4. What type of supplies and equipment will be needed? Use the following lists as a guide in planning.

ITEM	UNIT	AMT.	SOURCE
Merthiolate solution	Btl.		
Needle, Hypo. 20 and 25 guage	Bx.		
Needle, suture, skin	Pkg.		
Pencils	ea.		
Penicillin			
Pentobarbita, sodium			
Pitcher, metal	ea.		
Pins, safety, large	cards		
Plaster, adhesive, spool	ea.		
Razor, safety	ea.		
Scissors, bandage, lister	ea.		
Scissors, dissecting, curved	ea.		
Scissors, dissecting, straight	ea.		
Soap, cake	ea.		
Sponge, surgical 4x4 200's	ea.		
Suture, clip, Michel	ea.		
Suture, dermal, nylon	ea.		
Syringe, Luer, 10 cc.	ea.		
Towels, paper	Pkg.		
Washbasins, enamel	ea.		
Other			

5. Where and how will supplies for this station be obtained?

6. Where will the emergency medical records be obtained?

3. AMBULANCE RECEPTION

A. Planning responsibility of _____

B. Location _____

C. Purpose: 1. To provide for the reception and unloading of ambulances and other vehicles bringing casualties.

2. To separate ambulatory casualties from those who are seriously wounded.

D. Personnel:

1. A suggested personnel organization is as follows:
1 Physician
Litterbearers
The number of litterbearers needed may be calculated in the ratio of four to each of the ambulances for which space permits simultaneous accommodation.
No. of ambulances _____ No. of litterbearers needed _____.

2. Personnel organization for this area

NAME AND TITLE	TELEPHONE	ADDRESS
1.		
2.		
3.		
4.		

E. Function:

1. Supervise the unloading of ambulances.

2. Make cursory examinations of the patients to screen out casualties with minor injuries.

3. Direct ambulatory casualty patients to the First Aid Post.

4. Transport seriously wounded casualties into the Admission Area.

5. Unload ambulances quickly. It is imperative that litterbearers be present when the first ambulance arrives.

F. Questions to be answered and implemented.

1. Is there some means of controlling and directing traffic in this area?

2. Is there a parking area for unloaded vehicles?

3. What type of equipment or supplies will be needed in this area?

4. Where are these supplies located and who will deliver them to the area?

4. ADMISSION AND SORTING (1. Admission signifies the entrance into the hospital of seriously wounded persons as bed patients for initial and continued definitive treatment.
2. Sorting refers to the process of screening, and the classification of the injured.)

A. Planning responsibility of _____

B. Patient capacity of the admission area _____

C. Location _____

D. Purpose: 1. To receive all non-ambulatory casualties who enter the hospital.
2. To determine the extent of the injury.
3. To determine the priority of treatment.

E. Personnel: (It is recommended that the sorting officers be skilled surgeons and nurses.)

TITLE	NO.	NAMES	TELEPHONE	ADDRESS
Physicians		1.		
		2., etc.		
Nurses		1.		
		2., etc.		
Aides		1.		
		2., etc.		
Clerks		1.		
		2., etc.		
Litterbearers		1.		
		2., etc.		

F. Function:

1. Remove casualties from the Ambulance Reception Area into the area designated for sorting.

2. Inspect casualties to determine the diagnosis.

3. Mark casualties for priority of treatment with Roman numerals (I, II, III, IV) in accordance with the urgency of the case. Indications of to what treatment team or area the casualties are to be sent should be noted. Indicate this by means of capital letters:

OR--surgical operation	W--ward
M--minor surgery	E--evacuation
N--shock	

4. Mark priority for treatment with skin pencils on the patients' foreheads or other available conspicuous parts of the body.

5. Initiate the medical record and the handling of valuables and clothes.

6. Refer slightly wounded ambulatory casualties immediately to the First Aid Post.

G. Questions to be answered and implemented:

1. Where will the Emergency medical record forms and tags be obtained and how?

2. How are the patients valuables and clothes going to be handled?

3. What type of supplies will be needed in this area? How will they be obtained?

5. EMERGENCY MEDICAL RECORDS

A. Planning responsibility of _____

B. Location of storage of the various forms_____

C. Purpose: To provide simplified, but still adequate, emergency admission and medical treatment records. To identify disaster victims in a concise and accurate manner. To serve as a medium of recording treatments, drug administration, and emergency orders. To serve as a means for routing casualties to the various treatment areas. Carbon copies of the emergency medical tag will serve as a means for preparing casualty rosters in the information center.

D. Personnel (Personnel must be assigned for the following areas:)

AREA		No.	NAME	TELEPHONE	ADDRESS
ADMISSION			1.		
			2., etc.		
First Aid Post			1.		
			2., etc.		
Wards--Shock			1.		
			2., etc.		
	Burn		1.		
			2., etc.		
	Trauma		1.		
			2., etc.		
	Surgery		1.		
			2., etc.		
	Fracture		1.		
			2., etc.		
	Evacuation		1.		
			2., etc.		
	Morgue		1.		
			2., etc.		

E. Function:

1. Be familiar with the various emergency record forms that will be used (See page 74 and Appendix B).

2. Make cut and keep all of the emergency records in all of the disaster areas.

F. Questions to be answered and implemented:

1. Are the above mentioned records available within the hospital?

2. Where are they stored?

3. Who is responsible for the distribution of these records at the time of a disaster?

6. EXPANSION OF SURGERY

A. Planning responsibility of _____

B. Number of operating tables under expanded conditions_____

C. Location of additional surgical areas.

Area	Number of Tables
1.	
2.	
3.	

D. Purpose: 1. To perform essential emergency operations.

2. To perform the less essential surgery when conditions and time permit.

E. Personnel: 1. Organization of the surgical staff is based on the planned number of operating tables.

2. Surgeons are assigned by the Chief of Staff.

3. A suggested major surgical team is:
   2 surgeons
   1 anesthetist
   1 scrub nurse
   1 circulating nurse
   1 medical aide

4. Estimated operating room personnel needs under severe emergency conditions. The completion of the table below will give the operating room personnel for a 24 hour period.

	1	2	3		4	5
PERSONNEL	Suggested Personnel for 1 table per room	Personnel for 2 tables per room	No. of Rooms to be set up single OR	double OR	No. of personnel required for 12 hrs	No. of personnel required for 24 hrs
Scrub nurse	1	2				
Circu. nurse	1	1				
Aide	1	1				
Surg. Ass't	1	1				
Anesthetist	1	2				
Surgeon						

Instructions:

1. Figures in column 1 indicate the number of each category of personnel suggested for 1 operating table for operating room.
2. Figures in column 2 indicate the number of each category of personnel suggested for 2 operating tables for operating room.
3. To complete the table, insert the number of operating tables that will be set up in case of emergency in column 3.

4. To find column 4, multiply the number in column 3 by the appropriate number in column 1 or 2, adding the totals for single and double rooms.
5. For column 5, multiply the figure in column 4 by 2.

F. Functions:

1. Assign casualties to rooms of special function as described by the type of casualty.

2. Treat major injuries in order of emergency. Note: If the casualties are large in number, treatment may be limited. The circulating nurse will report to the surgeon the diagnosis and the patient's condition and request pre-operative orders. Preparation of the surgical site will be done on the operating room table.

3. Record a brief statement of the surgical procedure as given by the operating surgeon.

4. Transfer casualties to the recovery rooms or the general wards following the surgical procedures.

G. Questions to be answered and implemented:

1. What is the present number of operating rooms?

2. Allowing approximately two hours per operation, or 12 operations per operating table, how many major operations can be carried on in 24 hours in the expanded conditions?

3. Has provision been made for controlling surgical lag--that is, bringing to surgery as fast as possible all cases requiring major surgery by:

   a. Improvising an extra operating table in each operating room?
   b. Improvising additional operating rooms?
   c. If the answer to either "a" or "b" is yes, how many operating rooms with one operating table will be set up? How many with two?

4. Has provision been made for improvising additional operating equipment if needed?

5. What emergency measures have to be taken to insure an adequate supply of sterile goods? Can present facilities be operated to meet a demand for operating room supplies 8-10 times greater than normal?

6. What kinds of additional supplies and equipment may be needed by the operating rooms? List. Where are they located?

7. EXPANSION OF WARD SECTIONS

A. Planning responsibility of _____

B. Location: Shock _____
Trauma _____
Burn _____
Obestetrics _____

C. Purpose: 1. To provide initial and continuous care for casualties.

2. To provide medical care for non-casualties patients.

D. Planning recommendations:

1. Estimate the nursing service personnel.

2. Evaluate the available equipment to furnish the emergency ward areas.

3. Formulate lists of essential ward supplies and pharmaceuticals.

E. Types of Wards:

1. Shock Ward

a. Personnel

1. There may be a need for an initial concentration of physicians and nurses in this area. Suggest 1 physician and 1 nurse for each 25 patients.

2. Volunteer litterbearers.

3. Aides and Orderlies

(Specific personnel provisions are detailed in the planning division)

b. Function

1. Receive shock casualties from admission area.

2. Determine the types of treatment required.

3. Carry out and supervise the ordered treatment procedures.

4. Assist in treatment, keep necessary records, and assist in transportation of casualties.

5. Request additional workers through the volunteer personnel office.

6. Secure blood, blood substitutes and other supplies from the appropriate sources.

7. Reclassify shock wards for other ward uses as soon as the emergency phase of the disaster passes.

c. Equipment and supplies:

1. List equipment and supplies that might be needed.

2. Where will these supplies be stored and how will they be procured at the time of a disaster?

2. Trauma Wards:

a. Personnel: A suggested organization might be the following:

For each 50 beds-- 1 nurse
4 nurse aides
4 litterbearers

A physician should be assigned when there are more than 50 patients.

(Specific personnel provisions are detailed in the planning division.)

b. Function:

1. Receive casualties from sorting, shock, or surgery areas.

2. Be responsible for the continued medical treatment of the casualties.

3. Carry out the treatment as ordered by the physician.

c. Equipment and supplies:

1. Formulate lists of essential supplies.

2. Where will these supplies be located and how will they be procured at the time of a disaster?

3. Burn and Obstetric Wards:

Plan for these wards on the same basis as has been suggested for the shock and trauma wards.

F. Staffing Patterns for Ward Nursing Services (1).

Treatment Area	Bed Cap.	Per Unit Size	Per Unit No.	Minimum No. Prof. Nurses Required for 24 hrs per unit	Minimum No. Prof. Nurses Required for 24 hrs per area	Min. No. Non-Prof. Required for 24 hrs per unit	Min. No. Non-Prof. Required for 24 hrs per area
Shock		25		2		6	
Burn		40		2		8	
Trauma		30		2		8	
Obstetrics		50		2		6	
Non-casualties		50		2		6	
Medical		70		2		10	
				Total		Total	

The figures provided for use in the above table are based on the following assumptions:

1. Minimum hours of nursing care per patient per treatment area per 24 hours are:
   Shock - 4 hrs. Trauma - 4 hrs. Obstetrics - 2 hrs.
   Burn - 3 hrs. Medical- 2 hrs. Non-casualties- 2 hrs.
2. The patient unit is taken to be the maximum number of patients in a particular treatment category that can be supervised by one professional nurse on a 12 hr. shift.
3. The number of professional nurses required per treatment area is determined by multiplying by 2 the number of patient units in the particular treatment areas.
4. The number of non-professional workers required per patient unit is determined by calculating the total number of nursing hours required per patient. From the total thus obtained subtract the number of hours to be provided by professional nurses. The remainder is then divided by 12 to determine the number of non-professional workers are required.

G. Evaluation of Equipment and supplies:

Note here: 1. The location of unused or surplus equipment as cots, blankets, mattresses.

2. Any type of auxillary equipment that might be needed as bedpans, urinals, etc.

3. Where the equipment and supplies are located

4. Who is responsible for procuring and delivering these items?

WARD	ITEM	AMOUNT	LOCATION	PROCUREMENT	PROCEDURE
Shock	1. 2. 3., etc.				
Burn	1. 2. 3., etc.				
Trauma	1. 2. 3., etc.				
Obstetrics, etc.	1. 2. 3., etc.				

8. NURSING SERVICE

A. Planning responsibility of _____

B. Purpose:

1. To provide adequate nursing service to all emergency areas on the basis of the planned casualty accommodation.

2. To direct the activaties of volunteers assigned to patient areas.

3. To staff emergency ward areas.

C. Personnel:

In the table below summarize the nursing personnel needs for the entire disaster operation. Check other planning areas.

OPERATION	NURSES	AIDES	ORDERLIES	VOLUNTEERS
Ambulatory				
Admission				
Wards-- shock				
burn				
trauma				
ob				
medical				
Surgery				
Recovery				
Non-Casualty				
TOTAL				

D. Functions:

1. Make the initial assignment of nurses, aides and orderlies from the personnel on duty. As far as possible, these assignments should be made in advance.
   a. As far as possible, the admission area, ambulatory casualty post, shock ward and operating rooms should be fully staffed.
   b. Personnel will be assigned to help convert these areas to emergency use.

2. Perform procedures that are ordinarily the responsibility of the physician, such as giving of infusions, transfusions, minor suturing, exercising judgment in the administration of narcotics, sedatives, etc.

3. Reduce routine and special nursing procedures such as morning and evening care, baths, routine TPR's, etc.

4. Supervise the set-up of the disaster facilities in accordance with plans.

5. Supervise the requisitioning of necessary equipment and supplies.

6. Determine the census of vacant beds in the hospital.

7. Determine which patients can be transferred or discharged and secure permission for discharge if evacuation of non-casualties becomes necessary.

9. MORGUE

A. Planning responsibility of _____

B. Location and expanded area _____

C. Purpose

1. To receive the bodies of those patients who expired in the hospital and those casualties who were dead on arrival.

2. To provide a viewing area for relatives and friends to claim and identify bodies.

D. Personnel: The morgue should be attended by a minimum of two attendants.

NAME	TELEPHONE NUMBER	ADDRESS
1.		
2.		
3.		

E. Function:

1. Expand the area to allow for identification and extra storage of bodies.

2. Follow customary identification procedures as far as possible.

3. Make a record of all the deceased.

F. Special problems and implementation:

1. How are identification procedures going to be carried out?

2. Who will release bodies to relatives, funeral directors, etc.?

3. Are there any special supplies that will be needed?

10. LABORATORY

A. Planning Responsibility of _____

B. Location _____

C. Personnel:

1. Pathologist or his alternate.

2. Technologists regularly assigned to the laboratory.

3. Volunteers. Number that could be used_____.

D. Purpose:

1. To be prepared for typing and crossmatching of blood in preparation for blood transfusions.

2. To perform other essential laboratory functions when time permits.

3. To procure needed blcod supplies.

E. Functions:

1. Supervise laboratory operations and specify priority of activities.

2. Cross match blood samples and perform other technical tasks as directed by the pathologist.

3. Utilize volunteers for non-technical tasks--wash glassware, perform housekeeping duties, collect specimens.

4. Provide whole blood for transfusion. This is primarily a function of the St. Paul Chapter of the American Red Cross.
Telephone Number_____.

F. Special problems and ways to implement:

1. How to store blood, etc. if there is a large quantity?

2. How long can the whole blood be stored if there is no refrigeration?

3. What additional supplies will be needed? Where and how will they be procured.

4. What emergency equipment might be needed? Are they available in the hospital? If not, where can it be obtained?

11. X-RAY

A. Planning responsibility of _____

B. Location _____

C. Purpose:

1. To provide x-ray information essential to life saving.

2. To prepare to handle mass casualties for x-ray examination particularly in fracture cases.

D. Personnel:

1. Radiologist

2. Regular employees and technicians assigned to department.

3. Volunteers -- Number that can be used _____ .

E. Function:

1. Supervise the operation of this department.

2. Follow shortcut, but adequate, methods involving wet reading of films and dictation of findings.

3. Maintain x-ray supplies for 24 hours maximum output.

4. Use volunteer photographers, who are not X-ray technicians, to develop film.

5. Use volunteers, obtained through the personnel office, for clinical and housekeeping duties and for transportation.

F. Special problems and way to implement:

1. What provisions will be made to use X-ray equipment in case of a power failure?

2. Where can additional x-ray supplies be obtained rapidly?

SUPPLIES	SOURCE	TELEPHONE NO.
1.		
2.		
3.		

3. List volunteer photographers (outside of hospital employment) who can be contacted if necessary.

12. PHARMACY

A. Planning responsibility of _____

B. Location _____

C. Purpose: To provide, as quickly as possible, drugs and pharmaceuticals to the emergency areas as needed or as predetermined.

D. Personnel

1. Regular personnel of the pharmacy

2. Volunteers to act as messengers -- No. needed_____

E. Function:

1. Maintain lists of drugs to stock expanded emergency patient areas, the ambulatory care post, surgery, etc.

2. Make up packs of essential drugs at the time of activation of the emergency plans.

3. Make deliveries of the essential drugs to all disaster areas. This can be done by messenger with exception of the delivery of narcotics.

4. Procure any additional drugs from local supply areas as needed.

5. Prepare a list of local suppliers and the person to contact if an emergency need arises--include phone number.

F. Special Problems:

1. How will narcotics be dispensed and accounted for?

2. What type of essential drugs will be needed for surgery, first aid post, emergency wards, etc.? Prepare lists of the essential items and the amount to have available. (See example)

Example of a drug list:

AMBULATORY CASUALTY POST		
DRUG	UNIT	AMOUNT
1. Antiseptic solution		
2. Aspirin, 5 grain		
3. Penicilin		
4. Pentobarbital, sodium		
5.		
6.		

13. CENTRAL SUPPLY

A. Planning responsibility of _____

B. Location _____

C. Purpose:

1. To supply the operating rooms, emergency admission area, emergency wards, ambulatory post with essential supplies, particularly sterile supplies.

2. To requisition additional supplies from the storeroom as needs can be anticipated.

*

D. Personnel:

1. Nurse in charge or her alternate.

2. Personnel regularly employed in this area.

3. Volunteers. How many can be used?_____

E. Function:

1. Supervise the CSR function as usual.

2. Utilize volunteers under the direction of the regular central supply personnel. For example, they may be used for folding and wrapping, for performing housekeeping duties, and to act as messengers.

---

*There should be at least two times the present personnel to permit two 12 hour shifts during the emergency.

3. Reduce major surgical packs in size to shorten the sterilization cycle.

4. Develop substitute procedures and materials in anticipation of an increased demand for sterile goods and in anticipation that the sterilizing equipment may not function properly.

F. Special problems to be considered:

1. Can presented facilities be operated

a. to meet a demand for the operating room supplies 8-10 times greater than normal?
b. to meet the sterile supply requirements of the other treatment areas?

2. What emergency changes can be made in the method of making up the surgical packs to allow for a reduction in sterilizing time?

3. Would there be any advantages in stock piling certain disposable items such as needles? If so, prepare a list.

DISPOSABLE ITEM	SIZE	AMT.
1.		
2.		
3.		

4. What provisions should be made for sterilization, if it is impossible to use the autoclaves?

14. DIETARY

A. Planning responsibility of_____

B. Location_____

C. Purpose: To provide prompt emergency food service to a large number of casualties, hospital personnel, volunteers, and regular patients.

D. Personnel:

1. Dietitian and assistant.

2. Food Supervisors.

3. Those persons regularly employed in the food service.

4. Volunteers — Number needed _____.

E. Functions:

1. Determine the number of meals and refreshments that need to be prepared for the casualties.

2. Provide refreshments for the volunteers and the staff involved in the emergency work.

3. Modify certain regular functions:
   a. The variety in the regular diet.
   b. The delivery of meals and refreshments to the casualty and non-casualty wards.
   c. The cafeteria service.
   d. The meal hours.

4. Plan, in advance, the type of meals and refreshments that will be served in an emergency.

5. List the sources of supplies that can be obtained in a short period of time.

F. Special Problems and ways to implement:

1. Can food be provided on a round-the-clock basis?

2. Food supplies (staple) should be adequate for at least a 24 hour period. Check storage adequacy and the amounts to be kept on hand.

3. If there is a power failure, how will delivery of food to other areas of the hospital be done?

4. If the supply of cooking fuel is disrupted, what is the plan for possible improvision?

5. If the water supply is contaminated or disrupted, where will water be obtained?

6. If there is a power failure, how will perishable foods that need refrigeration be protected?

7. What provisions may be made for the disposal of garbage if there is a power failure and normal service is not operating?

8. Have simple meals been planned for feeding patients and personnel? If so, what are they?

9. Is there an adequate paper supply to use for feeding at the time of emergency? This should include paper plates, paper cups, etc.

10. Is the amount of canned and bottled beverage on hand adequate to take care of a large number of people for 24 hours?

15. SUPPLY

A. Planning responsibility of_____

B. Location_____

C. Purpose: To provide supplies for all departments as needed.

D. Personnel:

1. Purchasing Agent.

2. Those regularly assigned to this department.

3. Volunteers - Amount needed_____.

E. Functions:

1. Maintain lists of essential supplies for the ambulatory post, admission area, emergency wards, etc. in the store room.

2. Send boxes containing the initial supplies for the emergency areas to the proper locations immediately when notified of a disaster.

3. Make additional deliveries of supplies to the emergency areas. This can be done by volunteers.

4. Procure additional supplies from outside sources as needs can be anticipated.

5. Maintain, routinely, a supply of essential items that would support 60 days of normal operation (2). It is estimated that supplies in this quantity would be required to permit a hospital to be self-sufficient for 2 days following a disaster.

6. Develop an emergency system of receiving and recording incoming supplies. Develop a system for emergency requisitioning and recording supplies sent to the various emergency units.

F. Special Problems and Questions to be answered:

1. How will supplies be delivered if elevators cannot be used?

2. Is it practical to develop and maintain disaster boxes containing essential disaster items for the various emergency items?

3. Use the following lists as a basis for determining supplies that will be needed for the emergency areas.

GENERAL SUPPLIES

Soap
Paper cups
Drinking straws
Applicators
Tongue depressors
Eye droppers
Newspapers
Safety pins
Liquid soap
Adhesive
Bandages
Tubing
Gauze
Dressings
Pencils
Note paper

FABRICS

Sheets
Gowns
Towels
Pillows
Blankets
Wash cloths

EQUIPMENT

Urinals
Bed pans
Washbasins
Pitchers
Hot water bags
Forceps
Scissors
Tourniquets
Syringes and needles
Thermometers
Medicine cups (paper)
Bed blocks
IV standards
Side rails
Restraints
Beakers (graduated)
Emesis basins
Catheters

4. Have forms and procedures been developed to facilitate receiving and dispensing supplies?

5. What is the feasibility of stockpiling for disaster supplies? If the decision is to stockpile, should these supplies be located in a specific spot? How should these supplies be maintained? Should they be rotated?

6. Is there a list of the source of supplies? Such a list should include the names of at least three persons connected with each source, along with addresses and telephone numbers for contacting them both day and night. This list may include hospital supply houses, wholesale houses, key salesmen, etc.

16. MAINTENANCE AND ENGINEERING

A. Planning responsibility of_____

B. Purpose:

1. To maintain essential utilities.

2. To assist with the expansion of emergency facilities.

3. To operate and install emergency utilities.

C. Personnel:

1. Chief Engineer or alternate.

2. Those normally assigned to this area.

3. Volunteers.

D. Function:

1. Assist Housekeeping Department in setting up of the emergency areas. Move heavy equipment where necessary.

2. Post directional signs for controlling internal and external traffic.

3. Effect, as necessary, measures of conservation for water, heat, and electricity.

4. Put into use the alternative or emergency sources for water, power, and electricity if these utilities are disrupted by the disaster.

E. Questions to be Answered and Implemented:

1. Elevators

a. Can the elevators be operated as express elevators?
b. Have schedules for the use of elevators during an emergency been developed: If so, what are they?

c. Have plans been made to assign operators to the automatic elevators?
d. Are auxillary generators available to furnish stand-by power for the elevators in case normal power is cut off? If so, what is involved in changing over to the emergency power?

2. General:

a. If utilities are disrupted or cut off:
   1. Have provisions been made for using another type of fuel?
   2. Is there an adequate alternative source of electrical power? If so, what is it?
   3. Can the switch to the alternate source of electric power be made without delay?
b. In the event that there is no alternate source or all power lines are out of commission, is there stand-by electric generating equipment to operate essential services?

Steam plant	Lighting requirements
Elevators	Refrigerators, etc.
Water pump	X-ray equipment

   1. What is the primary voltage now being received by the hospital?
   2. What is the phase of power now being received?
   3. What is the secondary voltage?
c. What is the minimum power requirement for operation of the following:

Steam plant	Lighting equipment
Elevators	Refrigerators, etc.
Water pump	X-ray equipment

d. Is there a source for emergency generator equipment? If so, list the sources.
e. In case emergency generating equipment can or has to be borrowed, can it be obtained quickly and can it be connected without delay?

3. Water:

a. Have plans been developed for distributing available water to the key areas if this utility is cut off? If so, what are the plans?
b. Can the steam plant be operated to meet the requirements of sterilization equipment by using water pumped from auxillary water tanks?
   1. What is the approximate water requirement per 24 hours for this purpose? _____gal.
   2. What pressure will have to be overcome to deliver water to the steam plant?

3. Can necessary connections be made without delay?

c. Has a survey been made to determine auxillary sources of emergency water supply? What are these sources? How can it be obtained at the time of an emergency?

d. What is the approximate amount of minimum water requirements for the hospital for a 24 hour period? Can this quantity be obtained from a secondary Source? Gal._____.

4. Sewage and Waste Disposal:

a. Have plans been made to insure adequate disposal of garbage and other wastes under emergency conditions? If so, what are they?

17. HOUSEKEEPING AND LINEN SUPPLY

A. Planning responsibility of _____

B. Housekeeping.

1. Purpose: To maintain such housekeeping functions as possible under the circumstances.
To set up the emergency areas when notified of a disaster situation.

2. Personnel:

a. Housekeeper and her assistant.
b. Those regularly employed by the department.
c. Volunteers -- Amount needed _____

3. Functions:

a. Aid in the expansion of hospital by setting up emergency areas.
b. Assist in clean-up of treatment areas as needed.
c. Assist with moving patients and equipment.
d. Distribute supplies as needed in various areas.
e. Dispense clean linens and collect soiled linens
f. Aid in guarding entrances and directing traffic within the hospital.

4. Special problems and questions to be implemented:

a. Has a survey been made of furniture and other equipment which will have to be moved from certain areas at the time of a disaster? Where will this furniture be stored when these areas are set up as emergency wards? What is the location of these storage areas?

b. Has provision been made for redistribution of essential equipment which will be needed in patient areas?
c. Where is the storage location of extra beds, cots, linen, etc.? Is there a secondary source for these items such as the Red Cross, Civil Defense?
d. Are furnishings (tables, lights, stands, etc.) available for enlarged or additional operating rooms? If so, where are these furnishings located?
e. How many blankets and other types of linen are available?
How much of these supplies will be needed?
What is the anticipated deficit of these supplies?
Is there a secondary source for these items?
f. What is the minimum amount of cleaning that is required in patient areas to meet basic sanitary needs? Remember emphasis is on conservation of manpower and supplies.
g. What plans have been considered to carry out housekeeping functions without the use of water?
h. What plans have been made to expand the treatment areas. It is important that the emergency areas be set up as quickly as possible. Because of this, additional hospital personnel will have to be temporarily assigned to housekeeping service to assist in the preparation of these areas. Such personnel will be used for this purpose for a limited time only and then can be returned to their original duties.
i. Maintenance of the expanded treatment areas will require a minimum housekeeping staff.
    1. How many personnel will be required temporarily for the preparation of the expanded treatment areas?
    2. Should temporary personnel be obtained from existing hospital personnel?
    3. How many personnel will be required for maintaining minimum housekeeping services?
    4. How many male personnel of housekeeping can be assigned for guard duty, litterbearers, etc.?

C. Linen Service:

1. Purpose: to maintain essential linen service for surgery and the emergency patient areas.

2. Personnel:

a. Those regularly employed in linen service.
b. Volunteers - Amt. needed_____

3. Function:

   a. Stock laundry supplies that will be sufficient for 48 hours of capacity production.
   b. Deliver needed linen to emergency areas.
   c. Collect soiled linen from emergency areas.
   d. List stock items to be maintained and stored for emergency use for:
      First Aid Post
      Emergency Wards
      Surgery, etc.

4. Special problems and questions to be answered:

   a. Has provision been made for a reduction of the use of linen in the time of an emergency.
   b. Has provision been made to notify the commercial laundry who does the hospital laundry of the emergency situation. What type of cooperation can be expected of them?

18. EMERGENCY COMMUNICATION

A. Planning responsibility of _____

B. Location _____

C. Purpose:

   1. To give fast notification to off-duty personnel of the disaster situation.

   2. To alert all personnel on duty.

   3. To establish a message center.

      a. To control message sending on the basis of relative importance.
      b. To provide an alternate means of communications in the event of damage to normal facilities.
      c. To provide messenger service within the hospital.

D. Personnel:

   1. Communication Control Officer.

   2. Regular switchboard personnel.

   3. Volunteer messengers--Number needed _____.
      Volunteer Ham Radio operators.

E. Function:

1. Notify the key personnel in each department in the event of a disaster. If possible this should be done by telephone following the instructions that should be posted in the telephone office.

2. Obtain a list of key people to notify in the case of an emergency from each planning division.

3. Make arrangements with the local radio and TV stations for the recall of off-duty hospital employees in the time of disaster.

4. Initiate the internal hospital alert (see page 124, Chapter V) at the direction of the Chief Control Officer.

5. Establish contact, if possible, with the disaster site through the proper agency.

6. Restrict the use of the hospital's telephones to administrative use. Determine who will be allowed to make outside telephone calls.

7. Use messengers wherever possible to relieve the burden on the internal telephone communication system.

8. Use radio communications if the telephone system fails. The following regulations should prevail:
   a. Only written messages will be sent.
   b. All messages that are sent or received will be recorded in a log book.
   c. Establish a priority system for the sending of messages.

F. Special problems and planning:

1. What instructions should be prepared for the telephone operators as well as the radio operators?

2. Has a shortwave radio system been procured? What provisions have been made to monitor this system?

19. EMERGENCY INFORMATION OFFICE

A. Planning responsibility of _____

B. Location _____

C. Purpose: To furnish information concerning the casualties to relatives and to the newspapers as soon as possible.

D. Personnel:

1. A member of administration.

2. Persons regularly assigned to this job.

3. Volunteers--Amount needed _____.

E. Function:

1. Form an information file using the "Index and Information" cards that have been delivered to this area from the Admission Area.

2. Provide accurate information for the use of the Red Cross and the Civil Defense Agency.

3. Compile, as soon as possible, a roster of casualties. This roster must be kept up-to-date and as accurate as possible.

4. Release information to the press only if it has been approved by one of the administrative officers.

20. POLICING AND TRAFFIC CONTROL

A. Planning responsibility of _____

B. Purpose:

1. To exclude unauthorized persons from the hospital area.

2. To keep hospital approaches open for the use of ambulances and other essential vehicles.

3. To maintain an orderly flow of traffic within the hospital.

C. Personnel:

1. Assigned hospital personnel. Number _____.

2. Regular or auxillary police furnished by St. Paul Police Department.

3. Volunteers. Number_____.

D. Planning recommendations:

1. External traffic control.
   a. Maps of the hospital area showing traffic control posts and ambulance and other vehicle entrances. These should be prepared with the cooperation of the Police Department.
   b. External traffic control patterns should be established. Traffic control posts should be designated and instructions for each post written. This should be done with the Police Department.
   c. Regular or auxillary police should be furnished by the Police or Civil Defense agencies.

2. Internal traffic control.

   Sketches of the hospital layout should be made showing entrances and traffic patterns. Guard posts should be designated and instructions written for each post.

3. Directional Signs.

   These should be made up and conveniently stored so they can be posted both outside and inside the hospital.

E. Functions:

1. External traffic control.
   a. Issue hospital area maps and traffic control patterns to each person assigned to this duty.
   b. Direct traffic in accordance with pre-established patterns and instructions.

2. Internal Traffic control.
   a. Assign hospital personnel (volunteers) to guard entrances to exclude unauthorized persons from the hospital.
   b. Direct corridor and stairway traffic as deemed necessary.

F. Special problems:

1. What types of directional signs (external and internal) are needed?
   Where will they be stored?
   Who is responsible for posting these signs?

2. Internal traffic control.

a. Floor sketches showing guard posts and internal traffic patterns.
b. Compile a list and a set of directions for each entrance for which guards are needed.

3. External traffic control.
   a. Include hospital area maps and traffic control instructions.
   b. Who is to be notified at the Police Department that help is needed to control traffic?

21. EMERGENCY PERSONNEL OFFICE

A. Planning responsibility of _____

B. Location _____

C. Purpose:

1. To facilitate the orderly assignment of all hospital personnel who do not have a pre-designated assignment.

2. To provide for the reception and screening of any volunteers.

3. To provide all hospital personnel with identification cards.

D. Personnel:

1. A member of administration.

2. Volunteers. Number needed_____.

E. Function:

1. Supervise the reception and screening of volunteers and unassigned hospital employees.

2. Plan advance recruitment of volunteers through agencies such as the Red Cross and Civil Defense.

3. Make immediate plans for issuing identification cards to all hospital staff and employees.

4. Provide identification arm bands to all people working in the hospital in the time of an emergency.

5. Obtain the names and addresses of all volunteers who report to this office at the time of a disaster. Note briefly their qualifications and experience. Give this information to the person in charge who will use it for assignment purposes.

F. Planning:

1. Personnel Identification Cards (see Figure 16).
   a. These cards should identify the personnel crucial in the disaster plan so that they may be admitted without question to the hospital in the time of an emergency.
   b. This card should be given to each employee of the hospital. Some system should be developed by which all new employees are issued a card and given an assignment.

2. Volunteer Identification Arm Bands--These are available through the American Hospital Association.

3. Emergency Volunteer application blank (see Figure 17)
   a. This should be made out in duplicate.
   b. This should be used for making assignments. One copy should be sent with the volunteer to be turned into the person in charge of the area to which the volunteer has been assigned. The second copy should be filed in the Volunteer Personnel Office for future reference.

4. Summary of the personnel needs for all areas. This should be worked out in advance with the cooperation of all key personnel so that the assignment of volunteers at the time of an emergency can be handled more smoothly.

22. EVACUATION PLANS*

23. MEDICAL STAFF*

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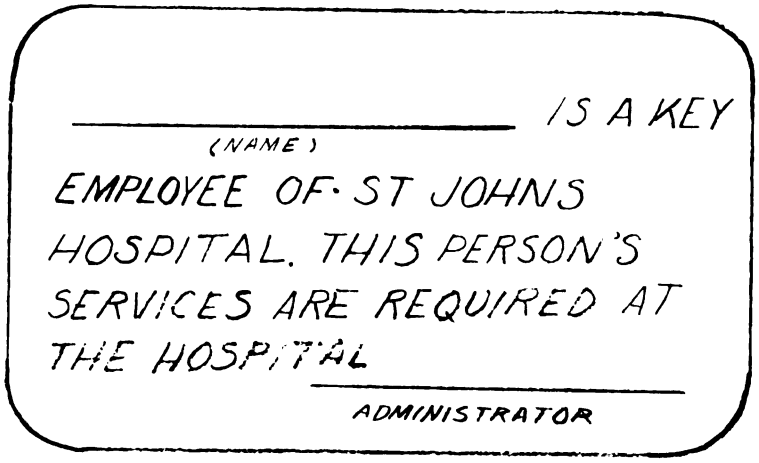
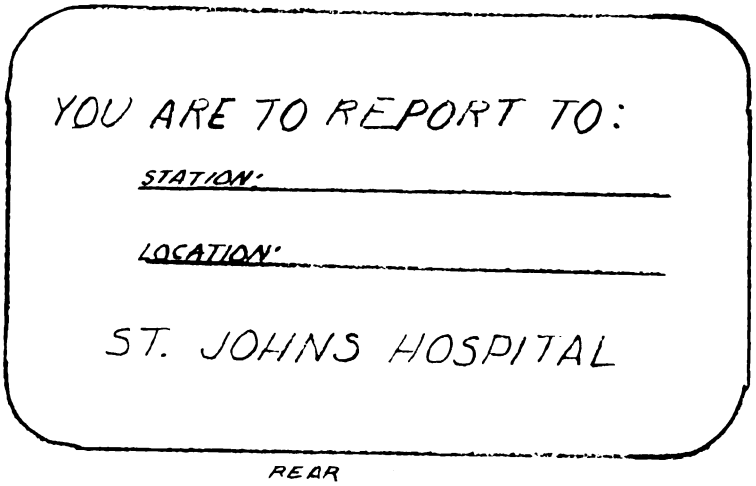
*Plans for these areas are beyond the scope of this paper.



FRONT



REAR

FIGURE 16

PERSONNEL IDENTIFICATION CARD

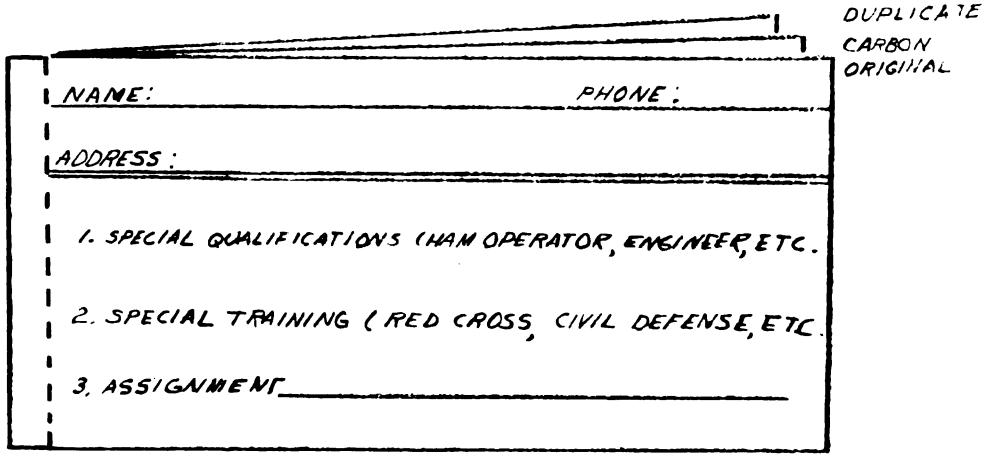


FIGURE 17

EMERGENCY VOLUNTEER APPLICATION BLANK

SUMMARY

The suggested detailed plans should provide the basis for the development of procedures, estimated personnel requirements and assignments, and estimated requirements for supplies and equipment for the emergency operation of every essential hospital function. This detailed planning is delegated by the Disaster Committee to key people within the hospital organization. Upon the completion of these plans by the key people, the plans are reviewed by the Disaster Committee, adopted, and, finally, integrated into the total Hospital Disaster Plan.

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2. Ibid.

CONCLUDING STATEMENT

This discussion and guide to the preparation of a disaster plan has been formulated as an aid to the Disaster Committee of St. Johns Hospital in St. Paul, Minnesota. If the material is to be properly used the hospital's employees must participate in its implementation to the end that they are fully oriented and motivated to work effectively in an emergency.

There has been no attempt to provide detailed solutions to all of the problems that may be met in planning for a disaster. The objective has been to provide a basic organization, policies, and procedures, so that the Disaster Committee of the hospital will be better able to handle more effectively the assignment of "Developing a Disaster Relief Plan for St. Johns Hospital."

The discussion has been limited to the administrative aspects of handling an emergency situation. In the future, it will be necessary to develop detailed plans for:

1. The total evacuation of the hospital if necessary.
2. The functions of the Medical Staff at the time of an emergency.
3. The coordination of the disaster plan with the community effort.

It is hoped that a plan of action will evolve that will be elastic enough to permit changes and effectively cope with the many problems that will arise due to an emergency. The more thorough and complete the planning and the more realistic the training for disaster--the more effective the help which this or any other hospital will be prepared to give in a time of disaster.

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APPENDICES

APPENDIX A

TESTING AND REHEARSAL OF HOSPITAL DISASTER PLANS*

STANDARDS FOR HOSPITAL TESTING

1. The following major elements of the written hospital disaster plan should be subject to tests or rehearsals of sufficient magnitude to permit a valid appraisal of their usefulness and to provide experience for hospital personnel:
   - Ambulatory Casualty Post (First Aid)
   - Reception of Ambulance
   - Admission and Triage (Receiving and Sorting)
   - Medical Records
   - Emergency Communications

2. It is desirable, though not essential, that the following elements of the disaster plan also be tested:
   - X-ray Department
   - Supply
   - Public Information
   - Volunteer Personnel Office
   - Traffic Control

3. Remaining hospitals function of ancilliary character need not be rehearsed or tested.

4. An administrative test involving only department heads and other key personnel is acceptable.

5. Most segments of the disaster plan can be rehearsed or tested separately.

6. Segments of the disaster plan which have inter-locking relationships should be tested together. A test of emergency admissions, for example, should also involve a test of emergency medical records.

7. Testing should not involve any movement or other inconvenience to patients in the hospital.

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*Michigan Office of Civil Defense, "Testing and Rehearsal of Hospital Disaster Plans," (Detroit: Medical and Public Health Division of Civil Defense, February 24, 1954).

8. Employees should not be pulled away from their jobs for the purpose of testing if this will in any way be detrimental to provision of care of patients.

9. The employment of an element of surprise in testing is recommended but remains a matter of choice for the hospital administrators.

10. Outside help provided by the American Red Cross and the Civil Defense is available to assist hospitals wishing to test their disaster plans.

PROCEDURES FOR HOSPITAL TESTING

Administrative Test. An administrative rehearsal or test should involve only the administration and department heads. An administrative test would be largely a paper test where the administrator outlines and informs department heads of a problem and then obtains the solution of the problem from each department. This test could be staged with department heads given time to think over their answer which they could submit orally or in writing as the administrator prefers, or the test could be conducted with an element of surprise wherein the information on the problem could be handed to the department heads without warning and an immediate answer requested. Some administrators might prefer to conduct a staged rehearsal first and then follow it with a surprise administrative test.

Example: Hospital X, a 200-bed institution, estimates in its disaster planning that its optimum admission (good and prompt medical care) of casualties is 30. If circumstances required, it could, with maximum expansion, accept up to 300 casualties. Since its normal ambulance entrance is cramped, the plan calls for establishing an emergency ambulance area in the main lobby, which in turn involves relocating the information desk. The administrator wishes to run an administrative test rehearsal of the plan to determine the extent to which the department heads are aware of their role and that of their departments in a disaster operation. The administrator, therefore, supplies the department heads with the following information and problems: At 7:30 P.M. the hospital is notified that a disaster of unknown proportions has occurred, and the hospital will receive approximately 10 to 20 casualties. The administrator order the disaster plan into effect. At 7:50 P.M. the first casualties arrive. Eight casualties are brought in by private automobile. Casualties seem to be suffering mostly from mechanical injuries; only two of the eight casualties could be termed serious. At 8:10 P.M. 14 more casualties likewise suffering from mechanical injuries were brought again by private vehicle. All casualties were

covered with dirt and in many cases were dazed, some were in shock. By 8:20 it became apparent that the estimate in the original warning was far off base. Either there were far more casualties than originally estimated, or the police had not succeeded in isolating the disaster area or properly dispatching vehicles carrying casualties. Hospital X was receiving more than its share. By 8:35 P.M. the Office of Civil Defense informed the hospital that it would be receiving 50 casualties in total. By 9:00 the hospital had already received casualties in excess of 100, most brought in by private ambulance. However, many of these casualties were merely shaken up and were otherwise not injured or they had injuries of a relatively minor nature. In the meantime, the hospital was flooded with calls from off-duty personnel, the general public, outside agencies, and newspapers. The radio had, of course, broadcast news of the disaster and as a result many well-meaning individuals had come to the hospital to offer their services.

With this problem, the administrator could then check with department heads the action taken and their estimate of the situation at various times as the disaster operations progressed.

Ambulatory Casualty Post (first aid)

The operation of the ambulatory casualty post can be tested separately. This test, however, should involve simulated casualties in sufficient numbers to provide valid conclusions. This can be a staged rehearsal or a surprise test, as the administrator prefers. The test of the ambulatory casualty post should provide valuable experience in:

1. Staffing--both adequacy and timing.
2. Clearing the area of routing business for reception of casualties.
3. Speed of record making.
4. Adequacy of supplies on hand and speed of delivery of supplies from the storeroom.
5. Maximum patient flow.

Reception of Ambulances. A test of the ambulance reception area would necessarily involve vehicles. The object of this rehearsal would be to gain experience or to train personnel in adequately staffing the ambulance entrance at a moment's notice, where, of course, adequate coverage by male personnel to unload litter casualties is an absolute essential. The ability of personnel to keep the ambulance area clear of parked vehicles would be strengthened in this rehearsal. Simulated casualties would not necessarily be involved.

Admission and Triage. (Reception and Sorting.) An admission and triage rehearsal necessarily involves simulated casualties in sufficient numbers to provide a valid result. To be checked in a test of the admission area are:

1. Staffing.
2. Adequacy of area.
3. Adequacy of wheel carts and litters.
4. Adequacy of medical supplies.
5. Practicality of medical record system.
6. Adherance to triage (sorting) principles.

Since a test of the admission area should involve mock casualties and possibly other items that must be obtained outside the hospital, it is suggested that the Office of Civil Defense and the American Red Cross be called in for prior planning. At the time of the exercise relay notice to the department heads, action should be automatic in accordance with the provisions of the disaster plans.

Medical Records. In almost all stories of disaster, medical records have been inadequate. The key to the medical record system appears to be speed. The medical record system usually breaks down right in the emergency admission area where it is found that making admission records takes too much time. As a result, it occurs in disaster that some patients receive treatment and are discharged without a hospital record being made. A rehearsal of records could be accomplished in one of two ways and probably should be done both ways:

1. Familiarization program wherein the personnel assigned to emergency medical records merely makes out a series of records on hypothetical casualties. A part of this, of course, should be a speed test.
2. A test of record taking ability as a part of the test of the admission area.

X-Ray. It may be desirable to include the X-ray department in a disaster plan rehearsal. Such rehearsal might involve rehearsal of wet reading of film and dictation of findings. Dictated information and film should be keyed to the casualty tag number for easy identification. If the plan calls for the use of volunteers for clerical duties, in the X-ray department, these could be involved in the rehearsal.*

Supply. One responsibility of the supply department is that of rapid delivery of essential supplies to emergency areas which are not normally used for patient care and thus are not medically equipped. The speed and adequacy of this delivery system may easily be tested.

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*The use of volunteers in the rehearsal will reveal the degree of effectiveness of volunteer help.

Emergency Communications. Communications is an important segment of every disaster plan. It involves two main areas:

1. Rehearsal of a personnel alert procedure involves getting a message to all of the essential personnel and receiving back a report that they received the message and would have acted upon it if it had been necessary. Test of the alert procedure is especially desirable since in most institutions a chain calling system is used. It should involve the medical staff. Unless this procedure is tested regularly it almost inevitably breaks down when it is needed.
2. Most institutions have made provisions to protect some of their telephones, that these instruments will always be available regardless of the pressure from calls coming in from the general public. This part of the communications procedure can be tested with the cooperation of volunteers outside of the hospital. The Office of Civil Defense can assist the hospital in running this rehearsal.

Public Information. Most hospital disaster plans have made provisions for handling an increased load of information requests from friends and relatives of disaster casualties. It may be desirable to test the procedure for doing this. For rehearsal, this will involve forwarding of admission cards to the information desk, the filing of such information, and the answering of questions on hypothetical casualties. A test of the public information service could well be worked in with a test of medical record procedure. The object of this rehearsal would be to gain experience in the flow and use of records and the shifting of the information office if this is called for in the plan. If administration wishes to involve outside calls in testing this segment of the disaster plan, the Office of Civil Defense will assist.

Volunteer Personnel Office. In hospital disaster operation volunteer help will be on hand whether or not the hospital wishes it. One of the problems is, therefore, the reception and control of volunteer help. Most disaster plans make provision for reception and screening of volunteers. It may be desirable to test this procedure. This, however, involves the utilization of volunteers. The Office of Civil Defense will assist in this if the administration wishes.

Traffic Control. Traffic control refers to internal traffic control since it is a police function to direct traffic beyond the hospital grounds. The main problem in internal traffic control is the sealing of entrances to prevent the entrance of unauthorized personnel except at designated places. This procedure can be rehearsed in conjunction with a general test. By itself it scarcely poses a problem. However, combined in a test with the other segments it may be significant since the personnel assigned to traffic control will most likely have another, and possibly conflicting assignment.

Other Functions. There are other segments of hospital disaster plans which need not be tested or which it is not practicable to test. These functions may be listed as follows:

1. Evacuation of Patients.
2. Laboratory.
3. Morgue.
4. Pharmacy.
5. Central Supplies
6. Diet.
7. Maintenance.
8. Housekeeping.
9. Laundry.

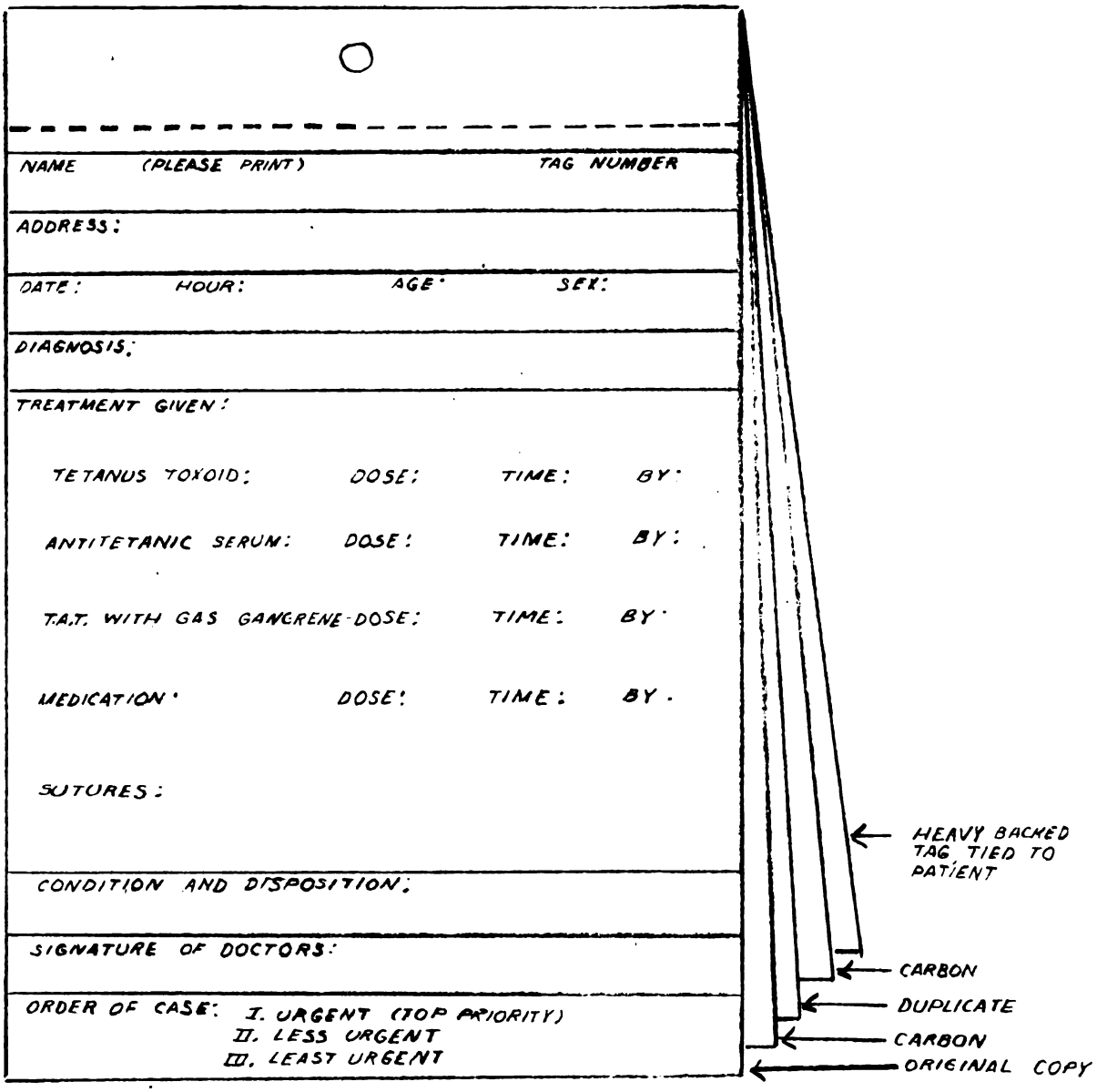
COMPLETE PLAN TESTING

All, or almost all of the above segments of the disaster plans can be tested separately. However, a combined rehearsal of the complete disaster plan is both feasible and desirable. If a hospital wishes to undertake a complete test, the Office of Civil Defense and the American Red Cross will assist in every possible way and will provide all of the things which must be obtained outside the hospital, such as casualties, ambulances, volunteers, and additional supplies. The Civil Defense and the American Red Cross will also provide advice and assistance in setting up any rehearsal or test or any part or all of the disaster plan as desired by the hospital administrator or the hospital disaster committee.

It should be pointed out that all of the foregone applies to local or community disaster. However, all planning and testing is applicable to large scale disaster as envisioned in Civil Defense. In either instance it provides an opportunity for all persons involved to gain experience in the familiarity with disaster planning and potential operation.

APPENDIX B

FEDERAL CIVIL DEFENSE EMERGENCY MEDICAL RECORDS



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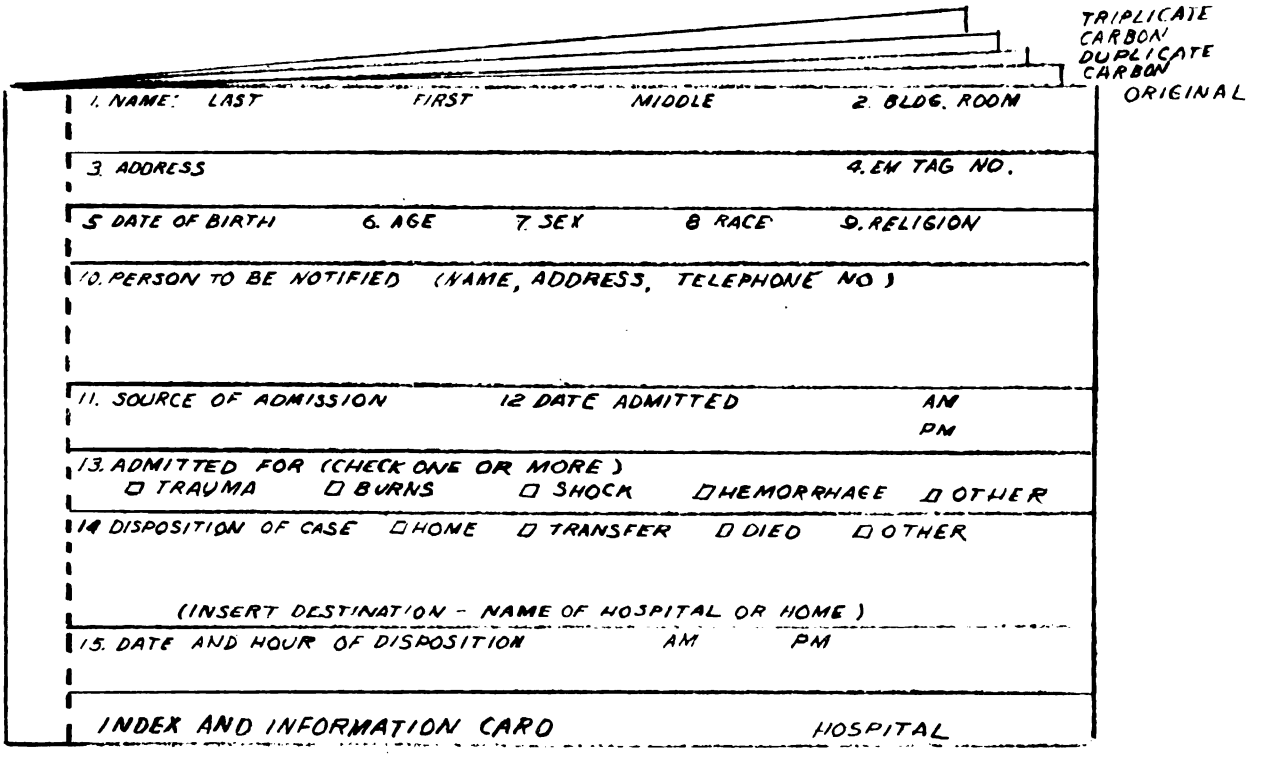

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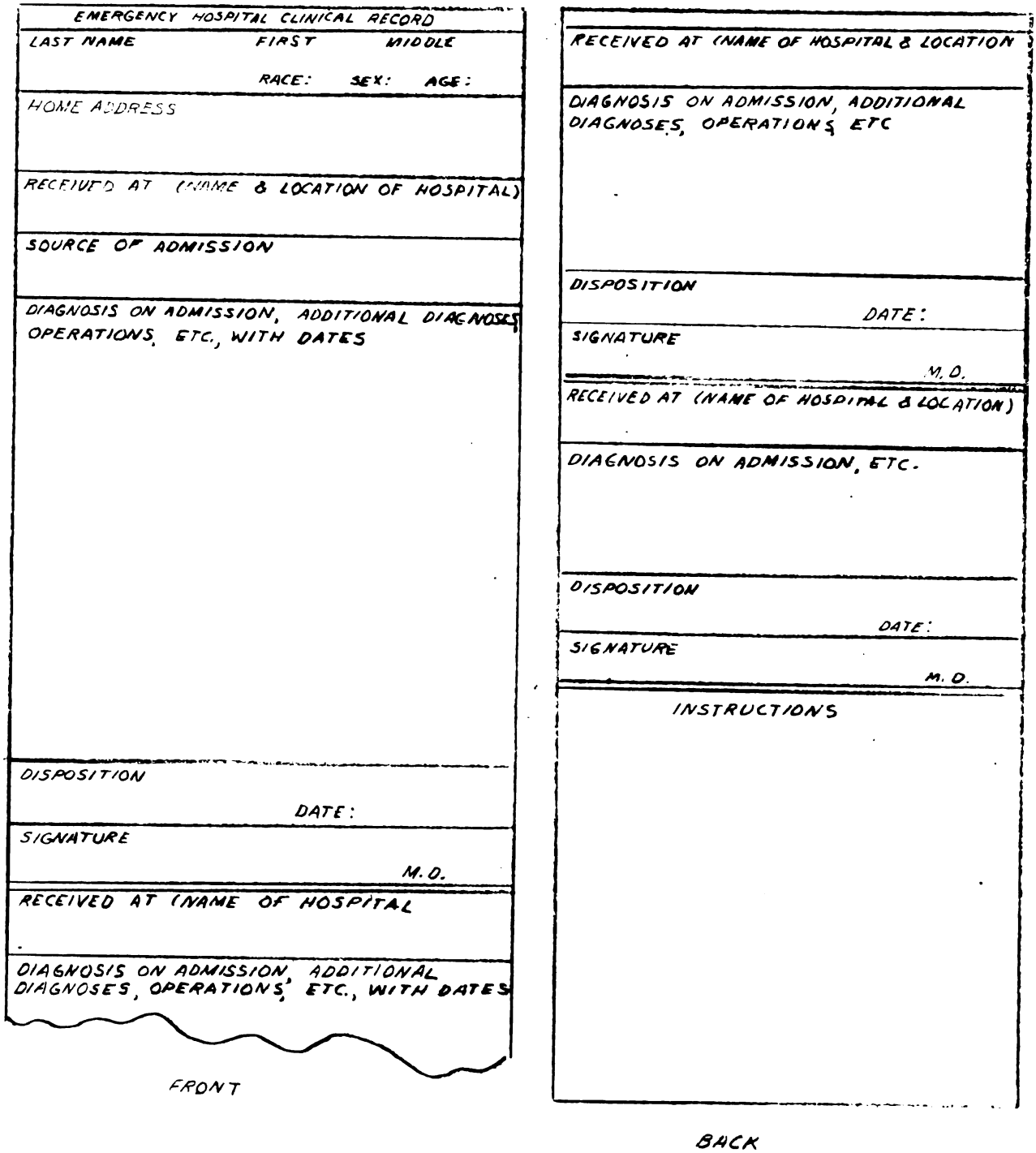
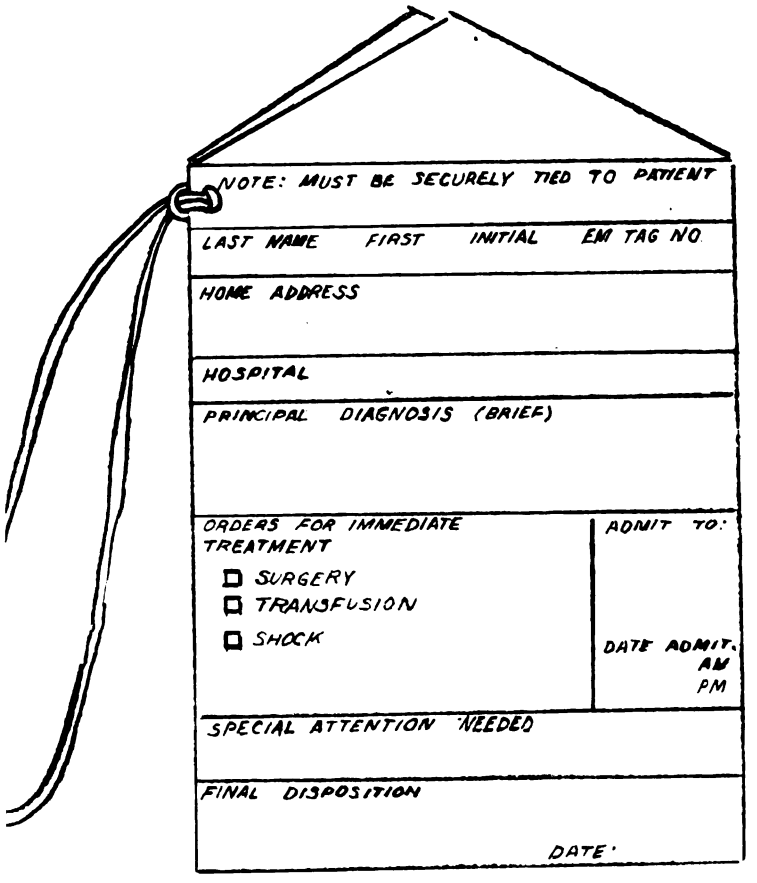


THE EMERGENCY HOSPITAL CLINICAL RECORD



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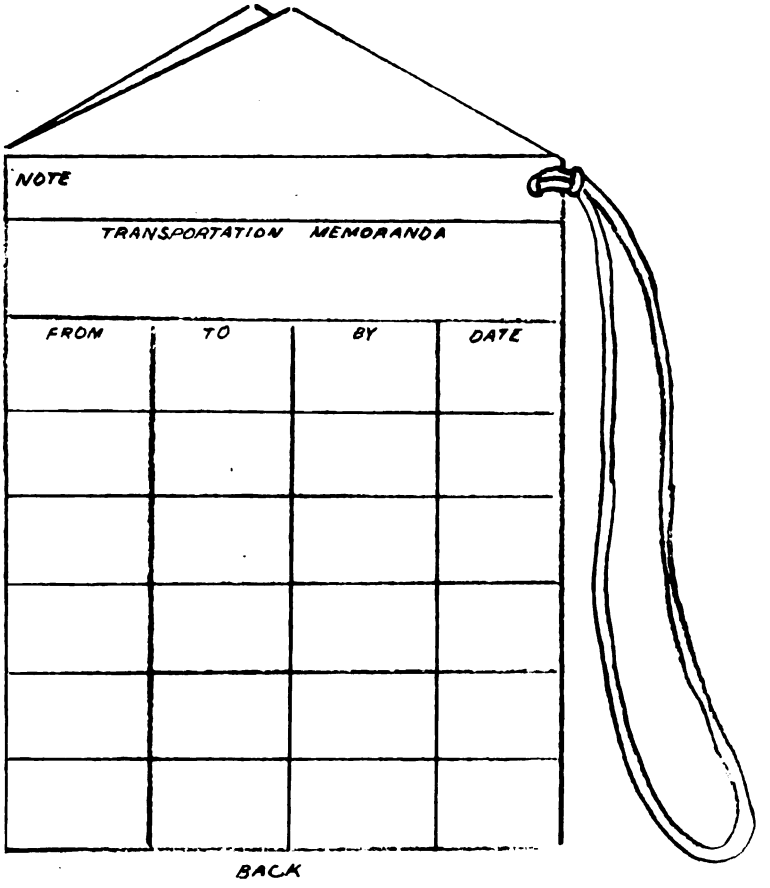

BACK

THE RECORDS JACKET