

***Medical Division  
Bulletin No. 4***

**CENTRAL CONTROL  
AND ADMINISTRATION  
OF EMERGENCY  
MEDICAL SERVICE**



***United States Office of Civilian Defense  
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# CENTRAL CONTROL AND ADMINISTRATION OF EMERGENCY MEDICAL SERVICE

## Foreword

This bulletin outlines the relationship of each of the various units of the Emergency Medical Service to the Control System of the Citizens' Defense Corps and the Civil Air Raid Warning System. Every movement of a protective service must be orderly and purposeful. It is, therefore, important that every member of the Emergency Medical Service, whether belonging to an administrative service, a field unit, an ambulance unit, a casualty receiving hospital or an emergency base hospital, understand the coordinated timing of their activities with those of other protective services under the constant direction of the Control Center.

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## I. AIRCRAFT WARNING SERVICE

The Aircraft Warning Service has been organized by the Combat Command of the United States Army Air Forces for detecting and reporting the presence of enemy airplanes. For the purposes of air defense, the continental United States is divided into large areas, each of which is served by an Air Force. An Air Force Area is, in turn, divided into Air Defense Regions. The command post of an Air Defense Region is known as an *Information Center*.

Each subdivision of an Air Defense Region is served by a central communications point known as a *Filter Center*. Filter Center Areas are subdivided into areas of approximately 36 square miles, in each of which is located an *Observation Post* manned by civilian observers.

The observation post reports the presence of planes to the Filter Center, where similar information coming in from other observation posts is assembled and evaluated by trained Army officers. The combined picture of the probable height, speed, direction, type, and number of enemy planes is relayed to the Information Center. Here the information from various Filter Centers is plotted on an Operations Map and pursuit planes are ordered to intercept the enemy (fig. 1 p. 2).

## II. AIR RAID WARNING SYSTEM

A Civil Air Raid Warning Officer at the Information Center notifies the communities in the path of the invading bombers to prepare for a possible air raid. This message is telephoned from the Information Center to the District Warning Centers of the Civil Air Raid Warning System, and from there to the Control Centers of the communities in the area (fig. 1, p. 2).

## III. CONTROL CENTER

The Control Center of a community is the headquarters of the Commander of the Citizens' Defense Corps and his technical staff. Here is received all information essential for operating the civilian protection services during an emergency (fig. 2, p. 3). The Control Center receives air raid warnings and transmits them to the proper recipients; it orders the sounding of air raid alarms; it receives reports from wardens concerning damage, and it dispatches operating units of the protection services to bombing incidents.

Large cities are subdivided into a number of districts, in each of which is a District Control Center. The District Control Center receives and transmits air raid warnings, receives reports of incidents from wardens, and controls the movement and operation of all protection units within or assigned to the district. To large incidents, it sends an Incident Officer who takes command of all protection forces on the scene (including the medical), orders unnecessary units back to their stations, or requests additional assistance from the Control Center.

Over all the District Control Centers of a large community or area is a Main Control Center which receives reports from the District Control Centers (not from wardens) and controls the movement of services between districts.

### A. Message Room

In the Control Center there are an electric bell and a set of four lights, corresponding to the degrees of warning—yellow, blue, red, and white. From the message room come the signals; the bell is rung and the appropriate light switched on as each signal is received.

### B. Control Room

In the control room is a map of the area served by the Control Center, on which are recorded the locations of wardens' posts, the boundaries of sectors and precincts, and the stations, depots and headquarters of the various civilian protection services. The Chief of Emergency Medical Service is responsible for the accurate recording on this map of the locations of:

1. Hospitals.
2. Casualty Stations and Medical Supply Depots.
3. Ambulances and other vehicles in transport centers.

He must also know the location of Emergency Medical Field Units, the number of squads available in each Unit, and which hospitals have their own ambulances.

With numbered pins of four different colors, the locations and types of incidents are indicated on the map (high explosive, incendiary, gas, unexploded bombs). Road blockages are also recorded.

### C. Control Panel

On a Control Panel are recorded the numbers and nature of the incidents, the protection services available and the services dispatched. This enables the controller to have a complete visual

# AIRCRAFT WARNING SERVICE AND AIR RAID WARNING SYSTEM

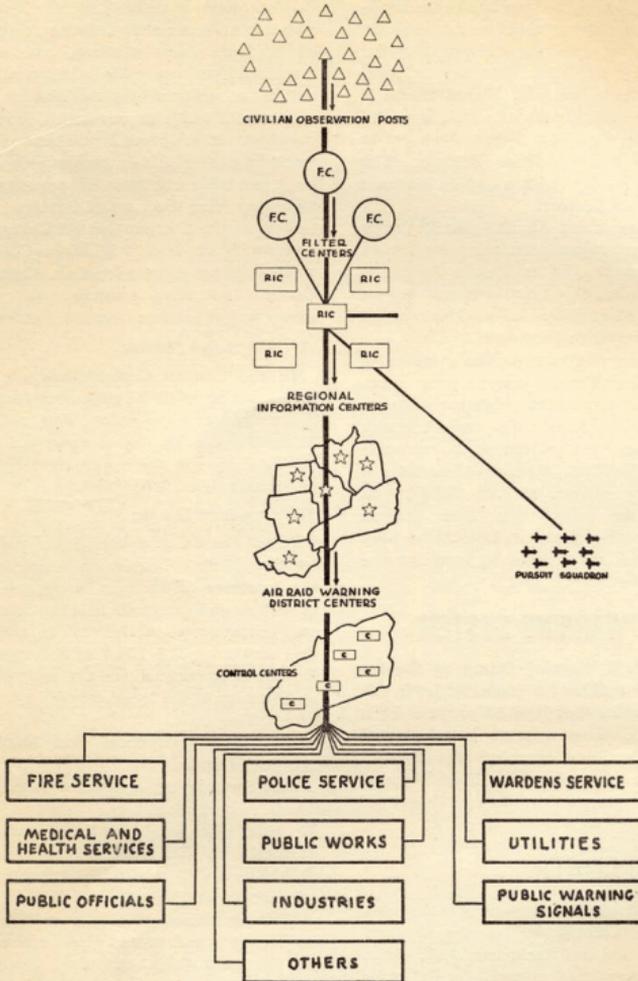


FIGURE No. 1

# TYPICAL ROOM LAYOUT OF CONTROL CENTER SERVING A POPULATION OF 100,000

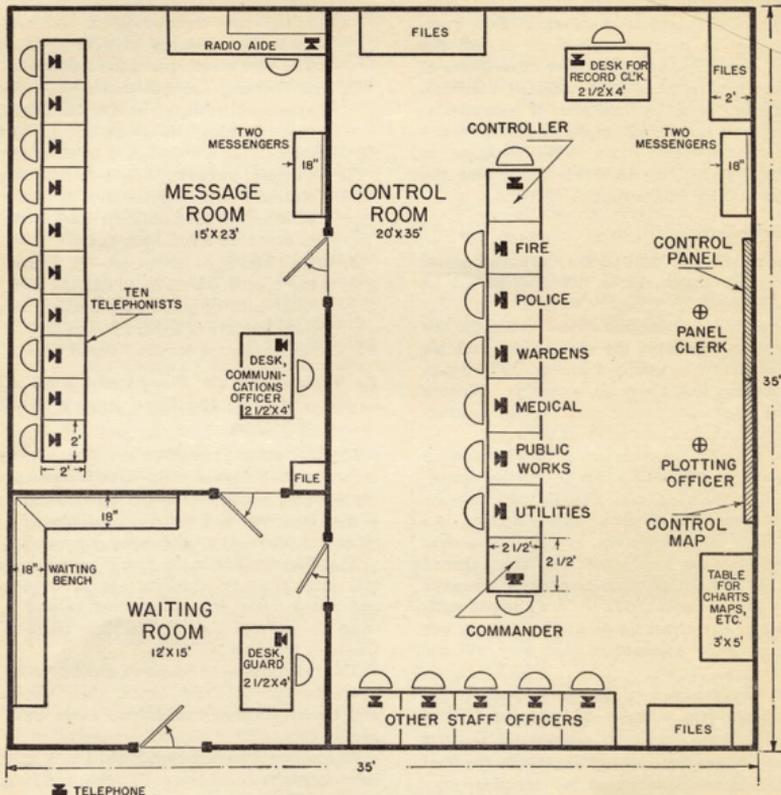


FIGURE No. II

record of the number and disposition of his services. Pins of distinctive colors are used to identify types of service. Each pin bears a separate number indicating a service unit. Pins for the Emergency Medical Field Units are red and white and those for ambulances are white.

#### **D. Communications System**

Telephone numbers at the Control Center are known only to persons authorized to call the Center. Similarly, outgoing lines to stations of the protective services have unlisted numbers. Alternate or "stand by" methods of communication, such as municipal signal systems, short-wave radio, broadcast radio, radio telephone, or messengers should be provided for in case the telephone service is interrupted.

#### **E. Procedure**

Three people should be on duty at each Control Center at all times, and a full shift should be available on call.

All essential information is assembled in the control room to enable the commander and his staff to make the necessary decisions. The objectives are speed and, above all, accuracy. Written messages are used rather than verbal instructions, to reduce the possibility of error.

When the military commander decides that an air defense area is vulnerable to bombardment, he will alert the area, even though there appears to be no immediate threat of enemy action. An "alert" may be intermittent, or continuous over long periods. An area which has been alerted will be blacked out at night except that essential industry and transportation will be allowed sufficient lights, and street lights will be kept on but will be properly screened so that they will not be visible from the air.

When the presence of hostile aircraft is detected in an area, a series of "warnings" flows from the Information Center through the District Warning Centers and Control Centers to the final recipient. In some cases the final recipient may be warned directly from District Warning Centers rather than Control Centers.

##### **1. Yellow Warning—*preliminary caution.***

The yellow warning is confidential and is not released to the public. It is telephoned to staff members of the Control Center, including the Chief of Emergency Medical Service and his deputies, to summon them to their stations; to the head

warden in each zone, who telephones sector wardens to warn the remaining wardens; to essential industry and transport, and to police and fire stations. It is not received by medical field units.

2. **Blue Warning—*lights warning.***—This means that raiders are expected to pass over the area. The warning is telephoned to industry, transportation, and hospitals to notify them to obscure their lights. The blue warning is also confidential.
3. **Red Warning—*action warning.***—When it appears that an air raid is imminent, the "red warning" is given to the general public. It is telephoned to all protection services, including hospitals and casualty stations, notifying them to be ready for action, and the public air raid warning is sounded for a total blackout.
4. **White Message—*all clear.***—It means that the hostile planes have left the area, and that industry and transportation may resume the use of lights allowed them under the provisions for the "alert."

#### **F. Warnings to Hospitals and Field Units of the Emergency Medical Service**

Medical units are not as a rule brought into action on the yellow signal. This is a precautionary warning which should not disturb the operation of hospitals and the regular duties of physicians and nurses throughout the community.

The blue warning is the first received by hospitals and casualty stations. It is confidential and not a signal for calling doctors and nurses from all parts of the city to their posts at the Casualty Stations.

The red warning to hospitals means, "Assemble your Emergency Field Units, their equipment and transportation, but do not move until you receive orders."

In communities in which Field Units have not been organized in hospitals, the red warning means, "Summon doctors, nurses, and nurses' aides to the Casualty Stations and have them stand by for orders."

During a raid, after wardens have reported the location and details of incidents to the Control Center, fire-fighters, rescue squads, or other appropriate action units are dispatched to the scene. When casualties are reported, the hospital field units and ambulances are ordered to the Casualty Stations near the incidents.

## IV. FIELD UNITS OF THE EMERGENCY MEDICAL SERVICE

The organization, equipment, and operation of Emergency Medical Field Units is described in Medical Division Bulletins Nos. 1 and 2. There is great advantage in organizing nonsurgical resident staffs of hospitals—internes and nurses of the medical, pediatric, and neurological services—into Emergency Medical Field Units to serve as the first line of the casualty services. Squads of two to four internes and nurses can be on call day and night, but their regular work continues until they are notified that persons have been injured and their services are needed. Their preparedness makes it unnecessary to man all casualty stations on every alert. If, however, prolonged or repeated raiding results in continued demand for medical services at Casualty Stations, hospital units may be relieved by Reserve Units of neighborhood physicians and nurses. These units should be related to hospitals and drilled regularly, in case it becomes necessary to relieve the hospital units and to staff Casualty Stations on a more permanent basis.

The hospital should be the center of all casualty services in its area. Its staff is ready for emergency duty at a moment's notice, and there are trained reserves available in the event of prolonged or frequent attack. Failure to organize Emergency Medical Field Units within hospitals will waste time and effort. Areas alerted will be much larger than those actually attacked, and in the absence of hospital units available at all times for immediate dispatch, practicing physicians and nurses whose services are sorely needed in their communities must man every Casualty Station in the alerted area.

In small hospitals which have no resident staffs, consideration should be given to a plan under which one or more physicians are on call each night. The physicians on duty would not be required to remain in the hospital, but they should be ready to take up their posts as soon as the warning is given.

All members of Emergency Medical Field Units (physicians, nurses, orderlies) and medical auxiliaries such as Stretcher Teams will be identified by the caduceus on the Civilian Defense armband; nurses' aides by the Red Cross on the Civilian Defense armband.

## V. CHIEF OF EMERGENCY MEDICAL SERVICE AND DEPUTIES

Certain duties of the local Chief of Emergency Medical Service are listed in Medical Division Bulletin No. 2.

A. *During the period of preparation*, the Chief of Emergency Medical Service is responsible for:

1. Organization of the Field Casualty Service:
  - (a) Organize and drill Emergency Medical Field Units in hospitals and among physicians and nurses in the community.
  - (b) Select Casualty Station sites and arrange for canteen and disaster relief services at Casualty Stations.
  - (c) Assemble field equipment in Medical Supply Depots.
  - (d) Assemble transport facilities.
2. Plans for hospitalization of casualties:

- (a) Assign hospital beds to each control district.
- (b) Arrange for periodic census of vacant beds.
- (c) Plan with State Chief of Emergency Medical Service for base hospital facilities to which casualties and other sick may be evacuated.

3. Provision for medical direction at the Control Center:

- (a) Train and assign deputies to serve as medical adjutants.
- (b) Arrange for direct telephone lines between control center and hospitals and casualty stations.
- (c) Spot hospitals, Casualty Stations, Medical Supply Depots and ambulance depots on control center map.

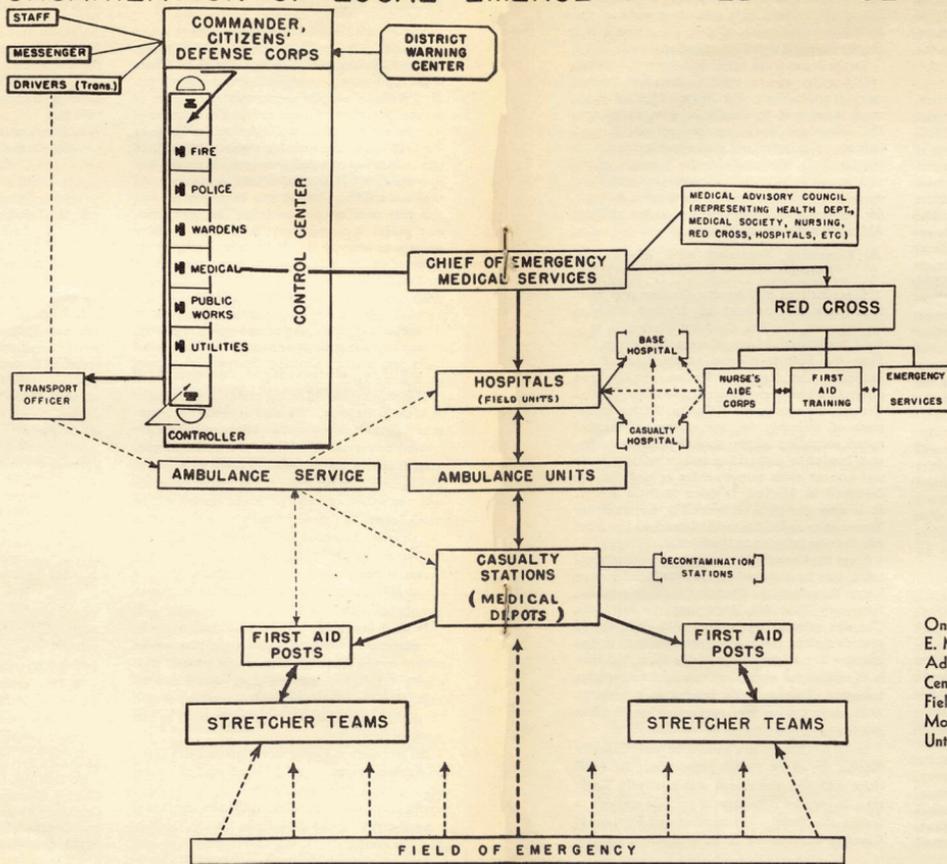
4. Collaboration with the Red Cross:

- (a) Promote the training and assignment of Volunteer Nurses' Aides.
- (b) Extend First Aid Training, emphasizing priority for personnel of the Citizens' Defense Corps.
- (c) Train Stretcher Teams for assignment to Casualty Stations.

5. Organization of Casualty Information and Mortuary Services.

B. *During the period of operations*, the Chief of Emergency Medical Service or one of his deputies serves as medical adjutant at each Control Center. The adjutant must be ready to report immediately upon receiving the yellow

# ORGANIZATION OF LOCAL EMERGENCY MEDICAL SERVICES



On the Yellow Warning, the Chief of E. M. S., or His Deputy, reports as Medical Adjutant to the Commander of the Control Center. On Blue or Red Warning, Hospital Field Units Prepare for Action, but Do Not Move to Casualty Stations or First Aid Posts Until Ordered by the Control Center.

## LEGEND

----- LINE OF SERVICE  
 ----- LINE OF AUTHORITY

warning. He must have complete knowledge of the number and availability of all service units at his disposal. He must also know the number of vacant hospital beds in the city and the maximum daily operating load each hospital can assume. On report of casualties, he will order the dispatch of Medical Field Units under the general supervision of the Commander or the Controllor.

Large cities are usually subdivided into districts, each governed during an air raid by a District Control Center. The Chief of Emergency Medical Service should assign deputies to serve as medical adjutants in District Control Centers and to assume responsibility under the District Commander for the operation of all units of the Emergency Medical Service in the district. The Main Control Center for an area will receive reports from District Centers (not from wardens) and will govern the transfer of services between districts when needed. When Medical Field Units return to their Casualty Stations or hospitals, they should report immediately to their Control Center so that they may be used at other incidents. The District Medical Adjutant will report periodically to the Chief of Emergency Medical Service the number of casualties in his district and, when indicated, the need for the allocation of additional hospital beds or Emergency Medical Field Units.

The Chief of Emergency Medical Service will keep a daily record of new casualties and of deaths due to enemy action, and will clear the record through the Personnel Officer of the Control Center to the proper municipal departments. For this purpose he must organize a Casualty Information Service and also a Mortuary Service for identification and custody of the dead.

## **VI. CARE OF CASUALTIES IN THE FIELD**

Air raid casualties are usually limited in number compared with the amount of structural damage produced by high explosive bombs. Most casualties are, however, severe. In the British experience, 40 or 50 percent are killed outright or die soon after injury, and most of the remainder require prompt transportation to hospitals for operative procedures and resuscitation therapy. Crushing injuries, fractures, internal hemorrhage, extensive burns and shock require skillful medical judgment and attention at the site of the incident. Abdominal perforation may accompany a small

penetrating lesion; head injury may cause a skull fracture or a cerebral or subdural hemorrhage without external wound. Multiple penetrating lesions of the face, eyes and other parts of the body due to fragments of glass are common and require immediate skilled attention.

As the injured are extricated from demolished buildings by rescue squads, stretcher bearers carry them to First Aid Posts. Medical judgment is required to classify injuries, apply first aid, administer morphine, prevent shock, and indicate priority for ambulance transportation to the hospital. Responsibility for the care of air raid casualties is for trained physicians with their nurse assistants and medical auxiliaries, and not for persons with a twenty-hour course in First Aid nor for the corner druggist.

### ***A. Casualty Stations and First Aid Posts***

The functions of Casualty Stations and First Aid Posts are outlined in Medical Division Bulletin No. 2. The Casualty Station is at a fixed, predetermined site, whereas the location of a First Aid Post is selected at the time of the incident. The Casualty Station should have direct telephone communication with its Control Center. Primarily, the Casualty Station is the place of assembly for one emergency medical squad consisting of two to four medical teams, each headed by a physician and including a nurse and one or more nurses' aides or orderlies, as described in Medical Division Bulletin No. 1. It is also the place of assembly for Stretcher Teams, who assist the medical team at the First Aid Post by bringing in the injured.

From the Casualty Station, one or more medical teams may be deployed by the squad leader or on instructions from the Control Center to establish temporary First Aid Posts near the incidents. The site selected for a First Aid Post should provide shelter, safety, and accessibility to ambulances. The responsibility of the First Aid Post is to administer emergency care and to expedite transport of the severely injured to a hospital. A Casualty Station may serve as a First Aid Post if it is near the incident.

In large cities, there should be one Casualty Station for every 25,000 population. In small cities with less population and relatively larger area, it may be necessary to provide stations in double this ratio. The number and location of Casualty Stations are to be determined by geo-

graphic considerations as well as by the population to be served.

A Casualty Station serves for the reception of the less severely injured (the walking cases) and for those suffering from nervous shock or hysteria. It should have facilities for a canteen, and be related to a temporary rest center for uninjured persons whose homes have been destroyed or are unsafe for occupancy. It removes the burden of a vocal but less seriously injured group from hospitals overtaxed with the care of severe casualties. Every hospital should therefore provide casualty station facilities in its out-patient clinic or other suitable place.

After a short period of observation at the Casualty Station, slightly injured people may be allowed to return to their homes or to places of temporary shelter provided by the welfare department of the city or by the Red Cross. In order that persons sent home may be assured of adequate care, the Chief of Emergency Medical Service should arrange with local public health nursing agencies for follow-up service. The day following an incident, a physician or public health nurse should visit the homes of all persons who have been slightly injured. Persons needing medical care may be referred to a neighborhood physician. In this manner, the neighborhood physicians in the vicinity of a Casualty Station may serve as "Incident Physicians." Those who require medical care but cannot afford a private physician should be referred to a clinic.

### **B. Medical Supply Depots**

The Casualty Station or some place in its vicinity is also the site of the Medical Supply Depot, where stretchers and blankets are stored for the Stretcher Teams and collapsible cots, blankets, and other equipment for the station itself. Here should also be based the canteen and the re-clothing and rehousing services of the municipal welfare department or the Red Cross.

It may be necessary to establish a larger Medical Supply Depot at a police or fire station or other suitable place, from which several Casualty Stations may be equipped. Transportation must then be constantly available at these depots. This is less desirable than the establishment of a Medical Supply Depot at the Casualty Station itself.

The Medical Supply Depot for each Casualty Station should include a minimum of 20 stretchers and 50 collapsible cots. At least two blankets should be available for each stretcher and cot.

Additional stretchers and blankets must be provided at the hospitals for exchange with the ambulance driver when stretcher patients are received. A surplus is essential because many stretchers and blankets will be occupied by seriously injured persons who cannot be moved. Others may have been used for the dead, and must await cleaning and disinfection.

Cities in the "target areas" may require as many as two stretchers per thousand population and three times this number of collapsible cots. They should be provided as far as possible out of local resources. This equipment will later be supplemented from Federal sources.

Medical Division Bulletin No. 2 lists the medical and surgical equipment of a Casualty Station (List No. 2). The individual cases of equipment for emergency medical teams (List No. 1) are best stored at the hospital from which the Field Unit is derived; here the morphine supply can be protected and the surgical dressings replenished and resterilized. If the Field Unit is not related to a hospital, the individual cases of equipment for a team may remain in possession of the physician members of the team or stored in the Casualty Station, except for the morphine supply which must be safeguarded in accordance with the instructions of the Federal Commissioner of Narcotics, as outlined in Medical Division Memoranda dated December 15, 1941, and January 19, 1942.

The Medical Supply Depot should also be provided with simple heating equipment and cooking utensils and a generous supply of hot water bottles or chemical heating pads.

### **C. Medical Auxiliaries—Stretcher Teams**

Trained Stretcher Teams are part of the Emergency Medical Service. They serve under the physician in charge at the Casualty Station or First Aid Post and are responsible for transporting the severely injured to the First Aid Post or to the Casualty Station if it is serving as a First Aid Post. Each Casualty Station will require at least four to six Stretcher Teams or a total of twenty trained stretcher bearers; half should be on call during the day and half at night.

Team members should be derived from the immediate neighborhood of the Casualty Station or hospital to which the team is attached. It will usually be necessary to organize separate day and night teams. If there are numerous casualties, Stretcher Team members can commander volunteers to assist in stretcher carrying. The regular

Stretcher Team member serves as leader of this impromptu type of team and is responsible for proper handling of casualties.

A Leader and Assistant Leader should be appointed for each team and a Group Leader for each group of teams based on a single Casualty Station or hospital. The Group Leader and at least one Team Leader should be selected, whenever possible, from the employees of the building used as a Casualty Station or from the personnel of the hospital. No member of a hospital staff who has any maintenance function should be selected for this position.

On the public alarm the Group Leader and at least one Team Leader (or Assistant Group Leader) will report to the Casualty Station and remain near the telephone connected with the Control Center.

On order of the Control Center, the Group Leader will activate teams as directed and will dispatch them to such points as may be designated by the Control Center. Teams should be so organized that they can be activated rapidly without recourse to public communication facilities. Activation must also be selective, so that only the teams needed are dispatched.

Technical training for stretcher bearers will consist of the standard First Aid course of the Red Cross followed by supplemental training and drilling in extricating injured persons from difficult positions, in loading and carrying a stretcher, and in loading and unloading ambulances.

#### **D. American Red Cross Units**

In almost all communities the local Red Cross Chapter is prepared to provide a variety of essential disaster relief services, such as canteen, reclothing, rehousing, auxiliary ambulance and passenger transportation. In many communities, Red Cross Chapters are also prepared to assist the Chief of Emergency Medical Service in equipping Casualty Stations and Medical Supply Depots and providing some of the personnel.

The canteen service is of importance in sustaining the injured and in enabling the medical corps and Rescue Squads to carry on. Hot fluids and sweet drinks tend to prevent or retard shock in the severely injured by maintaining body fluids and warmth.

The Red Cross has integrated its various services with the protection activities of the local Civilian Defense Council, while maintaining their integrity as Red Cross service units. In emergencies arising out of enemy action, the Red Cross

will place its units and equipment under the direction of the Commander of the Citizens' Defense Corps.

Local welfare, feeding, housing, and other relief services are primarily the responsibility of local government and a unit to serve these functions is part of the Citizens' Defense Corps. These government services will be supplemented by the Red Cross to the limit of its disaster relief resources. The evacuation of city populations to rural areas will be the responsibility of the State and Federal evacuation authorities, under whom the Red Cross will operate. First Aid training is the responsibility of the Red Cross, and when sponsored by other agencies it will be recognized officially by the Office of Civilian Defense only if given by qualified Red Cross or Bureau of Mines instructors in accordance with the Red Cross or Bureau of Mines standards approved by the Office of Civilian Defense. The Red Cross will assist in the training and organization of Stretcher Teams for assignment by the Chief of Emergency Medical Service to Casualty Stations. The Red Cross has also assumed complete responsibility for training Volunteer Nurses' Aides in collaboration with hospitals designated as training centers.

The Chief of Emergency Medical Service is in charge of the operation of all units of the Emergency Medical Service under the direction of the Commander of the Citizens' Defense Corps. In some communities, the local Red Cross Chapter has equipped Casualty Stations and Medical Supply Depots. Under the conditions of an actual air raid all organizations must work directly under central control. Otherwise, the Commander cannot have a complete and consistent picture of the situation. He will not be able to direct help to points where it is most urgently needed, nor will he know when to summon outside assistance, or whether he can safely send services to other areas (fig. 3, p. 12).

#### **E. Local Ambulance and Other Transport Services**

Ambulances and other vehicles for transporting casualties from an incident to hospitals will be obtained from three sources:

1. Casualty receiving hospitals.
2. Private ambulance companies and undertakers.
3. Central ambulance depots where auxiliary trucks, converted station wagons and taxicabs are available.

It is necessary to provide a central ambulance

depot in each control district, so that the District Commander may know the number and the location of all vehicles at his disposal. The pool may be composed of ambulances belonging to the American Red Cross and the various voluntary agencies, commercial vehicles equipped with special racks for carrying stretchers, and passenger vehicles for sitting cases.

Ambulances or passenger vehicles carrying squads of Emergency Medical Field Units and their equipment from hospitals to Casualty Stations will transport casualties from the incident or the First Aid Posts to the hospital. Other vehicles remain at their assigned central depots until instructed to move by central control. Vehicles upon discharging their load at hospitals continue to move only in accordance with orders from central control. If there are no orders, they return to their depots and await further instructions.

All requests for ambulance service must pass through the District Control Center, which should report at once any shortage of transport to the Main Control Center. Under conditions of raiding and blackout, shortage of transport may be due to faults in distribution rather than lack of vehicles. It is essential, therefore, that the Commander have an exact knowledge of the disposition of his transport at any moment. This is not possible if ambulances move in response to local calls, without reference to the Control Center.

Ambulance drivers should return to their depots as soon as they have carried out an order. Under blackout conditions a whole fleet of vehicles can easily be lost for hours, if they do not follow instructions. They must make trips to specified points and return as soon as they have carried out instructions. Ambulance drivers must not stop on their return journey from hospitals to collect wounded from the streets; by so doing they will interfere with other ambulances and slow up the whole process of collecting the wounded.

The number of vehicles needed for a given population will vary according to geographic considerations. A minimum of one 4-stretcher ambulance or two 2-stretcher vehicles is desirable per 10,000 population. Specially built ambulances are not necessary; commercial trucks with or without special stretcher racks may be used. A surplus of ambulance vehicles and drivers must be registered because they will not always be available. If hospitals are some distance from probable sites of enemy attack, a greater number of ambulances must be provided because of the long transport haul.

At hospitals and in central depots, passenger vehicles should also be available. Experience indicates the need of providing for as many sitting cases as stretcher patients.

### **F. Regional or State Ambulance Service**

Ambulances accommodating four or six stretchers, and trucks or converted buses capable of holding a larger number should be available in the exposed seaboard areas. This service, which is distinct from the field ambulance service, should be controlled by Regional or State Medical Officers. It is for the evacuation of patients from Casualty Hospitals to Emergency Base Hospitals in protected rural sites. Ambulance trains should also be obtainable through the military authorities in exposed areas.

## **VII. CASUALTY RECEIVING HOSPITALS**

All general hospitals in a community, voluntary as well as governmental, are included in the Emergency Medical Service. Each hospital should be specifically related to the Control Center and to certain Casualty Stations in the district in which it lies or to which its beds have been assigned.

The Chief of Emergency Medical Service may delegate to a member of the hospital staff the responsibility, as Field Leader, for supervising the medical and surgical equipment of the hospitals' related Casualty Stations and the training of their field units, whether derived from hospitals or composed of physicians of the community. This will relate all field units advantageously to hospitals, so that the clinical experience of the hospital may serve as a guide to the emergency measures employed by the field units.

All hospitals in the community should submit a daily census of vacant beds to the Chief of Emergency Medical Service for transmittal to the medical adjutants at the District Control Centers. Hospitals must be prepared to expand their bed capacity in an emergency (1) by discharging convalescent patients to their homes, (2) by transfer of patients to other institutions and (3) by setting up additional beds in dining rooms, classrooms and other places. Additional stores of beds, mattresses, and linens should be available.

To insure continuation of adequate nursing care for convalescent patients evacuated from hospitals, organizations employing public health nurses may be asked to provide for home visits. Direc-

tions for medical care to be given at home should, if possible, come from patients' private physicians. Welfare and social service organizations in the community may be called upon to assist with arrangements for transfer of patients to other institutions or to their homes.

The number of casualties sent to a hospital will depend upon the operating-room load it is capable of handling, as well as on the number of vacant beds. Because of the severity of air raid injuries, an operating team will average less than one operation per hour. Where possible, two tables should be provided for each operating room so as to conserve the services of anesthetists, transfusion teams, nurses and orderlies, as well as equipment. The operating rooms and surgical staff of a fairly large hospital may be expected to care for only 50 major air raid casualties in 24 hours.

Casualty receiving hospitals must keep the Control Center constantly informed during an air raid of their ability to accept admissions. A hospital should notify the Control Center before its maximum capacity is reached, so that casualties may be diverted to another hospital. If the maximum capacity of all hospitals in a district is approached, the District Control Center will call on the Main Control Center for allocation of additional beds from other districts.

When there are large numbers of burn cases, it is advisable to divide them among several hospitals. Burn cases constitute a heavy burden on the medical and nursing staff and require much care. For this reason, it is also advisable to distribute burn cases among several wards of a hospital.

Medical Division Bulletin No. 3, "Protection of Hospitals," includes a description of facilities for unloading of ambulances at the hospital during blackout. As stretchers are unloaded, an equal number of clean stretchers and blankets must be available for exchange.

Adequate facilities and efficient administration will save lives in the receiving ward as well as in the operating room. The Reception Officer should be an experienced surgeon who can classify patients according to the nature of the injuries and determine need for prompt transfer to operating or resuscitation rooms. The reception room should be large. Patients should be arranged so that all can be watched by the Reception Officer and nurse for signs of shock or hemorrhage.

Upon the first manifestations of shock, the injured should be transferred to an adjacent

resuscitation room where plasma and whole blood are available, and a trained transfusion team is in attendance. Shock and hemorrhage should be combated *before* as well as during and after operative intervention. If dried or frozen plasma is employed, the transfusion teams must be familiar with the technique of preparing the plasma for injection.

## VIII. EMERGENCY BASE HOSPITALS

Cities likely to be exposed to enemy action require the assistance of a State Chief of Emergency Medical Service to interrelate their medical protective activities with those of adjacent localities. Under his direction, a State Hospital Officer is required in the seaboard States to maintain an inventory of hospitals, mental institutions, convalescent homes, and other medical facilities in rural areas. These facilities will serve as Emergency Base Hospitals to which civilian casualties and certain categories of the hospital population may be evacuated from exposed cities. Direct bomb hits, the effect of blast or the proximity of an unexploded bomb may necessitate the complete evacuation of a hospital. Partial evacuation may be required to remove patients from exposed locations such as upper floors or to free beds for new casualties.

### A. Hospital Officer

In planning for the most efficient use of existing hospital facilities, the State Hospital Officer should work in close collaboration with the State Evacuation Authority. This is essential if Emergency Base Hospitals and other medical and transport facilities in reception areas are also to be utilized for evacuated civilians. These recommendations are intended only for seaboard states with densely populated centers located in exposed areas which might be military objectives.

The functions of the State Hospital Officer are:

1. To survey hospitals throughout the state (excluding those in exposed cities) and determine how many beds can be put into immediate use with existing kitchen, laundry, sanitation and other engineering facilities by:
  - (a) Clearing patients to their homes.
  - (b) Restricting admissions.
  - (c) Using rooms not normally used for patients.
  - (d) Rehousing medical, nursing and other personnel outside the hospital.

- (e) Using neighboring buildings (schools, hotels, etc.) for patients.
  - (f) Extra bed accommodation in temporary structures erected on grounds near the hospital.
2. To assist in designating for each casualty hospital or group of hospitals in each exposed city—
    - (a) The line of evacuation to the base.
    - (b) The transport arrangements.
    - (c) The Emergency Base Hospitals provisionally allotted to each local casualty hospital or group of hospitals.
  3. To keep constantly informed of the bed state of every hospital in his area by weekly reports.
  4. To advise the Office of Civilian Defense through the Regional Medical Officer on the need for providing additional accommodations.
  5. To report to the Regional Medical Officer of the Office of Civilian Defense any exceptional conditions requiring action (e. g., beyond state boundaries, or required by the military situation) and to forward to him a monthly report on the State's emergency hospital program. Where a hospital outside a State boundary is accessible for casualties from an exposed city in his area he should record this fact and include in his report any arrangements made for cooperation.
  6. To maintain constant touch with the other service departments of the State Defense Council (e. g., evacuation, etc.).
  7. To supervise the distribution of medical equipment furnished by the Office of Civilian Defense and report any threatened deficiency to the Regional Medical Officer.
  8. To supervise staff arrangements for Emergency Base Hospitals and reception areas.
  9. To control movements of medical and nursing staffs, as well as of casualties in any situation affecting Emergency Base Hospitals.

### **B. Mental Hospital Inventory**

Preparation for making a mental disease hospital available for casualties (Emergency Base Hospital) requires the collaboration of the State officer in charge of mental institutions. It should

include the following specialized inventory of the patient population:

1. Patients confined to bed and requiring hospital treatment:
  - (a) Under restraint or isolation.
  - (b) In a general ward and requiring only custodial care.
2. Ambulatory patients:
  - (a) Requiring constant or occasional restraint.
  - (b) Requiring expert supervision (but not restraint) in a mental hospital.
  - (c) Fit for discharge to a home or institution and requiring only custodial care.
  - (d) Fit for discharge to their own homes under occasional supervision.
  - (e) Able to work under supervision in the State institution.
3. Total number of patients—male, female, children:
  - (a) Total for discharge.
  - (b) Total for work in hospital.
  - (c) Total for transfer to custodial institutions.
  - (d) Total requiring transfer to other institutions.

## **IX. CASUALTY INFORMATION SERVICE**

In order that information may be promptly available to relatives and friends for early identification, a Casualty Information Service should be established in exposed communities by some responsible agency such as the health department or a joint hospital council. In an emergency it should be possible to expand the personnel with librarians and other trained persons accustomed to filing information and dealing with the public. The Casualty Information Service will obtain the information from the Chief of Emergency Medical Service and will verify its accuracy by direct communication with hospitals, police, medical examiners, and morgues. It should serve under the general direction of the Chief of Emergency Medical Service but should relieve him of the burden of operating the service.

The physician in charge of the medical squads or teams at an incident must keep the medical adjutant at the Control Center constantly informed of his casualty list and of the hospitals

to which injured have been evacuated. Casualty Stations will render similar reports. During an air raid, each casualty receiving hospital will report every two hours the list of casualties received.

The medical adjutants will render a daily report to the Chief of Emergency Medical Service, which will include the names and disposition of all injured persons. He will transmit this information to the Casualty Information Service. He will also submit a report of the dead and their disposition, which will be transmitted to the appropriate agencies.

## X. MORTUARY SERVICE

A Mortuary Service should be established by the Police Department, the Medical Examiner or Coroner and the Department of Health in collaboration with the morticians. They should

jointly organize the mortuary service as one of the essential protection services and should train squads of nontechnical men and women for the collection, cleansing, laying out and disposition of the dead. Undertaking establishments may be helpful in supplementing morgue facilities and providing transportation of the dead. Those who are killed in an incident should not be brought to a Casualty Station or First Aid Post. A separate room or yard should be provided at Casualty Stations for those who may die before transfer to a hospital. They can later be removed to morgues with the least disturbance of the population.

Provision must be made for identification of the dead, and for this purpose the police, medical examiner or other Government agency must be equipped for fingerprinting and photography. At the morgue or other temporary resting place, opportunity should be provided for viewing and identification of bodies by relatives and friends.

### RELATIONSHIP BETWEEN THE COMMANDER AND THE FUNCTIONAL GROUPS

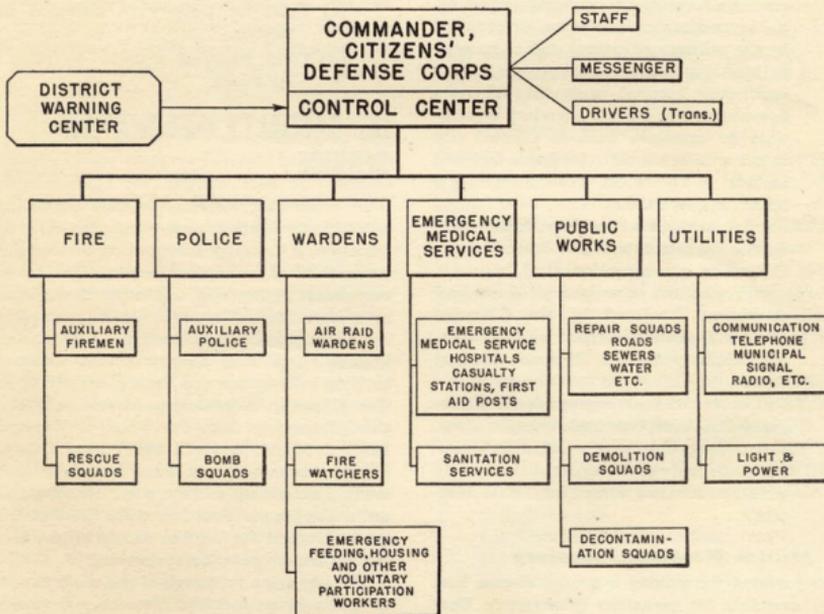
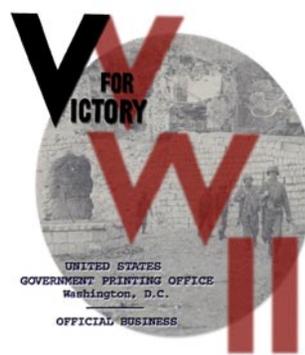


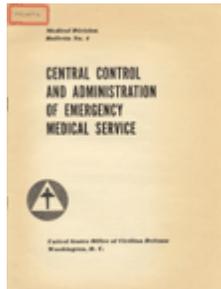
FIGURE No. III

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Central control and administration of emergency medical service.

Medical Division bulletin no. 4

United States. Office of Civilian Defense. Medical Division.

Washington, D. C. : United States Office of Civilian Defense: U. S. Government Printing Office, [1941].

14 p. : ill ; 27 cm.

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