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| USACDC ltr, 13 Apr 1973                                                                                                                                                                                               |

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AD No. \_\_\_\_\_

AD822246

# UNITED STATES ARMY COMBAT DEVELOPMENTS COMMAND

FINAL STUDY

COMBAT SUPPORT HOSPITAL  
TOE 8 - 123 T

USACDC Action Control Number 6213

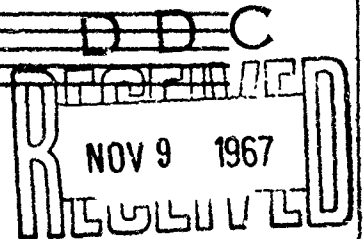
September 1967



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UNITED STATES ARMY  
COMBAT DEVELOPMENTS COMMAND

FINAL STUDY

COMBAT SUPPORT HOSPITAL  
TOE 8-123T

USACDC ACTION CONTROL NUMBER 5213

SEPTEMBER 1967

~~RESTRICTED~~

This study has been approved by the Commanding General, United States Army Combat Developments Command, for publication and distribution. It does not necessarily have the approval of Headquarters, Department of the Army.

The conclusions and recommendations are based upon information gathered and analysis performed primarily by the United States Army Combat Developments Command Medical Service Agency.

The contents of this study will be used as approved guidance within the United States Army Combat Developments Command and until expressly notified otherwise, for the preparation of studies and the formulation of combat developments objectives and actions relative to subject of study during the 1965-1970 period.

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# ABSTRACT

This study evaluates the need for a 200-bed combat support hospital based on a justification and concept of operations provided by The Surgeon General, Department of the Army.

## **SUMMARY**

1. This study evaluates the need for a 200-bed combat support hospital based on a justification and concept of operations provided by The Surgeon General, Department of the Army.
2. The combat support hospital and the current combat zone TOE hospitals and their augmentation capabilities are described.
3. A comparative analysis of the current combat zone TOE hospitals and the proposed 200-bed combat support hospital is provided.
4. A general discussion of hospitalization in the combat zone is furnished in the study.
5. An evaluation of the 200-bed combat support hospital is made through the application of computer simulation techniques.
6. The principal conclusions are as follows:
  - a. The 200-Bed Combat Support Hospital, TOE 8-123T, can support an independent brigade to include its combat and combat service support elements.
  - b. There is a requirement for this unit in the field army medical service organization.
  - c. Two 200-bed combat support hospitals could be substituted for one of the two 400-bed evacuation hospitals now allocated to field army for the support of a division.
  - d. The 400-Bed Evacuation Hospital, TOE 8-581, is too large from an economical standpoint, and the 60-Bed Surgical Hospital, TOE 8-571, is too small and specialized for the support of an independent brigade task force.

HEADQUARTERS  
UNITED STATES ARMY COMBAT DEVELOPMENTS COMMAND  
FORT BELVOIR, VIRGINIA 22060

CDCCD-C

30 August 1965

SUBJECT: Combat Support Hospital

TO: Commanding General  
US Army Combat Developments Command  
Combat Service Support Group  
Fort Lee, Virginia 23801

1. References:

a. USACDC Pamphlet 71-3, 1 July 1965, Action Control  
Number 0079.

b. TOE 8-123T, Combat Support Hospital, 200 bed.

2. TOE 8-123T has been developed by this command and was approved by Department of the Army on 27 November 1964. It is now being published for use in the troop test programmed as shown in reference 1a, above. The justification and concept of operations for this hospital is inadequate for use as a basis to conduct a troop test at this time.

3. To properly assess the need for a 200 bed combat support hospital request that the justification and concept of operations as provided by The Surgeon General, copy attached at inclosure 1, be examined and that they be used as a basic guide to develop doctrine for the employment of the hospital. Essential Elements of Analysis are attached at inclosure 2. Your analysis should include recommendations regarding the requirement for a troop test or field evaluation and the fiscal year and quarter the evaluation should be conducted, if required.

4. Form 87-1-R is attached at inclosure 3. This project is identified as USACDC Action Control Number 6213 and supports the following:

- |                         |                           |
|-------------------------|---------------------------|
| a. Army Concept Program | Army 70                   |
| b. Army Missions        | 1. High Intensity Warfare |

CDCCD-C

SUBJECT: Combat Support Hospital

30 August 1965

- 2. Mid Intensity Warfare
- 3. Low Intensity Warfare - I

c. Phase

Doctrine

d. Functions

Service Support

FOR THE COMMANDER:

3 Incl  
as

/s/ HENRY A. HUNT  
/t/ HENRY A. HUNT  
Major, AGC  
Asst Adj Gen

CSSG-DD (30 August 1965)

1st Ind

Headquarters, US Army Combat Developments Command Combat Service  
Support Group, Fort Lee, Virginia 23801 8 September 1965

TO: Commanding Officer, US Army Combat Developments Command Medical  
Service Agency, Fort Sam Houston, Texas 78234

It is requested that you submit to this headquarters information  
as required by basic correspondence.

FOR THE COMMANDER:

3 Incl  
nc

/s/ DOROTHY M. GORLICKI  
/t/ DOROTHY M. GORLICKI  
Captain, GS  
Act Asst AG

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
OFFICE OF THE SURGEON GENERAL  
WASHINGTON 25, D.C.

MEDDD-PT

23 January 1963

SUBJECT: TOE 8-123, Combat Support Hospital

TO: Commanding General  
United States Army Combat Developments Command  
Fort Belvoir, Virginia

1. Reference letter, MEDDD-PT, OTSG, DA, 7 February 1962, to Commanding General, United States Continental Army Command, subject: "Review of TOE (Feeder for Reports Control Symbol (SGPO-78(R-1)) (copy attached).
2. The attached proposed TOE is forwarded for approval and publication.
3. The TOE prepared by the Office of The Surgeon General has been staffed for review and comments to the major Army commands world-wide. Pertinent comments and recommendations were implemented in consonance with current DA regulations and OTSG policy.
4. In consonance with the request contained in referenced letter, request subject TOE be published as a Tentative Table for purpose of organizing and testing the organizational and operational capabilities of the subject unit.
5. Subject to actual testing of the proposed unit, it is not intended that the proposed hospital replace the current Mobile Army Surgical Hospital (TOE 8-571D) or the Evacuation Hospital (TOE 8-581D). Until completely tested, this type unit might very well supplement or complement our current Field Army Hospitals and appears particularly

MEDDD-PT

23 January 1963

SUBJECT: TOE 8-123, Combat Support Hospital

adaptable for employment in support of less than division size task forces or the proposed air assault division.

FOR THE SURGEON GENERAL:

2 Incl  
as

/s/ HUBERT L. BINKLEY  
/t/ HUBERT L. BINKLEY  
Colonel, MC  
Director of Plans, Supply  
and Operations

## JUSTIFICATION FOR COMBAT SUPPORT HOSPITAL

1. The current concepts of brigade-size task forces, operating as part of a combat division or independently, and widely dispersed, creates a problem in providing hospitalization for patients generated within the combat elements.

2. The evacuation hospital is too large in capacity to be placed in support of a brigade-size force. The mobility of the revised evacuation hospital, approximately 50 percent which is designed to provide surgical support to the combat elements is in disparity with that of combat elements of divisions and separate brigades. The hospitalization unit of the field hospital is designed to provide support to troop concentrations in the communications zone. With its lack of mobility, administrative support, and surgical capability, in general, makes it unsuited to support, without augmentation, the combat elements.

3. With the lack of a TOE hospital to provide hospitalization support to the combat elements within the current context of current concept of operations, the combat support hospital was designed to meet this requirements.

4. The proposed combat support hospital is designed to provide hospitalization for 100 medical and 100 surgical patients at full strength. At reduced strength the hospital has a capability for 60 surgical patients and 60 medical patients. At full strength the hospital can support 7500 troops in conventional-type warfare environment and at reduced strength, 4500 troops. In a nuclear war environment, the hospital can support 4000 troops at full strength and 2400 troops at reduced strength. Thus, the capability of the hospital is such that it can support economically a task force of less than division size.

5. It is anticipated that the combat support hospital may eventually replace the evacuation hospital and the surgical hospital in the combat zone.

6. Although the combat support hospital will require additional personnel to provide the same number of beds as now provided by the surgical hospital and the evacuation hospitals in support of a division, flexibility of support is achieved by the introduction of this hospital into the medical support system. This hospital, with its mobility and capability for general type hospitalization, can be placed in support of a brigade, in an area immediately to the rear of the brigade and thus bring hospitalization support closer to the point of injury thereby reducing the evacuation distance from division-level treatment facility to hospital. With its degree of mobility, assuming a reduction of

patient backlog and the capability of evacuation elements to evacuate the hospital's patients to the rear, the hospital can respond more readily to the movement of combat elements. In addition to functioning in a direct support role, the combat support hospital in the field army rear area can be utilized to receive patients from hospitals in the forward field army area. Because of its mobility and size, the combat support hospitals can be utilized more readily in a leap-frogging role.

7. Disadvantages of the combat support hospital are:

a. Increased personnel spaces required to provide same number of beds now provided by existing TOE.

b. Increased authorization of transportation means required.

8. The advantages of the combat support hospital are as follows:

a. Capability to provide general hospitalization support economically to a force smaller than a division operating independently or as part of a division.

b. Increased flexibility of support.

c. Mobility equal to that of combat division.

d. Capability to provide hospitalization support for both medical and surgical patients to widely dispersed combat elements.

9. Although the necessity for maximum utilization of personnel must be considered, the primary consideration is the capability of the unit to provide the required support in the appropriate environment. Initially the combat support hospital will require more personnel to provide the same number of beds now provided by existing TOE; however, it is anticipated that decrease in noneffective rates through earlier hospitalization and increased responsiveness to the combat situation will compensate for the additional spaces required.

## **COMBAT SUPPORT HOSPITAL, 200 MED**

1. **Mission.** Provides primary hospitalization to all categories of patients enumerated in the supported force.

2. **Assignment.** To field army, independent corps or task force. Normally attached to Headquarters and Headquarters Detachment, Medical Group (TOE 8-122).

3. **Capabilities.**

a. At full strength, provides the following for 100 medical and 100 surgical patients:

(1) Emergency and supportive treatment for patients of all categories.

(2) Definitive treatment for certain categories of patients.

(3) Prepares patients for evacuation to definitive treatment facilities located out of the combat area.

(4) Initial diagnosis and temporary treatment of psychiatric patients awaiting evacuation.

b. At reduced strength, operates a hospital facility as stated in 3a, above, for 60 surgical and 60 medical patients.

c. This unit is not adaptable to Type B organization.

d. This unit requires area type Quartermaster laundry support (1 Laundry Section from TOE 10-107) and litter bearer support (1 section from TOE 8-129).

4. **Basis of Allocation.** One per 10,000 troops supported in conventional warfare; one per 5000 troops supported in nuclear warfare; one per separate brigade or task force as required.

5. **Category.** This unit is designated a Category II unit.

6. **Mobility.**

a. One hundred percent mobile.

b. One hundred percent air transportable in cargo-carrying fixed-wing aircraft.

## **7. Concept of Employment.**

a. This unit furnishes total theater hospitalization support required by a US Army combat force up to the point of introduction into the theater of operations of communications zone type hospitals. Subsequently its operations are confined to field army support.

b. The hospital provides emergency and supportive treatment for all categories of patients. It provides definitive care for those less seriously ill/injured patients whose recovery can be completed within the limits of the force/combat zone evacuation policy and the professional capabilities of its staff. Although qualitative capabilities of certain elements of the professional staff may be increased by attachment of appropriate professional service teams (TOE 8-500), care must be exercised to avoid creating an unbalance in overall hospital capability which may arise due to the increased workload thus placed upon other professional and ancillary elements which are not augmented. Such unbalance may affect overall capabilities to such an extent that inefficient use of medical resources results.

c. Commitment of a normal allocation of hospital units should permit maintenance of a five-day evacuation policy in the assault area. However, the force evacuation policy is highly flexible (as envisioned in paragraph 246b, FM 8-10) with complete reliance placed on the ability of the intra-theater evacuation system to accommodate fluctuations in patient workload rather than on reinforcing the hospital capability from the base of operations.

d. While this unit may be the only type hospital committed initially to the area, complementary treatment support is provided by the nondivisional clearing company.

e. The hospital should be established as close to the supported element as is permitted by the tactical situation, transportation net, local terrain, and lines of communication.

f. The hospital receives patients from primary treatment facilities aid stations and dispensaries, divisional and nondivisional; clearing stations, divisional and nondivisional; and by direct admission. Patients requiring further evacuation normally are transferred to medical holding facilities at appropriate transportation terminals for movement out of the combat area. The hospital also may transfer certain patients to nondivisional clearing stations for completion of definitive treatment or to a convalescent center.

g. The hospital's capability for handling neuropsychiatric patients is restricted to the functions of establishing an initial diagnosis and providing the temporary treatment and physical restraint

needed for psychotics and those patients suffering from major neuropsychiatric disorders who must be evacuated out of the area. Other neuropsychiatric patients are treated in special neuropsychiatric centers.

h. The hospital has full unit-level administrative capability. When it receives augmentations of medical specialty teams, it may require administrative augmentation.

#### 8. Organization.

a. The hospital is organized into a hospital headquarters; supply and service branch; surgical service; medical service; dental service; and pharmacy, laboratory, and X-ray service.

b. The hospital headquarters consists of the following elements:

(1) The command section functions include the exercise of command and certain special staff functions. Its staff includes the hospital commander; chief nurse; executive officer, who is also operations and information officer; sergeant major; one clerk typist, who is also the information specialist; general clerk; and light truck driver.

(2) The personnel and administrative section is responsible for the enlisted detachment and the detachment of patients; performs all administrative duties pertaining to the hospital personnel and the detachment of patients and operates the hospital's mail and distribution system. Its staff includes the headquarters unit commander, who is also the adjutant; personnel and education officer; first sergeant; detachment clerk; personnel sergeant; personnel administrative specialist; and clerks (one clerk is the education specialist); and a mail delivery clerk.

(3) The medical registrar section performs all administrative functions involved in admission and disposition of patients, such as initiating medical records and preparing reports, completing medical records prior to the disposition of the patients; dispersing of patients by returning them to duty or by further evacuation; and is responsible for maintaining a depository for patient's funds and valuables. Its staff includes the medical registrar, who is also detachment of patients commander; admission and disposition clerks; and a medical records clerk.

c. The supply and service branch is an amalgamation of hospital supply and logistical service functions under the overall direction of the hospital supply officer.

(1) The supply section is responsible for medical and general supplies for the hospital and for medical equipment maintenance. The section provides clothing and equipment for the hospital operating personnel and for patients returning to duty and operates a patient's baggage (clothing) facility. Its staff includes the hospital supply officer, who is also the motor officer; supply sergeants; medical supply specialist and clerk; and a medical equipment repairman.

(2) The service section is responsible for the repair and utility support of the hospital facility, which includes the provision of communication service, electrical power, motor transport and maintenance, and water supply. This section includes the carpenter, utility mechanic, powerman with helper, communications personnel, motor sergeant, and vehicle mechanics.

(3) The food service section is responsible for the procurement, storage, and preparation of food. Its staff includes the mess officer and sufficient enlisted mess personnel to provide food for the patients and the hospital personnel twenty-four hours daily.

d. The surgical service is responsible for emergency and resuscitative surgery for 100 patients at full strength and 60 patients at reduced strength, operations of surgical wards, and a centralized materiel facility. The centralized materiel unit prepares, stores, and issues supplies used in the operating rooms and sterile supplies used throughout the hospital. Sufficient personnel and equipment are provided to operate a maximum of four surgical teams simultaneously for one shift, one preoperative and two postoperative sections, one shock section, and three surgical wards.

e. The medical service provides diagnostic service and treatment to medical patients and limited consultation service and treatment to neuropsychiatric patients. Patient capacity is 100 at full strength and 60 at reduced strength. Sufficient personnel and equipment are provided at full strength to operate five medical wards, including a neuropsychiatric ward.

f. The dental service includes one oral surgeon with an enlisted assistant. The service provides diagnosis and treatment to hospital patients who require oral surgical procedures.

g. The pharmacy, laboratory, and X-ray service provides diagnostic radiology service; laboratory examinations; and consultation service; and pharmacy service. This service operates the morgue and hospital blood bank.

9. Communications. Telephones are provided for communication within the hospital proper. Insofar as is practicable, trunk service

to medical installations and other commands is provided by switching through the army area communications system. Tele-typewriter service, provided primarily for medical reporting purposes and for coordinating medical evacuation missions, may also be used to communicate with higher headquarters. The cipher machine provides a means of communication for classified medical reports as well as military orders. One AN/GRR5 is authorized as a receiver in the local alert/warning net. A wire communication chart is attached as Appendix A.

10. Movement. The 200 bed combat support hospital is fully mobile, using only its organic vehicles. It has sufficient vehicles to move all its authorized personnel, materiel, personnel, and unit impediment simultaneously. The unit is fully air transportable in cargo-carrying, fixed-wing tactical aircraft.

11. Vehicle Justification. This hospital should be established as close to the supported element as is permitted by the tactical situation, transportation net, local terrain, and lines of communication. The physical location dictates that it must be able to displace forward or to the rear without delay in order to provide medical support which is sufficiently responsive and flexible to fulfill the requirements of the tactical situation. The proposal gives this hospital the capability of moving all its personnel, organization, and personal equipment in one lift, using only its organic transportation. This is considered by The Surgeon General, Department of the Army, as constituting the minimum acceptable capability for this hospital. The proposed authorizations fulfill the requirements to transport 196 personnel and approximately 49 short tons of equipment as shown below.

#### PERSONNEL

|                                                    |            |
|----------------------------------------------------|------------|
| 3 trk 1/4 ton @ 3 pers-----                        | 9          |
| 1 trk 3/4 ton-----                                 | 3          |
| 1 trk tank water 2-1/2 ton-----                    | 2          |
| 2 trk 2-1/2 ton w/wn (dvr and asst)-----           | 4          |
| 8 trk 2-1/2 ton (dvr and asst)-----                | 16         |
| 7 trk 2-1/2 ton @ 22 pers (incl dvr and asst)----- | 154        |
| 1 trk 2-1/2 ton @ 8 pers (incl dvr and asst)-----  | 8          |
|                                                    | <u>196</u> |

#### EQUIPMENT

##### Trailers

|                             |       |
|-----------------------------|-------|
| 3 1/4 ton @ .25 S/T-----    | .75   |
| 1 3/4 ton @ .75 S/T-----    | .75   |
| 15 1-1/2 ton @ 1.5 S/T----- | 22.50 |

##### Trucks

|                             |              |
|-----------------------------|--------------|
| 10 2-1/2 ton @ 2.5 S/T----- | 25.00        |
|                             | <u>49.00</u> |

12. Justification for Generators. Two 30 KW and two 5 KW generators have been included to provide power for X-ray machines, professional equipment, and lights. It is estimated that 69,500 watts is the hospital's total electrical requirement.

Best Available Copy

# COMBAT SUPPORT HOSPITAL, 200-BED

|       | O  | AN | WO | EM  | AGG |
|-------|----|----|----|-----|-----|
| FS    | 25 | 29 | 1  | 141 | 196 |
| RS    | 21 | 20 | 1  | 113 | 155 |
| CADRE | 8  | 4  | 1  | 25  | 38  |

## HOSPITAL HEADQUARTERS

|       | O | AN | EM | AGG |
|-------|---|----|----|-----|
| FS    | 5 | 1  | 18 | 24  |
| RS    | 5 | 1  | 17 | 23  |
| CADRE | 4 | 1  | 5  | 10  |

## SUPPLY AND SERVICE BR

|       | O | WO | EM | AGG |
|-------|---|----|----|-----|
| FS    | 1 | 1  | 32 | 34  |
| RS    | 1 | 1  | 29 | 31  |
| CADRE | 1 | 1  | 10 | 12  |

## SURGICAL SERVICE

|       | O  | AN | EM | AGG |
|-------|----|----|----|-----|
| FS    | 12 | 21 | 58 | 91  |
| RS    | 9  | 15 | 44 | 68  |
| CADRE | 1  | 2  | 5  | 8   |

## MEDICAL SERVICE

|       | O | AN | EM | AGG |
|-------|---|----|----|-----|
| FS    | 5 | 7  | 23 | 35  |
| RS    | 4 | 4  | 16 | 24  |
| CADRE | 1 | 1  | 2  | 4   |

## DENTAL SERVICE

|       | O | EM | AGG |
|-------|---|----|-----|
| FS    | 1 | 1  | 2   |
| RS    | 1 | 1  | 2   |
| CADRE | 1 | 0  | 1   |

## PHARMACY, LABORATORY AND X-RAY SERVICE

|       | O | EM | AGG |
|-------|---|----|-----|
| FS    | 1 | 9  | 10  |
| RS    | 1 | 6  | 7   |
| CADRE | 0 | 3  | 3   |

**COMBAT SUPPORT HOSPITAL, 200-BED  
ESSENTIAL ELEMENTS OF ANALYSIS**

1. Are personnel and equipment authorized in TOE considered adequate for the stated mission and capabilities of the unit?
2. Is there a requirement for this unit in the Field Army Support Command as portrayed in COSTAR II?
3. Is there a requirement for this unit in the Medical Command as shown in TASTA?
4. Can the Combat Support Hospital replace any existing TOE hospital? If so, which hospital(s)? Can that type hospital be eliminated from the force structure?
5. How should the hospital be deployed--as a single unit, or can it be split into sections operating independently as a field hospital?
6. What is the preferred method of moving this hospital in combat while operational in order to maintain its support of a combat force? Should it displace in phases, or should it be replaced by a second hospital while clearing its patients and readying for a move?
7. What capabilities for patient care does this hospital have that existing TOE hospitals used within the field army do not have?
8. Traditionally, the Army has been required to support mercy missions throughout the world using means available without regard to "normal" mission of the unit concerned. How can this hospital be used to support "mercy" missions resulting from disasters such as tornado, hurricane, or insurrections?
9. Can the 200-Bed Combat Support Hospital be used to support airmobile operations? If so, describe methods of deployment.

**COMBAT SUPPORT HOSPITAL**  
**TOE 8-1237**

**STAFF STUDY**

1. Problem. To analyze the concept of operation of a 200-bed combat support hospital developed by The Surgeon General, Department of the Army, and to determine if such a hospital is required in the medical support system for the army in the field.

2. Assumption The present concept for the employment of an independent brigade task force will not change drastically in present and future time frames.

3. Facts Bearing on the Problem. See Annex A, "Description of the Combat Support Hospital, Current Combat Zone TOE Hospitals, and Augmentation and Expansion Capabilities."

4. Discussion.

a. General. The objective and scope of this study is to analyze the conceptual data for a 200-bed combat support hospital. Based upon the analysis, operational doctrine will be developed so that this tentative unit can be evaluated and a determination made as to whether the unit will be used in the medical support system for the army in the field.

b. Based upon the conceptual data, the primary consideration for the employment of this hospital is in conventional-type warfare in support of less than division-size task forces, specifically brigade-size task forces (approximating a strength of 7,500) in an independent action.

c. In the past, the Field Hospital, TOE 8-510 (see Annex D), though lacking mobility and the necessary capability, has been used in the support of different size forces (i.e., Dominican Republic). The field hospital requires a great deal of augmentation to meet these requirements.

d. The organizational structure of the 400-bed Evacuation Hospital, TOE 8-581, is not economically suited to the support of an independent brigade-size task force. The unit is designed to function as one complete hospital facility. Employment of the entire unit in support of an independent brigade-size task force would be wasteful. Fragmenting the hospital for this purpose would be equally wasteful, since the remaining portion of the unit would lack sufficient personnel and equipment to function in a hospital role. Since the independent

brigade-size task force will continue to be a principal maneuver element, provision must be made for its hospital support.

e. The Surgical Hospital (60 beds), TOE 8-571, is a special-purpose-type hospital providing resuscitative surgical procedures. It is presently the only hospital that is by TOE 100 percent mobile in organic vehicles. It is not in the normal chain of evacuation. It is allocated on the basis of one per division. This unit is small and too specialized to adequately support an independent brigade-size task force.

f. The 200-bed combat support hospital at full strength has 100 medical and 100 surgical beds. It is also by TOE 100 percent mobile in organic vehicles. It can support an independent brigade with the personnel and equipment authorized in TOE 8-123T (see Annex E).

g. Some consideration should be given to the possible substitution of two combat support hospitals for one of the two 400-bed evacuation hospitals in the support of the division in high intensity warfare, using the one remaining 400-bed evacuation hospital toward the rear of the combat zone. The two 200-bed combat support hospitals can operate as closely to the combat units of the division as possible without interfering with combat operations. This change provides a considerable improvement in the ability of the Army Medical Service to furnish uninterrupted medical support and treatment as far forward as the tactical situation permits. The 100 percent mobility of the 200-bed combat support hospital gives it an increased capability to conform to specific strategic and tactical plans.

h. The 200-bed combat support hospital also provides a greater capability to support our forces in conventional warfare. Using the same allocation as indicated above for high intensity warfare, one 400-bed evacuation hospital and two combat support hospitals per division, the same advantages indicated for high intensity warfare are accrued.

i. A question arises as to whether the combat support hospital can replace any existing TOE hospital. Can the surgical hospital, for example, be eliminated from the force structure? It is felt that until such time as the combat support hospital is fully field evaluated and the air ambulance capability is fully responsive, the deletion of this TOE hospital would be premature. On the other hand, however, the combat support hospital could supplant the 400-bed evacuation hospital on a two for one basis.

## 5. Conclusions.

a. The 200-bed Combat Support Hospital, TOE 8-123T, can support an independent brigade to include its combat support and combat service support strength.

b. There is a requirement for this unit in the field army medical service organization.

c. The 400-bed Evacuation Hospital, TOE 8-581, is too large from an economical standpoint, and the 60-bed Surgical Hospital, TOE 8-571, is too small and specialized for the support of an independent brigade task force.

d. Two 200-bed combat support hospitals could be substituted for one of the two 400-bed evacuation hospitals now allocated to field army for the support of a division.

6. Action Recommended.

a. The combat support hospital be added to force structures.

b. The combat support hospital be allocated to support independent brigade forces up to a strength of 10,000 troops.

c. The combat support hospital be field evaluated during 3d Quarter, Fiscal Year 72.

## ANNEX A

### DESCRIPTION OF THE PROPOSED COMBAT SUPPORT HOSPITAL, CURRENT COMBAT ZONE TOE HOSPITALS, AND AUGMENTATION CAPABILITIES

#### 1. General.

a. There are presently authorized for employment in the combat zone in a theater of operations two TOE-type hospitals--Evacuation Hospital, TOE 8-581, and Surgical Hospital, TOE 8-571.

b. The hospitals listed above are classified as nonfixed facilities. They require little prior planning and construction in order to become operational and are characterized by their varying degrees of mobility under conventional concepts of employment.

#### 2. Organization Description.

a. Evacuation hospital, semimobile.

(1) TOE 8-581 prescribes the normal mission, organizational structure, assignment, capabilities, basis of allocation, category, mobility, and authorization of personnel and equipment for the evacuation hospital.

(2) Its primary mission is to provide hospitalization for all classes of patients within the combat zone.

(3) By virtue of its classification as a Category II unit, it may be assigned limited secondary missions when the nature of the primary mission is such that the unit is not employed full time in preparation for, or accomplishment of, the primary mission.

(4) The evacuation hospital is authorized on the basis of two per division and is assigned to the field army. Its prescribed mobility is 50 percent.

(5) Stated capabilities of this hospital, when employed with professional complement, are that it provides the following:

(a) Hospitalization for 400 and 320 patients of all classes at full and reduced strengths, respectively.

(b) Limited outpatient service to the military population in the immediate vicinity of the hospital facility.

(c) Preparation of patients for evacuation to other medical facilities.

(d) Austere medical treatment for an expanded capacity of 600 patients in an emergency for a limited time only.

(6) The organizational structure of this hospital is depicted at Figure A-1. It is composed of a hospital headquarters section, the administrative services, and the professional services.

(7) The hospital headquarters section includes personnel required to exercise command, administrative and professional control of the operation of the hospital. This section functions under the direct supervision of the hospital commander (MC) who is assisted by the executive officer (MSC), adjutant (MSC), chief nurse, and a sergeant major.

(8) The administrative services include all the nonprofessional activities of the hospital. Administrative services are apportioned to the administrative branch, registrar branch, unit headquarters, supply and services branch, and food service branch.

(9) The professional services of the evacuation hospital consist of surgical, medical, dental, radiological, pharmacy, and laboratory services.

(10) Personnel assigned to the hospital includes 98 officers, of which 57 are ANC's; 1 Warrant Officer; and 214 enlisted men (Total: 313).

b. Surgical hospital.

(1) TOE 8-571 is the authority for the surgical hospital.

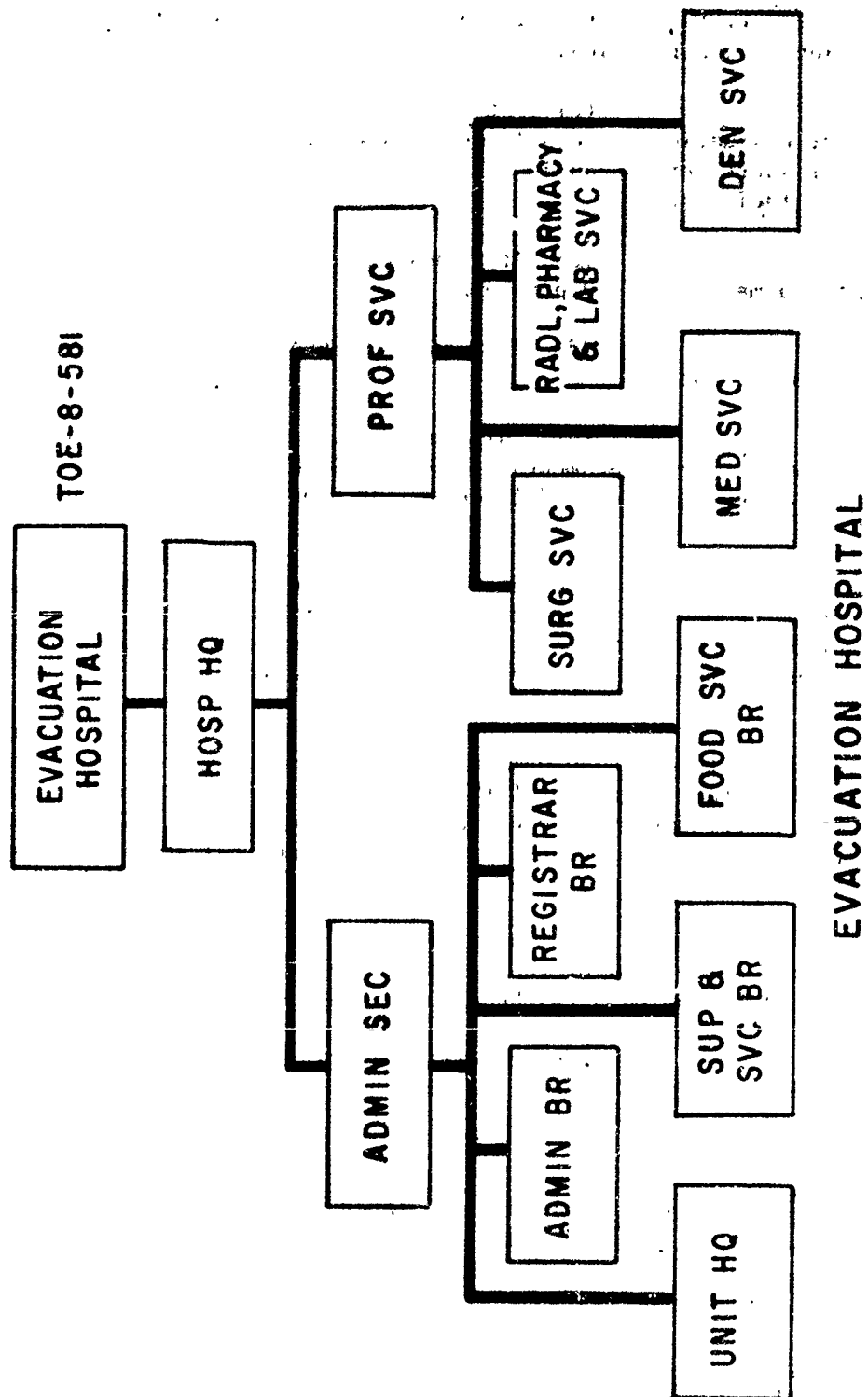
(2) The prescribed normal mission of this hospital is to provide lifesaving resuscitative surgery to prepare critically injured patients received from division medical elements for extended evacuation.

(3) This is a Category II unit and, as such, may be assigned limited secondary missions when it is not employed full time in preparation for, or accomplishment of, the primary mission.

(4) This unit is assigned to the field army on the basis of one per division. Its prescribed mobility is 100 percent.

(5) The surgical hospital, at full strength, is capable of providing the following for a maximum of sixty patients:

FIGURE A-1



(a) ~~Resuscitative surgery and medical treatment~~ necessary to prepare critically injured patients for extended evacuation to other medical facilities for definitive treatment.

(b) Patient holding facilities for patients ready for evacuation. The holding element also can operate independently for short periods while the rest of the unit displaces to establish a new facility.

(c) At reduced strength this unit provides facilities for a maximum of 40 patients.

(d) This unit can provide its own personnel services when augmented.

(e) This unit requires the addition of professional service team detachments of TOE 8-500 when increased treatment capabilities are required, and is dependent upon a direct or general support unit for laundry service.

(6) The organization structure is depicted at Figure A-2. It is composed of the hospital headquarters; supply and service section; preoperative and shock section; operating section; postoperative section; pharmacy, laboratory and X-ray section; and a holding section.

(7) The hospital headquarters includes the personnel required to exercise command and administrative and professional control of the operation of the hospital. This section functions under the direct supervision of the hospital commander (MC), who is assisted by a medical operations officer (MSC), medical administrative assistant (MSC), chief nurse, and a first sergeant.

(8) The administrative services include all the nonprofessional activities of the hospital. Administrative services are apportioned to the hospital headquarters and the supply and service section.

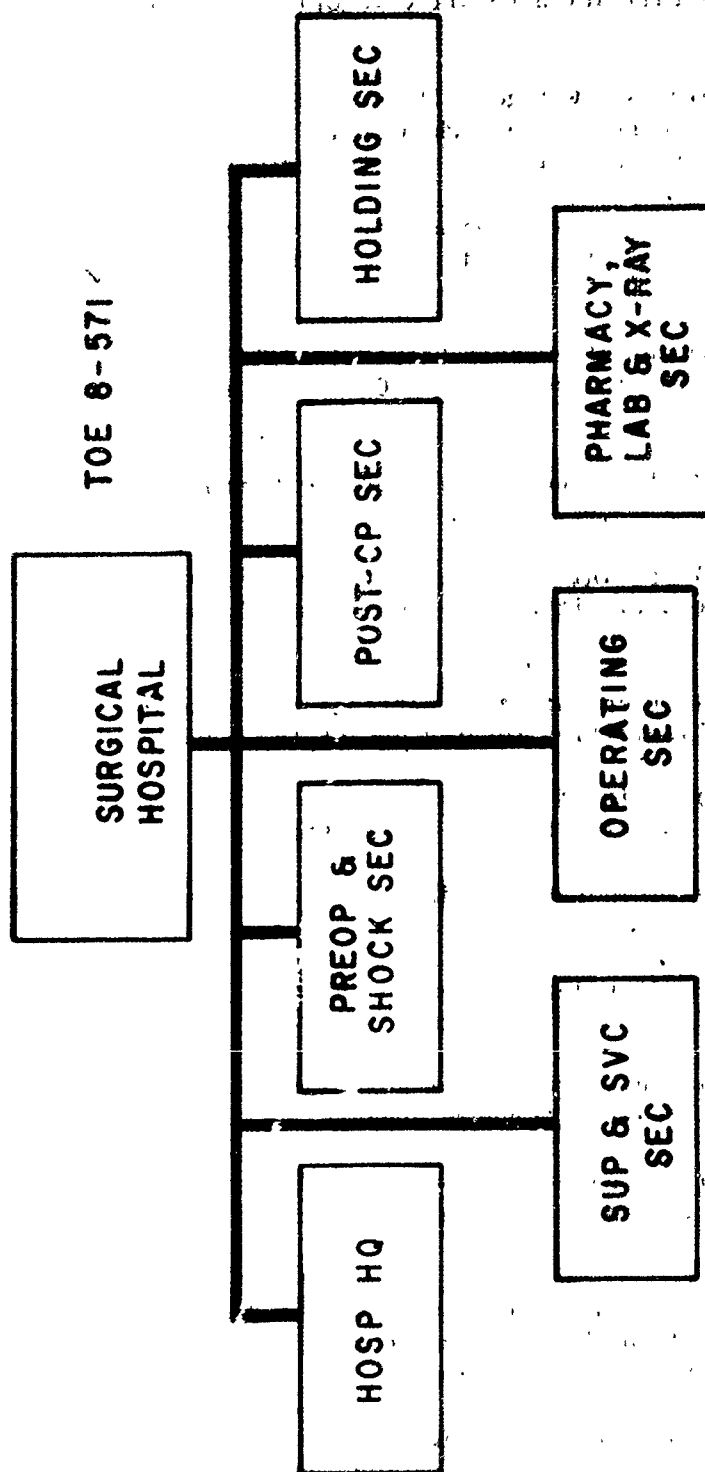
(9) The professional services of the surgical hospital consist of the preoperative and shock section; operating section; postoperative section; pharmacy, laboratory, and X-ray section; and a holding section.

(10) Personnel assigned to this unit includes 33 officers, of which 15 are ANC's, and 86 enlisted men (Total: 119).

c. Combat support hospital.

(1) TOE 8-123T, 25 August 1965, is the tentative authority for the combat support hospital.

FIGURE A-2



SURGICAL HOSPITAL

(2) The prescribed mission of this hospital is to provide primary hospitalization to all categories of patients generated in the supported force.

(3) This is a Category II unit and, as such, may be assigned limited secondary missions when it is not employed full time in preparation for, or accomplishment of, the primary mission.

(4) This unit is to be assigned to the field army on the basis of one per separate brigade or task force. Its prescribed mobility is 100 percent.

(5) The ~~combat support hospital at full strength~~ is capable of providing the following for 100 medical and 100 surgical patients:

(a) Emergency and supportive treatment for all patients.

(b) Definitive treatment for patients who can be expected to return to duty within the time frame of the evacuation policy.

(c) Preparation of patients for evacuation to definitive treatment facilities located out of the combat area.

(d) Initial diagnosis and temporary treatment of psychiatric patients awaiting further disposition.

(e) Temporary holding facility while unit displaces to a new location.

(f) At reduced strength operates a hospital facility for 60 medical and 60 surgical patients.

(g) This unit is not adaptable to Type B organization. It requires area-type laundry support.

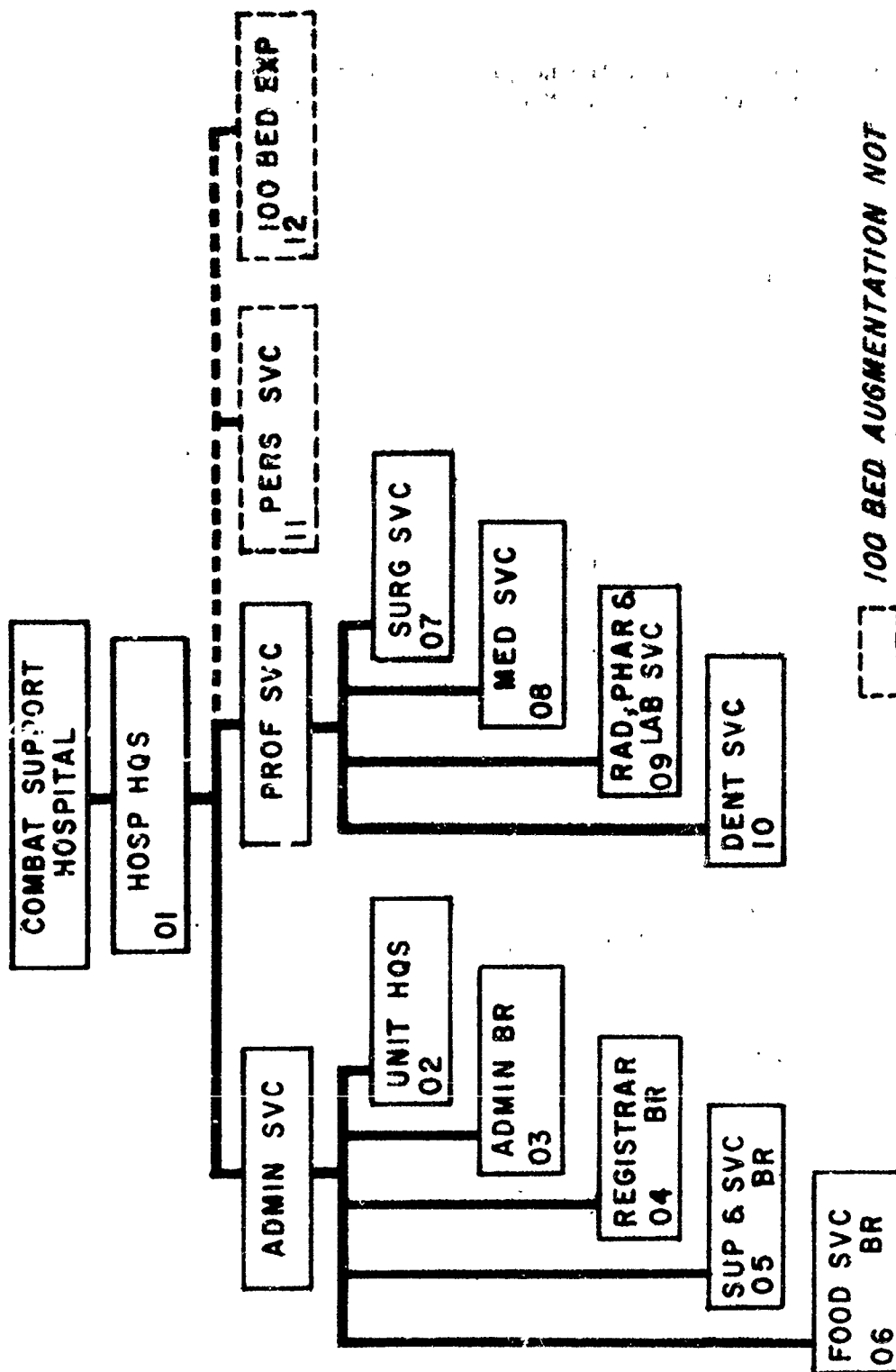
(h) Except when a personnel services section is authorized, the unit is dependent upon an AG personnel service company for support.

(6) The organizational structure is depicted at Figure A-3. It is composed of the hospital headquarters, the administrative services, and the professional services.

(7) The hospital headquarters section includes personnel required to exercise command, administrative, and professional control of the operation of the hospital. This section functions under the

FIGURE A-3

COMBAT SUPPORT HOSPITAL  
TOE-8-123 T (Tentative)



direct supervision of the hospital commander (MC), who is assisted by the executive officer (MSC), chief nurse, operations officer (MSC), and a sergeant major.

(8) The administrative services include all the nonprofessional activities of the hospital. Administrative services are apportioned to the unit headquarters, administrative branch, registrar branch, supply and services branch, and food service branch.

(9) The professional services of the combat support hospital consist of the surgical service; medical service; radiological, pharmacy and laboratory service; and the dental service.

(10) Personnel assigned to the hospital includes 60 officers, of which 31 are ANC's; 1 Warrant Officer; and 154 enlisted men (Total: 215).

### 3. Hospital Augmentation.

a. The field organization of the Army Medical Service, in addition to fixed strength units, also includes cellular or specialist teams authorized by TOE 8-500D, "Medical Service Organization," Department of the Army, Washington, D.C., 1 February 1965.

b. The purpose of these teams is to provide a means for augmenting units organized under fixed tables where increments of less than company-size are needed to increase the capability of the fixed strength unit, and to make possible the rapid formation of a medical unit to meet a special requirement not currently provided for in fixed TOE's. These teams (TOE cells) each include the personnel and equipment required for the performance of a specific function.

c. The capabilities of cellular or specialist teams vary with their composition, size, and grouping. Unless specifically provided for in the basic organization, these teams are dependent upon the organization to which assigned or attached for mess, administration, and motor maintenance services.

d. Essentially, these teams are comprised of skilled personnel to perform a specialized function and are equipped only with that equipment needed to perform their mission. In essence, this means special instruments, individual equipment, and necessary transportation are required.

### 4. Summary.

a. The surgical hospital and evacuation hospital are employed in the combat zone and are nonfixed medical treatment facilities.

b. A brief description of the method used to augment and increase the medical care capabilities of these hospitals is given.

c. Additionally, the organization and employment of the 200-bed combat support hospital is discussed. Augmentation for this hospital is provided for in the same manner as for the 400-bed evacuation hospital and the surgical hospital.

## ANNEX B

### COMPARATIVE ANALYSIS OF CURRENT COMBAT ZONE TOE HOSPITALS AND THE PROPOSED 200-BED COMBAT SUPPORT HOSPITAL

#### 1. General.

a. The narrative description of current TOE combat zone hospitals and the proposed 200-bed combat support hospital set forth in Annex A, as well as the information to be developed in this annex, reflects features common to these type organizations as well as the differences between them.

b. The comparison will encompass the mission, area of operation, type of patient care, patient source, mobility, bed capacity, type of beds, and personnel allocation and utilization. The comparative analysis should contribute toward a determination as to whether a need exists for the 200-bed combat support hospital in the force structure.

#### 2. Mission Comparison.

a. Figure B-1 depicts the missions of the combat zone hospital organizations.

#### MISSIONS

| EVACUATION HOSPITAL                                                          | SURGICAL HOSPITAL                                                                                                                                                         | 200-BED COMBAT<br>SUPPORT HOSPITAL                                                               |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Provides hospitalization for all classes of patients within the combat zone. | Provides resuscitative surgery and medical treatment necessary to prepare critically injured patients, received from divisional medical elements for extended evacuation. | Provides primary hospitalization to all categories of patients generated in the supported force. |

FIGURE B-1

b. The evacuation hospital is the only unit presently assigned to a field army that provides hospitalization for all classes of patients.

c. The surgical hospital provides a special type of patient care and treatment.

d. The proposed 200-bed combat support hospital would also provide hospitalization for all classes of patients.

3. Operational Factors (Figure B-2).

a. Certain information concerning the operations of the aforementioned hospitals is significant. The normal location of the facility, type of patient care rendered, source of patients, facilities to which the hospital evacuates, and mobility of the unit are salient considerations which will contribute to a valid comparison.

b. The evacuation hospital and surgical hospital are the units presently within the combat zone which normally furnish hospitalization to combat troops. The surgical hospital provides hospitalization and treatment to a specific category of patients. These patients are essentially all surgical "nontransportables." This facility has only a minimal medical treatment capability.

c. By eliminating the surgical hospital from consideration as an available source of hospitalization for all classes of patients, it is evident that only the evacuation hospital provides this capability in the combat zone.

4. Activities and Functions.

a. Figure B-3, page B-4, is presented to determine those activities or functions common to all three hospitals being considered.

b. The following is obvious from a study of Figure B-3:

(1) Command, administrative, and most patient care activities are common to all these hospitals.

(2) Identical services are provided within the command activity.

(3) Identical type services within the administrative activity are provided.

(4) Laundry service is not provided in the surgical hospital and combat support hospital.

(5) Dental care is provided, except in the surgical hospital.

(6) Nursing care is provided in all hospitals.

# OPERATION INFORMATION

| FACTOR FOR COMPARISON         | EVACUATION HOSPITAL                                                                                                         | SURGICAL HOSPITAL                                                 | COMBAT SUPPORT HOSPITAL                                                                                                                            |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Normal Size                   | 400 Beds                                                                                                                    | 60 Beds                                                           | 200 Beds                                                                                                                                           |
| Zone of Operations            | Combat zone, field army area                                                                                                | Combat zone, division area                                        | Combat zone, brigade or division, rear area                                                                                                        |
| Source of Patients            | Division or other clearing stations, surgical hospital, unit and area dispensaries, aid stations in vicinity                | Battalion aid stations and division clearing stations             | Battalion aid stations and clearing stations                                                                                                       |
| Evacuate to                   | Supporting medical facilities                                                                                               | Supporting medical facilities                                     | Supporting medical facilities                                                                                                                      |
| Type of Treatment             | Primary resuscitative and definitive care, depending upon the type and source of patient received and the evacuation policy | Resuscitative life saving surgery for critically injured patients | Primary resuscitative and definitive care, depending upon the type and source of patient received, mobility requirements and the evacuation policy |
| In Normal Chain of Evacuation | Yes                                                                                                                         | No                                                                | Yes                                                                                                                                                |

FIGURE B-2

# COMMON TYPE ACTIVITIES AND FUNCTIONS

| TYPE ACTIVITY AND FUNCTION         | EVAC<br>HOSP | SURG<br>HOSP | CMT SPT<br>HOSP |
|------------------------------------|--------------|--------------|-----------------|
| <b>Command</b>                     |              |              |                 |
| Provides Command Control           | X            | X            | X               |
| Provides Administrative Control    | X            | X            | X               |
| Provides Professional Control      | X            | X            | X               |
| <b>Administrative</b>              |              |              |                 |
| Unit Administration                | X            | X            | X               |
| Personnel Management (by aug only) | X            | X            | X               |
| Supply                             | X            | X            | X               |
| General                            | X            | X            | X               |
| Medical                            | X            | X            | X               |
| Maintenance                        | X            | X            | X               |
| Vehicular                          | X            | X            | X               |
| Medical Equipment                  | X            | X            | X               |
| Utilities                          | X            | X            | X               |
| Housekeeping                       | X            | X            | X               |
| Transportation                     | X            | X            | X               |
| Food Service Assigned Personnel    | X            | X            | X               |
| Laundry                            | X            | -            | -               |
| Communications                     | X            | X            | X               |
| Chaplain                           | X            | X            | X               |
| <b>Medical Administration</b>      |              |              |                 |
| Admits Patients                    | X            | X            | X               |
| Maintains Medical Records          | X            | X            | X               |
| Discharges Patients                | X            | X            | X               |
| Transfers Patients                 | X            | X            | X               |
| <b>Medical Care and Treatment</b>  |              |              |                 |
| Medical                            | X            | X            | X               |
| Surgical                           | X            | X            | X               |
| Dental                             | X            | -            | X               |
| Nursing Care                       | X            | X            | X               |
| <b>Adjunct Services</b>            |              |              |                 |
| Laboratory                         | X            | X            | X               |
| X-ray                              | X            | X            | X               |
| Pharmacy                           | X            | X            | X               |
| Perform Traige                     | X            | X            | X               |
| Prepare for Evacuation             | X            | X            | X               |
| Dietary Service                    | X            | X            | X               |

FIGURE B-3

## 5. Personnel Considerations.

a. The personnel composition of a hospital is significant, and forms a comparative element which may be of consequence in attempting an evaluation of the 200-bed combat support hospital.

b. Figure B-4 reflects medical service branch personnel authorization by unit.

c. Personnel allocation does not provide sufficient information with which to evaluate an organization. While it does give some indication of personnel available to accomplish the mission, it does not indicate their utilization. Utilization of assigned personnel is a significant factor of considerable consequence to the organization. Figures B-5 and B-6 provide a reasonable idea of how the authorized personnel are used.

d. Comparison of staffing ratios. The staffing ratios of the surgical hospital, evacuation hospital, and combat support hospital indicate that the smaller the hospital and the more specialized, as in the case of the surgical hospital, the more expensive it becomes from the standpoint of personnel staffing. In both the surgical hospital and the combat support hospital, the number of personnel authorized by TOE are greater than the number of patients to be supported.

PERSONNEL ALLOCATION

| UNIT         | NORM<br>BED<br>CAP | TOTAL<br>PERS<br>AUTH | OFFICERS |    |    |     |     |    | WO | ENLISTED |    |       |
|--------------|--------------------|-----------------------|----------|----|----|-----|-----|----|----|----------|----|-------|
|              |                    |                       | Total    | MC | DC | ANC | MSC | CH |    | Total    | NC | Other |
| Evac Hosp    | 400                | 313                   | 98       | 30 | 2  | 57  | 8   | 1  | 1  | 214      | 30 | 184   |
| Surg Hosp    | 60                 | 119                   | 33       | 14 | -  | 15  | 3   | 1  | -  | 86       | 10 | 76    |
| Cbt Spt Hosp | 200                | 215                   | 60       | 18 | 2  | 31  | 8   | 1  | 1  | 154      | 19 | 135   |

FIGURE B-4

e. The number of administrative personnel to total assigned personnel compares favorably (33 percent in the evacuation hospital and combat support hospital, and 29 percent in the surgical hospital).

6. Summary of Annex B. The comparative analysis of the factual data concerning each hospital reveals the following:

a. The evacuation hospital is the only unit presently assigned to field army that provides hospitalization for all types of patients.

b. The surgical hospital provides care and treatment to a special class of patients (critically injured).

c. The proposed combat support hospital would also provide hospitalization for all types of patients.

d. Medical and surgical care is provided in all three hospitals; however, analysis of authorized personnel and their utilization indicates that there are variations in the extent of medical and surgical care that can be provided.

e. On the surface, from the standpoint of personnel requirements, it appears more economical to operate large hospitals wherever possible. However, the surgical component of any hospital is the most expensive element in both materiel and personnel; therefore, equal surgical capabilities at these different size hospitals will result in approximately equal costs.

#### PERSONNEL DISTRIBUTION - SELECTED FUNCTIONS

|                          | EVAC HOSP | CBT SPT HOSP | SURG HOSP |
|--------------------------|-----------|--------------|-----------|
| Number of Beds           | 400       | 200          | 60        |
| Total Personnel          | 313       | 215          | 119       |
| Patient Care Personnel   | (207)     | (145)        | (85)      |
| Administrative Personnel | (106) 33% | (70) 33%     | (34) 29%  |

#### RATIOS

|                                   | EVAC HOSP | CBT SPT HOSP | SURG HOSP |
|-----------------------------------|-----------|--------------|-----------|
| Total Personnel to Patient        | .78/1     | 1.07/1       | 2/1       |
| Patient to Patient Care Personnel | 1.9/1     | 1.3/1        | .70/1     |
| Patient (Bed) to Doctor           | 13.3/1    | 11.1/1       | 4.3/1 *   |
| Patient (Bed) to Nurse            | 7.1/1     | 6.4/1        | 4/1**     |
| Patient (Bed) to Enlisted Man     | 1.8/1     | 1.3/1        | .70/1     |

SOURCE: Tables of Organization and Equipment

\*Includes CO

\*\*Includes Chief Nurse

FIGURE B-5

**DISTRIBUTION OF MEDICAL, DENTAL, AND OTHER  
PROFESSIONAL MEDICAL SERVICE PERSONNEL**

| DESIGNATION                    | BR  | MOS  | EVAC<br>HOSP | CBT SPT<br>HOSP | SURG<br>HOSP |
|--------------------------------|-----|------|--------------|-----------------|--------------|
| General Duty - Medical Officer | MC  | 3100 | 10           | 5               | 4            |
| Anesthesiologist               | MC  | 3115 | 2            | 1               | 1            |
| Internist                      | MC  | 3139 | 2            | 3               | 1            |
| General Surgeon                | MC  | 3150 | 5            | 4               | 5*           |
| Ophthalmologist                | MC  | 3125 | 1            |                 |              |
| Orthopedic Surgeon             | MC  | 3153 | 2            | 1               | 1            |
| Neurosurgeon                   | MC  | 3131 | 1            | 1               | 1            |
| Thoracic Surgeon               | MC  | 3151 | 1            | 1               | 1            |
| Psychiatrist                   | MC  | 3129 | 1            | 1               |              |
| Urologist                      | MC  | 3111 | 1            |                 |              |
| Radiologist                    | MC  | 3306 | 2            | 1               | 1            |
| Tissue Pathologist             | MC  | 3325 | 1            |                 |              |
| Hospital Commander             | MC  | 3500 | 1            | 1               |              |
| Dental Officer                 | DC  | 3170 | 1            | 1               |              |
| Oral Surgeon                   | DC  | 3171 | 1            | 1               |              |
| Chief Nurse                    | ANC | 3430 | 1            | 1               |              |
| Neuropsychiatrist Nurse        | ANC | 3437 | 1            | 1               |              |
| Operating Room Nurse           | ANC | 3443 | 9            | 7               | 6            |
| Anesthetist                    | ANC | 3445 | 3            | 3               | 2            |
| General Duty Nurse             | ANC | 3449 | 19           | 11              | 4            |
| Medical Surgery Nurse          | ANC | 3448 | 22           | 8               | 2            |
| Clinical Laboratory Officer    | MSC | 3314 |              | 1               |              |
| Pharmacist                     | MSC | 3318 |              | 1               |              |

\*One acts as commanding officer

FIGURE B-6

**ANNEX C**  
**HOSPITALIZATION IN THE COMBAT ZONE**

**1. General.**

a. The provision of hospitalization in the combat zone is influenced by many factors. The following list, although not all-inclusive, is considered to be of major significance.

- (1) Troop strength supported.
- (2) Mission of supported troops.
- (3) Probable patient load in terms of types and numbers.
- (4) Mobility of troops supported.
- (5) Environmental conditions.
- (6) Timeliness of required medical care.
- (7) Evacuation policy.

b. The terms hospitalization and evacuation of the sick and wounded are correlated. One cannot be discussed without consideration of the other. The continuity of treatment required from the time of injury or the onset of disease to final disposition can only be achieved successfully through the timely marriage of the hospitalization and evacuation functions.

**2. Combat Zone Hospitalization.**

a. Principle and procedure.

(1) The employment of hospitals in the combat zone is governed by two basic principles--hospitalization is provided as close as practicable to the troops supported, and the maximum number of personnel are returned to duty within the combat zone in order to conserve the fighting strength of the combat units.

(2) Although hospitalization is provided in the forward areas for patients for whom it is essential; nevertheless, long-term hospitalization of such cases in the most forward units is avoided.

(3) Hospitals which are normally found in the combat zone are the surgical hospital and the evacuation hospital. Patients

generated within the division and the Army service area are normally transported to the evacuation hospital by field army evacuation means. Nontransportable patients generated within the division are provided emergency resuscitative surgery within the division area at the surgical hospital and evacuated as soon as they become transportable.

(4) The provision of hospitalization as close as practicable to the troops supported is essential for providing the required service in a timely manner (e.g., an individual seriously injured must receive adequate surgical or medical attention early if he is to survive). Also, to return the maximum number of personnel to duty within the combat zone, a facility capable of retaining and providing hospitalization for relatively short-term hospital cases is required. This support is normally provided by the evacuation hospital. In addition, the evacuation hospital provides the necessary surgical and medical care required for preparing the long-term patient for further evacuation from the combat zone.

b. According to current doctrine, the surgical hospital operates in, or in close proximity to, the division support area. This hospital is not in the normal chain of medical evacuation. It is a special-purpose type facility whose primary mission is to provide resuscitative surgery for critically injured patients and to prepare them for further evacuation. It has a limited medical treatment capability, but is capable of carrying out all emergency lifesaving operative procedures required of a field surgical unit, including major abdominal, chest, and brain surgery. This facility is designed to operate 50 surgical beds and is 100 percent mobile from the standpoint of authorized vehicles. It is allocated to the field army on the basis of one per division. The critical factor of timeliness in providing the service performed by this facility has been the determinant for its being the most forward hospital in the combat zone.

c. The proposed combat support hospital is intended to fill the evacuation hospital's mission for a force smaller than a division.

### 3. Mobility.

a. The mobility of all medical treatment units is very much impaired the moment they commence operations. Unlike other units, their mobility cannot be measured in terms of their organic transport along, but it is governed by the quantitative and qualitative patient load. For all practical purposes, these units have lost a considerable degree of mobility the minute they commence admitting patients; and until the patients have either been returned to duty and/or further evacuated, the hospital remains, to some degree, immobile. Unless the situation demands, it would be unwise, for the sake of hospital mobility alone, to evacuate several hundred patients who can be expected to

## ANNEX D

### DESCRIPTION AND COMPARATIVE ANALYSES OF THE FIELD HOSPITAL

#### 1. General.

a. The narrative description and comparative analysis of the field hospital is presented because of its capability of performing numerous missions.

b. The Field Hospital, TOE 8-510, normally assigned to the COMMZ, is also listed as a nonfixed facility when employed on other than a fixed hospital mission.

(1) TOE 8-510 is the authority for the field hospital.

(2) The prescribed normal mission of this hospital is to provide hospitalization to troops in the COMMZ when temporary hospital facilities are required.

(3) This is a Category II unit and, as such, may be assigned limited secondary missions when it is not employed full time in preparation for, or accomplishment of, the primary mission.

(4) This unit is assigned to the COMMZ on the basis of four per COMMZ in support of each field army. Its prescribed mobility is 30 percent.

(5) The field hospital at full strength is capable of providing the following:

(a) Definitive patient care to troops in the COMMZ within the theater evacuation policy.

(b) A normal bed capacity of 400 beds. It may be divided into three 100-bed hospitalization units, each of which is capable of separate independent operation for short periods of time only.

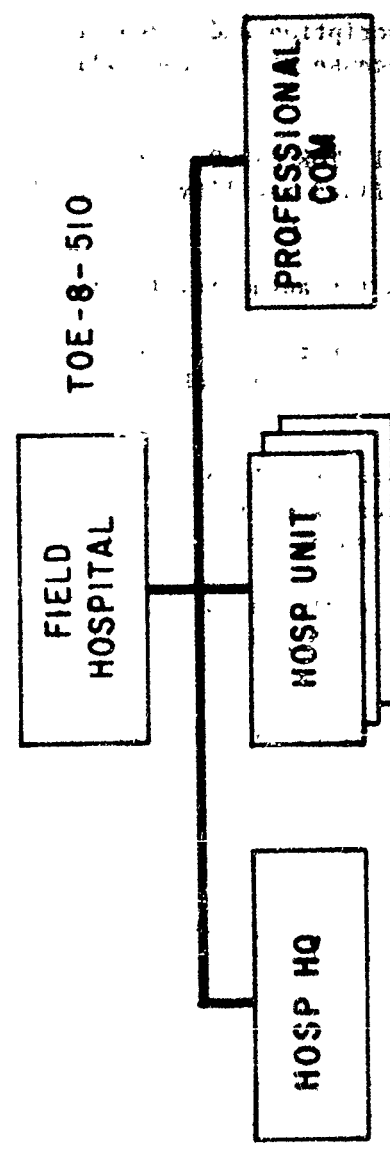
(c) At reduced strength this unit provides facilities for a maximum of 268 patients.

(6) The organizational structure is depicted at Figure D-1. It is composed of a hospital headquarters, professional complement, and three identical hospitalization units.

DESCRIPTION AND COMPARATIVE ANALYSIS  
OF THE FIELD HOSPITAL

1. General

FIGURE D-1



FIELD HOSPITAL

(7) The organization of the hospital headquarters provides personnel to accomplish routine administration, supply, and maintenance functions for the unit. This section functions under the direct supervision of the hospital commander (MC); an executive officer (MSC), who also functions as the adjutant and S1; a chaplain; a detachment commander (MSC); a mess officer (MSC); a chief nurse; a medical registrar (MSC); a dental officer (DC); and a medical supply officer (MSC). The first sergeant, sergeant major, medical supply sergeant, supply sergeant, chief sick-wounded report clerk, and a mess steward are also included in the headquarters element.

(8) There are three identical hospitalization units included in the field hospital. Each is commanded by a Medical Corps Officer who is also qualified as a general surgeon. A medical administrative assistant (MSC) performs administrative duties, to include the preparation of medical reports and supervising the mess and supply. Also included in each of the hospitalization units are an admission and disposition section, surgical section, medical section, pharmacy and laboratory sections, and an X-ray section. The hospitalization units are designed to operate independently for only short periods of time.

(9) Personnel assigned to the field hospital includes 53 officers, of which 34 are ANC's; 1 WO; and 159 EM (Total 213).

## 2. Comparative Analysis.

a. Field Hospitals, TOE 8-510, are organized and designed to provide limited treatment. They provide hospitalization in areas of transitory troop concentrations or to meet sudden demands for hospitalization. In some cases they may be utilized to supplement general or station hospitals in order to temporarily provide hospitalization while construction for general or station hospitals is underway. In addition, they may be used to establish holding installations at railheads, airheads, and river crossing sites, and/or provide hospitalization for prisoners of war.

b. The hospital is organized to provide three identical hospitalization units, each of which for short periods of time is capable of operating a separate 100-bed hospital. The total hospital, with the three hospitalization units operating at a single location, has a rated capacity of 400 beds.

c. From the above description it would appear that this hospital has the desired characteristics for employment in the combat zone. Its ability to segment into smaller independently operated 100-bed hospital units would also seem to be desirable for the support of independently operating forces smaller than division size. These statements become unfounded when one analyses the field hospital in detail.

d. A review of historical actions concerning this hospital indicates that in July 1957, the Office of The Surgeon General initiated actions to revise the TOE of this hospital "to create a non-fixed TOE hospital for use throughout the theater of operations." The Field Hospital, TOE 8-510, was used as a base unit for this action because of the flexibility inherent in its three hospitalization unit organizations and its relatively austere staffing and equipment. The proposed TOE was eventually disapproved by Deputy Chief of Staff for Operations, Department of the Army, because of an increase in number of personnel and not in the concept of employment.

e. An analysis of the field hospital's patient care capability in terms of its authorized personnel and equipment reveals that the field hospital is austere in every area. A comparison of overall strengths of hospitals reveals that this unit has far less personnel than hospitals with similar patient care capacities. The evacuation hospital, also rated at 400 beds, has 313 personnel as opposed to 213 in the field hospital.

f. Examination of the authorized types of personnel provides an insight as to the extent or degree of medical care the field hospital is capable of providing. Using the physicians as the "yardstick" for comparison, we find 30 physicians in the 400-bed evacuation hospital as opposed to 13 physicians in the field hospital. In addition, a greater specialty skill level is represented among the 30 physicians in the evacuation hospital.

g. Not only is there a great disparity in the patient care capabilities of the field hospital when compared with the evacuation hospital, but the field hospital has only 30 percent mobility in comparison to the evacuation hospital's 50 percent mobility.

h. Although the field hospital has the desired capability of being tailored and employed to support several different size troop populations, it does this at the expense of duplicating equipment, administrative functions and personnel. In addition, the quantity and the degrees of medical and surgical care it provides is so limited as to preclude its use as a suitable economical substitute for the evacuation hospital in the combat zone. Increasing its organic patient care capabilities equal to that of the evacuation hospital would only extend the duplication into the patient care functional areas.

i. Augmentation of this unit, as required through the use of cellular teams (TOE 8-500), to increase its surgical capability is possible; however, the ancillary services of preoperative, postoperative, nursing, centralized material, X-ray, and laboratory, all of which are directly affected by increased flow of patients, are so austere staffed that the unit cannot be considered as being "ideally suited" for supporting these teams.

### 3. Summary of Annex D.

a. The field hospital (400-beds) is capable of performing numerous missions in the COMZ, where requirements for temporary hospitalization are indicated. It has the ability to segment into three 100-bed independent hospitals. This is desirable when considering the support of different size forces; however, duplication in equipment, administrative functions, and personnel, as reflected in the TOE, as well as its limited patient care capabilities precludes using this hospital in this capacity for longer than very brief periods of time. Revision of the TOE to increase patient care capabilities would only result in extending the duplication into that area.

## ANNEX E

### COMPUTER-ASSISTED EVALUATION OF THE COMBAT SUPPORT HOSPITAL (200-1ED) TOE 8-123T

#### 1. General Description of an Evaluation Based on a Computer-Assisted Simulation.

a. An evaluation, using a computer-assisted simulation, results from use of an analytical technique in which a model represents a system in operation under real or imagined conditions. It is a step-process in which each new step is dependent on the results of the previous step. The model (or descriptive representation presented mathematically or logically) provides the vehicle through which simulation of the system's operation can be accomplished. The simulation step in the evaluation process commences when the simulator imposes an operational situation on the model. The resultant reactions to the situation are regulated by the model design and controlled by the parameters imposed on the model. The results are summarized and compared to begin the analysis phase of the evaluation. This completes the simulation process.

b. The validity of the evaluation is assured only when the summarized results are analyzed without bias and are considered in light of the situation as presented to the model. Comparison is then made of the analyzed results, and the most suitable may be chosen as the overall evaluation result.

#### 2. Report of the Computer-Assisted Evaluation.

a. Purpose. A computer-assisted evaluation of the combat support hospital was conducted to complement the total doctrine and overall evaluation study effort of this hospital unit. The total study effort is to determine if the unit is compatible with the current concept of field medical service; if a requirement exists for the unit in current and future troop lists; and if so, how the unit should be organized, equipped, and employed. The computer-assisted evaluation was designed to test the organization and staffing of the hospital under workloads anticipated for a 10,000 man task force committed to conflicts to the level of mid-intensity.

#### b. Objectives.

(1) Objective 1. To evaluate the organization of the combat support hospital through the use of computer simulation techniques.

(a) Subobjective 1. To determine if the combat support hospital is adequately staffed to perform the mission specified by TOE 8-123T.

(b) Subobjective 2. To determine if the combat support hospital is organized so as to be able to fulfill the requirements of its stated capabilities.

(2) Objective 2. To determine the length of time the hospital can continue to accumulate patients and still retain the capability of providing continuous medical care to all categories of patients.

c. Essential elements of analysis.

(1) Does a staffing imbalance exist within the medical service of the hospital?

(2) Does a staffing imbalance exist within the surgical service of the hospital?

(3) Is the cumulative staffing of the hospital balanced?

(4) Which elements of the hospital were overtaken by the workload distributed by the simulations?

(5) Is the ratio of beds between the medical service and the surgical service (100 beds each) adequate?

(6) What is the maximum number of days the hospital can continue to accumulate patients at the casualty rate specified for the evaluation without requiring expansion?

c. Methodology.

(1) This evaluation of the combat support hospital organization was accomplished by employing the computer simulation capabilities of the USACDC Medical Service Agency's hospital simulation model. This model produced a simulated environment for the combat support hospital in which all elements, exclusive of headquarters, received workloads of varying intensity during the period covered.

(2) The staffing of the hospital simulation model was based on TOE 8-123T (see Chart 1). A workload was generated by a daily patient admission rate of 4.1 patients per 1000, applied to a troop strength supported of approximately 10,000. The average admissions per day over the 15-day simulation period was 38, of which 35 had received prior medical treatment and 3 were direct admissions.

(3) No surgical hospital was provided in the task force troop list; therefore, all surgical, as well as medical, care beyond the capability or the holding policy of the task force medical clearing elements was provided by the combat support hospital.

(4) To prevent resupply and evacuation problems from contaminating the evaluation process of the organizational structure of the hospital, it was assumed that field army level medical resources were available to the task force.

(5) Varying situations were not required for the organizational evaluation of the combat support hospital; therefore, the input for the simulation was, in general, limited to a single hospital situation for the 15-day period. Specific input for the simulation is contained in Appendix I.

(6) The simulations were repeated 10 times, thereby providing a 95 percent assurance that all the results of all the simulations were within a 10 percent deviation of the average results. More specifically, 95 percent of the results were equal to the average results plus or minus 10 percent.<sup>1/</sup>

#### e. Analysis.

##### (1) General.

(a) This analysis of the organization of the combat support hospital is based on the results of a computer simulation of the hospital in operation over a 15-day period.

(b) Results were gained by imposing a specific daily workload on the hospital averaging 38 patients per day, which in turn created a measurable workload for each of the hospital elements being examined.

(c) The following groupings of elements of the hospital were used to facilitate the evaluation:

##### 1. Medical service.

##### a. Medical treatment area.

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<sup>1/</sup> Study, "A Method for Evaluating the Relative Effectiveness of Army Medical Support Systems" (Operations Research Incorporated).

neuropsychiatric).  
b. Medical wards (four medical and one

2. Surgical service.

a. Surgical area (preoperative, surgery,  
and recovery).

b. Surgical wards (three postoperative).

3. Admissions and dispositions.

4. Personnel pool.

(2) Surgical service.

(a) The work requirement shown above in paragraph 2d(1)(b) had the most significant impact on surgery and the surgical wards. Beginning on the fifth day of the evaluation, the surgical ward census reached 86 patients and never fell below that number for the remainder of the evaluation. Prior to the fifth day, the surgical workload was not significant, as the hospital was without patients at the start of the problem.

(b) The average surgical ward census during day 5 through day 15 was 93.5 patients with a range of 86 to 101.

(c) The surgery element, capable of handling three procedures simultaneously, had an average daily surgical backlog of 1.5 patients. This backlog ranged from 0 to a maximum of 6.

(d) The patient census described in the preceding paragraphs created varying requirements for the surgical service staff of the combat support hospital. The general surgeons had an in-surgery average workday of 7.1 hours, ranging from 3.6 hours per shift to 8.9 hours per shift. The medical-surgical nurses' work requirement varied from 3.9 hours per shift per nurse to 10.2 and averaged 7.9 within the surgical area. Work requirements for other personnel assigned to the surgical area (see Chart 3) were of no great consequence.

(e) The surgical ward census created an out-of-balanced workload condition for the general medical officers, medical-surgical nurses, and the wardmasters (see Chart 4).

(f) A more appropriate distribution of the work requirements for the total surgical service of the combat support hospital is shown on Chart 5. Here the requirements are distributed

per qualified treater as compared to the requirements distributed per type treater as on Charts 3 and 4. With this distribution, all surgeons are required in the surgical service on an average of 9.1 hours per 12-hour shift. General medical officers, staff nurses (less operating room nurses), and wardmasters are demanded in excess of their availability. Due to specific space limitations of the computer simulation model, the wardmaster's position for this evaluation included all other enlisted personnel. Therefore, it is feasible to state that certain of the tasks relegated to the wardmaster in the computer simulation might well be performed by other enlisted personnel assigned to the surgical service. This would result in a more realistic distribution of the duties, which were, of necessity, assigned to the wardmaster for this evaluation. Appropriately trained personnel are not available within the surgical service to consider further distribution of the workload for the general medical officers and the staff nurses. Therefore, the imbalance discussed above cannot be compensated for with the present staffing of the surgical service.

### (3) Medical service.

(a) The average daily input to the combat support hospital had a lesser impact on the medical service than on the surgical service. At the beginning of the sixth day of the evaluation, the patient census became significant when it reached 21 patients in the medical wards and 11 patients in the medical treatment area. This census potentially filled 33 percent of the beds allocated to the medical service.

(b) The patient census increased gradually and consistently through the fifteenth day of the evaluation. At the close of the problem, 66 percent of the medical beds were potentially committed. Forty five patients were occupying beds on the medical wards, and 21 patients were in the medical treatment area.

(c) At no time during the evaluation was the staff unable to cope with the workload created by the medical patients. Personnel authorizations exceeded requirements throughout the 15 days of the evaluation.

(d) Charts 6 and 7 indicate only a minimum workload for all personnel of the medical service staff. Chart 1 shows that the staffing of the medical treatment area, the three medical wards, and the neuropsychiatric ward is very austere. Therefore, no personnel changes are recommended for the medical service without further investigation of the adequacy of the staffing.

(c) As in the evaluation of the surgical service, the wardmaster's position included all of the other enlisted personnel assigned to the medical service. Therefore, some of the tasks that were relegated to the wardmaster for the computer simulation might well be performed by certain other enlisted personnel assigned to the medical service, causing a more realistic distribution of the duties assigned the wardmaster for the evaluation.

(4) Admission and disposition section and the personnel pool. The patient census throughout the 15 days of the evaluation created an even and well-distributed workload for the hospital admission and disposition section, as well as the personnel pool. The work requirement increased in proportion to the patient census throughout the evaluation.

(5) Effect on patient accumulation.

(a) The second objective of the evaluation was to determine the length of time the hospital can continue to accumulate patients and still retain the capability of providing continuous medical care to all categories of patients. This was achieved by a second computer run that created a situation for the hospital model in which no patients were allowed to be evacuated until all hospital beds were filled.

(b) The hospital, which started the evaluation problem without patients, had all 200 beds occupied 5½ days after the start of the problem. It is felt that the staffing would be insufficient to continue operations for any length of time under these conditions.

f. Conclusions. Based on the computer simulation of the hospital in operations for a 15-day period and considering the patient density for the problem (4.1 patients per 1000 per day supporting a 10,000 troop strength), it is concluded that:

(1) The combat support hospital is adequately staffed to perform its specified mission when patient densities are less than, equal to, or slightly greater than those used for the evaluation problem.

(2) The elements of the combat support hospital that were examined are organized so as to allow the unit to be able to meet its stated capabilities.

(3) When patients are received at the rate specified in the evaluation and no subsequent evacuation occurs, the hospital can continue to accumulate and hold all patients received for 5½ days, provided the operation starts with a zero bed census.

### 3. Summary.

a. The organization of the proposed 200-bed combat support hospital was evaluated through the application of computer simulation techniques.

b. The main objectives of the evaluation were to determine, through simulation, if the staffing of the combat support hospital was adequate to permit fulfillment of its specified mission; if it was properly organized to meet its stated capabilities; and to determine the length of time the hospital can continue to accumulate patients without a degradation of patient care.

c. Based on computer simulation of the hospital in operation for a 15-day period and the capability of the hospital staff to cope with the specific workload created by the input to the simulation, it was demonstrated that the combat support hospital is adequately staffed and organized to provide continuous medical care for patient densities equal to, less than, or slightly greater than those used for this problem.

# CHART 1

## STAFFING FOR COMBAT SUPPORT HOSPITAL

### Medical Treatment Area

| <u>Type Personnel</u>                             | <u>Number</u>          |
|---------------------------------------------------|------------------------|
| Internist                                         | 2 (1 Chief of Service) |
| General Medical Officer                           | 1                      |
| Head Nurse                                        | 1                      |
| Medical Surgical Nurse                            | 1                      |
| Chief Wardmaster                                  | 1                      |
| Senior Hospital Medical Assistant                 | 1                      |
| Electrocardiogram-Basal Metabolic Rate Specialist | 1                      |
| Ward Specialist                                   | 2                      |

### Medical Wards (4)

| <u>Type Personnel</u>      | <u>Number</u> |
|----------------------------|---------------|
| Internist                  | 1             |
| Head Nurse                 | 1             |
| Medical Surgical Nurse     | 1             |
| General Duty Nurse         | 4             |
| Wardmaster                 | 2             |
| Hospital Medical Assistant | 4             |
| Senior Ward Specialist     | 2             |
| Ward Specialist            | 4             |
| Ward Attendant             | 2             |

### Neuropsychiatric Ward (1)

| <u>Type Personnel</u>            | <u>Number</u> |
|----------------------------------|---------------|
| Psychiatrist                     | 1             |
| Neuropsychiatric Nurse           | 1             |
| General Duty Nurse               | 1             |
| Neuropsychiatric Ward Supervisor | 1             |
| Social Work Specialist           | 1             |
| Neuropsychiatric Ward Specialist | 1             |
| Neuropsychiatric Ward Assistant  | 1             |

Surgery (Preoperative; Surgery; Recovery)

| <u>Type Personnel</u>              | <u>Number</u> |
|------------------------------------|---------------|
| Chief of Service                   | 1             |
| Orthopedic Surgeon                 | 1             |
| Thoracic Surgeon                   | 1             |
| General Surgeon                    | 3             |
| Anesthesiologist                   | 1             |
| General Medical Officers           | 4             |
| Anesthetist                        | 3             |
| Operating Room Nurse               | 5             |
| Medical-Surgical Nurse             | 2             |
| Chief Wardmaster                   | 1             |
| Chief Operating Room Specialist    | 1             |
| Senior Operating Room Specialist   | 3             |
| Senior Hospital Medical Assistant  | 2             |
| Operating Room Specialist          | 3             |
| Ward Specialist                    | 4             |
| Operating Room Assistant           | 2             |
| Ward Specialist                    | 4             |
| Operating Room Assistant           | 2             |
| Ward Assistant                     | 5             |
| Orthopedic Cast Specialist         | 1             |
| Central Materiel Service Personnel | 6             |

Surgical Ward (S)\*

| <u>Type Personnel</u>      | <u>Number</u> |
|----------------------------|---------------|
| Head Nurse                 | 2             |
| General Duty Nurse         | 6             |
| Wardmaster                 | 3             |
| Hospital Medical Assistant | 6             |
| Senior Ward Specialist     | 3             |
| Ward Specialist            | 6             |
| Ward Attendants            | 6             |

Admissions and Dispositions

| <u>Type Personnel</u>                   | <u>Number</u> |
|-----------------------------------------|---------------|
| Medical Registrar                       | 1             |
| Chief Admissions and Dispositions Clerk | 1             |

\*All Medical Corps personnel are listed under Surgery and were also available to the Surgical Wards.

CHART 2

PATIENT WORKLOAD DISTRIBUTION THROUGHOUT HOSPITAL  
AT THE END OF EACH SHIFT FOR  
15 DAYS OF SIMULATION

| DAY | SHIFT | ADM | MED TRMT | SURG | MW | SW  | EVAC | TOTAL |
|-----|-------|-----|----------|------|----|-----|------|-------|
| 1   | 1     | 0   | 0        | 9    | 3  | 7   | 0    | 19    |
|     | 2     | 0   | 2        | 2    | 7  | 19  | 5    | 35    |
| 2   | 1     | 0   | 2        | 7    | 11 | 27  | 5    | 52    |
|     | 2     | 0   | 5        | 2    | 13 | 40  | 5    | 65    |
| 3   | 1     | 1   | 5        | 1    | 16 | 46  | 11   | 80    |
|     | 2     | 0   | 5        | 3    | 16 | 49  | 1    | 74    |
| 4   | 1     | 0   | 6        | 7    | 13 | 57  | 12   | 95    |
|     | 2     | 0   | 6        | 6    | 17 | 71  | 0    | 100   |
| 5   | 1     | 0   | 6        | 6    | 17 | 86  | 19   | 124   |
|     | 2     | 0   | 9        | 4    | 18 | 82  | 10   | 123   |
| 6   | 1     | 1   | 11       | 6    | 21 | 88  | 13   | 140   |
|     | 2     | 1   | 11       | 0    | 20 | 96  | 13   | 141   |
| 7   | 1     | 0   | 12       | 1    | 25 | 92  | 16   | 146   |
|     | 2     | 0   | 13       | 3    | 29 | 89  | 9    | 143   |
| 8   | 1     | 1   | 15       | 2    | 29 | 88  | 13   | 158   |
|     | 2     | 0   | 14       | 2    | 30 | 88  | 11   | 145   |
| 9   | 1     | 0   | 14       | 7    | 33 | 91  | 11   | 156   |
|     | 2     | 0   | 16       | 1    | 37 | 101 | 11   | 166   |
| 10  | 1     | 0   | 15       | 2    | 41 | 100 | 19   | 178   |
|     | 2     | 0   | 18       | 3    | 42 | 97  | 12   | 172   |
| 11  | 1     | 0   | 20       | 4    | 40 | 97  | 16   | 177   |
|     | 2     | 0   | 19       | 6    | 42 | 95  | 10   | 172   |
| 12  | 1     | 0   | 18       | 6    | 44 | 98  | 19   | 185   |
|     | 2     | 0   | 21       | 4    | 44 | 96  | 21   | 186   |
| 13  | 1     | 0   | 20       | 6    | 39 | 98  | 22   | 185   |
|     | 2     | 0   | 20       | 2    | 40 | 92  | 20   | 174   |
| 14  | 1     | 0   | 21       | 5    | 41 | 93  | 12   | 172   |
|     | 2     | 0   | 21       | 2    | 44 | 99  | 15   | 181   |
| 15  | 1     | 0   | 20       | 0    | 45 | 99  | 18   | 182   |
|     | 2     | 1   | 21       | 1    | 45 | 91  | 0    | 195   |

ADM - Admissions  
MED TRMT - Medical Treatment  
SURG - Surgery  
MW - Medical Ward  
SW - Surgical Ward  
EVAC - Evacuated During Shift

# CHART 4

## DAILY WORKLOAD DISTRIBUTION BY JOINT AREA FOR THE TYPE TREATER AVAILABLE (Expressed in Hours)

| Day               | I       | II       | III      | IV      | V        |
|-------------------|---------|----------|----------|---------|----------|
| 1                 | 1.1     | 8.4      | 8.9      | 6.8     | 5.6      |
| 2                 | 3.3     | 32.4     | 31.9     | 2.2     | 20.5     |
| 3                 | 5.3     | 49.7     | 50.0     | 2.9     | 31.3     |
| 4                 | 6.7     | 51.3     | 51.6     | 3.8     | 34.1     |
| 5                 | 7.8     | 57.3     | 56.8     | 4.9     | 38.8     |
| 6                 | 8.5     | 64.7     | 64.5     | 5.1     | 43.2     |
| 7                 | 9.3     | 67.0     | 66.7     | 5.5     | 45.1     |
| 8                 | 9.5     | 60.7     | 59.7     | 6.0     | 42.5     |
| 9                 | 8.8     | 64.0     | 63.1     | 6.1     | 44.5     |
| 10                | 8.2     | 62.3     | 60.7     | 6.4     | 43.7     |
| 11                | 9.4     | 61.6     | 59.0     | 6.6     | 43.3     |
| 12                | 8.9     | 63.2     | 60.3     | 6.5     | 43.8     |
| 13                | 8.5     | 64.0     | 61.0     | 6.3     | 43.8     |
| 14                | 8.9     | 67.8     | 65.5     | 6.3     | 46.0     |
| 15                | 2.1     | 60.9     | 59.1     | 6.2     | 42.5     |
| 15-Day<br>Average | .7      | 55.7     | 54.5     | 5.0     | 37.9     |
| Range             | 1.1-9.8 | 8.4-67.8 | 8.0-66.7 | 0.8-6.6 | 5.6-46.0 |

### Surgical Ward

Column I - General Surgeon  
 II - General Medical Officer  
 III - Medical-Surgical Nurse  
 IV - General Duty Nurse  
 V - Wardmaster

# CHART 5

## TOTAL WORKLOAD DISTRIBUTION SURGICAL SERVICE (Expressed in Hours)

| Type Treater            | Number Available | Total Workload | Workload/Treater |
|-------------------------|------------------|----------------|------------------|
| General Surgeon         | 3 + 1 chief      | 44.0           | 11.0             |
| Orthopedic Surgeon      | 1                | 4.0            | 4.0              |
| Thoracic Surgeon        | 1                | 6.4            | 6.4              |
| Anesthetist             | 3                | 18.1           | 6.0              |
| General Medical Officer | 4                | 55.7           | 13.9             |
| Medical-Surgical        |                  |                |                  |
| General Duty Nurses     | 10               | 155.0          | 15.5             |
| Operating Room Nurses   | 6                | 54.4           | 9.1              |
| Wardmaster              | 3                | 37.9           | 12.6             |

Average for all surgeons -  $54.4 \div 6 = 9.1$  hours per day

# CHART 6

## DAILY WORKLOAD DISTRIBUTION BY HOSPITAL AREA FOR THE TYPE TREATMENT AVAILABLE (Expressed in Hours)

| Day     | I       | II      | III     | IV      | V       | VI      |
|---------|---------|---------|---------|---------|---------|---------|
| 1       | 2.2     | 4.4     | 0.5     | 2.2     | 1.5     | 1.6     |
| 2       | 1.0     | 4.4     | 0.5     | 1.7     | 1.4     | 1.2     |
| 3       | 1.2     | 5.2     | 0.3     | 1.8     | 2.3     | 1.8     |
| 4       | 1.2     | 4.0     | 0.5     | 1.5     | 1.1     | 1.0     |
| 5       | 1.4     | 5.4     | 0.4     | 2.4     | 1.7     | 1.6     |
| 6       | 1.4     | 4.4     | 0.3     | 2.3     | 1.3     | 1.4     |
| 7       | 2.4     | 6.6     | 0.8     | 2.4     | 2.2     | 2.4     |
| 8       | 0.8     | 3.6     | 0.4     | 1.2     | 1.0     | 1.0     |
| 9       | 1.8     | 5.4     | 0.6     | 2.2     | 1.6     | 1.6     |
| 10      | 2.6     | 5.6     | 0.6     | 2.8     | 2.0     | 2.8     |
| 11      | 1.8     | 4.4     | 0.5     | 2.4     | 1.4     | 2.0     |
| 12      | 1.2     | 4.4     | 0.4     | 1.9     | 1.6     | 1.6     |
| 13      | 1.2     | 4.4     | 0.5     | 1.9     | 1.4     | 1.4     |
| 14      | 2.2     | 5.2     | 0.7     | 2.3     | 2.2     | 2.0     |
| 15      | 0.8     | 4.2     | 0.3     | 1.4     | 1.7     | 1.0     |
| 15-day  |         |         |         |         |         |         |
| Average | 1.6     | 4.8     | 0.5     | 2.0     | 1.6     | 1.6     |
| Range   | 0.8-2.4 | 3.6-6.6 | 0.2-0.8 | 1.7-2.8 | 1.0-2.3 | 1.0-2.8 |

### Medical Treatment Area

Column I - Internist  
 II - General Medical Officer  
 III - Medical Surgical Nurse  
 IV - Wardmaster  
 V - Hospital Medical Assistant  
 VI - Psychiatrist

(PART 4)

DAILY WORKLOAD DISTRIBUTION BY HOSPITAL AREA  
FOR THE TYPE TREATMENT AVAILABLE  
(Expressed in Hours)

| Day               | I     | II  | III | IV       |
|-------------------|-------|-----|-----|----------|
| 1                 | 0.1   | 0.0 | 0.1 | 1.7      |
| 2                 | 0.1   |     |     | 3.1      |
| 3                 | 0.1   |     |     | 4.8      |
| 4                 | 0.0   |     |     | 5.9      |
| 5                 | 0.1   |     |     | 7.7      |
| 6                 | 0.1   |     |     | 8.9      |
| 7                 |       |     |     | 10.3     |
| 8                 |       |     |     | 11.6     |
| 9                 |       |     |     | 12.6     |
| 10                |       |     |     | 14.3     |
| 11                |       |     |     | 15.2     |
| 12                |       |     |     | 16.0     |
| 13                | 0.1   |     |     | 15.9     |
| 14                | 0.1   |     | 0.1 | 16.7     |
| 15                | 0.1   | 0.0 | 0.1 | 16.7     |
| 15-Day<br>Average | 0.1   | 0.0 | 0.0 | 10.8     |
| Range             | 0-0.1 |     |     | 1.7-16.7 |

Medical Ward

Column I - Internist  
II - Medical Surgical Nurse  
III - General Duty Nurse  
IV - Wardmaster

# CHART 8

## TOTAL WORKLOAD DISTRIBUTION MEDICAL SERVICE (Expressed in Hours)

| Type Treater             | Number Available | Total Workload | Workload Per Treater |
|--------------------------|------------------|----------------|----------------------|
| Internist                | 2                | 3.2            | 1.6                  |
| General Medical Officers | 1                | 8.2            | 8.2                  |
| Psychiatrist             | 1                | 1.5            | 1.5                  |
| Dental Officer           | 1                | 2.9            | 2.94                 |
| Medical Surgical Nurses  | 4                | 0              | 0                    |
| General Duty Nurses      | 5                | 0              | 0                    |
| Wardmaster               | 3                | 10.9           | 3.6                  |
| Neuropsychiatric Nurse   | 1                | 5.8            | 5.8                  |

# CHART 9

## DAILY WORKLOAD DISTRIBUTION BY HOSPITAL AREA FOR THE TYPE PERSONNEL AVAILABLE (Expressed in Hours)

| Day               | I       | II      | III     | IV      | V     |
|-------------------|---------|---------|---------|---------|-------|
| 1                 | 2.5     | 5.0     | 2.5     | 3.0     | 0     |
| 2                 | 3.6     | 6.4     | 3.2     | 3.4     | 0.7   |
| 3                 | 3.5     | 6.4     | 3.2     | 3.4     | 1.0   |
| 4                 | 3.6     | 6.2     | 3.1     | 3.4     | 1.0   |
| 5                 | 3.8     | 6.4     | 3.2     | 3.4     | 1.5   |
| 6                 | 3.8     | 6.4     | 3.2     | 3.4     | 1.6   |
| 7                 | 4.2     | 7.0     | 3.5     | 3.8     | 1.9   |
| 8                 | 3.4     | 5.6     | 2.8     | 3.0     | 1.9   |
| 9                 | 3.9     | 6.6     | 3.3     | 3.6     | 2.0   |
| 10                | 4.3     | 3.2     | 3.5     | 3.8     | 2.1   |
| 11                | 4.1     | 6.0     | 3.0     | 3.2     | 2.1   |
| 12                | 4.1     | 6.4     | 3.2     | 3.4     | 2.5   |
| 13                | 4.3     | 6.4     | 3.2     | 3.4     | 2.6   |
| 14                | 4.1     | 6.6     | 3.3     | 3.4     | 2.3   |
| 15                | 3.6     | 6.0     | 3.0     | 3.2     | 2.5   |
| 15-Day<br>Average | 3.8     | 6.4     | 3.2     | 3.4     | 1.7   |
| Range             | 2.5-4.3 | 5.0-7.2 | 2.5-3.6 | 3.4-3.8 | 0-2.5 |

Personnel Pool - Column  
Admissions  
Dispositions

I - Litter Bearers  
II - Medical Registrar  
III - Records Clerk  
IV - General Medical Officer  
V - Clerks

APPENDIX I  
to  
ANNEX E

SPECIFIC INPUT TO THE COMPUTER SIMULATION

Replications = 10

Time steps = 5 minutes

Printout intervals = 12 hours

Game starts at 0600 hours

Walking speed = 2 km per hour

Time first casualty admitted = time 0

Time since wounding with prior treatment =  $\frac{1}{2}$  hour to  $10\frac{1}{2}$  hours

Time since wounding without prior treatment =  $\frac{1}{2}$  hour to  $5\frac{1}{2}$  hours

Limit 200 patients in hospital

No greater than a total of 12 patients in preoperative, operating room, and postoperative

Clerks per patient in admissions - 2 clerks, 1 medical registrar

Examining physician in admissions - 1 general medical officer

Medical area examination personnel - 1 general medical officer  
1 medical assistant

No supplies or equipment

Personnel required for (examination) preoperative - 1 general surgeon  
1 anesthetist  
1 operating room  
specialist

Personnel required for shock treatment - preoperative treatment  
personnel and 1 general surgeon

Postoperative treaters - 1 general surgeon, 1 ward specialist

Medical ward treaters: Phase I: 1 internist, 1 general duty nurse,  
1 medical assistant  
II: 1 internist, 1 general duty nurse,  
1 wardmaster  
III: 1 wardmaster, 1 medical assistant,  
1 ward specialist

Examination in surgical ward: 1 general surgeon

Surgical ward treaters: Phase I: 1 general surgeon, 1 medical  
surgical nurse, 1 wardmaster  
II: Phase I, except general duty  
nurse replaces medical-surgical  
nurse (same as Phase I)  
III: Phase II, except general-medical  
officer - general surgeon (same  
as Phase II)

Dispositions: 2 clerks per patient

Two laboratory teams

Two extra laboratory teams available; no chance of breaking down;  
500 plates stocked initially; 500 units of fluid stocked initially

Personnel: 5 litter bearers per shift  
Medical registrar, 24 hour call in admissions  
2 clerks per shift in admissions  
1 general medical officer, 24 hour call, admissions

Medical treatment: 1 internist, chief of service, 24 hour call  
1 medical assistant on first shift; none on  
second shift  
1 general medical officer, 24 hour call  
1 medical-surgical nurse each shift  
1 psychiatrist, 24 hour call between ward  
and treatment area  
No wardmaster on first shift; 1 on second shift  
1 ward specialist on each shift

Surgical treatment: 5 operating room specialists on first shift  
4 operating room specialists on second shift  
2 general surgeons on each shift  
(1 on each shift between ward and treatment  
area)  
1 medical-surgical nurse per shift  
1 orthopedic surgeon, 24 hour call  
1 dental officer, 24 hour call  
2 anesthetists per shift

1 dental technician, 24 hour call  
 2 ward specialists on first shift, 1 on second shift  
 1 medical assistant on each  
 1 thoracic surgeon, 24 hour call  
 1 orthopedic cast specialist, 24 hour call

Medical wards: 2 ward attendants per shift  
 1 internist per shift  
 1 medical-surgical nurse per shift  
 3 general duty nurses per shift  
 2 wardmasters on first shift; 1 on second shift  
 6 ward specialists on first shift; 5 on second shift  
 1 psychiatrist  
 2 medical assistants per shift

Surgical wards: 1 general surgeon per shift from treatment area  
 1 general medical officer per shift  
 1 general-surgical nurse per shift  
 11 ward specialists on first shift; 10 on second shift  
 3 general duty nurses per shift  
 2 wardmasters per shift  
 3 medical assistants per shift

Dispositions: 3 clerks first shift; 2 on second shift

Shock treatment time - 15 to 30 minutes per patient

Time to take X-ray - 5 to 10 minutes per patient

Time to process X-ray - 10 to 20 minutes per patient

Preoperative examination - 15 to 30 minutes per patient

Time for preparation for operation -  $\frac{1}{2}$  to 2 hours per patient

Time required in postoperative - 20 to 40 minutes per patient

Doctor treatment in postoperative - 20 to 40 minutes per patient

Nurse treatment in postoperative - 20 to 40 minutes per patient

Time for admissions records processing - 10 to 15 minutes Admissions  
 10 to 15 minutes Medical Records

Time for disposition records processing - 10 to 15 minutes

Medical ward duration - Phase I - 2 to 3 $\frac{1}{2}$  days  
 II - 1 $\frac{1}{2}$  to 3 days  
 III - 1 day

Surgical ward duration - Phase I - 2 1/2 to 4 days  
 II - 1 1/2 to 3 days  
 III - 1 day

Treatment Time in Ward Each Shift

|           | <u>Surgical</u>                                             | <u>Medical</u>                                                                                                                                      |
|-----------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase I - | General surgeon<br>Medical-surgical nurse<br>Wardmaster     | Internist - 10 to 15 minutes per patient<br>General duty nurse - 15 to 20 minutes per patient<br>Medical assistant - 20 to 25 minutes per patient   |
| II -      | General surgeon<br>General duty nurse<br>Wardmaster         | Internist - 10 to 15 minutes per patient<br>General duty nurse - 15 to 20 minutes per patient<br>Wardmaster - 20 to 25 minutes per patient          |
| III -     | General medical officer<br>General duty nurse<br>Wardmaster | Wardmaster - 10 to 15 minutes per patient<br>Medical assistant - 15 to 20 minutes per patient<br>One ward specialist - 20 to 25 minutes per patient |

## ANNEX F

### PRINCIPLES OF FIELD MEDICAL SERVICE

1. Purpose. The purpose of this annex is to present the doctrinal principles of field medical service.

#### 2. Six Principles of Field Medical Service

a. Continuity. Medical service must be continuous. Interruptions in treatment cause increases in morbidity and mortality. Once begun, treatment does not terminate until the patient has been returned to duty or discharged from the service. Medical support for combat forces is organized into levels--unit, division, field army, communications zone, and zone of interior. Procedures should be standardized to assure accomplishment of all required treatment and other medical functions appropriate at all levels.

(1) In combat, the necessity for providing medical service arises the minute contact with the enemy is made, since casualties begin to accumulate as soon as troops come under fire. The operation of essential medical installations will not be terminated until their functions have been assumed by another agency. A reasonable length of time must elapse between the opening of a new installation and the closing of the old one. Patients already en route to the old installation may be received. Evacuation is a continuing function which cannot be suspended while adjustments are made.

(2) The hospitalization/evacuation system is based on the doctrine that subordinate elements are provided their logistical support by the next higher echelon (e.g., supporting levels provide evacuation in accordance with the established evacuation policy. This doctrine extends from the responsibility of the zone of interior to evacuate and to hospitalize all long-term patients from a theater of operations to the responsibility of the battalion medical platoon to evacuate patients from the rifle companies of the battalion. No level of medical service is normally given a responsibility for evacuation that extends farther than its rearmost medical installation.

(3) No patient is evacuated farther to the rear than his physical condition warrants or the military situation requires. Every case evacuated without sufficient reason imposes an unnecessary burden on three agencies--the man's organization, which must go short-handed until he is returned or replaced; the replacement system, which must procure, equip, train, and transport a man to take his place; and the medical service, which must provide evacuation means,

hospital facilities, and trained medical personnel to care for him. The sorting (classifying) of patients to determine which can be treated and returned to duty and which must be evacuated for further treatment is, therefore, a most important function of every level of medical service. In order to plan and operate the medical service efficiently, it is necessary to know to what extent patients will be retained at any given level of medical service. The evacuation policy of the command designates the maximum period during which patients may be retained for treatment at the medical facilities within that command. Patients who, in the opinion of responsible medical officers, cannot be returned to duty within the prescribed time are evacuated by the first available and suitable transportation, providing such travel will not aggravate their disabilities.

(4) The employment of medical means must be simple in nature, particularly in the combat area. In forward areas, the patient load is apt to be too great for the means if treatment must be complete for all who need it. Stations must not be immobilized by instituting long and complicated procedures. Each level of medical service employs the simplest standard treatment procedure that will provide the desired benefits to the patient. Definitive treatment refers to generally accepted procedures necessary to produce the ultimate recovery of the patient. Except for minor injuries and sicknesses which can be treated with minor surgery or available medicines, treatment in forward areas is usually limited to those emergency measures which will preserve life and limb and prepare the patient for movement to a place where the time and facilities are available for curative treatment. Since many measures applied as medical aid are the first steps to more detailed treatment, it is impossible to fix the specific point at which emergency medical treatment ends and definitive treatment begins. Somewhat arbitrarily, the term hospitalization is used to indicate the relatively complete medical care and treatment provided for serious cases or those needing care for a long time, as contrasted with the emergency treatment rendered at forward aid stations and clearing stations or the outpatient treatment provided at a hospital.

b. Control. Control of medical resources must rest with the medical commander or medical staff officer having responsibility within the command for providing medical service. Medical organization must parallel the tactical organization. Medical service must be planned and operated in conformity with specific strategic and tactical plans and general command policies. The surgeon must be kept informed of all plans and intentions of the command supported. Medical service must be unobtrusive so as not to interfere with tactical operations.

(1) If the medical service is to respond to the commander's plans in a timely manner, the surgeon who is responsible

for its direction must be able to influence the operations of the medical units which carry out the medical mission. Basically, the mission of medical units is to conserve fighting strength by serving the commands with which they are associated. There are several ways in which the medical means available to a command may be employed to provide this service (i.e., assignment, attachment, direct support, and general support).

(2) Since the objective of military medicine is to conserve trained manpower, medical means must be disposed and employed to do the most good for the greatest number. Maximum medical support must be given to the combat elements that have the most important mission. When a wide disparity exists between the requirements for medical service and the means available to provide such service, it may be necessary to favor those patients who can be returned to immediate duty, rather than the more seriously injured, in assigning treatment and evacuation priorities.

(3) The treatment to be performed at each level of medical service must be commensurate with the means which can be made available at that level. Medical means are not unlimited; therefore, it is essential that control be retained at the highest medical level consistent with the tactical situation. For this reason, medical units are usually not attached if their mission can be accomplished either by direct support or general support.

c. Proximity. The medical means must be as close to the casualty as the time/distance factor and the tactical situation permit. Early collection, sorting, and evaluation of the patient must be accomplished to assure that no patient is evacuated farther to the rear than his physical condition requires nor the military situation demands.

(1) The speed with which medical treatment can be instituted is of extreme importance in reducing morbidity and mortality. As soon as the medical service receives a patient, it is confronted with two alternatives. It must either move the patient to a medical treatment facility, or it must move the medical treatment facility to the patient. Two factors will govern the choice--the military situation and the condition of the patient. The medical installation must not be located so far forward as to interfere with combat operations or to subject it to enemy interference which will hinder its operation; yet it must not be located so far to the rear that the patient's chances for survival will be jeopardized unnecessarily because of the time required to reach it. Thus, a location which provides close medical support in a situation where helicopters are available for evacuation is quite different from that required for close support when evacuation is provided by litter bearers operating over difficult terrain.

(2) Usually, the best solution will be a combination of the two alternatives. In forward areas, close medical support will be provided by locating medical treatment facilities as far forward as possible, moving them when necessary to maintain contact with supported units; and by rapid evacuation of patients to these facilities. When the tactical situation precludes movement of the medical treatment facility farther forward, emphasis must be placed on evacuation; and when evacuation time exceeds that period which is considered necessary to hold morbidity and mortality to a minimum, the medical treatment facility must be moved closer to the patient, or faster, and more efficient evacuation means must be provided. In either case, the patient and the treatment facility must be brought together as promptly as possible so that proper care can be instituted.

d. Flexibility. Medical service must be flexible. Unexpected change is the rule on the battlefield. A change in tactical plans or operations may require redistribution of the medical means. The medical commander and the medical staff planner must be in a position to shift their medical support to meet the changing circumstances of the supported units. Alternate plans and plans for reserve are essential.

(1) The allotment of medical means is based on the military situation and the tactical plan in being at the time. It should always be remembered, however, that any tactical operation may, without much advance warning, depart from the initial plan, either because of enemy counteraction or as a result of the decision of the commander to exploit newly discovered weaknesses or errors on the part of the enemy. As a consequence, the medical service must be prepared to respond to sudden changes in the tactical situation.

(2) As in the case of combat units, maintaining an adequate reserve contributes to the flexibility which the medical service must possess. No more troops should be committed and no more installations should be established than are required for the task at hand or for the obvious needs of the immediate future. Once committed, a limitation is imposed on the availability of a medical unit for other employment. The establishment of a station immobilizes the unit for a period, the length of which will depend upon the elaborateness of the installation and the number and type of patients in it. When his medical reserve has been exhausted, or depleted to the point of inadequacy, the first concern of the surgeon is to reconstitute a reserve from units already committed. If this is impossible, he must seek reinforcements.

e. Mobility. A prime requirement of medical support is the maintenance of contact with supported troops. Medical troops

must have the same mobility, physically and psychologically, as the units they support. Mobility may be retained by the timely and rapid evacuation of patients, thus preventing loss of mobility by an overload of facilities.

(1) The mobility of a unit is measured by the extent to which it can move its organic personnel and equipment with its organic transportation. A fully mobile unit can complete such movement in one trip; a semimobile unit can complete it only by shuttling. A fixed unit is one which has only a minimum of administrative vehicles and can move only by the use of additional transportation from some other source. With regard to medical units, mobility has an additional connotation, inasmuch as a medical treatment facility must be patient-free before it can be moved.

(2) Medical treatment units should retain mobility as long as possible by only partially establishing their stations until the demands of the situation require commitment of their total means. Once entirely committed, the only way the mobility of a medical unit can be regained is by the prompt evacuation of its patients. An immobilized medical treatment unit can continue its support only in a stabilized situation. In the advance, it must be kept mobile or replaced by another unit. In a retrograde movement, it may necessarily have to be abandoned. When the mobility of a medical unit is jeopardized by the accumulation of patients who are not adequately prepared for further evacuation, it may be necessary to leave a small holding detachment with such patients when the main part of the unit is moved closer to the troops served.

(3) Casualties are rarely distributed evenly over a battlefield. They tend rather to be concentrated in areas of casualty density. Since the irregular distribution of casualties may place an insurmountable burden on certain medical agencies at a time when others are relatively unoccupied, preference in the allotment of medical means should be given to those areas where the greatest casualty density can be expected. The probable location of areas of casualty density can be deduced from an analysis of the tactical plans in connection with a study of the terrain. They will be found where the heaviest concentration of fire can be brought to bear upon the densest population of troops. This situation ordinarily prevails in those areas of major tactical importance for here the commander concentrates his combat power, and here the enemy must oppose to the limit of his strength. It is essential that the surgeon obtain adequate information of the enemy situation and the plan for the employment of the troops to be supported so that he can properly allocate the medical service to provide continuous preferential support to troops in the areas of highest probable casualty density. This information must

be available to the surgeon in time to permit medical units to be moved to the battle positions before the action begins.

I. Conformity. Conformity with the tactical plan is one of the most fundamental elements in the provision of field medical support. It is only by analysis of the commander's plan of operation that we determine the size and composition of the medical troop list, the degree of mobility required, maintain proximity, and insure continuity of medical service. Medical service must be ever present in the right places, at the right time, and in the right amounts.

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ANNEX G

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