AD-A043 993   NAVAL RESEARCH LAB WASHINGTON D C   F/G 6/5
NAMES II (NAVY AMPHIBIOUS MEDICAL EVACUATION SIMULATION) USER'S--ETC(U)
JUL 77 P B RICHARDS, J R FLETCHER, C DELFOSSE
UNCLASSIFIED   NRL-MR-3567   NL

1 OF 2
AD
A043993

AD A043993

1

B.S.

NRL Memorandum Report 3567

NAMES II
(Navy Amphibious Medical Evacuation Simulation)
USER'S MANUAL

PAUL B. RICHARDS, Ph.D.

Fleet Medical Support Project
Naval Research Laboratory

J. RAYMOND FLETCHER, M.D.

Experimental Surgery and Physiology Division
Naval Medical Research Institute
Bethesda, MD 20014

CLAUDE DELFOSSE

CACI, Inc.—Federal
Arlington, VA 22209

DDC
RECEIVED
SEP 12 1977
C

July 1977

Development of NAMES II was supported in part by the Office of Assistant Secretary of Defense for Health Affairs and the Office of Naval Research.

NAVAL RESEARCH LABORATORY
Washington, D.C.

Approved for public release; distribution unlimited.

AD No. ___
DDC FILE COPY

(14) NRL-MR-3567

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NRL Memorandum Report 3567	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER (9)
4. TITLE (and Subtitle) (6) NAMES II (NAVY AMPHIBIOUS MEDICAL EVACUATION SIMULATION) USER'S MANUAL.		5. TYPE OF REPORT & PERIOD COVERED Interim report ~~for the period~~ October 1976 — July 1977,
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) (10) Paul B. Richards, [redacted] J. Raymond Fletcher, [redacted] [redacted] Claude Delfosse [redacted]		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Research Laboratory Washington, D.C. 20375		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 61153N; RR014-07-01 and NR047-148, NRL Problem B01-21; OASD(HA) NRL Problem B01-21
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE (11) July 1977
		13. NUMBER OF PAGES (12) 165p.
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) (16) R01407 (17) RR0140701		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Development of NAMES II was supported in part by the Office of Assistant Secretary of Defense for Health Affairs and the Office of Naval Research. →NRL's NAMES II model		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Health systems research Health care delivery Discrete simulation Combat casualty medical treatment and evacuation Military medicine		Emergency medical services, evaluation Systems analysis

D D C

SEP 12 1977

C

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The Naval Research Laboratory NAMES II (Navy Amphibious Medical Evacuation Simulation) Model simulates medical treatment and evacuation of casualties within a combat zone. The medical system which the model represents includes various levels of casualty receiving facilities, including the hospital corpsman or medic, battalion aid stations, clearing stations, and hospitals. The hospitals may be shore-based or sea-based. Unlike most known models ~~which have been~~ developed for combat medical contingency planning, NAMES II is truly a discrete simulation model, based on logical relationships. For example, each casualty who enters the simulated evacuation system is assigned a series of

(Continues) → on p ii

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

S/N 0102-014-6601

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

251950

(cont fr p i)

20. Abstract (Continued)

medical treatments, or work units, which he must receive before he can enter convalescence and subsequently return to duty. These work units must be administered, in sequence, by designated medical personnel, and each work unit requires a specified time to complete. Some of these work units are critical in the sense that if one is not completed within a time specified by the user the patient will die; if another is not completed in time, the patient's convalescent period will be increased. An evacuation vehicle is requested at once when a high priority patient enters an evacuation queue; lower priority patients are required to accumulate in number or for a period of time before an evacuation vehicle is requested. A simulated patient in NAMES II is evacuated from a medical facility for any of the following three reasons: (1) no qualified medical treater (for the patient's next work unit) is assigned to the facility; (2) the patient has received enough work units so that he can be moved safely, and his convalescent time (user specified) exceeds the facility evacuation policy, i.e., the period of time which a patient is allowed, by military considerations, to remain at a facility; and (3) the patient has completed all of his work units, but the facility has no convalescent beds available.

The model will accept any specified casualty admisstion rates, and is not dependent upon submodels which relate battle scenarios, troop strengths, climate and terrain to casualty generation rates. Thus, medical and tactical planners can vary the patient "mix" and use the NAMES II Model to observe the effects of different weapons systems, of different patient loads, and of improved medical techniques.

The NAMES II Model can be manipulated by the user in many ways. In addition to specifying the resources at each facility, e.g., medical personnel, beds, and vehicles, the user specifies the number of medical facilities, the distances between them, and he also specifies rules for the employment of evacuation vehicles. These rules include vehicle capacity and speed, which patients should be loaded on a vehicle, a vehicle's destination, and which patients should be unloaded at that destination. By selecting these rules properly the user may (1) restrict the type of evacuation vehicle to be employed at each facility; (2) restrict the destinations that can be reached directly from each facility; (3) restrict the patients that can use each type of evacuation vehicle; and (4) specify that certain patients must be evacuated to specific facilities.

NAMES II output reports include various measures of patient dispositions, including the number who die, the number who return to duty and the number evacuated out of the combat zone; measures of lost time due to injuries and illness, resource requirements, and resource utilization. NAMES II has already demonstrated that previous methods for computing combat medical bed requirements, based on bed occupancy in World War II and other combat situations, do not give reliable results. NAMES II computes bed requirements based on the simulated battle casualties, the resources of the evacuation system, and the evacuation policies in force in the combat zone.

The NAMES II Model is currently operational on a CDC (Control Data Corporation) 6600 computer system. The computer program is written in the SIMSCRIPT II.5 simulation language.

This report is addressed to the user of the NAMES II Model— the analyst who wishes to employ the model to design, plan, or evaluate combat zone medical treatment and evacuation systems. The User's Manual presents a detailed description of the NAMES Model, together with its inputs and ~~its~~ outputs. The Manual also discusses some results which were obtained from the model to illustrate the types of analysis that can be performed with the model. Additional details of the NAMES II Model operation will be contained in the Program Maintenance Manual.

use

outputs

CONTENTS

Introduction 1
General Description of the NAMES II Model 3
NAMES II Inputs 22
NAMES II Outputs 24
NAMES II Baseline Simulation 26
Results 30
Conclusions and Recommendations 41
References 46

APPENDICES

Appendix A: Input Parameters for NAMES II Baseline Simulation A-1
Appendix B: Instructions for Preparation of NAMES II Inputs B-1
Appendix C: Computer Reports of Baseline Simulation Inputs C-1
Appendix D: Sample Computer Reports of Baseline Simulation Outputs . D-1

ACCESSION for
Section ☑
Section ☐
☐
DISTRIBUTION/AVAILABILITY CODES
SPECIAL
A

NAMES II
(Navy Amphibious Medical Evacuation Simulation)
USER'S MANUAL

INTRODUCTION

The original version of NAMES (Navy Amphibious Medical Evacuation Simulation) became operational in September, 1975. Written in the SIMSCRIPT I.5 simulation language, it soon displayed its power as a tool for medical contingency planning and also as a research tool.[1] It also demonstrated that standard techniques, developed in World War II, for determining medical personnel and bed requirements are inaccurate. NAMES I, as it was subsequently called, was apparently the first military medical evacuation model to be based completely on logical relationships. In NAMES I, patients died if they did not receive adequate treatment in time; they were evacuated from a facility if that facility did not have appropriate medical personnel, or if their convalescent time exceeded the facility's evacuation policy,* or if the facility's bed capacity was inadequate. No other known model based all of its consequences and actions on logical relationships.

The development of NAMES II in SIMSCRIPT II.5 was undertaken in mid-1976 in order to give the military an even stronger research tool than the first NAMES. The Office of Assistant Secretary of Defense for Health Affairs (OASD(HA)) wanted a model capable of assisting military planners in evaluating various medical regulating procedures so that the procedures finally adopted as policy would be the most efficient medical regulating procedures. This required the model to accept user-specified evacuation procedures, including vehicle loading rules, vehicle destination rules, vehicle unloading rules, and restrictions on the assignment of patients to evacuation vehicles as well as to certain medical treatment facilities. It was decided that the best way to accomplish these objectives would be to develop NAMES II, using the more powerful SIMSCRIPT II.5 simulation language.

NAMES II first became operational on the CDC (Control Data Corporation) 6600 computer system in December, 1976, and has undergone additional changes since that time in order to incorporate further medical regulating capabilities requested by the U.S. Army TOMSS (Theater of Operations Medical Support System) Study Group. NAMES II has since been used to assist the TOMSS Study Group, and its concepts are currently being studied and used by the Medical Board of the Swedish Armed Forces. NAMES II has also attracted the attention of the Defense Civil Preparedness Agency,

---

* the period of time which a patient is allowed, by military considerations, to remain at a facility.

Note: Manuscript submitted July 15, 1977.

the Maryland Institute for Emergency Medicine, and the Air Line Pilots Association. These organizations are concerned with the development of systems to cope with civilian medical emergencies, ranging from every-day automobile accidents to mass casualty situations such as earthquakes and aircraft accidents.

This report is addressed to the user of the NAMES II Model -- the analyst who wishes to employ the model to design, plan, or evaluate combat zone medical treatment and evacuation systems. The User's Manual presents a detailed description of the NAMES Model, together with its inputs and its outputs. The Manual also discusses some results which were obtained from the model to illustrate the types of analysis that can be performed with the model. Additional details of the NAMES II Model operation will be contained in the Program Maintenance Manual.

GENERAL DESCRIPTION OF THE NAMES II MODEL

The NAMES II Model is capable of simulating various configurations of the basic medical treatment and evacuation chain illustrated in Figure 1. Casualty receiving facilities may be added or removed (completely, if desired) at any facility levels or echelons, and additional levels may also be inserted into the model. As each patient enters the system, he is classified according to the nature and severity of his wounds or illness by assigning him to one of a set of user-defined patient classes which encompass all types of anticipated casualties, including outpatients as well as inpatients. A patient may enter the system at any facility level. The distribution of entering patients over all levels is specified by the model user. The user also selects the second facility level to which a patient should go if he must be evacuated from his entry level. The class to which a patient is assigned determines to a large extent his flow through the evacuation chain and his processing at each facility that he enters. Each inpatient's class determines which of three priorities he will be assigned: Priority 1, "urgent," indicates that the patient is in critical condition and must receive the most expeditious attention in order to save his life; Priority 2, "immediate," indicates that the patient's condition is very serious and he must be treated without delay; Priority 3, "routine," indicates that the patient is serious enough to require admission to the medical system, but requires no special attention to treat his condition. Outpatients are assigned Priority 4, which indicates that those patients may wait for treatment until there are no other patients at a higher priority requiring commitment of treater resources. Each patient's class also indicates whether he occupies a litter or ambulatory status, and assigns to the patient an ordered sequence of medical treatments, called work units, which the patient must receive before he can convalesce and return to duty. The user must specify the work units, in their proper sequence, for each patient class. The user must also identify, within this sequence, a Critical Mortality Work Unit, a Critical Convalescent Work Unit, and a work unit which is called the patient's First-Aid Work Unit. The same work unit may be identified for all three if the user desires. These three work units have a considerable influence on the patient's treatment and ultimate disposition. If the patient's Critical Mortality Work Unit is not completed in a time specified by the user, he will die; if the patient's Critical Convalescent Work Unit is not completed in a time specified by the user, his convalescent time, originally selected at random from a probability distribution which is provided by the user for each patient class, will be multiplied by a factor specified by the user; finally, the patient will not be evacuated from a medical treatment facility (except the medic level) until his First-Aid Work Unit is completed, provided appropriate treaters are assigned to the facility to provide all work units up to and including his First-Aid Work Unit. Upon completion of the patient's First-Aid Work Unit and each subsequent work unit, his convalescent time, which may now have been increased, is compared to the facility evacuation policy, i.e., the period of time which a patient is allowed, by military considerations, to remain at the facility. If his convalescent time exceeds the evacuation policy, he will be stabilized for a period of time specified by the user, and then evacuated from the facility. The First-Aid Work Unit guarantees that the

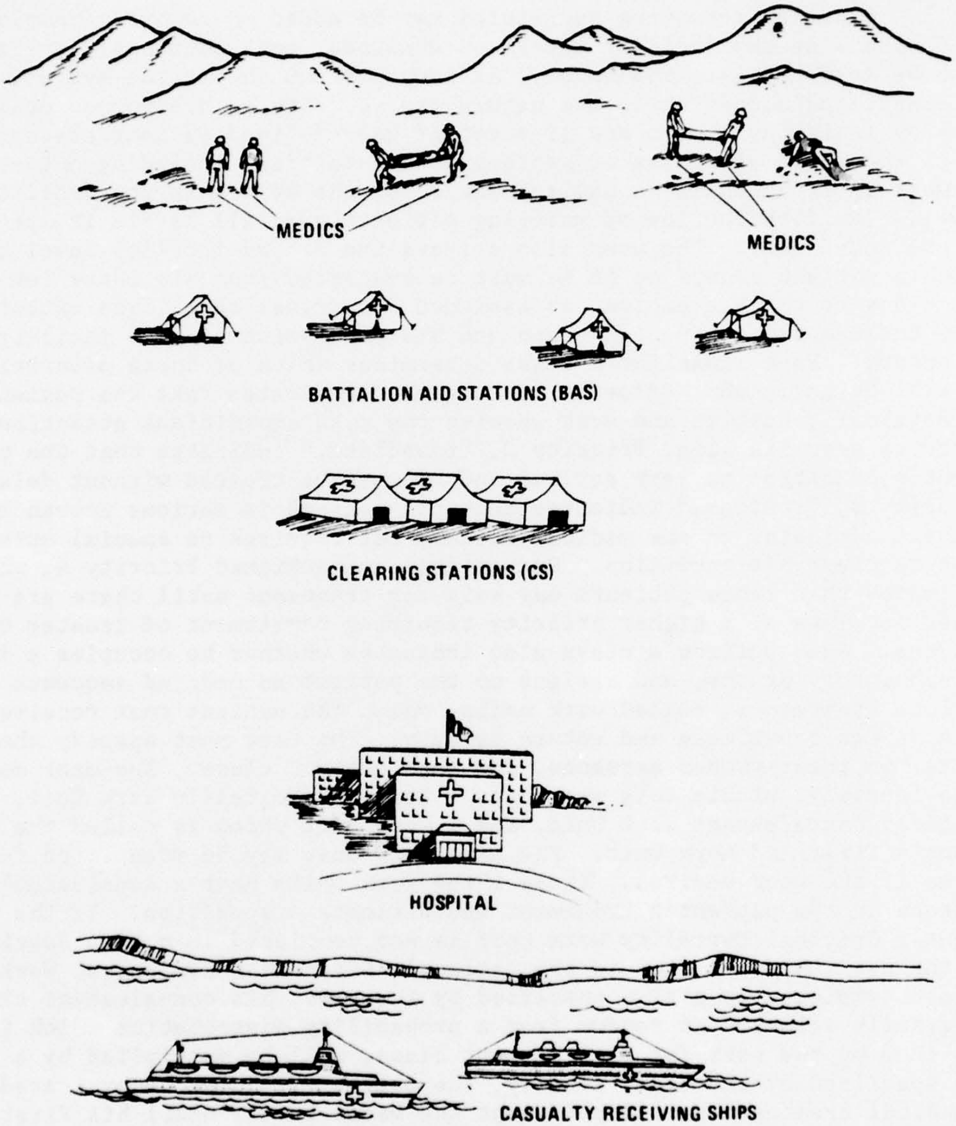

MEDICS
MEDICS
BATTALION AID STATIONS (BAS)
CLEARING STATIONS (CS)
HOSPITAL
CASUALTY RECEIVING SHIPS

Fig. 1 — Basic chain of evacuation

patient will not be evacuated until it is medically feasible to move him, provided required treaters are assigned to his facility.

The user also has the option of assigning each patient (by class) a Mortality Threshold Time. If a patient is so designated, he will die if his initial medical treatment (triage and first aid) at his entry facility is not begun within the designated Threshold Time. This added feature allows the user to identify and observe those patients who require prompt emergency care, such as respiratory resuscitation or sealing of a sucking chest wound, in order to survive.

If the user does not identify a Critical Mortality Work Unit, or a Critical Convalescent Work Unit, or a First-Aid Work Unit for a patient class, the model assumes that those work units have already been completed before the patients in that class enter that facility. This means that a patient who has no Critical Mortality Work Unit cannot die no matter how long he waits for treatment; a patient who has no Critical Convalescent Work Unit can experience no possible increase in his convalescent or recovery time, contrary to what might be expected from complications caused by delays in receiving certain work units. If a patient has no First-Aid Work Unit, he will be stabilized and evacuated, without receiving any of his required work units, if his convalescent time exceeds the facility evacuation policy. This will happen to such a patient even though medical personnel who could save his life may be sitting idle at the facility. If a Mortality Threshold Time is not specified for a patient class, the model assumes that the patients in that class need not begin treatment in any specified time, except those times associated with other identified Critical Work Units.

NAMES II computes patient arrivals based on a Poisson arrival pattern. (Many other probabilistic patterns could also be used.*) This is mathematically equivalent to assuming that the time interval between successive arrivals (interarrival time) is a continuous random variable whose density or frequency is given by the exponential density function

$$f(\lambda,t) = \lambda e^{-\lambda t},$$

where λ = mean arrival rate.

The cumulative interarrival time is then given by

$$P(\lambda,t) = \int_0^t f(\lambda,t)dt = 1-e^{-\lambda t}.$$

The mean arrival rate λ during a specific hour of a particular combat day is computed from the mean number of arrivals on that day and the proportion of patients who arrive during that hour; both are specified by the NAMES user. $P(\lambda,t)$ is next selected as a number between 0 and 1 by a random number generator, one of which is reserved exclusively to generate inpatients, and another to generate outpatients. This gives a unique value of λt (since P is monotone increasing), from which the interarrival time t is then computed by using the value of λ just calculated.

---

* SIMSCRIPT II.5 has routines for using the following probability functions: Beta, Binomial, Erlang, Gamma, Normal, Log Normal, Poisson, Exponential, Uniform, and Weibull.

If the computed interarrival time t would cause the next patient to arrive during the next hour, instead of during the current hour, he is not generated. Instead, a new patient is generated, based on the new λ for the next hour, and the newly calculated interarrival interval is made to begin at the start of the next hour. This guarantees that the next patient enters during the next hour.

If the mean arrival rate $\lambda = 0$ during a specific hour of any combat day, the computer program proceeds to the next hour until it computes a non-zero λ .

The first inpatient is generated at the start of the first hour of combat during which inpatient casualties occur, as specified by the user. On the arrival of each inpatient, the succeeding inpatient is generated. The same procedure is followed separately for outpatients.

When a patient is generated, his patient class is determined randomly from the distributions (inpatient and outpatient) provided by the user. The facility level at which each patient enters the evacuation chain is selected randomly from input provided by the user. The specific facility that the patient enters is randomly selected from a uniform distribution over all facilities at that level. The mobility of each inpatient (ambulatory or litter) is randomly determined according to user input associated with the patient's class. In addition, each inpatient's convalescent time is randomly selected from a distribution provided by the user and associated with his patient class. Other attributes of an inpatient, such as priority and work units, are assigned according to the patient's class, and are determined by the user.

All outpatients are considered to be ambulatory; they have no convalescent time assigned at the time they are generated, and they are all assigned Priority 4. The remaining attributes of outpatients, including their work units, are assigned according to the patient class and selected by the user.

If the user chooses to identify outpatients with patient classes which are associated with inpatients, then those outpatients will have to receive the same work units as the inpatients. The only difference between outpatients and inpatients in the same class is that the outpatients are originally assigned a convalescent time of zero. If they fail to receive their Critical Convalescent Work Unit in time, their convalescent time becomes one day.

NAMES II uses different random number streams for each of the twelve variables that are determined on a probabilistic basis --

7 for each inpatient: arrival time, patient class, entry facility level, entry facility, mobility, convalescent time, and first aid time at the FEBA (a random number between 6 and 19 minutes).

5 for each outpatient: arrival time, patient class, entry facility level, entry facility, and first aid time at the FEBA (a random number between 6 and 19 minutes).

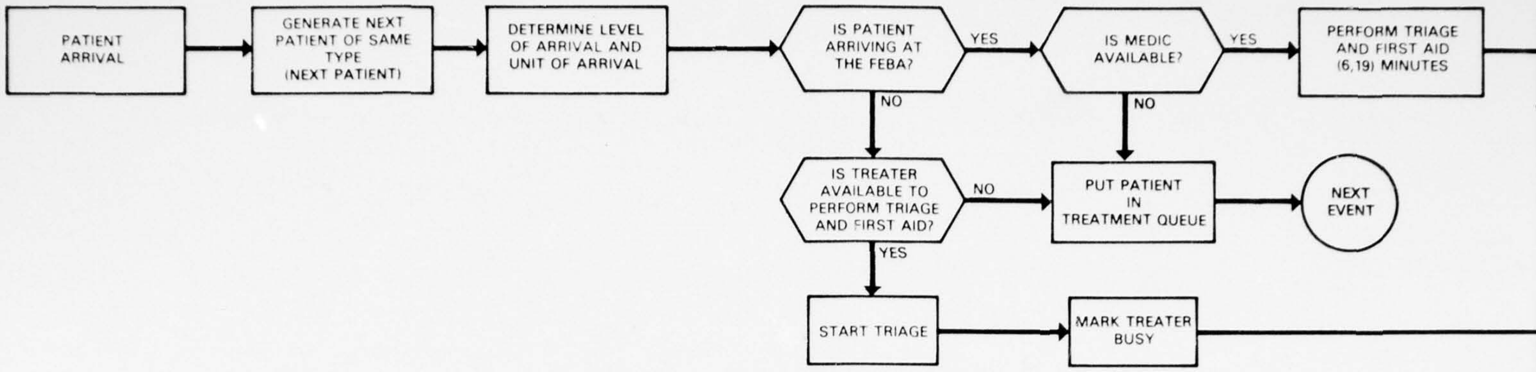
These twelve random number streams were deliberately separated in NAMES II so that the user could change one or more random variables at a time without affecting the others. For example, the user may select to omit all outpatients in one simulation. If the same random number stream was used to generate both inpatients and outpatients, the random variables for inpatients would be affected by omitting the outpatients. This cannot happen in NAMES II.

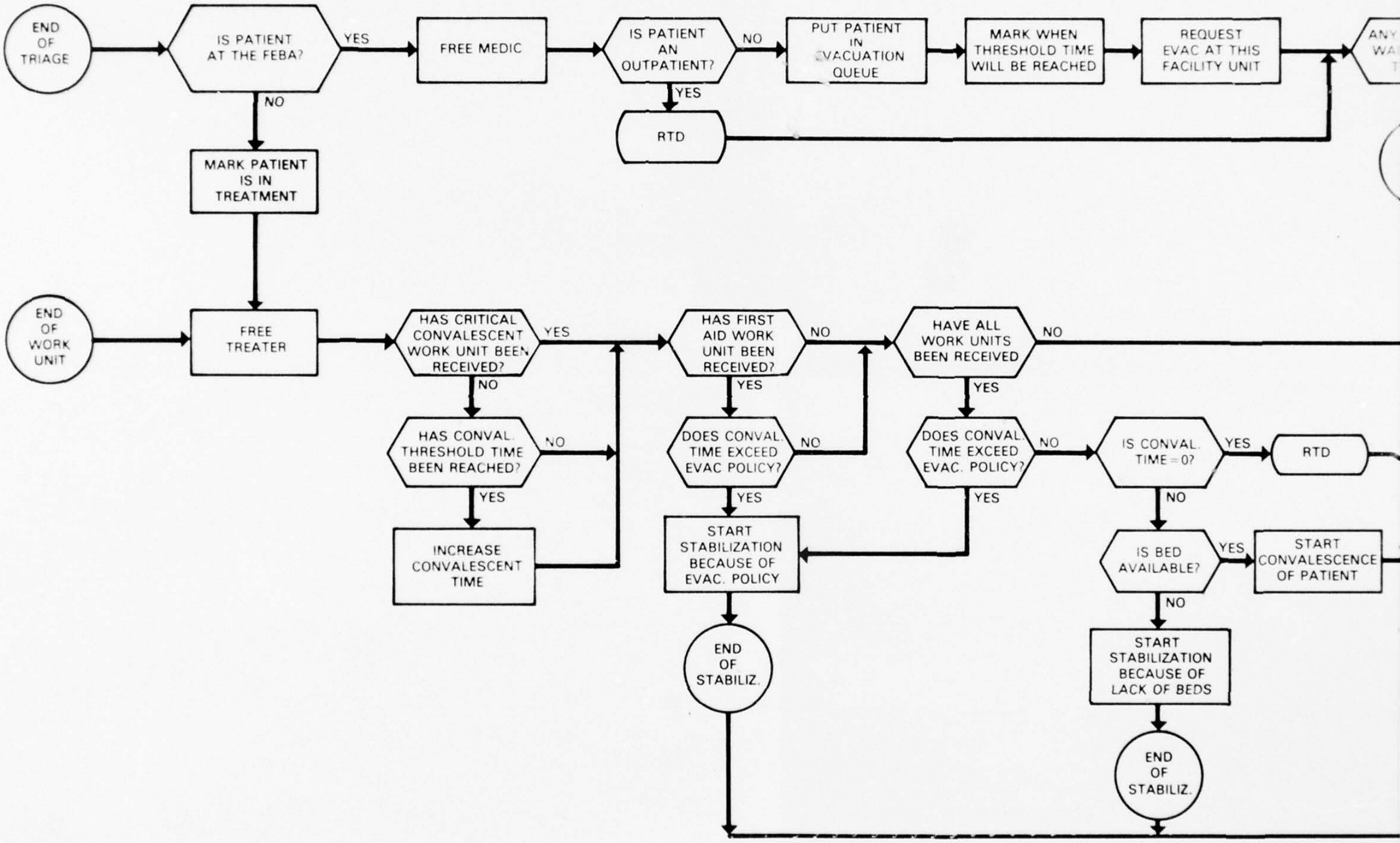
The treatment pattern of patients within a specific treatment facility is described in Figures 2(a) and 2(b).

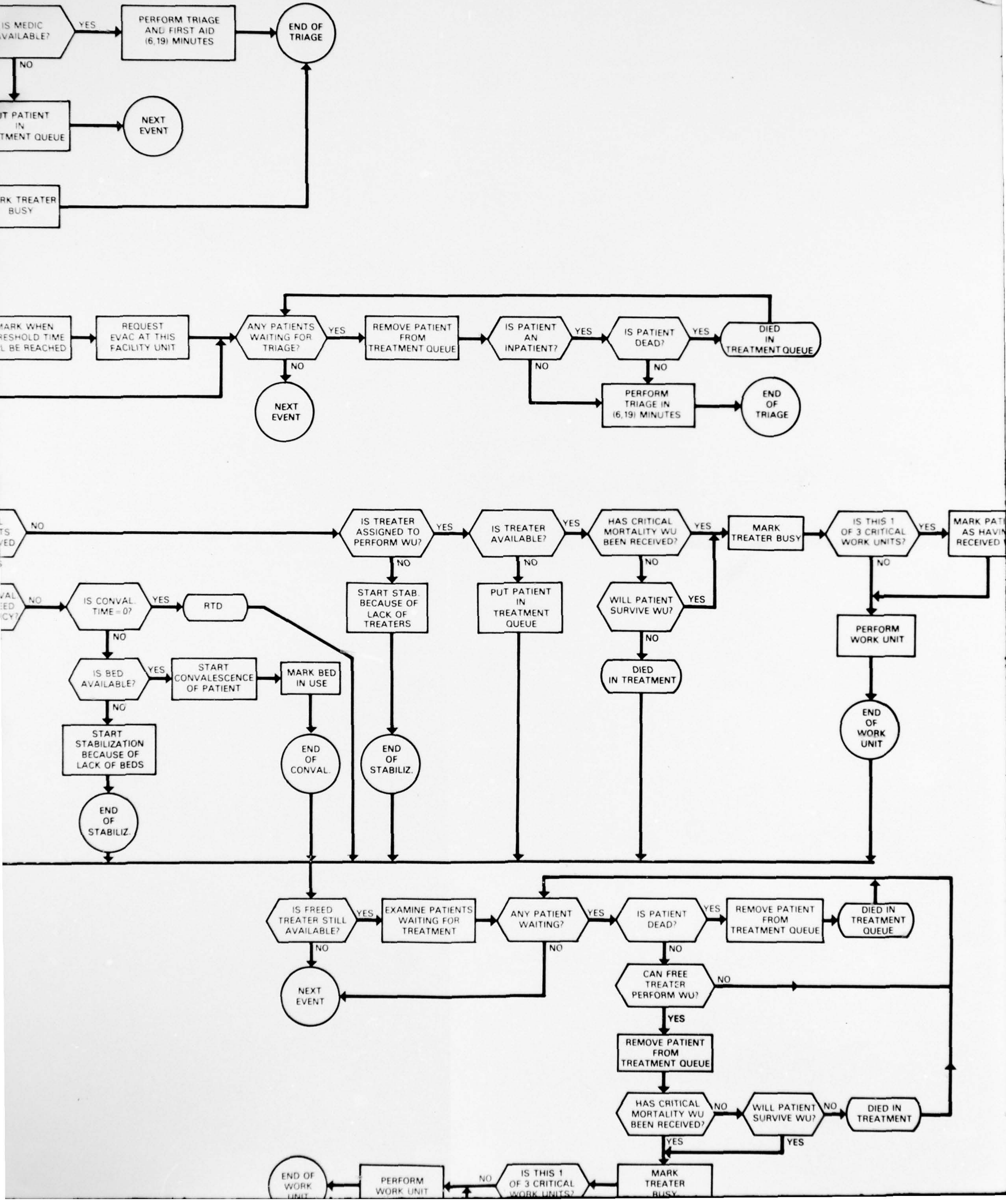
At the medic level, or Forward Edge of the Battle Area (FEBA), all patients undergo triage and receive first aid on a first-in, first-out basis. Inpatients who survive this initial treatment are then evacuated to the rear for further treatment; outpatients are returned to duty. At all facilities except at the medic level, patients are treated on a priority basis. After undergoing triage and first aid, each patient receives his sequence of work units, provided appropriate treaters are assigned. The NAMES II Model allows flexibility in designating treaters by allowing the user to identify preferred and alternate treaters for each work unit. An expected treatment time is associated with each treater's performance of a particular work unit. If an appropriate treater is not assigned to the facility level, the patient is stabilized and evacuated to the rear. Otherwise the patient continues to receive his ordered sequence of work units.

If a patient is able to receive all of his required work units and if his convalescent time does not exceed the evacuation policy at his facility, he will enter a convalescent ward and return to duty from that facility if the convalescent bed capacity is sufficient. Otherwise he will be stabilized and evacuated further to the rear. If a patient enters a facility for convalescence only, triage is not performed. If his convalescent time is within the limits of the facility's evacuation policy and if a bed is available, he remains at this facility for his period of convalescence and is subsequently returned to duty. Otherwise, he is evacuated to the next facility.

Two of the factors which cause a patient to be evacuated (treaters and bed capacity) are measures of the resources of the evacuation chain; the third (evacuation policy) is a command policy. The order in which


PATIENT ARRIVAL
GENERATE NEXT PATIENT OF SAME TYPE (NEXT PATIENT)
DETERMINE LEVEL OF ARRIVAL AND UNIT OF ARRIVAL
IS PATIENT ARRIVING AT THE FEBA?
YES
IS MEDIC AVAILABLE?
YES
PERFORM TRIAGE AND FIRST AID (6,19) MINUTES
NO
NO
IS TREATER AVAILABLE TO PERFORM TRIAGE AND FIRST AID?
NO
PUT PATIENT IN TREATMENT QUEUE
NEXT EVENT
YES
START TRIAGE
MARK TREATER BUSY


END OF TRIAGE
IS PATIENT AT THE FEBA?
YES
FREE MEDIC
IS PATIENT AN OUTPATIENT?
NO
PUT PATIENT IN EVACUATION QUEUE
MARK WHEN THRESHOLD TIME WILL BE REACHED
REQUEST EVAC AT THIS FACILITY UNIT
YES
RTD
NO
MARK PATIENT IS IN TREATMENT
END OF WORK UNIT
FREE TREATER
HAS CRITICAL CONVALESCENT WORK UNIT BEEN RECEIVED?
YES
NO
HAS CONVAL. THRESHOLD TIME BEEN REACHED?
NO
YES
INCREASE CONVALESCENT TIME
HAS FIRST AID WORK UNIT BEEN RECEIVED?
NO
YES
DOES CONVAL. TIME EXCEED EVAC POLICY?
NO
YES
START STABILIZATION BECAUSE OF EVAC. POLICY
END OF STABILIZ.
HAVE ALL WORK UNITS BEEN RECEIVED
NO
YES
DOES CONVAL. TIME EXCEED EVAC. POLICY?
NO
YES
IS CONVAL. TIME = 0?
YES
RTD
NO
IS BED AVAILABLE?
YES
START CONVALESCENCE OF PATIENT
NO
START STABILIZATION BECAUSE OF LACK OF BEDS
END OF STABILIZ.


IS MEDIC
VAILABLE?
YES
PERFORM TRIAGE AND FIRST AID (6,19) MINUTES
END OF TRIAGE
NO
JT PATIENT IN
TMENT QUEUE
NEXT EVENT
RK TREATER BUSY
MARK WHEN
RESHOLD TIME
L BE REACHED
REQUEST EVAC AT THIS FACILITY UNIT
ANY PATIENTS WAITING FOR TRIAGE?
YES
NO
NEXT EVENT
REMOVE PATIENT FROM TREATMENT QUEUE
IS PATIENT AN INPATIENT?
YES
NO
IS PATIENT DEAD?
YES
NO
DIED IN TREATMENT QUEUE
PERFORM TRIAGE IN (6,19) MINUTES
END OF TRIAGE
NO
IS TREATER ASSIGNED TO PERFORM WU?
YES
NO
START STAB. BECAUSE OF LACK OF TREATERS
END OF STABILIZ.
IS TREATER AVAILABLE?
YES
NO
PUT PATIENT IN TREATMENT QUEUE
HAS CRITICAL MORTALITY WU BEEN RECEIVED?
YES
NO
WILL PATIENT SURVIVE WU?
YES
NO
DIED IN TREATMENT
MARK TREATER BUSY
IS THIS 1 OF 3 CRITICAL WORK UNITS?
YES
NO
MARK PATI
AS HAVIN
RECEIVED
PERFORM WORK UNIT
END OF WORK UNIT
NO
IS CONVAL. TIME = 0?
YES
RTD
NO
IS BED AVAILABLE?
YES
START CONVALESCENCE OF PATIENT
MARK BED IN USE
END OF CONVAL.
NO
START STABILIZATION BECAUSE OF LACK OF BEDS
END OF STABILIZ.
IS FREED TREATER STILL AVAILABLE?
YES
NO
NEXT EVENT
EXAMINE PATIENTS WAITING FOR TREATMENT
ANY PATIENT WAITING?
YES
NO
IS PATIENT DEAD?
YES
NO
REMOVE PATIENT FROM TREATMENT QUEUE
DIED IN TREATMENT QUEUE
CAN FREE TREATER PERFORM WU?
NO
YES
REMOVE PATIENT FROM TREATMENT QUEUE
HAS CRITICAL MORTALITY WU BEEN RECEIVED?
NO
YES
WILL PATIENT SURVIVE WU?
NO
YES
DIED IN TREATMENT
MARK TREATER BUSY
IS THIS 1 OF 3 CRITICAL WORK UNITS?
NO
PERFORM WORK UNIT
END OF WORK UNIT

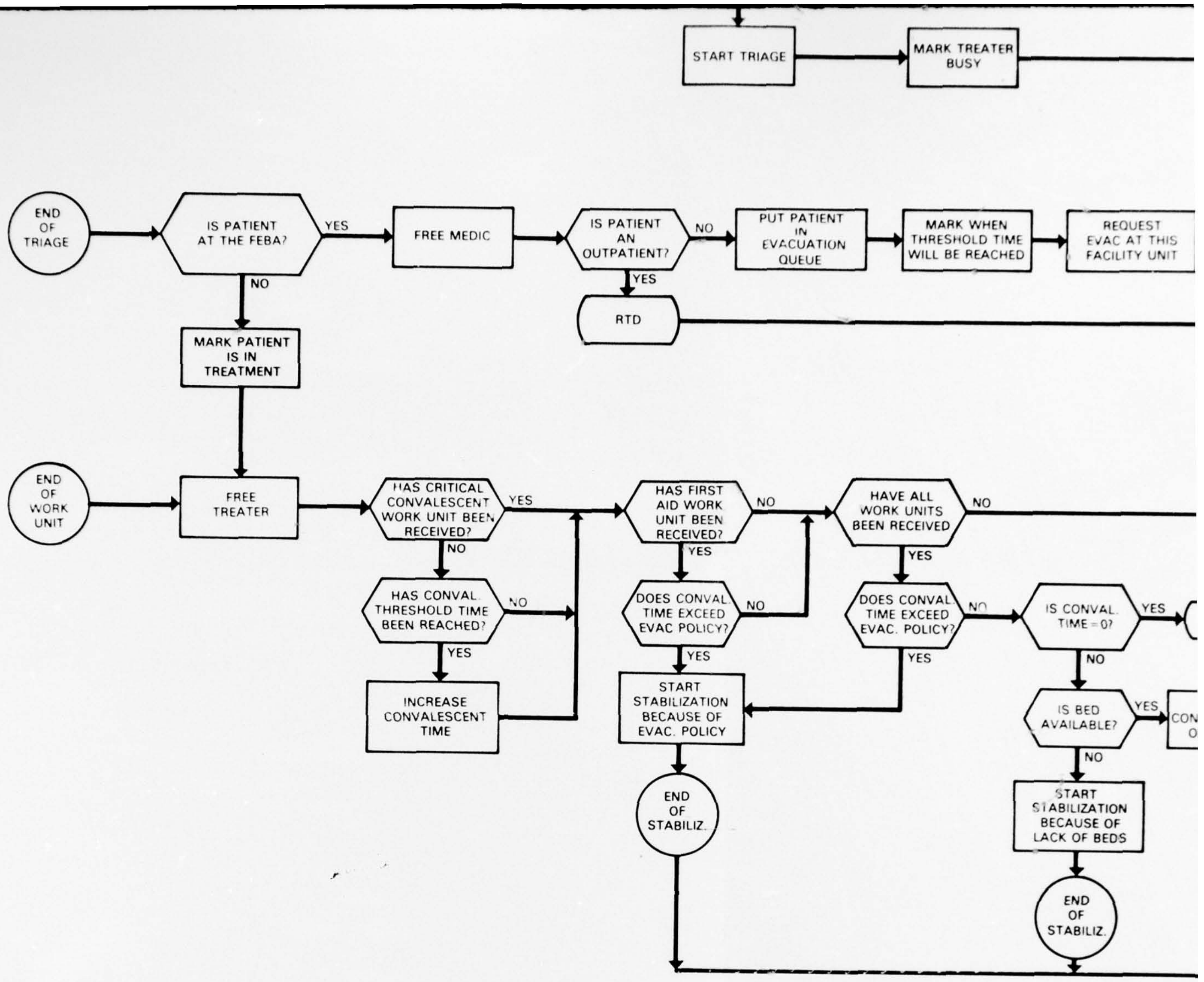
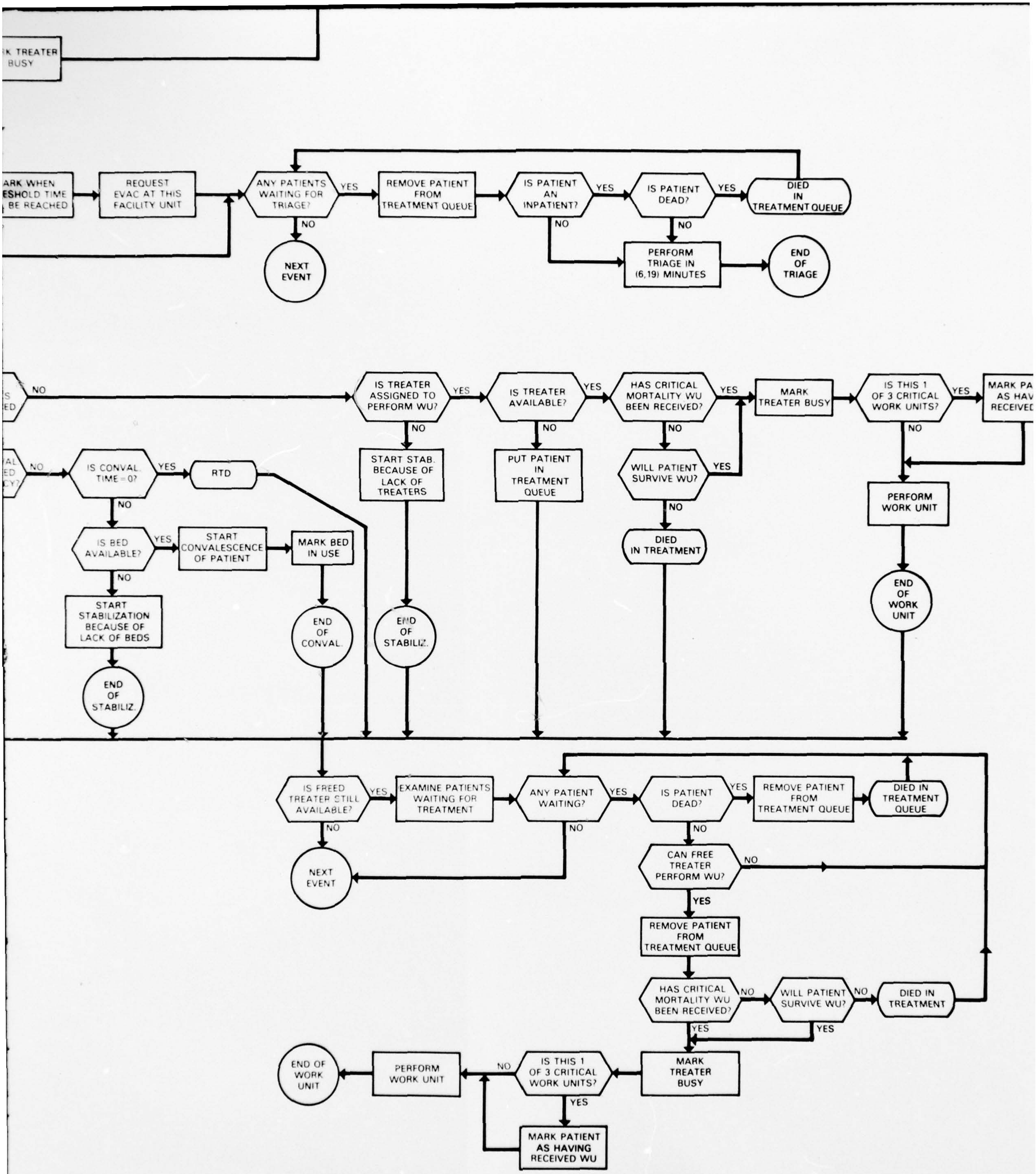
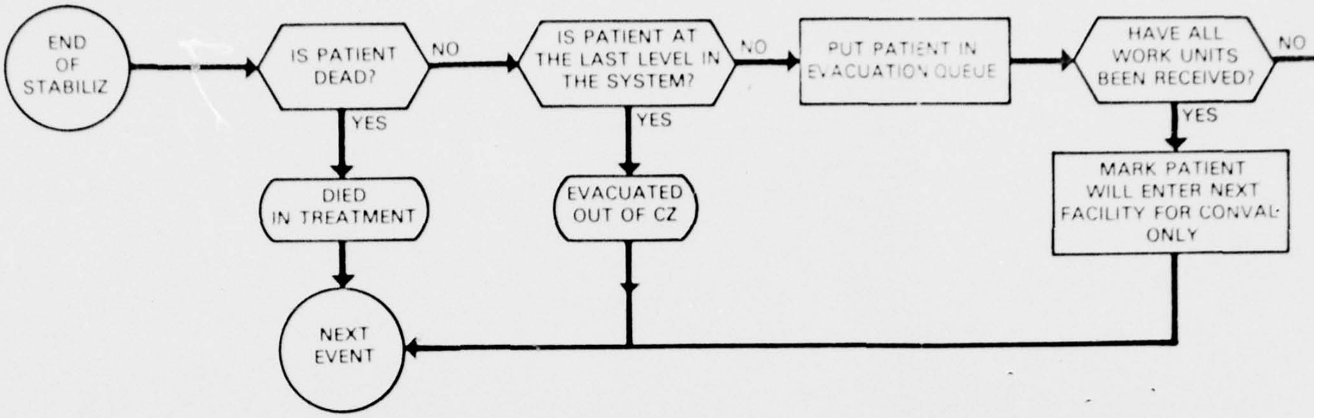

START TRIAGE
MARK TREATER BUSY
END OF TRIAGE
IS PATIENT AT THE FEBA?
YES
NO
FREE MEDIC
IS PATIENT AN OUTPATIENT?
NO
YES
PUT PATIENT IN EVACUATION QUEUE
MARK WHEN THRESHOLD TIME WILL BE REACHED
REQUEST EVAC AT THIS FACILITY UNIT
RTD
MARK PATIENT IS IN TREATMENT
END OF WORK UNIT
FREE TREATER
HAS CRITICAL CONVALESCENT WORK UNIT BEEN RECEIVED?
YES
NO
HAS CONVAL. THRESHOLD TIME BEEN REACHED?
NO
YES
INCREASE CONVALESCENT TIME
HAS FIRST AID WORK UNIT BEEN RECEIVED?
NO
YES
DOES CONVAL. TIME EXCEED EVAC POLICY?
NO
YES
START STABILIZATION BECAUSE OF EVAC. POLICY
END OF STABILIZ.
HAVE ALL WORK UNITS BEEN RECEIVED
NO
YES
DOES CONVAL. TIME EXCEED EVAC. POLICY?
NO
YES
IS CONVAL. TIME = 0?
YES
NO
IS BED AVAILABLE?
YES
CON
O
NO
START STABILIZATION BECAUSE OF LACK OF BEDS
END OF STABILIZ.

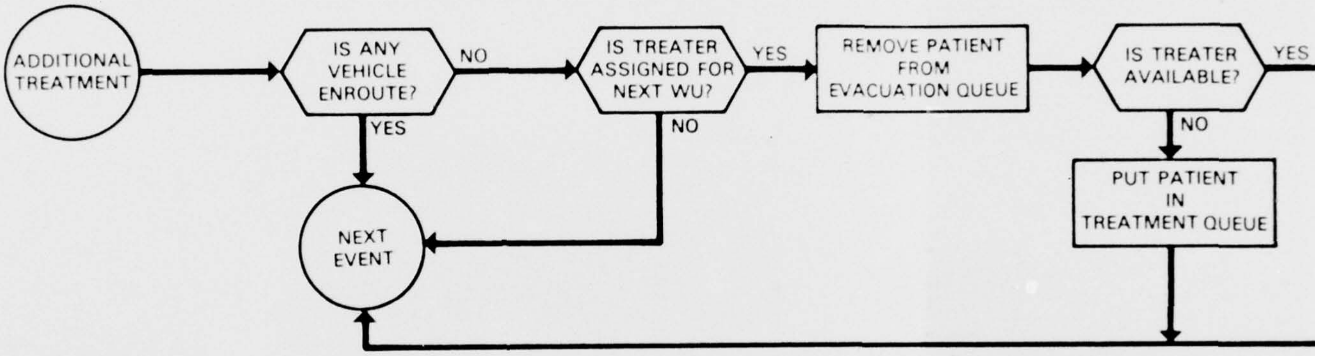
Fig. 2(a) — Patient treatment pattern

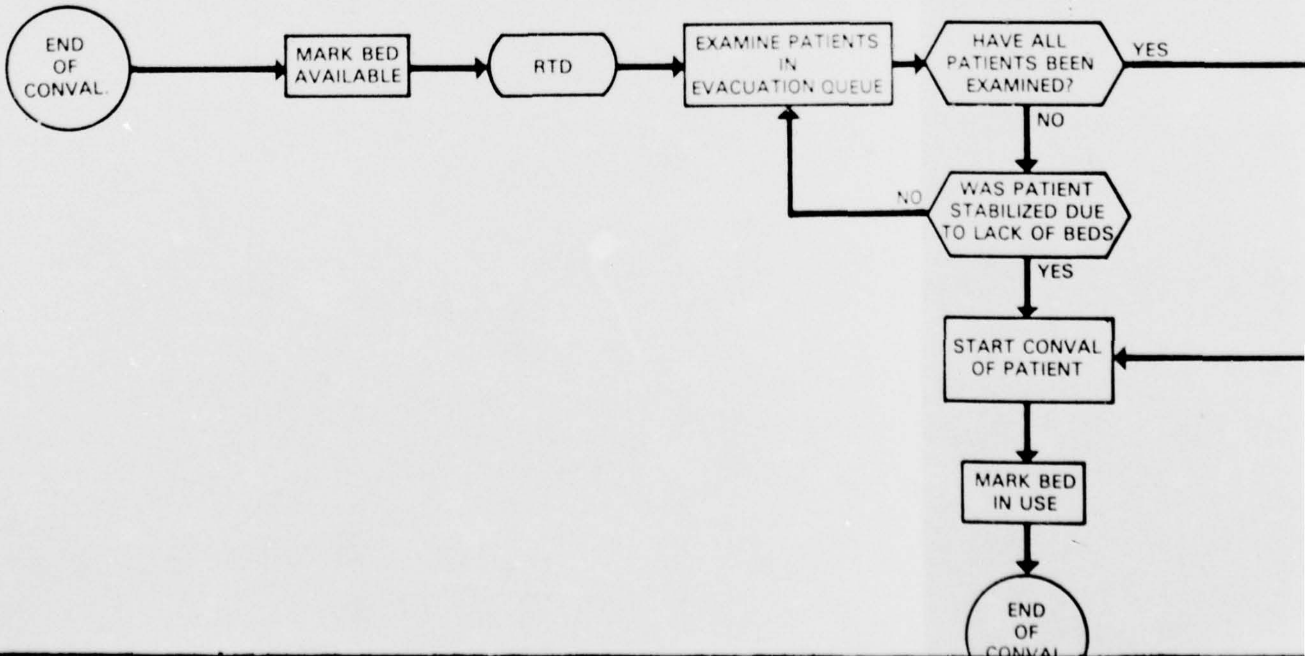


K TREATER BUSY
ARK WHEN ESHOLD TIME BE REACHED
REQUEST EVAC AT THIS FACILITY UNIT
ANY PATIENTS WAITING FOR TRIAGE?
YES
NO
NEXT EVENT
REMOVE PATIENT FROM TREATMENT QUEUE
IS PATIENT AN INPATIENT?
YES
NO
IS PATIENT DEAD?
YES
NO
DIED IN TREATMENT QUEUE
PERFORM TRIAGE IN (6,19) MINUTES
END OF TRIAGE
NO
IS TREATER ASSIGNED TO PERFORM WU?
YES
NO
START STAB. BECAUSE OF LACK OF TREATERS
END OF STABILIZ.
IS TREATER AVAILABLE?
YES
NO
PUT PATIENT IN TREATMENT QUEUE
HAS CRITICAL MORTALITY WU BEEN RECEIVED?
YES
NO
WILL PATIENT SURVIVE WU?
YES
NO
DIED IN TREATMENT
MARK TREATER BUSY
IS THIS 1 OF 3 CRITICAL WORK UNITS?
YES
NO
MARK PA AS HAV RECEIVED
PERFORM WORK UNIT
END OF WORK UNIT
NO
IS CONVAL. TIME = 0?
YES
RTD
NO
IS BED AVAILABLE?
YES
START CONVALESCENCE OF PATIENT
MARK BED IN USE
END OF CONVAL.
NO
START STABILIZATION BECAUSE OF LACK OF BEDS
END OF STABILIZ.
IS FREED TREATER STILL AVAILABLE?
YES
NO
NEXT EVENT
EXAMINE PATIENTS WAITING FOR TREATMENT
ANY PATIENT WAITING?
YES
NO
IS PATIENT DEAD?
YES
NO
REMOVE PATIENT FROM TREATMENT QUEUE
DIED IN TREATMENT QUEUE
CAN FREE TREATER PERFORM WU?
NO
YES
REMOVE PATIENT FROM TREATMENT QUEUE
HAS CRITICAL MORTALITY WU BEEN RECEIVED?
NO
YES
WILL PATIENT SURVIVE WU?
NO
YES
DIED IN TREATMENT
MARK TREATER BUSY
IS THIS 1 OF 3 CRITICAL WORK UNITS?
NO
YES
MARK PATIENT AS HAVING RECEIVED WU
PERFORM WORK UNIT
END OF WORK UNIT

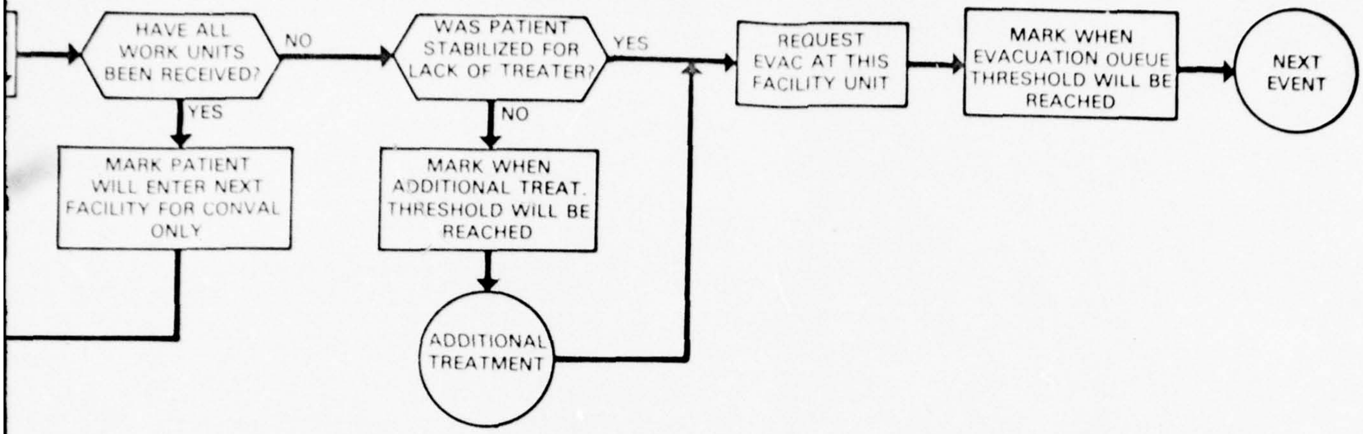
. 2(a) — Patient treatment pattern within a facility (Continues)

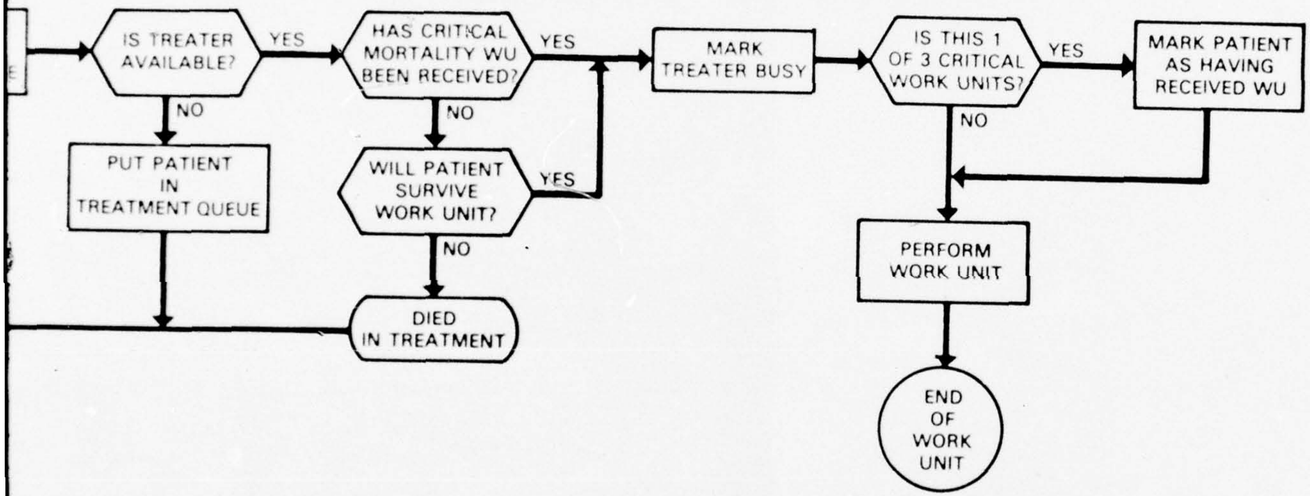

END OF STABILIZ
IS PATIENT DEAD?
NO
YES
DIED IN TREATMENT
IS PATIENT AT THE LAST LEVEL IN THE SYSTEM?
NO
YES
EVACUATED OUT OF CZ
PUT PATIENT IN EVACUATION QUEUE
HAVE ALL WORK UNITS BEEN RECEIVED?
NO
YES
MARK PATIENT WILL ENTER NEXT FACILITY FOR CONVAL ONLY
NEXT EVENT

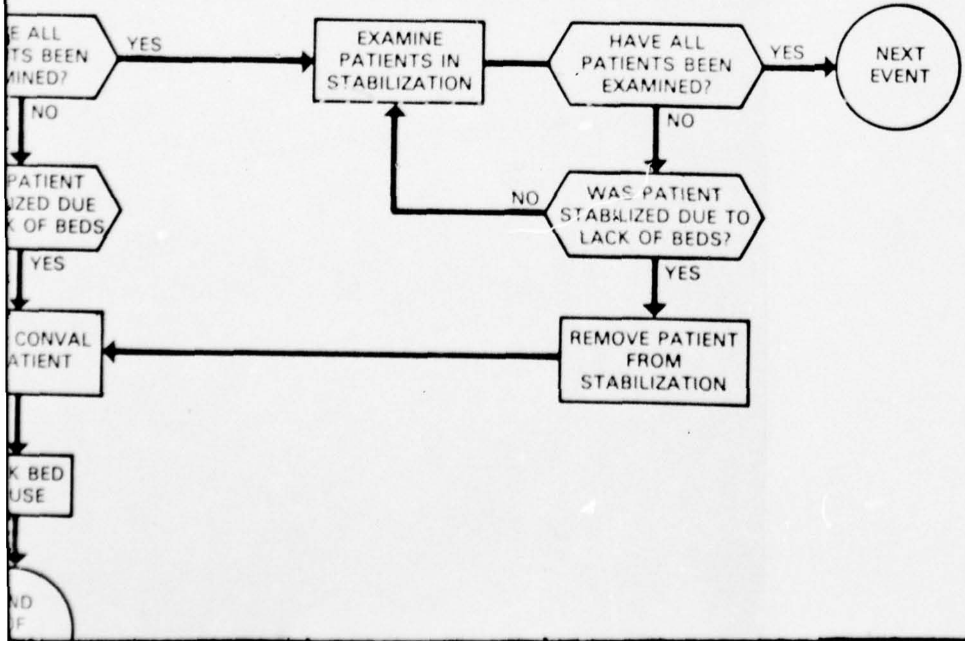

ADDITIONAL TREATMENT
IS ANY VEHICLE ENROUTE?
NO
YES
IS TREATER ASSIGNED FOR NEXT WU?
YES
NO
REMOVE PATIENT FROM EVACUATION QUEUE
IS TREATER AVAILABLE?
YES
NO
PUT PATIENT IN TREATMENT QUEUE
NEXT EVENT


END OF CONVAL.
MARK BED AVAILABLE
RTD
EXAMINE PATIENTS IN EVACUATION QUEUE
HAVE ALL PATIENTS BEEN EXAMINED?
YES
NO
WAS PATIENT STABILIZED DUE TO LACK OF BEDS
NO
YES
START CONVAL OF PATIENT
MARK BED IN USE
END OF CONVAL

2


HAVE ALL WORK UNITS BEEN RECEIVED?
NO
YES
MARK PATIENT WILL ENTER NEXT FACILITY FOR CONVAL ONLY
WAS PATIENT STABILIZED FOR LACK OF TREATER?
YES
NO
MARK WHEN ADDITIONAL TREAT. THRESHOLD WILL BE REACHED
ADDITIONAL TREATMENT
REQUEST EVAC AT THIS FACILITY UNIT
MARK WHEN EVACUATION QUEUE THRESHOLD WILL BE REACHED
NEXT EVENT


E
IS TREATER AVAILABLE?
YES
NO
PUT PATIENT IN TREATMENT QUEUE
HAS CRITICAL MORTALITY WU BEEN RECEIVED?
YES
NO
WILL PATIENT SURVIVE WORK UNIT?
YES
NO
DIED IN TREATMENT
MARK TREATER BUSY
IS THIS 1 OF 3 CRITICAL WORK UNITS?
YES
NO
MARK PATIENT AS HAVING RECEIVED WU
PERFORM WORK UNIT
END OF WORK UNIT


E ALL TS BEEN MINED?
YES
NO
PATIENT IZED DUE K OF BEDS
YES
CONVAL ATIENT
K BED USE
ND F
EXAMINE PATIENTS IN STABILIZATION
HAVE ALL PATIENTS BEEN EXAMINED?
YES
NO
NEXT EVENT
WAS PATIENT STABILIZED DUE TO LACK OF BEDS?
NO
YES
REMOVE PATIENT FROM STABILIZATION

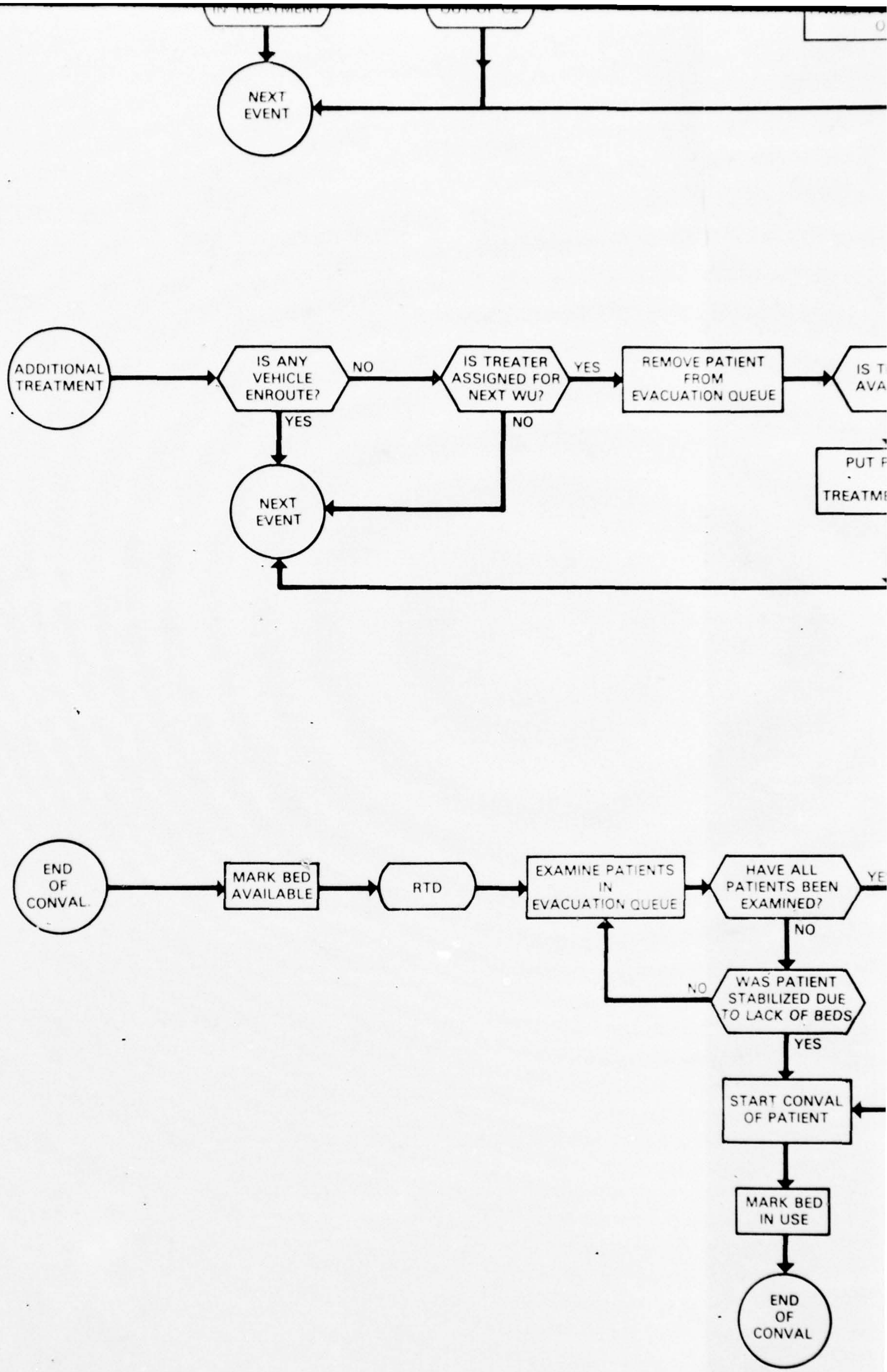
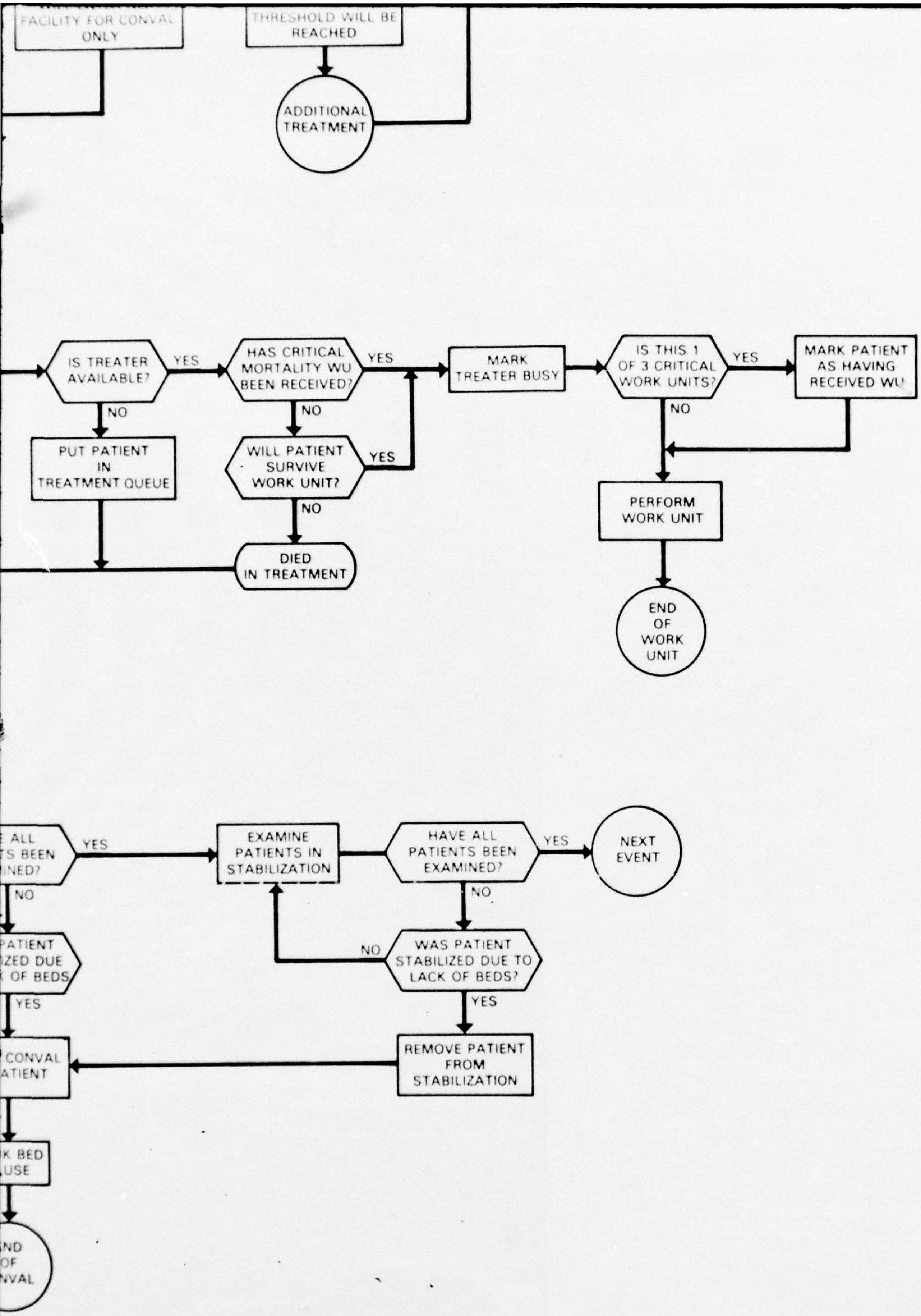

NEXT EVENT
ADDITIONAL TREATMENT
IS ANY VEHICLE ENROUTE?
NO
YES
IS TREATER ASSIGNED FOR NEXT WU?
YES
NO
REMOVE PATIENT FROM EVACUATION QUEUE
NEXT EVENT
END OF CONVAL.
MARK BED AVAILABLE
RTD
EXAMINE PATIENTS IN EVACUATION QUEUE
HAVE ALL PATIENTS BEEN EXAMINED?
NO
NO
WAS PATIENT STABILIZED DUE TO LACK OF BEDS
YES
START CONVAL OF PATIENT
MARK BED IN USE
END OF CONVAL

Fig. 2(b) (Contin
]


FACILITY FOR CONVAL ONLY
THRESHOLD WILL BE REACHED
ADDITIONAL TREATMENT
IS TREATER AVAILABLE?
YES
NO
PUT PATIENT IN TREATMENT QUEUE
HAS CRITICAL MORTALITY WU BEEN RECEIVED?
YES
NO
WILL PATIENT SURVIVE WORK UNIT?
YES
NO
DIED IN TREATMENT
MARK TREATER BUSY
IS THIS 1 OF 3 CRITICAL WORK UNITS?
YES
NO
MARK PATIENT AS HAVING RECEIVED WU
PERFORM WORK UNIT
END OF WORK UNIT
E ALL TS BEEN INED?
YES
NO
EXAMINE PATIENTS IN STABILIZATION
HAVE ALL PATIENTS BEEN EXAMINED?
YES
NO
NEXT EVENT
PATIENT ZED DUE K OF BEDS
YES
WAS PATIENT STABILIZED DUE TO LACK OF BEDS?
NO
YES
REMOVE PATIENT FROM STABILIZATION
CONVAL ATIENT
K BED USE
ND OF NVAL

2(b) (Continued) — Patient treatment pattern within a facility these factors enter a patient's processing within the NAMES II Model is considered to be logical -- if necessary treaters are not assigned, the patient must go elsewhere for treatment; once his First-Aid Work Unit is received and he can be moved safely, he should be evacuated as soon as possible if it is known that he must be evacuated anyway; finally, if his facility has enough convalescent beds allocated, and if his convalescent time falls within the evacuation policy of the facility, he should be retained at this facility and returned to duty, and not evacuated further to the rear.

The NAMES II Model is capable of simulating the patient evacuation process using two classes of vehicles, air and ground. Either class may be stationed at any casualty receiving facilities and/or at a central dispatch location or pool. The number of vehicles in each class is specified by the user, as well as the vehicle speed and capacity. The model currently treats the first class as ground ambulances, and the second as helicopters. An ambulance operates twenty-four hours a day. A helicopter operates during daylight hours* only, unless it is responding to a request to evacuate an urgent patient. In that case it will fly at any time.

New features which have been incorporated in the NAMES II Model enable users of the model to specify various rules for the employment of medical evacuation vehicles, both helicopters and ground vehicles. This allows the user to test different medical regulating procedures.

These rules may be selected by the user for each facility level within the medical evacuation chain. Having already specified the geographic location of each facility level, the number and type of evacuation vehicles assigned to each facility, the number of beds available, the evacuation policies, the medical treaters (surgeons, corpsmen, etc.) as well as the classes of patients who can receive treatment at each level, the user first designates, for each facility level, other locations from which evacuation vehicles may be requested. These vehicles may be at this facility, at other facilities, or in a central pool. The user then selects one of various rules that governs which patients will be loaded on an evacuation vehicle if this particular facility is the first pick-up stop for that vehicle. He also selects the destination of the vehicle. If this is the second stop for an evacuation vehicle which already has patients on board, the user may decide who is to be unloaded, which patients at this facility are to be put on board the vehicle after it is unloaded, and what the vehicle's next destination should be. The user also has the option to make similar inputs if this particular facility is the third or subsequent stop for a medical evacuation vehicle.

A relatively simple format has been prepared to assist the user in preparing these inputs.** Typical rules which users of the NAMES II Model might want to test are shown on the following page.

---

* As specified by the user.

** A sample format is contained in Appendix B.

Rules that govern facility levels from which evacuation vehicles may be requested.

R1 - closest support facility (including requesting facility).
R2 - closest support facility that has a vehicle available (including requesting facility).
R3 - pool.
R4 - first from the pool; if none available, from the closest support facility that has a vehicle available.
R5 - first from the support facilities, starting with the closest; if none available, from the pool.
R6 - from user-selected support facility.
R7 - next facility to the rear.
(all of these rules can be included at once by listing each choice of facility in order of preference)

Rules that govern which patients are loaded on a vehicle.

L1 - none.
L2 - all who will fit, by priority.
L3 - selected priorities only.
L4 - patients who are designated to go to facilities which have been designated for patients already on board.

Rules that govern vehicle non-stop destination.

D1 - home facility. (user specified)
- closest support facility. (user specified)
- other facility designated by user.
D2 - remain at present facility to await evacuation request.
D3 - closest facility to which any patient is designated to go.
D4 - as far to the rear as required by any patient.
D5 - support facility required by patient with highest priority.

Rules that govern which patients are unloaded from an evacuation vehicle at a vehicle destination.

U1 - none.
U2 - all.
U3 - those patients designated for evacuation to this facility, either by the user (patient class) or by the model (patients evacuated from the next lower level).
U4 - designated priorities.

Users may also want to force certain procedural policies upon the system, and these may in turn restrict the employment of evacuation vehicles. Such restrictions may include the following:

1. Restrict the type of evacuation vehicle to be employed at each facility level, e.g., only ground ambulances at the FEBA.

2. Restrict the destinations that can be reached directly from each facility level.

3. Restrict the patient priorities that can use each type of evacuation vehicle.

4. Specify that patients with certain priorities must be evacuated to a specified user-selected facility.

5. Specify that a particular patient class must be evacuated to a specific user-selected facility.

There is no conflict between these restrictions and the rules which the user may select for the employment of the evacuation vehicles. Any of these restrictions can be included in the model by selecting the appropriate vehicle employment rule or by the user option of designating the number and type of vehicles assigned to each facility level.

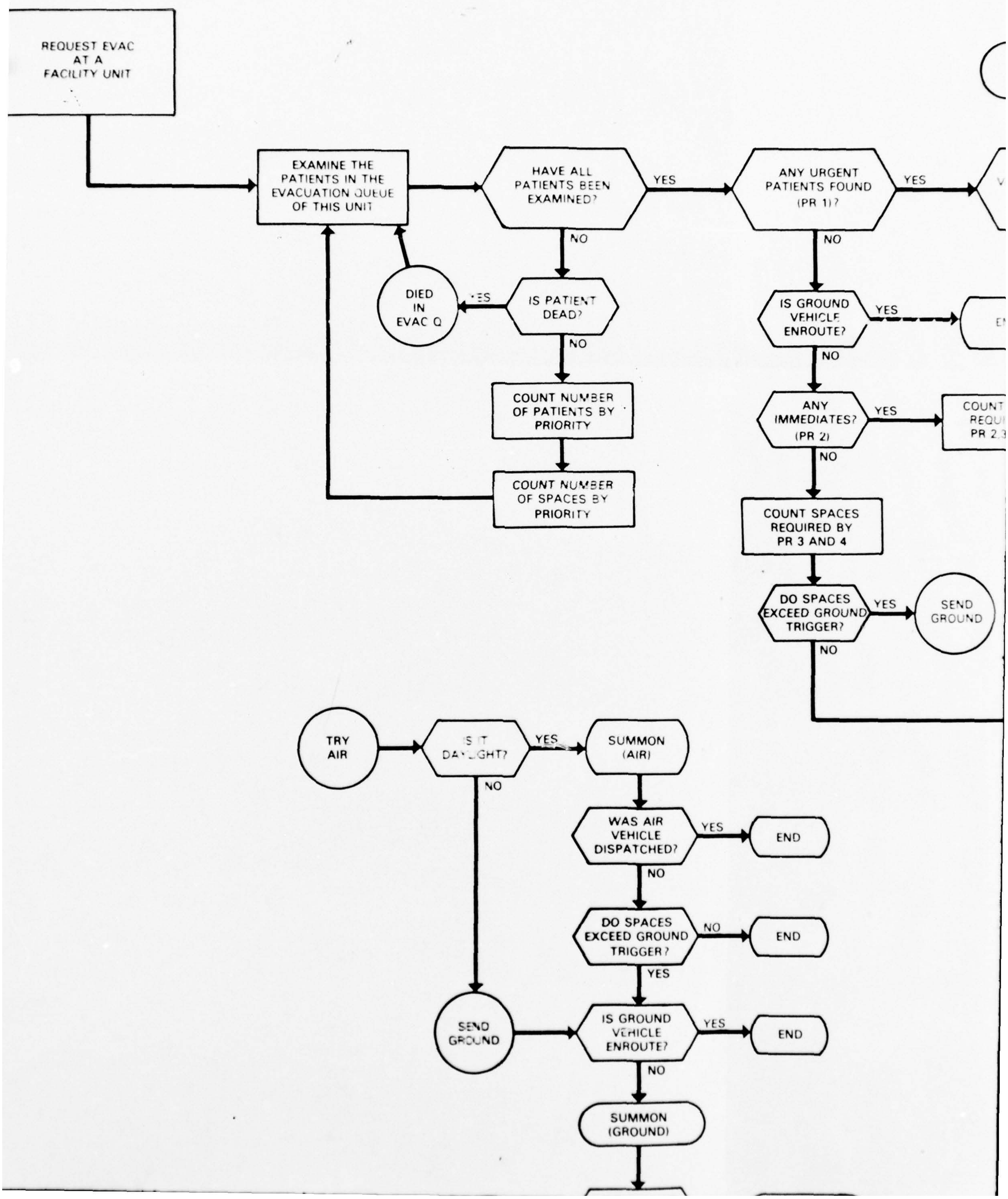
The NAMES II logic which governs the procedures for requesting an evacuation vehicle is described in Figure 3. The REQUEST EVAC logic of Figure 3, together with the VEHICLE ARRIVAL logic (Figure 4) for loading, unloading and dispatching vehicles are incorporated in NAMES II and must be understood by the user to avoid conflicts with the user-selected rules for the employment of evacuation vehicles. The REQUEST EVAC routine is summoned by the model whenever

1. a patient enters an evacuation queue,

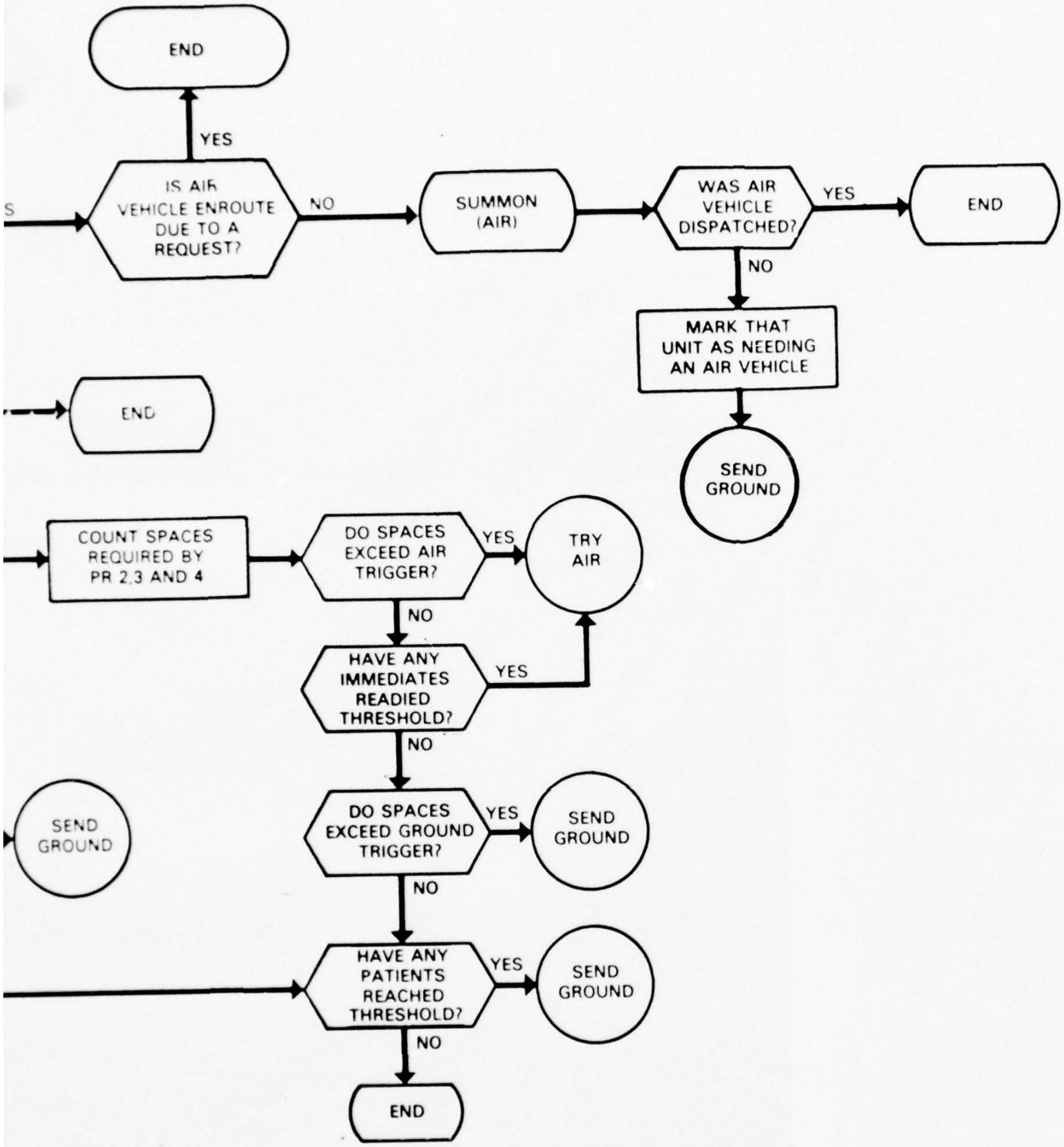
2. a patient's waiting time in the evacuation queue exceeds an interval, specified by the user, which is called the patient's evacuation threshold time,

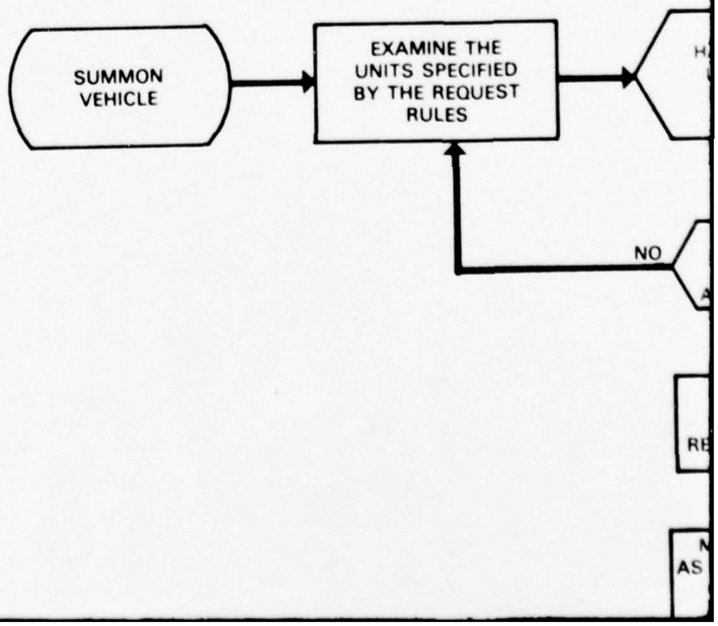
3. A vehicle departs from a facility with patients still waiting in the evacuation queue.

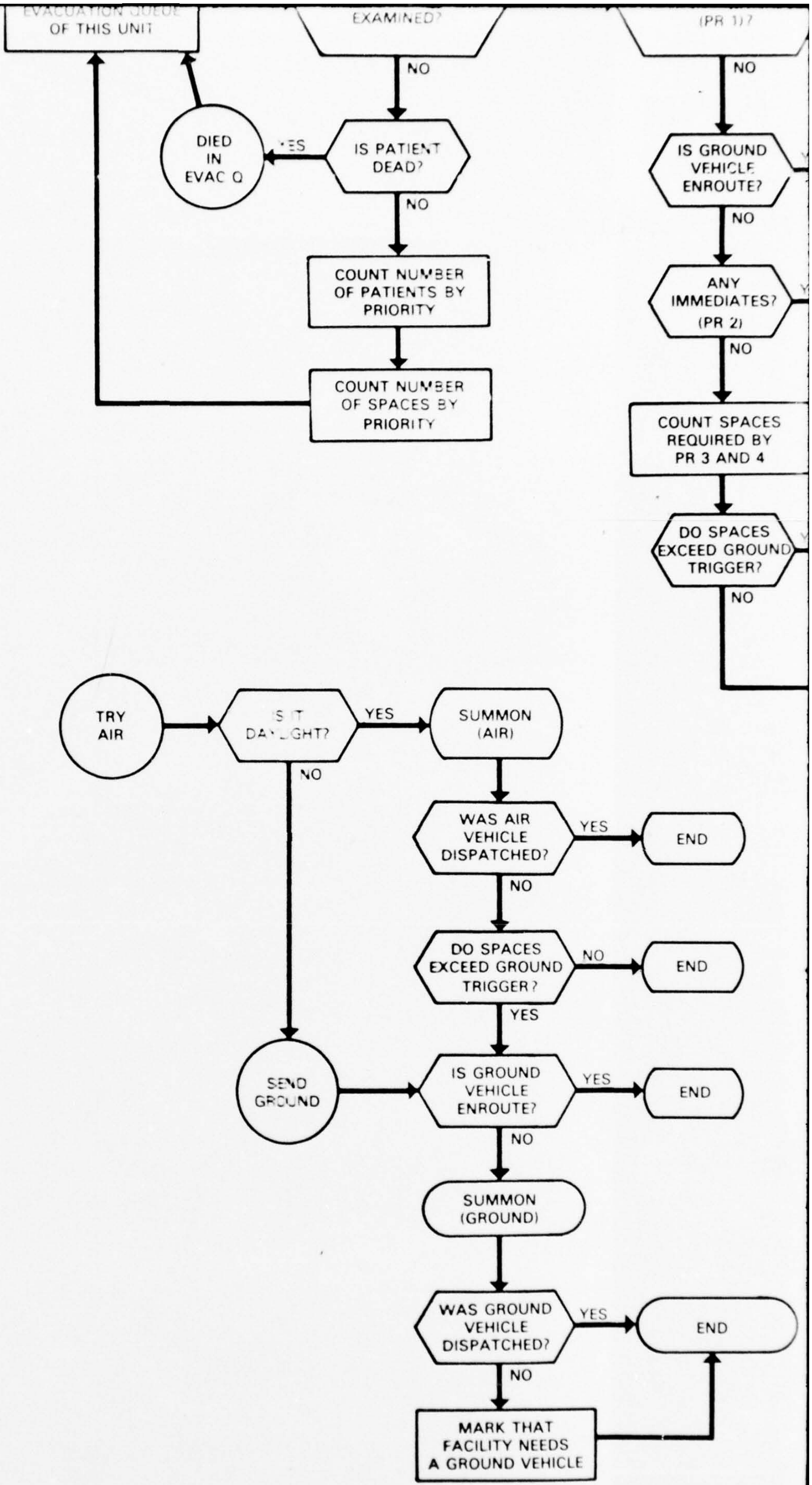
Each patient, according to the priority assigned to his class, is assigned an evacuation threshold time by the user. As soon as his waiting time in an evacuation queue reaches his assigned threshold time, an evacuation vehicle is requested. In the current NAMES II Model, this threshold time must be zero for urgent (Priority 1) patients, but the user may select the threshold times for patients having other priorities. As Figure 3 indicates, a helicopter is always requested first for an urgent patient, and if a helicopter is not available, a ground vehicle (ambulance) is requested. A helicopter is also the first choice for Priority 2 patients, but if no Priority 1 or Priority 2 patients are waiting, only ambulances are requested. Figure 3 also shows how the number of patients or spaces waiting to be evacuated "triggers" requests for air or ground vehicles. The air and ground "trigger" spaces are specified by the user. It is always assumed that an ambulatory patient occupies one space on an evacuation vehicle; a litter patient occupies two spaces.

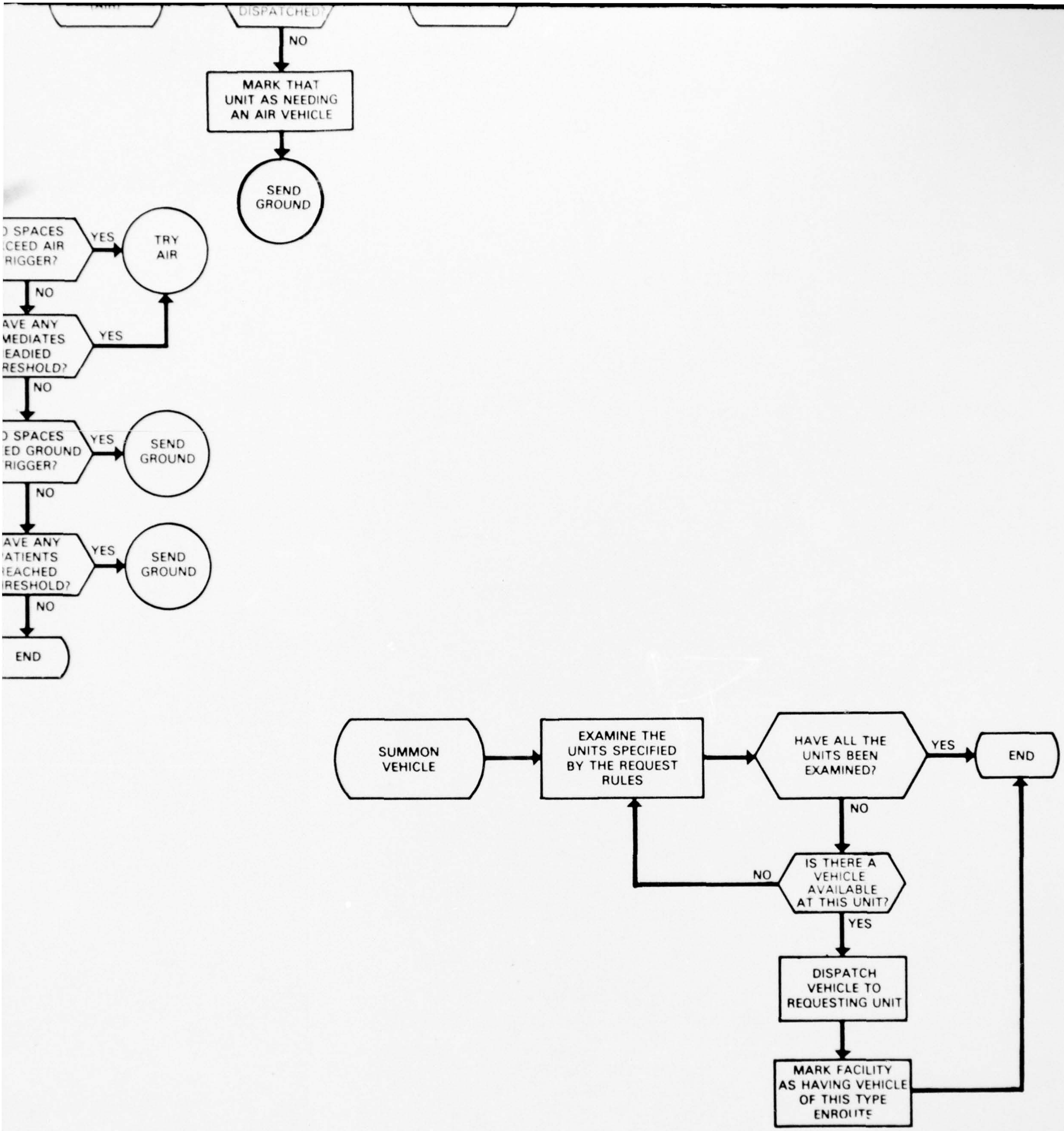

REQUEST EVAC AT A FACILITY UNIT
EXAMINE THE PATIENTS IN THE EVACUATION QUEUE OF THIS UNIT
HAVE ALL PATIENTS BEEN EXAMINED?
YES
NO
IS PATIENT DEAD?
YES
DIED IN EVAC Q
NO
COUNT NUMBER OF PATIENTS BY PRIORITY
COUNT NUMBER OF SPACES BY PRIORITY
ANY URGENT PATIENTS FOUND (PR 1)?
YES
NO
IS GROUND VEHICLE ENROUTE?
YES
NO
ANY IMMEDIATES? (PR 2)
YES
COUNT
REQUI
PR 2,3
NO
COUNT SPACES REQUIRED BY PR 3 AND 4
DO SPACES EXCEED GROUND TRIGGER?
YES
SEND GROUND
NO
TRY AIR
IS IT DAYLIGHT?
YES
SUMMON (AIR)
NO
WAS AIR VEHICLE DISPATCHED?
YES
END
NO
DO SPACES EXCEED GROUND TRIGGER?
NO
END
YES
SEND GROUND
IS GROUND VEHICLE ENROUTE?
YES
END
NO
SUMMON (GROUND)

2


END
YES
S
IS AIR VEHICLE ENROUTE DUE TO A REQUEST?
NO
SUMMON (AIR)
WAS AIR VEHICLE DISPATCHED?
YES
END
NO
MARK THAT UNIT AS NEEDING AN AIR VEHICLE
SEND GROUND
END
COUNT SPACES REQUIRED BY PR 2,3 AND 4
DO SPACES EXCEED AIR TRIGGER?
YES
TRY AIR
NO
HAVE ANY IMMEDIATES READIED THRESHOLD?
YES
NO
SEND GROUND
DO SPACES EXCEED GROUND TRIGGER?
YES
SEND GROUND
NO
HAVE ANY PATIENTS REACHED THRESHOLD?
YES
SEND GROUND
NO
END

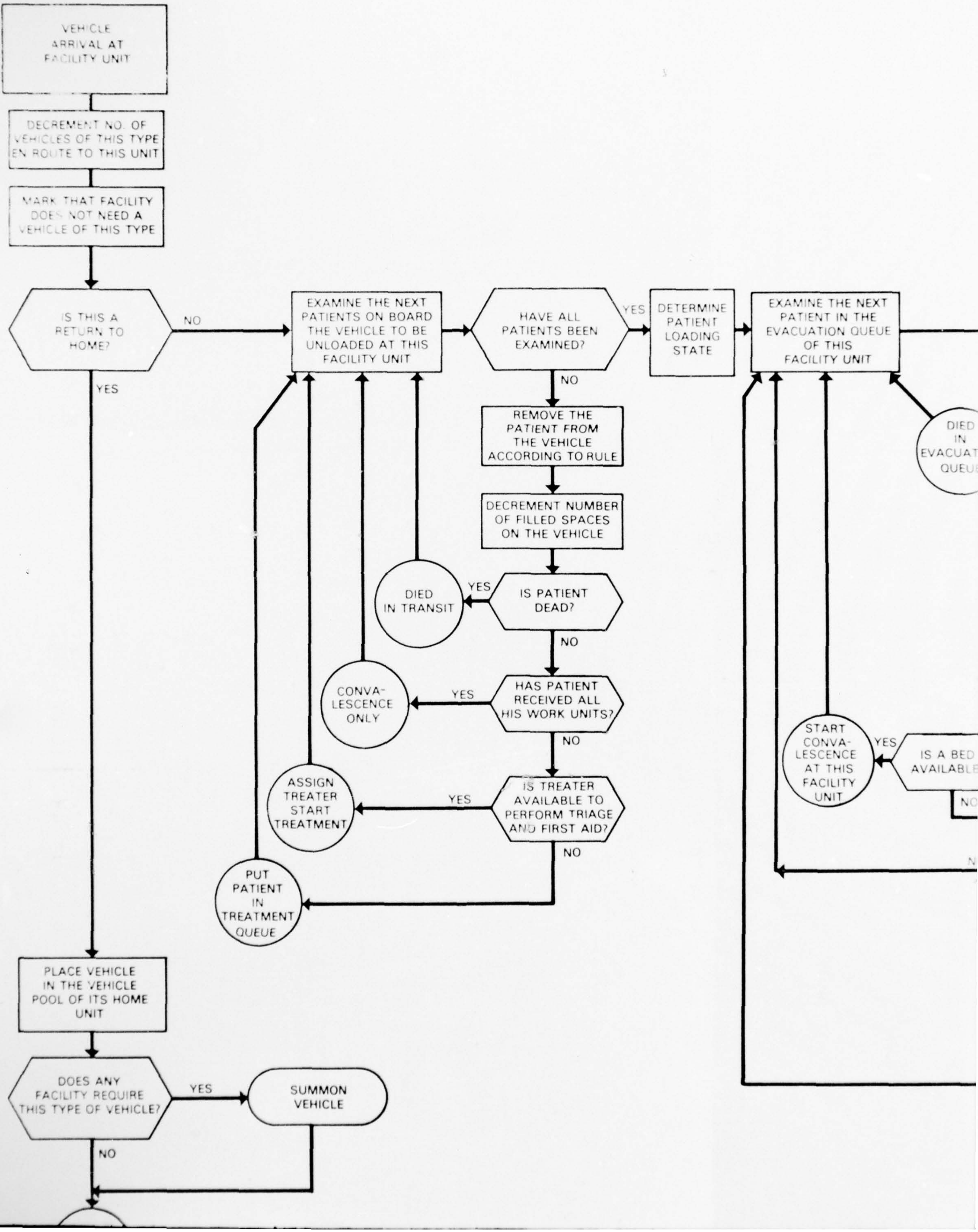

SUMMON VEHICLE
EXAMINE THE UNITS SPECIFIED BY THE REQUEST RULES
NO


EVACUATION QUEUE OF THIS UNIT
EXAMINED?
(PR 1)?
NO
NO
DIED IN EVAC Q
YES
IS PATIENT DEAD?
NO
COUNT NUMBER OF PATIENTS BY PRIORITY
COUNT NUMBER OF SPACES BY PRIORITY
IS GROUND VEHICLE ENROUTE?
NO
ANY IMMEDIATES? (PR 2)
NO
COUNT SPACES REQUIRED BY PR 3 AND 4
DO SPACES EXCEED GROUND TRIGGER?
NO
TRY AIR
IS IT DAYLIGHT?
YES
NO
SUMMON (AIR)
WAS AIR VEHICLE DISPATCHED?
YES
END
NO
DO SPACES EXCEED GROUND TRIGGER?
NO
END
YES
SEND GROUND
IS GROUND VEHICLE ENROUTE?
YES
END
NO
SUMMON (GROUND)
WAS GROUND VEHICLE DISPATCHED?
YES
END
NO
MARK THAT FACILITY NEEDS A GROUND VEHICLE

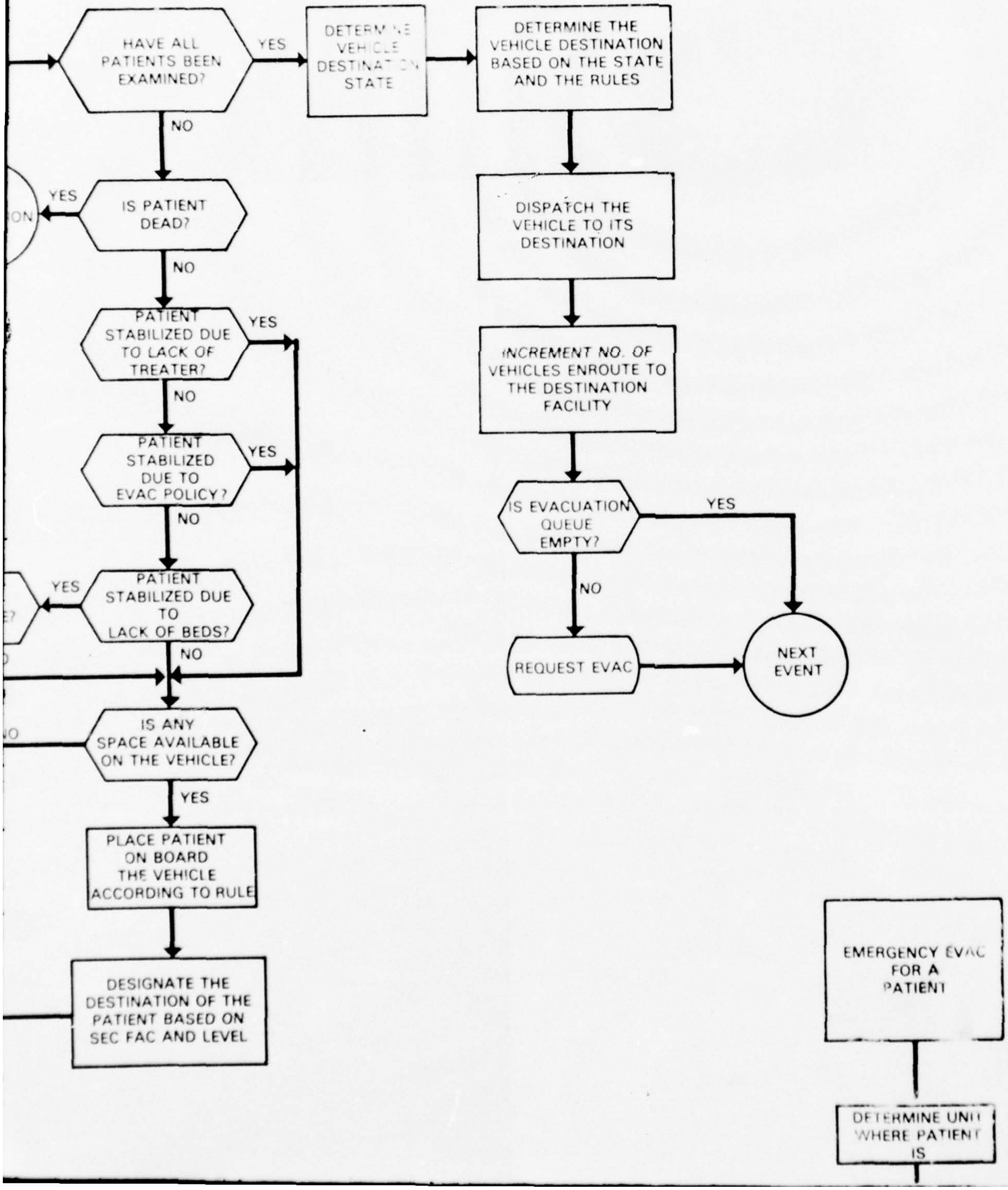

DISPATCHED?
NO
MARK THAT UNIT AS NEEDING AN AIR VEHICLE
SEND GROUND
SPACES CEED AIR RIGGER?
YES
TRY AIR
NO
AVE ANY MEDIATES EADIED RESHOLD?
YES
NO
SPACES ED GROUND RIGGER?
YES
SEND GROUND
NO
AVE ANY ATIENTS EACHED RESHOLD?
YES
SEND GROUND
NO
END
SUMMON VEHICLE
EXAMINE THE UNITS SPECIFIED BY THE REQUEST RULES
HAVE ALL THE UNITS BEEN EXAMINED?
YES
END
NO
IS THERE A VEHICLE AVAILABLE AT THIS UNIT?
NO
YES
DISPATCH VEHICLE TO REQUESTING UNIT
MARK FACILITY AS HAVING VEHICLE OF THIS TYPE ENROUTE

uation vehicles

4


VEHICLE ARRIVAL AT FACILITY UNIT
DECREMENT NO. OF VEHICLES OF THIS TYPE EN ROUTE TO THIS UNIT
MARK THAT FACILITY DOES NOT NEED A VEHICLE OF THIS TYPE
IS THIS A RETURN TO HOME?
NO
YES
EXAMINE THE NEXT PATIENTS ON BOARD THE VEHICLE TO BE UNLOADED AT THIS FACILITY UNIT
HAVE ALL PATIENTS BEEN EXAMINED?
YES
DETERMINE PATIENT LOADING STATE
EXAMINE THE NEXT PATIENT IN THE EVACUATION QUEUE OF THIS FACILITY UNIT
NO
REMOVE THE PATIENT FROM THE VEHICLE ACCORDING TO RULE
DECREMENT NUMBER OF FILLED SPACES ON THE VEHICLE
IS PATIENT DEAD?
YES
DIED IN TRANSIT
NO
HAS PATIENT RECEIVED ALL HIS WORK UNITS?
YES
CONVA-LESCENCE ONLY
NO
IS TREATER AVAILABLE TO PERFORM TRIAGE AND FIRST AID?
YES
ASSIGN TREATER START TREATMENT
NO
PUT PATIENT IN TREATMENT QUEUE
DIED IN EVACUAT QUEU
START CONVA-LESCENCE AT THIS FACILITY UNIT
YES
IS A BED AVAILABLE
NO
N
PLACE VEHICLE IN THE VEHICLE POOL OF ITS HOME UNIT
DOES ANY FACILITY REQUIRE THIS TYPE OF VEHICLE?
YES
SUMMON VEHICLE
NO

2


HAVE ALL PATIENTS BEEN EXAMINED?
YES
DETERMINE VEHICLE DESTINATION STATE
DETERMINE THE VEHICLE DESTINATION BASED ON THE STATE AND THE RULES
NO
YES
IS PATIENT DEAD?
NO
PATIENT STABILIZED DUE TO LACK OF TREATER?
YES
NO
PATIENT STABILIZED DUE TO EVAC POLICY?
YES
NO
YES
PATIENT STABILIZED DUE TO LACK OF BEDS?
NO
IS ANY SPACE AVAILABLE ON THE VEHICLE?
YES
PLACE PATIENT ON BOARD THE VEHICLE ACCORDING TO RULE
DESIGNATE THE DESTINATION OF THE PATIENT BASED ON SEC FAC AND LEVEL
DISPATCH THE VEHICLE TO ITS DESTINATION
INCREMENT NO. OF VEHICLES ENROUTE TO THE DESTINATION FACILITY
IS EVACUATION QUEUE EMPTY?
YES
NO
REQUEST EVAC
NEXT EVENT
EMERGENCY EVAC FOR A PATIENT
DETERMINE UNIT WHERE PATIENT IS

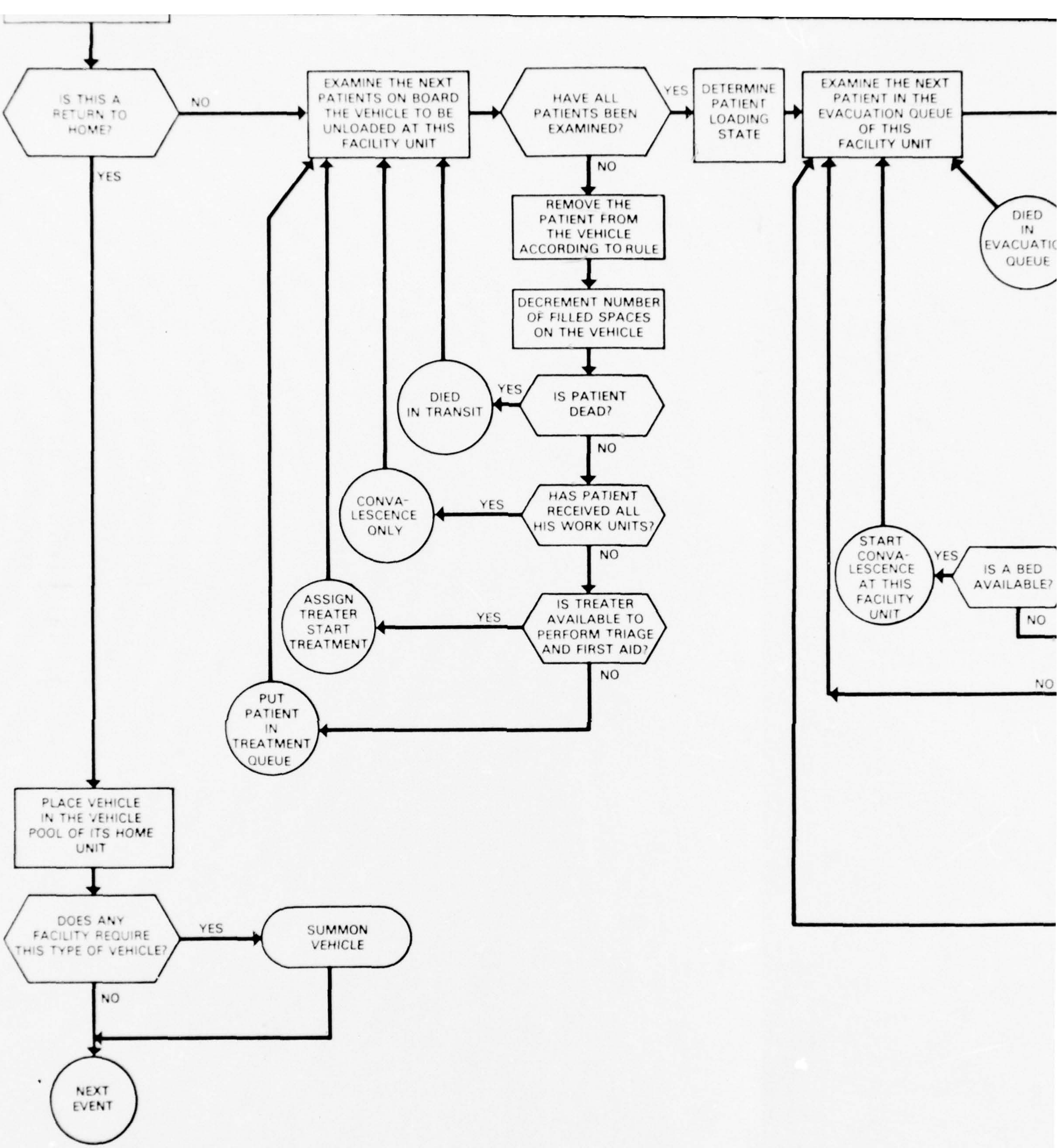
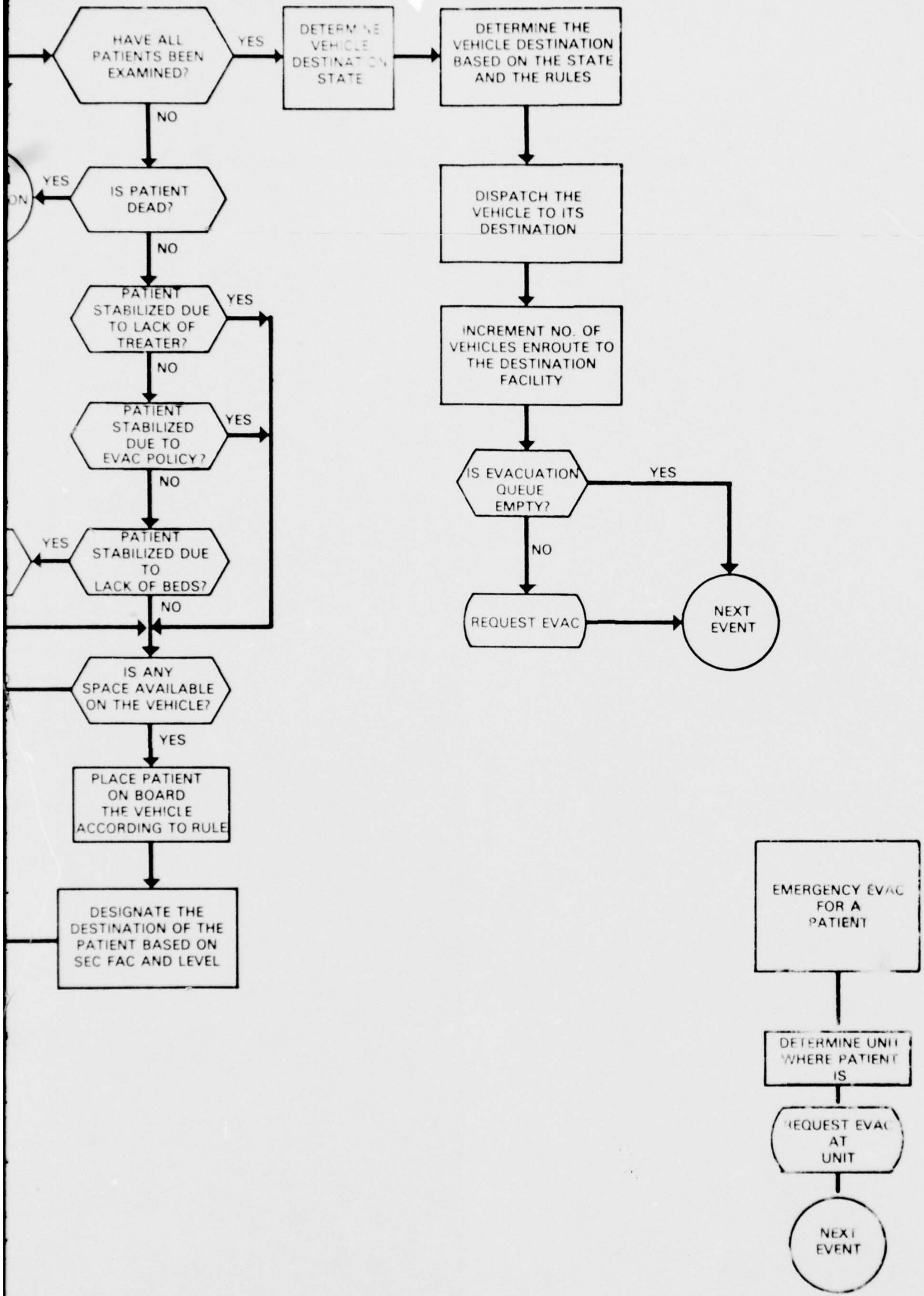

IS THIS A RETURN TO HOME?
NO
YES
EXAMINE THE NEXT PATIENTS ON BOARD THE VEHICLE TO BE UNLOADED AT THIS FACILITY UNIT
HAVE ALL PATIENTS BEEN EXAMINED?
YES
NO
DETERMINE PATIENT LOADING STATE
EXAMINE THE NEXT PATIENT IN THE EVACUATION QUEUE OF THIS FACILITY UNIT
DIED IN EVACUATI
QUEUE
REMOVE THE PATIENT FROM THE VEHICLE ACCORDING TO RULE
DECREMENT NUMBER OF FILLED SPACES ON THE VEHICLE
IS PATIENT DEAD?
YES
DIED IN TRANSIT
NO
HAS PATIENT RECEIVED ALL HIS WORK UNITS?
YES
CONVA-LESCENCE ONLY
NO
IS TREATER AVAILABLE TO PERFORM TRIAGE AND FIRST AID?
YES
ASSIGN TREATER START TREATMENT
NO
PUT PATIENT IN TREATMENT QUEUE
START CONVA-LESCENCE AT THIS FACILITY UNIT
YES
IS A BED AVAILABLE?
NO
NO
PLACE VEHICLE IN THE VEHICLE POOL OF ITS HOME UNIT
DOES ANY FACILITY REQUIRE THIS TYPE OF VEHICLE?
YES
SUMMON VEHICLE
NO
NEXT EVENT

Fig. 4 — Logic for loading, unloading and dispatc

3


HAVE ALL PATIENTS BEEN EXAMINED?
YES
DETERMINE VEHICLE DESTINATION STATE
DETERMINE THE VEHICLE DESTINATION BASED ON THE STATE AND THE RULES
NO
DISPATCH THE VEHICLE TO ITS DESTINATION
YES
IS PATIENT DEAD?
NO
INCREMENT NO. OF VEHICLES ENROUTE TO THE DESTINATION FACILITY
PATIENT STABILIZED DUE TO LACK OF TREATER?
YES
NO
PATIENT STABILIZED DUE TO EVAC POLICY?
YES
NO
IS EVACUATION QUEUE EMPTY?
YES
NO
YES
PATIENT STABILIZED DUE TO LACK OF BEDS?
NO
REQUEST EVAC
NEXT EVENT
IS ANY SPACE AVAILABLE ON THE VEHICLE?
YES
PLACE PATIENT ON BOARD THE VEHICLE ACCORDING TO RULE
DESIGNATE THE DESTINATION OF THE PATIENT BASED ON SEC FAC AND LEVEL
EMERGENCY EVAC FOR A PATIENT
DETERMINE UNIT WHERE PATIENT IS
REQUEST EVAC AT UNIT
NEXT EVENT

hing evacuation vehicles

The NAMES II Model incorporates a feature that enables all patients awaiting evacuation to receive additional medical attention if transportation is delayed, provided appropriate treaters are assigned to the facility. In addition to the evacuation threshold times which trigger a request for a vehicle to pick up patients if they have been waiting too long, all patients (including outpatients) are assigned an "additional treatment" threshold time. If this time is exceeded before a vehicle has been dispatched to the waiting patient's facility, the patient will leave the evacuation queue and undergo additional treatment, provided the appropriate treater is assigned to the facility. Otherwise the patient is left to wait for the arrival of the vehicle. If he dies while awaiting transportation, he is not placed in the vehicle but is counted as having died at this facility. If he is alive when the vehicle arrives, but dies in transit, he is counted as having died enroute to his next receiving facility.

NAMES II also contains an added feature which helps reduce the number of patients evacuated because of convalescent bed shortages. Whenever a patient is returned to duty from a facility's convalescent ward, making a bed available, the facility's evacuation queue is searched for patients who are there because of the shortage of convalescent beds. Amongst such patients, the highest priority patient is removed from the evacuation queue and transferred to the empty convalescent bed. He will subsequently be returned to duty, instead of being evacuated from the facility. If the evacuation queue contains no patients who are being evacuated because of the bed shortage, a search is next made for patients who are being stabilized because of the convalescent bed shortage at the facility. If there are any such patients, the one who is due to leave stabilization next (to enter the evacuation queue) is immediately transferred to the empty convalescent bed, and will subsequently be returned to duty. Other rules could be adopted for removing such patients from stabilization or from the evacuation queue, such as selecting the patient with the shortest convalescent time.

When a patient is evacuated from any facility, his destination is designated to be his user-selected second facility if his present facility is closer to the FEBA than his second facility. Otherwise, his destination is designated to be the next facility to the rear. Depending on the vehicle destination rules in force, the vehicle which is evacuating the patient may or may not stop next at the patient's designated destination, and, depending on the patient unloading rules in force, the patient may or may not be unloaded at the vehicle's next stop. Wherever the patient is unloaded next, he will remain until he dies, or returns to duty, or until one of the three conditions is met to force his stabilization and evacuation.

The vehicle destination rules and the patient unloading rules always prevail over the patient's designated destination. If the patient is unloaded at a facility closer to the FEBA than his designated destination, his next designated destination, if he has to be evacuated again, will be the same as it was before, that is, to his second facility if he hasn't already been there, or else to the next facility to the rear. If he is unloaded at his designated destination or at a facility further to the rear than his designated destination, then his next designated destination, if he has to be evacuated, will be the next facility to the rear.

In the NAMES II Model, it is assumed that patients who are evacuated from the facility level furthest from the FEBA will be transferred to staging facilities for air evacuation out of the combat zone. These staging facilities are not currently included in the evacuation chain simulated by the model; hence, evacuees from the last facility level are removed from the simulation once they enter the evacuation queue at that facility. They are never placed on board any of the evacuation vehicles which service the simulated evacuation chain.

NAMES II INPUTS

The Model is "driven" by many user-specified parameters, or inputs, which describe the principal elements of the medical evacuation system. These inputs, which are listed below, are not dependent upon historical data. If the user wishes to use the model to simulate historical situations, then certain inputs, such as the average number of patients admitted each day, could be provided from historical data.

Instructions for the correct preparation of these inputs are contained in Appendix B, together with illustrative examples from the NAMES II baseline simulation. All of the baseline simulation input parameters are described in Appendix A, and all of the computer reports of the baseline simulation inputs are contained in Appendix C.

Operational (Tactical) Inputs

- Distances between the FEBA and each medical facility level, including the evacuation vehicle pool
- Average number of battle casualties each day -- inpatients and outpatients
- Proportional distribution of battle casualty arrivals for each hour of the day -- inpatients and outpatients
- Proportional distribution of battle casualties entering the evacuation chain at each facility level -- inpatients and outpatients
- Proportional distribution of battle casualties among the patient classes -- inpatients and outpatients
- Number of combat days
- Hours of dawn and dusk

Physical Resources Inputs

- Number of medical facility levels
- Number of medical facility units at each level
- Types of medical personnel (treaters) assigned to each facility unit, together with the numbers of each type assigned
- Quantities of evacuation vehicles, by type, assigned to each facility unit, including the pool, together with the vehicle capacities, by

type (one space for an ambulatory patient, two spaces for a litter patient)

- Speed of evacuation vehicles, by type, between each medical facility level
- Convalescent bed capacity at each facility unit.

Medical Technology Inputs

- Patient class descriptions
- Work unit descriptions
- For each patient class:

    - priority
    - mobility factor (probability that the patient will be ambulatory)
    - mortality threshold time at patient's entry facility
    - critical mortality work unit allowable delay time
    - critical convalescent work unit allowable delay time
    - sequence of work units to be performed, listed in order of treatment
    - first-aid work unit
    - critical mortality work unit
    - critical convalescent work unit
    - convalescent time probability distribution
- For each work unit:
    - preferred and alternate treaters and respective treatment times
- For each patient priority:
    - stabilization time prior to evacuation
    - evacuation threshold time
    - additional treatment threshold time
- Factor by which patient's original convalescent time is increased if his critical convalescent work unit is not completed in the allowable delay time.

Command and Control Inputs

- Number of non-urgent casualties in an evacuation queue that triggers a request for each type of evacuation vehicle
- Evacuation policy for each facility unit
- The patient's second facility level (SECFAC) following evacuation from his entry facility
- Rules for the employment of evacuation vehicles at each facility level:
    - levels from which vehicles, by type, are requested
    - patients unloaded from arriving vehicles, by vehicle type
    - patients loaded on departing vehicles, by vehicle type and state, i.e., vehicle empty or not, and other vehicle enroute or not
    - departing vehicles' destinations, by vehicle type and state, i.e., vehicle empty or not

NAMES II OUTPUTS

The NAMES II Model computes and prints daily and cumulative statistics at intervals desired by the user, together with summary statistics following the last day of combat and again after all patients have left the system. This output data, which is listed below, provides the model user with a quantitative method of observing various measures of the effectiveness of specific medical evacuation systems. This permits the relative comparison of different evacuation systems, and also shows the sensitivity of an evacuation system to the various design parameters or inputs. The output data includes patient dispositions, measures of lost time due to injuries and illness, measures of resource requirements, and measures of resource utilization. Appendix D contains sample computer reports of the NAMES II baseline simulation outputs.

Daily and Cumulative Reports

- Numbers of casualties, listed by facility level and patient priority, who
  - entered that level directly,
  - were evacuated to that level,
  - returned to duty without convalescence,
  - returned to duty with convalescence,
  - died during treatment,
  - died in a treatment queue,
  - died in an evacuation queue,
  - died enroute (in transit) to that facility level,
  - remained at that level at midnight,
  - remained in stabilization at that level at midnight,
  - remained in convalescence at that level at midnight,
  - entered convalescence,
  - had their convalescent time increased,
  - were stabilized because a required treater was not assigned,
  - were stabilized because their convalescent time exceeded the evacuation policy,
  - were stabilized because of the shortage of beds,
  - were evacuated from that facility level.
- Numbers of inpatients and outpatients, listed by facility level and work units, who required each work unit; the number of times preferred or alternate treaters for each work unit were assigned to the facility when first requested; the number of times preferred or alternate treaters for each work unit were available when first requested; and the number of patient deaths due to excessive delays in receiving each critical mortality work unit.
- Numbers of patients, listed by facility level and convalescent times, who
  - required beds,
  - entered stabilization or were evacuated because required treaters were not assigned, or their convalescent time exceeded the facility evacuation policy, or because of the shortage of beds,
  - remained in stabilization at midnight,

  - entered convalescence,
  - arrived for convalescence only,
  - remained in convalescence at midnight.
- Number of round trips completed by each evacuation vehicle which was assigned to each facility unit, including the pool; the length of time each vehicle was in use; the average trip time for each vehicle; the daily average occupancy (number of patients) of each vehicle; and the average occupancy of each vehicle taken over all time to date.
- Number of requests made by each facility level for each type of evacuation vehicle, and the number of such requests which were honored (vehicle dispatched).
- Number of requests placed on each facility level and the pool for each type of evacuation vehicle, and the number of such requests which were honored (vehicle dispatched).
- Number of pick-up trips made by each type of evacuation vehicle to each facility level in response to requests made by that facility level. Vehicles always arrive at the requesting facility empty on pick-up trips.
- Number of stops made by each type of evacuation vehicle at each facility level for reasons other than to comply with pick-up requests. These stops "enroute" are of two classes only: patient unloading stops, with possible reloading; and stops which mark the vehicle's return to its home facility.

Summary Reports

- Exact number of inpatient arrivals and outpatient arrivals into the evacuation system during each hour of each day of combat.
- Total numbers of inpatients and outpatients, listed by facility level and work units, who required each work unit; the number of times preferred or alternate treaters for each work unit were assigned to the facility when first requested; the number of times preferred or alternate treaters for each work unit were available when first requested; and the numbers of patient deaths due to excessive delays in receiving each critical mortality work unit.
- Total numbers of patients, listed by facility level and convalescent times, who
  - required beds,
  - entered stabilization or were evacuated because required treaters were not assigned, or their convalescent time exceeded the facility evacuation policy, or because of the shortage of beds,
  - remained in stabilization at midnight,
  - entered convalescence,
  - arrived for convalescence only,
  - remained in convalescence at midnight.
- Numbers of patients, listed by facility level for each day following D-Day (beginning of combat), who
  - were admitted to the facility level, either by direct entry or by evacuation from another level,
  - entered stabilization or were evacuated because required treaters were not assigned, or their convalescent time exceeded the

    facility evacuation policy, or because of the shortage of beds,
    - entered convalescence,
    - arrived for convalescence only,
    - had their convalescent time increased,
    - remained in stabilization at midnight,
    - remained in convalescence at midnight.
- Numbers of beds required, occupied, and assigned to each facility level for each day following D-day.
- Number of beds required outside the combat zone for each day following D-day.
- Numbers of patients, listed by facility level for each day following D-day, who
    - entered the facility level directly,
    - were evacuated to the facility level from another level,
    - returned to duty without convalescence,
    - returned to duty with convalescence,
    - died,
    - were evacuated,
    - remained at that level at midnight.
- Total numbers of inpatients and outpatients, listed by patient class, who
    - entered the evacuation system,
    - returned to duty,
    - were evacuated out of the combat zone,
    - died.
- Total numbers of patients, listed by number of days spent in the evacuation system, who
    - returned to duty,
    - died,
    - were evacuated out of the combat zone.

NAMES II BASELINE SIMULATION

The medical treatment and evacuation system simulation used as the baseline for comparative analysis was designed to represent a system which might support a U.S. Marine Corps combat division. While NAMES II inputs are not dependent upon historical data, many of the baseline simulation inputs conform to actual information obtained from the Army, Navy and Marine Corps. This was done in order to test the capability of NAMES II to produce realistic results when simulating realistic conditions. Table A-1 of Appendix A* shows the average daily number of battle casualties (inpatients) used in the baseline simulation. These battle casualties represent actual Marine Corps casualties of the Korean Chosin Reservoir Campaign in 1950. In addition to these inpatients, the number of outpatients per day was assumed to be constant at 150 throughout the 15-day conflict. Thus the total patient load thrust upon the baseline system during the 15-day combat period was in excess of 5000.

The configuration of the baseline system is illustrated in Figure 5. There are 360 medics supporting the combat forces at the FEBA; 10 medics

---

* Tables A-1 through A-9 and Figures A-1 and A-2 appear in Appendix A.

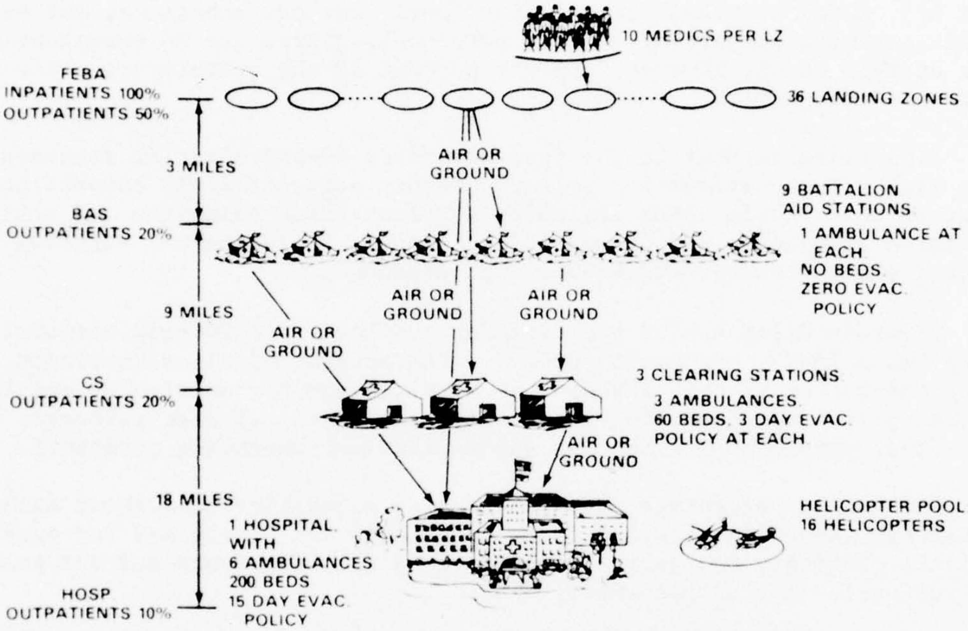

10 MEDICS PER LZ
FEBA
INPATIENTS 100%
OUTPATIENTS 50%
36 LANDING ZONES
3 MILES
AIR OR
GROUND
9 BATTALION
AID STATIONS
BAS
OUTPATIENTS 20%
1 AMBULANCE AT
EACH
NO BEDS
ZERO EVAC
POLICY
9 MILES
AIR OR
GROUND
AIR OR
GROUND
AIR OR
GROUND
CS
OUTPATIENTS 20%
3 CLEARING STATIONS
3 AMBULANCES
60 BEDS, 3 DAY EVAC
POLICY AT EACH
AIR OR
GROUND
18 MILES
1 HOSPITAL
WITH
6 AMBULANCES
200 BEDS
15 DAY EVAC
POLICY
HELICOPTER POOL
16 HELICOPTERS
HOSP
OUTPATIENTS 10%

Fig. 5 — NAMES II baseline simulation operational area, showing possible evacuation routes

are assigned to each of 36 evacuation terminals or landing zones (LZ). All of the inpatients and 50 percent of the outpatients enter the system at this level. All of these inpatients who survive their initial treatment are evacuated to the rear for additional treatment. The outpatients who enter the system at the FEBA return to duty after receiving first aid; none of them die.

Three miles behind the FEBA are nine battalion aid stations (BAS). Each BAS, which services four landing zones, has one ambulance, and two physicians with supporting medical personnel. There are no convalescent beds at this level, however. Twenty percent of the outpatients enter the system at this level.

Nine miles further to the rear are three 60-bed clearing stations (CS), each with a 3-day evacuation policy. Twenty percent of all outpatients enter at this level. Each CS, which services three battalion aid stations, has three ambulances and 44 medical personnel, including two surgeons, two general practitioners, and supporting personnel.

Eighteen miles behind the clearing stations is a 200-bed hospital which has a 15-day evacuation policy. Ten percent of all outpatients enter the system at this level. The hospital has six ambulances and 131 medical personnel, including two surgeons, six general practitioners, five other physician and dentist specialists and supporting personnel.

The hourly percentage distributions of casualties throughout each combat day, shown in Figure A-1 for inpatients and Figure A-2 for outpatients, indicate two peak arrival periods for inpatients and one peak arrival period for outpatients.

Each patient was assigned to one of 75 classes, which were defined by the U.S. Army Academy of Health Sciences, [2] and correspond to diagnostic codes defined in the U.S. Department of Defense Disease and Injury Codes. These patient classes encompass those wounded in action (WIA's) as well as diseased and non-battle injury (DNBI) patients, and also include outpatients as well as inpatients. The proportional distributions of patients among the 75 classes is shown in Table A-2. This data came from Army and Navy Vietnam records. The descriptions of these patient classes are contained in Table A-4. Treatment parameters for each patient class are described in Table A-5. The patient priority assigned to each class, and the litter or ambulatory status of each class, were obtained from the U.S. Army Academy of Health Sciences. [3] Other inputs which somewhat resemble data prepared by the Academy of Health Sciences and used in the U.S. Army Medical Planning Factors Study (MEDPLN) [3] are the treater descriptions (Table A-3), the work unit descriptions (Table A-6), and the treaters and treatment times associated with the work units (Table A-7). The MEDPLN Study, however, did not include such definitive care work units as major debridement or surgery, nor did it consider the NAMES II concepts of first-aid work units, critical mortality work units, critical convalescent work units, allowable delay times to complete these work units, and mortality threshold times at the patient's entry facility.

Therefore, the NAMES II baseline simulation work units (Table A-6) and associated treaters (Table A-7) cover a more complete patient treatment capability, which is reflected in the sequences of work units designated for each patient class (Table A-5) in the NAMES II baseline simulation. The critical treatment threshold times and work units for the baseline simulation are listed in Table A-8. The treater descriptions and assignments (Table A-3) conform to U.S. Navy standards, and each patient's second facility level (SECFAC) following evacuation from his entry facility is listed in Table A-9. These represent the closest facilities to the FEBA at which appropriate treaters are assigned to perform all work units required by the respective patient classes. By specifying each patient's SECFAC this way, no patient will be designated to go further to the rear than necessary for treatment. Other criteria could have been used in designating the SECFAC facilities chosen for the baseline simulation.

The convalescent time cumulative probability distribution associated with each patient class was based on U.S. Army Vietnam data, and is contained in Appendix C. Each patient's convalescent time is doubled, in the baseline simulation, if his critical convalescent work unit is not completed in the allowable delay time specified in Table A-8.

Additional medical technology inputs, indirectly linked to patient class via priority, are the times a patient spends in stabilization prior to evacuation to a higher facility, and the maximum times that patients are allowed to wait in an evacuation queue before requesting a special evacuation vehicle or receiving additional treatment. In the baseline simulation, stabilization times were 24 and 12 hours for urgent and immediate patients, respectively, and 0 hours for routine patients and outpatients. Threshold times for evacuation were 0 and 1 hour for urgent and immediate patients, respectively, and 24 hours for routine patients and outpatients. Analogous times for additional treatment were 20 minutes, 1 hour and 20 minutes, and 24 hours and 20 minutes, respectively.

Within the evacuation chain of the baseline simulation, ambulances (capacity: 8 spaces; speed: 25 mph) are requested from the closest support facility that has any available, including the requesting facility itself. Helicopters are provided only by a central pool, adjacent to the hospital, which contains 16 helicopters (capacity: 24 spaces; speed: 100 mph). The NAMES II Model logic requires that a helicopter be requested when a single urgent patient enters a facility's evacuation queue, unless a helicopter is already enroute to the facility in response to an earlier request for a helicopter. If a helicopter is not available to respond to such a request, a ground vehicle (ambulance) is immediately requested unless an ambulance is enroute to the facility in response to an earlier request for an ambulance. For non-urgent patients, the number of patient spaces (one required for an ambulatory patient, two required for a litter patient) in an evacuation queue that are necessary to trigger a request for a helicopter is six, and for an ambulance it is two. Helicopters are always dispatched at any time, day and night, to pick up Priority 1 (urgent) patients in the NAMES II Model; for all other patients, helicopters respond only in daylight, which was prescribed, in the baseline simulation, to be the period from 6 a.m. to 6 p.m. (0600 to 1800). Helicopters are always the model's preferred mode of travel in the evacuation chain for Priority 1 and Priority 2 patients; however, in the baseline simulation, all patients are evacuated from the FEBA, battalion aid stations and clearing stations by whichever kind of vehicle arrives first, whether it be helicopter or ambulance. Patients are put aboard the vehicle by priority, and it then proceeds to the closest facility to which any patient on board is designated to go, either by the user (patient class) or by the model (patient evacuated from the next lower level). At each stop, only those patients designated for evacuation to that facility are unloaded. The evacuation vehicle then takes on board, by priority, all who will fit and proceeds again to the closest facility to which any patient is designated to go. This procedure, together with the patient flow rules contained in the NAMES II Model, forces evacuation vehicles in the baseline simulation to proceed always in a direction away from the FEBA. Each vehicle returns home when it unloads its last patient and there are no further patients waiting to be evacuated.

Appendix C contains computer reports of all inputs used in the baseline simulation. Daily and cumulative statistics were printed each day of the 15-day combat period. Summary statistics were printed after the 15th day, and again 15 days later, at which time no patients remained in the evacuation system. (The last patient entered the system on the 15th day, and the hospital evacuation policy was 15 days). Appendix D contains sample computer reports of the baseline simulation outputs.

RESULTS

The NAMES II outputs which will be of greatest interest to a user will depend on his objectives for using the model. However, the value of the information which the user will get out of the model will depend considerably on the sensitivity of certain model outputs to changes in model inputs which describe the medical evacuation systems the user is studying. It is possible for some inputs to dominate results to such an extent that other inputs have little effect on model results (just as in real life), and if the user does not understand what is happening, he may draw wrong conclusions about the importance of these inputs in general.

For example, if the patient "mix" is such that a great many patients have critical mortality work units and the allowable delay time for receiving these work units is very short, then the mortality rate might be very high despite significant changes in the number and speed of evacuation vehicles and the number of medical personnel assigned to the facilities. Simulations with such a patient "mix" will show few requirements for resources such as convalescent beds. By the same token, if only a very small number of patients have critical mortality work units and the allowable delay time for receiving them is very long, then the mortality rate may be very low despite significant changes in the types and numbers of medical personnel assigned to facilities. Under these circumstances, more types of treaters at a facility will have the result that fewer patients are evacuated from the facility and more are returned to duty.

NAMES II prints reports describing all user inputs for each simulation, and the user should examine these reports to detect inputs which may cause certain model outputs to be insensitive to changes in other inputs.

A total of 5706 patients, of whom 3595 were inpatients and 2111 were outpatients, entered the simulated evacuation system in the NAMES II baseline simulation. The patient "mix" and the associated work units were such that about 9% of all patients required immediate emergency first aid in order to survive (patients designated as having a mortality threshold time); 63% of all patients would die if they did not receive specified critical mortality work units in time, but in all these cases, it was possible to save the patients if evacuation procedures and resources were adequate. Thus the mortality rate was very sensitive to changes in treater assignments, evacuation vehicle availability, and medical regulating procedures. The patients who had critical mortality work units also had first aid work units to assure that they would not be evacuated before it was medically safe, provided necessary treaters were assigned to their facility. The 37% of all patients who had no critical mortality work units also had no first aid work units, since they all had lesser injuries or illnesses. However, 96% of all patients had critical convalescent work units, which meant that their convalescent times would be doubled due to complications if designated work units were not administered in time. This made the number of patients who returned to duty more sensitive to factors which affected the speed of their medical care, such as remaining time in queues, vehicle speeds, and treater availability, as well as to the evacuation policies employed at the various facilities.

Using the baseline simulation configuration, resources and procedures as a standard for comparison, many other simulated evacuation systems have been examined. All the systems discussed here retained the patient loads, work units and other medical technology inputs used in the baseline simulation.

The three principal measures of patient dispositions -- the number returned to duty (RTD), the number evacuated from the combat zone (EVAC), and the number who died -- are shown in Figure 6 for the baseline simulation and six other simulations in which the number of treaters, the number of helicopters, the number of casualty receiving facilities and the evacuation vehicle employment rules were varied. These changes had their greatest impact on the mortality rate.

Increasing the number of surgical treaters from 8 to 12 at the hospital cut the mortality rate almost in half (from 4.0% to 2.3%), despite the fact that these treaters performed other functions in addition to surgery, notably triage. If there were no helicopters for medical evacuation, the mortalities rose sharply (to 13.8%). Additional simulations have demonstrated that the capacity of evacuation vehicles is relatively unimportant in the combat zone; what is vital to saving lives is that there be many high speed vehicles. The need for high speed, presently attainable only with helicopters, is obvious with a patient population

NAMES II
PATIENT DISPOSITIONS, EXPRESSED AS PERCENTAGES OF TOTAL NUMBER OF CASUALTIES ENTERING SYSTEM DURING COMBAT PERIOD

COMPARISON SIMULATIONS	RETURNED TO DUTY	EVACUATED FROM COMBAT ZONE	DIED
BASELINE	57.5%	38.5%	4.0%
BASELINE WITH 12 SURGICAL TREATERS AT HOSPITAL, INSTEAD OF 8	57.7%	40.0%	2.3%
BASELINE WITH NO HELICOPTERS	55.4%	30.8%	13.8%
BASELINE WITH NO BATTALION AID STATIONS OR CLEARING STATIONS	48.4%	42.8%	8.8%
BASELINE EXCEPT THAT HELICOPTER DESTINATION IS THE SUPPORT FACILITY REQUIRED BY PATIENT WITH HIGHEST PRIORITY, INSTEAD OF CLOSEST FACILITY TO WHICH ANY PATIENT IS DESIGNATED TO GO	57.0%	37.1%	5.9%
BASELINE EXCEPT THAT ALL EVACUEES FROM FEBA GO BY AMBULANCE TO BATTALION AID STATION LEVEL. ONLY THOSE DESIGNATED FOR THAT LEVEL ARE UNLOADED THERE	55.6%	31.2%	13.2%
BASELINE EXCEPT THAT ALL EVACUEES FROM FEBA GO BY AMBULANCE TO BATTALION AID STATION LEVEL. THEY ARE ALL UNLOADED THERE AND REMAIN UNTIL THEY NEED A TREATER WHO IS NOT ASSIGNED OR UNTIL THEY RECEIVE THEIR FIRST AID WORK UNIT.	57.1%	36.5%	6.4%

Figure 6

containing a large number who will die if they don't receive quick medical attention. The reason why it is important to have many helicopters, but not necessarily large ones, is apparently because the casualties are spread out at any one time over the many landing zones and other facilities, and the availability of helicopters to respond to a medical evacuation request is therefore more important than the load each helicopter can carry. (This is generally true in civilian emergency medical situations also).

The gravity of large delays in transporting seriously wounded patients to treatment centers is further illustrated in Figure 7, where the percentage of mortalities among surgical patients at the combat zone hospital is plotted as a function of the ratio of surgical treaters to surgical patients at the hospital. While more research is needed in this area to determine the effect of other parameters that influence mortalities, the two curves shown in Figure 7, obtained from two simulations which differed only in that one (baseline) had 16 helicopters and the other had none, illustrate two very significant points. First, provided the delay time in transporting surgical patients to the hospital is not so great that the patients are practically dead on arrival, the mortality rate of surgical patients rises very sharply when the ratio of surgical treaters to surgical patients drops below some numerical value which is strongly affected by the delay time in reaching the hospital. Second, even with a favorable treater-to-patient ratio, a delay of approximately one hour in transporting surgical patients to the hospital may multiply the mortality rate by a factor between 5 and 10. For example, most surgical patients in the simulations under discussion are transported directly from the FEBA to the hospital, a distance of 30 miles. In the baseline simulation (lower curve of Figure 7), most of these patients go by helicopter, which makes the trip in 18 minutes. If there are no helicopters (upper curve), this trip takes 72 minutes by ambulance, or 54 minutes longer. From Figure 7 it can be seen that for a treater-to-patient ratio of .20 (1 treater for every 5 patients) the mortality rate of surgical patients rises from 2% to 10% when there are no helicopters. Even with a treater-to-patient ratio of .3 (1 treater for approximately 3 patients) the mortality rate increases from about 1% to over 6% when there are no helicopters. At treater-to-patient ratios below .20 the mortality rate among surgical patients becomes completely intolerable when there are no helicopters. These results indicate that there is clearly a need for finding feasible alternatives to helicopter medical evacuation.

Looking again at Figure 6, it is seen that the resources provided by the battalion aid stations (BAS) and clearing stations (CS) have considerable impact on the overall mortality rate and on the number of patients returned to duty. When these facilities were removed, the existing hospital resources -- treaters, ambulances and beds -- and the helicopter pool were not sufficient to cope with the increased load placed on them. As a result, more patients died at the FEBA while awaiting evacuation, and more patients died at the hospital, either in treatment or while waiting for treatment. The overall mortality rate in the combat zone rose from 4.0% (baseline) to 8.8%. Correspondingly, more patients had to

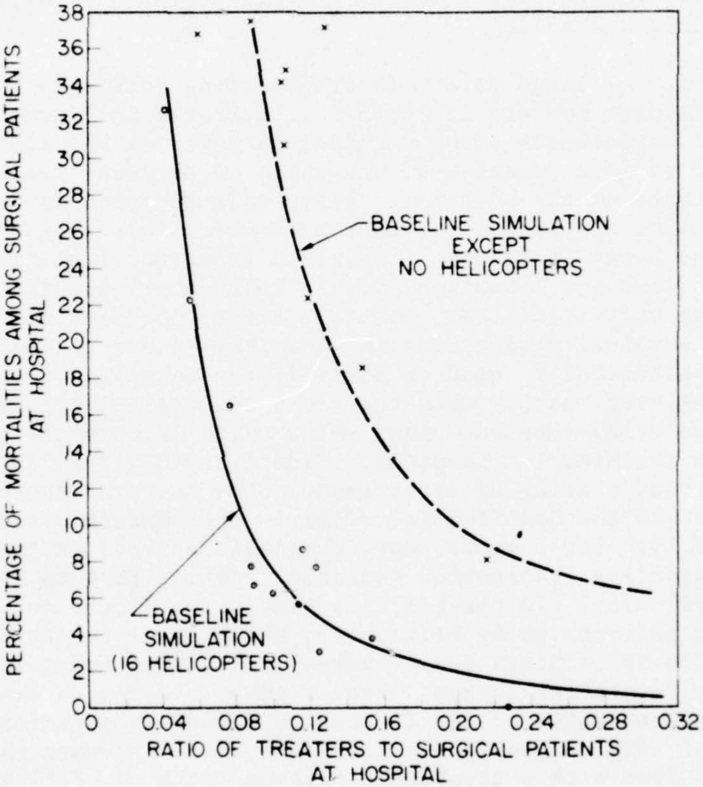


Fig. 7 — Variation of surgical patient mortalities at hospital with the number of assigned treaters

be evacuated from the hospital, and hence from the combat zone, because of the increased demand placed on the hospital's 200 convalescent beds, which were overtaxed even in the baseline simulation. With the removal of the battalion aid stations and clearing stations, the percentage of casualties evacuated from the combat zone rose from 38.5% (baseline) to 42.8%; the percentage of casualties returned to duty dropped from 57.5% (baseline) to 48.4%.

The significance of changes in medical regulating procedures, or procedures which govern the flow of patients through the evacuation system, is also shown in Figure 6.

The overall mortality rate rose from 4.0% to 5.9% simply by changing the rule governing the destination of helicopters such that when evacuating patients from a facility each helicopter went directly to the medical support facility required by the patient with highest priority, instead of going, as in the baseline simulation, to the closest facility to which any patient on board the helicopter was designated to go. This simple change in the employment of helicopters delayed the evacuation process and made the helicopters less available to respond to evacuation requests. Consequently, mortalities rose not only at the battalion aid stations and clearing stations, but primarily at the FEBA, where considerably more patients died while awaiting evacuation.

The mortality rate rose to 13.2% when the baseline simulation was modified to exclude helicopters from landing at the FEBA, while at the same time retaining all other baseline rules for the employment of evacuation vehicles. This meant that all evacuees from the FEBA (all of the inpatients) went by ambulance to the battalion aid station level, but only those designated for that level were unloaded and treated there. The rest remained in the ambulances until they reached their designated facility. As a result, ambulances were overtaxed, helicopters were under utilized, and the mortalities rose sharply, especially at the hospital because of the long trip time from the FEBA, and at the FEBA because of the long waiting time in the evacuation queues. This situation was improved considerably (mortality rate 6.4%) when all patients were unloaded from the ambulances at the BAS level and remained there for treatment until they needed a treater who was not assigned or until they had received their first-aid work unit, which meant they could be moved safely. In this case the heaviest mortalities occurred at the battalion aid stations (not enough treaters were assigned) and at the FEBA, again in the evacuation queues while waiting for ambulances to come. Treaters at the hospital were apparently idle a good deal of the time, compared to those at the battalion aid stations. Not one patient requiring major surgery died at the hospital throughout the combat period, while 178 such patients died at the battalion aid stations.

It is clear, from these two simulations in which helicopters were excluded from the FEBA, that the optimum medical regulating procedures for such a contingency will only be learned through additional research. In these simulations, the right types of treaters were assigned to the battalion aid stations to render critical work units to most of the seriously wounded patients, but there were not enough treaters assigned. Under such circumstances, a limited number of treaters must render limited treatment to many patients, or full treatment to a limited number of patients. Further decisions must be incorporated into the NAMES II logic before these choices can be examined.

Additional simulations have demonstrated that the number of patients returned to duty is affected considerably by the convalescent bed capacity and the evacuation policies in force at each facility. The evacuation policy governs bed requirements, and both the bed requirements and the bed capacity govern bed occupancy, which is a measure of the number of casualties returned to duty. To determine convalescent bed requirements, the NAMES II Model records the number of patients who, upon receipt of all of their required work units, have convalescent times which do not exceed the evacuation policy at their facility. All of these patients will be allowed (by the evacuation policy) to recuperate at their facility and subsequently return to duty provided the bed capacity is sufficient. Consequently these patients establish the bed requirements at the facility. Clearly the convalescent bed occupancy cannot exceed either the convalescent bed capacity or the convalescent bed requirements. These last two factors are independent of each other. The upper curves of Figure 8 show that in the baseline simulation, the hospital convalescent bed requirements dictated by the 15-day evacuation policy overtake the 200 bed capacity prior to the second day of combat. The only way to increase the bed occupancy is to increase the bed capacity. Even if that cannot be done, however, a shorter evacuation policy would have the effect of returning more patients to duty, because it would result in a higher turnover rate in the convalescent ward. By contrast, the lower curves of Figure 8 show that the combined 180 bed capacity at the three clearing stations exceeds the requirements imposed by the 3-day evacuation policy. In this situation, a longer evacuation policy would make more efficient use of the bed capacity.

Several additional simulations were run to see the impact that changes in bed capacities and evacuation policies would have on bed requirements, bed occupancy and the number of casualties returned to duty. Curves showing daily bed requirements and occupancy for these simulations appear in Figures 9, 10, and 11. The most significant results, the number returned to duty following convalescence, are as follows:

COMPARISON SIMULATIONS			TOTAL NUMBER WHO ENTERED CONVALESCENCE DURING 15-DAY COMBAT PERIOD. (WILL RETURN TO DUTY)		
BASELINE SIMULATION	CS	HOSP	CS LEVEL	HOSPITAL	TOTAL
EVAC POLICY (DAYS)	3	15			
BEDS	60	200	451	569	1020 (28% of all inpatients)
SIMULATION B					
EVAC POLICY	6	15			
BEDS	60	200	662	553	1215 (35% of all inpatients)
SIMULATION C					
EVAC POLICY	6	10			
BEDS	60	200	6[illegible]	641	1303 (37% of all inpatients)
SIMULATION D					
EVAC POLICY	6	15			
BEDS	60	400	662	988	1650 (47% of all inpatients)

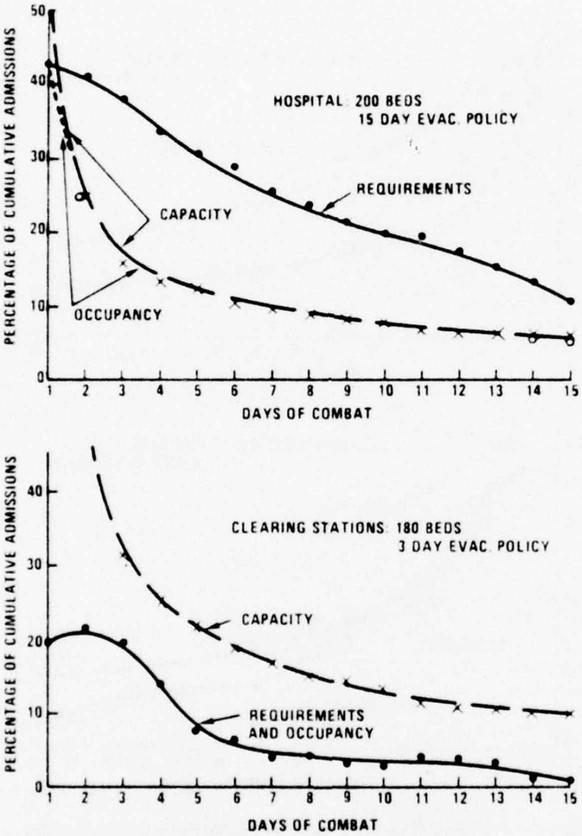


Fig. 8 — Baseline simulation convalescent bed requirements, capacity and occupancy

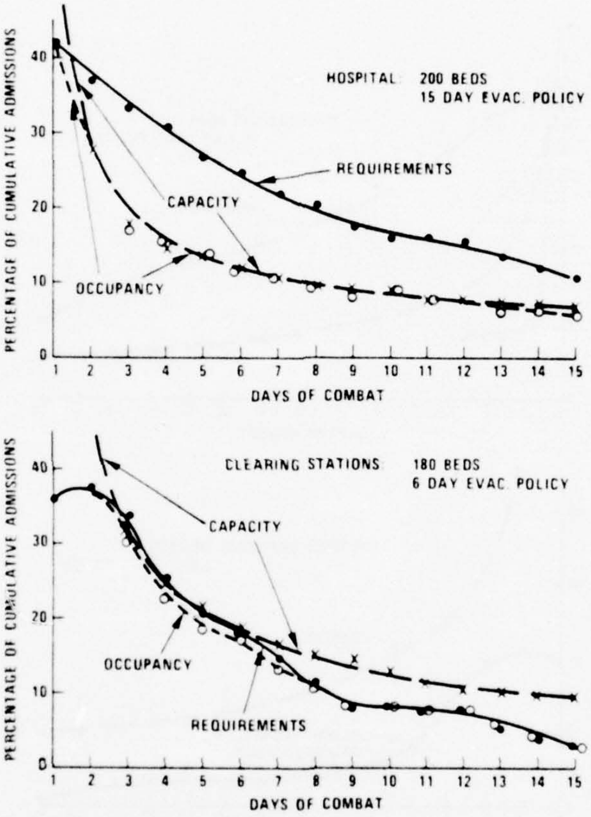


Fig. 9 — Convalescent bed requirements, capacity and occupancy, NAMES simulation B

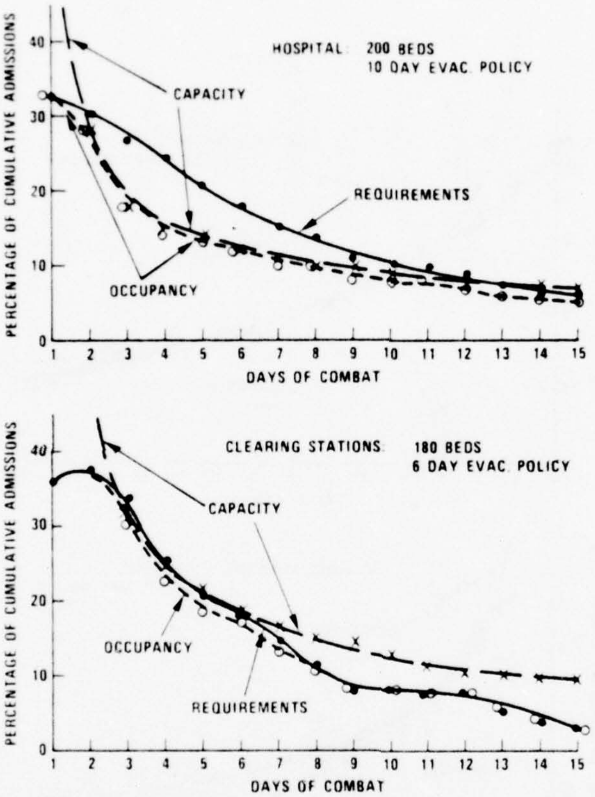


Fig. 10 — Convalescent bed requirements, capacity and occupancy, NAMES simulation C

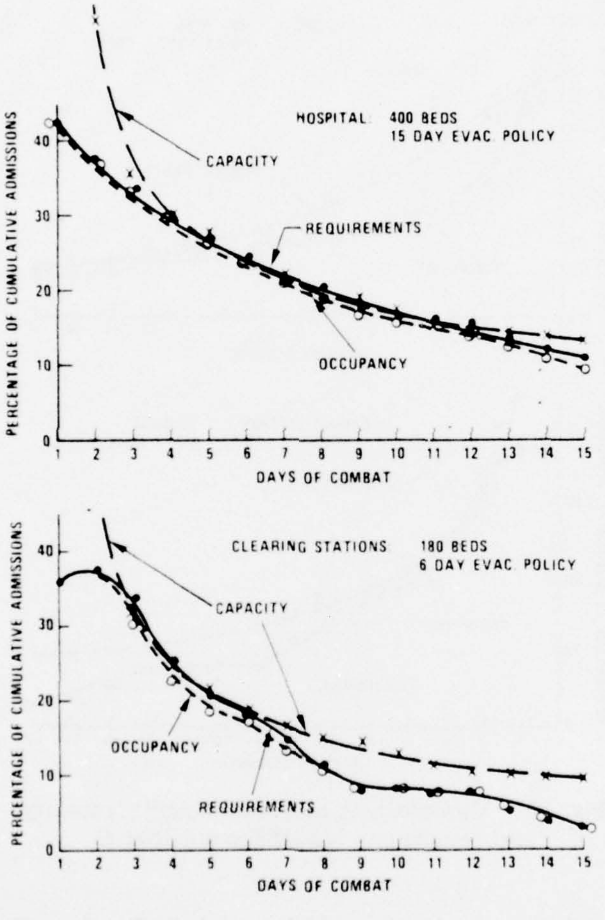


Fig. 11 — Convalescent bed requirements, capacity and occupancy, NAMES simulation D

These simulations demonstrate the effect of the evacuation policy when a facility is filled to capacity and when it is not. When the hospital is filled to capacity, as it is most of the time in all four simulations, a decrease in the evacuation policy (Simulation C), which causes a higher turnover rate, allows more patients to be admitted, with a resulting increase in the number returned to duty. Conversely, a longer evacuation policy under the same crowded conditions would result in fewer patients returning to duty. Obviously this would not be the result if the facility were not crowded, as is seen in Simulations B, C, and D, where a longer evacuation policy at the clearing stations, which are not crowded, permits more patients to enter convalescence and subsequently return to duty from those facilities.

Additional research is required to determine the most "efficient" evacuation system configurations, resources and procedures. Preliminary results suggest, for example, that a medical facility with fixed resources (beds) has an optimum evacuation policy which maximizes the number of patients returned to duty or minimizes the number evacuated (Figures 12 and 13). The effect of other parameters, such as the mortality rate, has yet to be investigated.

The NAMES Model also prints out useful information regarding patients who must be evacuated out of the combat zone. This information includes bed requirements as well as information which corresponds to patient "remaining factors" discussed in Beebe and DeBakey [4] and Army Field Manual FM 8-55. [5] Both the Army and the U.S. Marine Corps suggest that "remaining factors" be used to estimate hospital bed requirements, and have compiled historical data for this purpose. Figure 14 shows, however, that the patient remaining factors outside of the combat zone are very much related to the medical treatment facilities within the combat zone. Therefore, historical data should be used with caution.

Figure 14 shows patient remaining curves in hospitals outside the combat zone for the NAMES baseline simulation and also for NAMES Simulation D, which, as already indicated, is a much more efficient combat zone system than the baseline simulation system. In NAMES Simulation D, very few patients were evacuated from the combat zone because of bed shortages. This is indicated by the first section of the curve, which is almost horizontal for the duration of the combat zone hospital evacuation policy of 15 days.

On the other hand, the two curves of Figure 14 which were taken from Army FM 8-55 represent patient remaining factors for WIA's and DNBI's in North Africa during World War II over a fairly long period of combat. Not only do these curves indicate that a great many patients entered theater level hospitals with very short convalescent times, but the curves give no indication of the particular combat zone medical facilities and evacuation procedures which were employed.

CONCLUSIONS AND RECOMMENDATIONS

The scope of this report obviously does not permit a complete discussion of the total capabilities of the NAMES Model, or of all the results

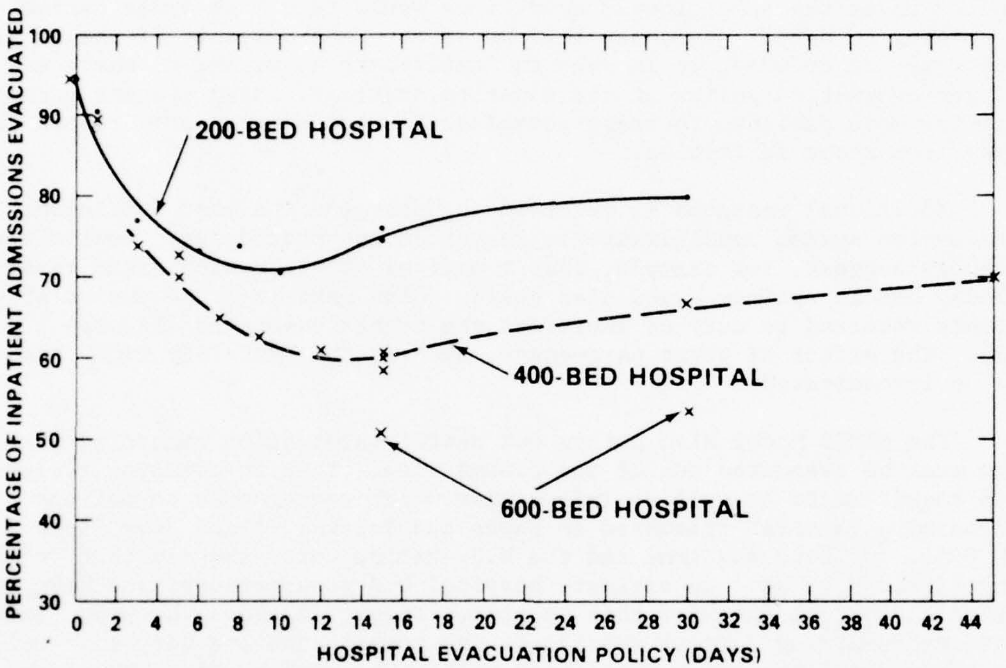


Fig. 12 — Impact of evacuation policy on hospital evacuations

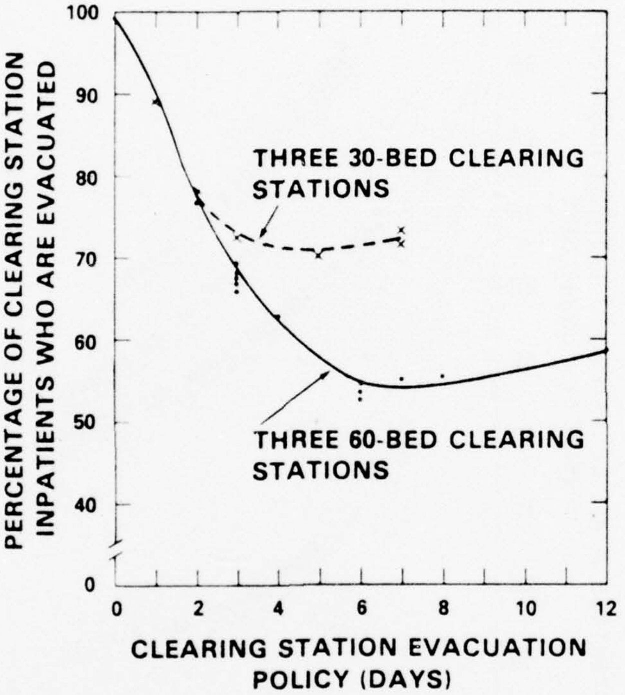


Fig. 13 — Impact of evacuation policy on clearing station evacuations

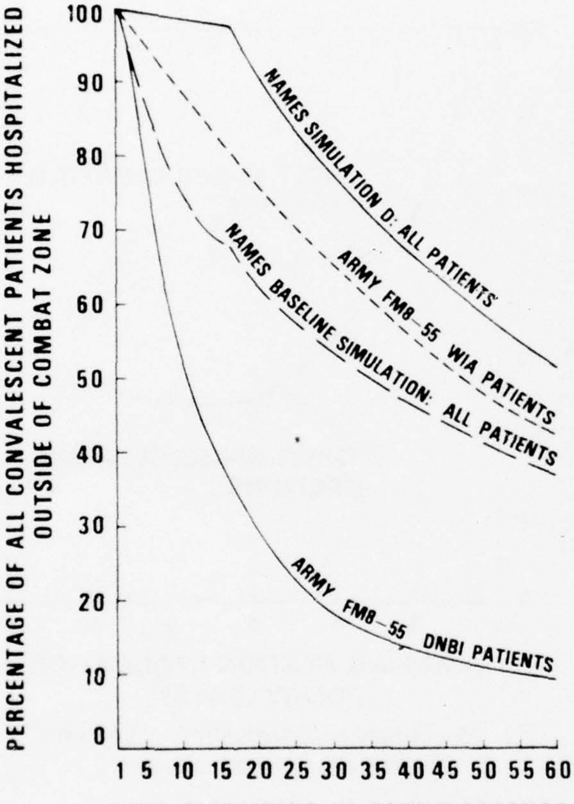


Fig. 14 — Convalescent patient remaining time in hospitals outside of combat zone

obtained from the model thus far. Further details of the operation of the model will be contained in the Program Maintenance Manual. It is hoped that the present discussion demonstrates that the model is an effective (and inexpensive) device for planning and studying combat zone medical care systems together with the requirements those systems impose on supporting medical, transportation, and logistics resources.

It is also hoped that the user of NAMES II, the analyst to whom this report is addressed, will realize that a combat zone medical evacuation system is complex and that a model that simulates such a system must also be complex. To obtain meaningful results from such a simulation model, the user must study and understand the model so that he realizes its capabilities and its limitations. NAMES II is a discrete simulation model based on logical relationships. It attempts to simulate real situations, and does not use formulas or assumptions for computing resource requirements. The model is sensitive to the patient load and patient "mix," as one would expect of a real medical evacuation system.

This report has demonstrated that patient dispositions in a combat zone depend on many factors, including resources, command control policies and medical regulating procedures. Clearly, any "models" and other contingency planning methods which ignore these factors must be used with great caution.

Studies using NAMES II have also indicated the need for additional research to better understand the relationships between patient dispositions, resource requirements, allocations and utilization, medical regulating procedures and command control or operational policies. Several recommended areas for additional research have been identified in this report. These include:

1. effects of treater availability and treatment delay times on patient dispositions and resource requirements,

2. medical regulating procedures and their effect on patient dispositions and resource requirements,

3. combat zone evacuation policies and their effect on patient dispositions and resource requirements.

REFERENCES

1. Richards, Paul B., "Simulating Medical Treatment and Evacuation of Combat Casualties," proceedings of NATO-sponsored conference on Systems Science in Health Care, July 5-9, 1976, Paris, France.

2. Computer Sciences Corp., Falls Church, Va. "U. S. Army Medical Planning Factors Study (MEDPLN), Final Report, Vol. 111," 30 September 1973.

3. McEliece, J. H., Capt., U.S. Army, "U. S. Army Medical Planning Factors Study (MEDPLN), Final Report, Vol. 11, Appendix G, The Patient Workload Model," April 1975, U.S. Army Logistics Center, Ft. Lee~~,~~ Va. 23801

4. Beebe, G. W. and DeBakey, M. E., Battle Casualties, Charles C. Thomas, Publisher, Springfield, Illinois, 1952.

5. Department of the Army Field Manual FM 8-55, Army Medical Service Planning Guide, October, 1960.

APPENDIX A

INPUT PARAMETERS FOR NAMES II

BASELINE SIMULATION

TABLE A-1

MEAN NUMBER OF BATTLE CASUALTIES (INPATIENTS) IN THE BASELINE SIMULATION

Day	Battle Casualties
1	241
2	680
3	512
4	222
5	158
6	321
7	217
8	222
9	92
10	255
11	348
12	168
13	60
14	65
15	54
	3,615 TOTAL

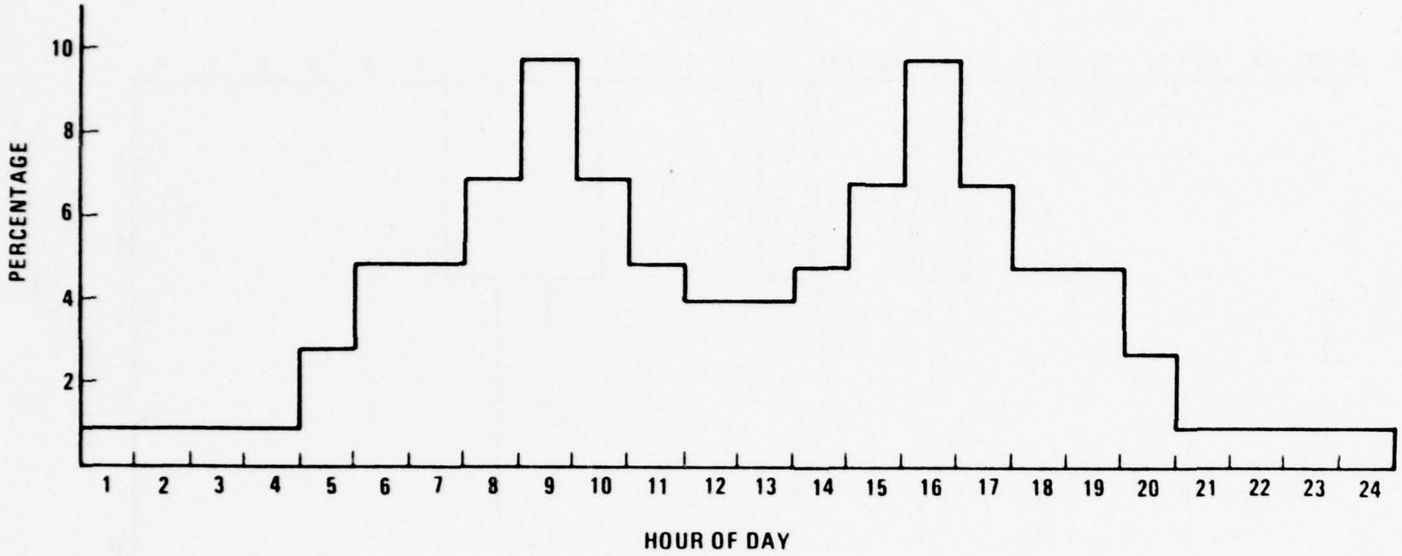


Fig. A-1 — Percentage distribution of battle casualty arrivals by hour of day

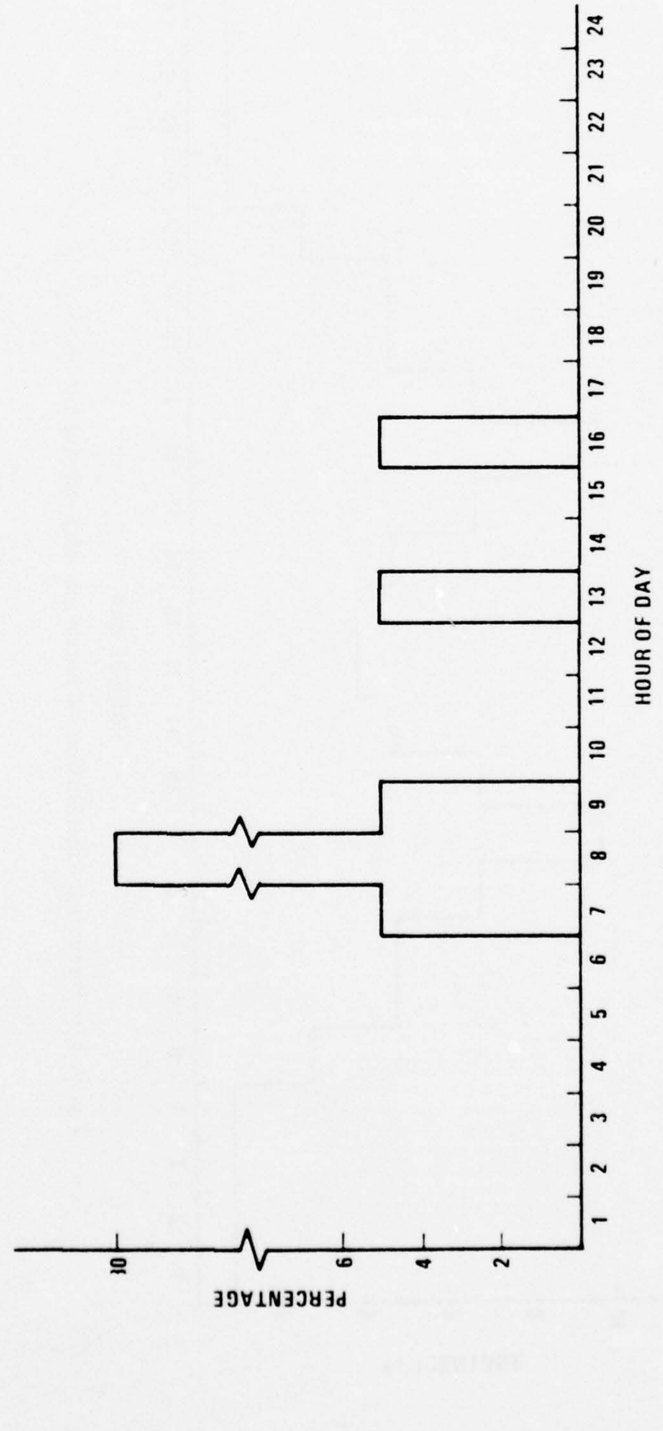


Fig. A-2 — Percentage distribution of outpatient arrivals by hour of day

TABLE A-2

PROPORTIONAL DISTRIBUTIONS OF CASUALTIES AMONG PATIENT CLASSES

Patient Class *	Percent in Class Inpatients	Outpatients
1	.15	
2	.02	
3	1.24	
4	.42	
5	.23	
6	.90	
7	.37	
8	.37	
9	.00	
10	.49	
11	1.15	
12	1.48	
13	3.46	
14	.16	
15	.64	
16	.21	
17	.49	
18	.27	1.80
19	.41	
20	1.07	1.00
21	.16	
22	.38	
23	.38	
24	1.42	
25	2.50	
26	10.01	
27	.48	
28	.48	
29	.53	
30	1.23	

*See Table A-4 for Patient Class Descriptions.

TABLE A-2 (continued)

Patient Class	Percent in Class Inpatients	Outpatients
31	5.34	
32	5.34	
33	3.98	
34	.03	
35	1.76	
36	5.78	
37	.64	
38	1.18	
39	3.62	
40	.19	
41	.69	
42	.57	
43	1.10	
44	.01	
45	1.38	.10
46	2.73	27.30
47	.47	.70
48	2.24	.70
49	1.42	
50	.26	12.00
51	.04	
52	.31	2.40
53	4.08	7.40
54	.32	1.70
55	.93	.40
56	1.47	6.30
57	.84	14.20
58	.15	5.10
59	.41	1.10
60	.26	
61	2.89	4.80
62	.30	
63	3.66	1.10

TABLE A-2 (continued)

Patient Class	Percent in Class Inpatients	 Outpatients
64	.18	
65	.25	
66	1.35	
67	.00	1.50
68	3.06	5.40
69	.58	
70	3.13	
71	.07	.60
72	1.74	.60
73	.26	
74	3.01	3.80
75	.88	

TABLE A-3

TREATER DESCRIPTIONS AND ASSIGNMENTS

NAMES Code	MOS*	Description	BAS	CS	HOSP
1	2100	General Surgeon		1	1
	2100	Orthopedic Surgeon		1	1
2	2900	Ward Nurse (Medical/Surgical)		2	19
3	2100	Medical General Practitioner	2	2	6
4	8404	Hospital Apprentice			26
5	8404	Hospitalman	15		2
	8404	Surgical Ward Corpsman		12	25
6	8483 8404	Hospital Corpsman	6	10	16
7	8483 8404	Operating Room Technician		4	3
8		NA			
9	2100	Dental Team			1
10	2100	Psychiatrist			1
11	2300	Clinical Psychiatrist			1
12		NA			
13	8412	Laboratory Technician		2	3
14	2300	Optometry Team			1
15	8404	Litter Team (4 each)	1	4	6
16	8452	X-Ray Technician		2	3
17	2100	Internist			1
18	2900	OR Nurse		4	11
19	2900	Neuropsych Nurse			3
20	2300	Medical Technologist			1

*MOS - Military Occupation Specialty (U.S. Navy)

TABLE A-4

PATIENT CLASS DESCRIPTIONS

PATIENT CLASS	DESCRIPTION
1	Head: Fracture, Comp. Com.
2	Head: Fracture, Simple
3	Head: Wound, P&P
4	Head: Wound, Incised
5	Head: Concussion, Severe
6	Head: Concussion, Mild
7	Face: Fracture, Comp. Com., Severe
8	Face: Fracture, Comp. Com., Mild
9	Face: Fracture, Simple
10	Face: Wound, P&P, Severe
11	Face: Wound, P&P, Mild
12	Face: Wound, Incised, Lac, Severe
13	Face: Wound, Incised, Lac, Mild
14	Eye (and Orbit): Other Trauma, Severe
15	Eye (and Orbit): Other Trauma, Mild
16	Neck: Wound, Incised and Lac, Severe
17	Neck: Wound, Incised and Lac, Mild
18	Eye: Inflammatory Diseases
19	Eye: Other Eye Diseases (Refractions & Tests)
20	Ear: Inflammation
21	Dental Diseases and Conditions

TABLE A-4 (Cont.)

PATIENT CLASS	DESCRIPTION
22	Upper Extremities, Fracture, Comp. Com., Severe, to Include: Crushing and/or Compression Injuries and/or Partial or Traumatic Amputations
23	Upper Extremities, Fracture, Comp. Com., Mild, to Include: Crushing and/or Compression Injuries and/or Partial or Traumatic Amputations
24	Upper Extremities: Fracture, Simple
25	Upper Extremities, Wound, P&P Incised, Severe
26	Upper Extremities, Wound, P&P Incised, Mild
27	Lower Extremities, Fracture, Comp. Com., Severe to Include: Pelvic Fractures and Fractures of the Hip; Crushing and/or Compression Injuries; Partial or Traumatic Amputations
28	Lower Extremities, Fracture, Comp. Com, Mild to Include: Pelvic Fractures and Fractures of the Hip; Crushing and/or Compression Injuries; Partial or Traumatic Amputations
29	Lower Extremities, Fracture, Simple, Severe, to Include: Fracture in Front of Pelvis
30	Lower Extremities, Fracture, Simple, Mild, to Include: Fracture in Front of Pelvis
31	Lower Extremities, Wound, P&P, Lac, Severe
32	Lower Extremities, Wound, P&P, Lac, Mild
33	Other Musculoskeletal (Requiring Surgery), Compression Fractures (Vertebra), Angulation Fractures (Vertebra) (without cord involvement)
34	Osteomyelitis
35	Diseases of Bones and Joints to Include: Arthritis, Rheumatoid Arthritis, Osteoarthritis, Bone Tumors (no surgery required)
36	Thorax: Wound, P&P, Severe
37	Thorax: Wound, P&P, Mild

TABLE A-4 (Cont.)

PATIENT CLASS	DESCRIPTION
38	Thorax: Wound, P&P, Heart and Trachea, Severe
39	Abdominal, Wound, P&P, Severe
40	Abdominal, Wound, P&P, Mild
41	Neoplastic Diseases: Pilonidal Cysts and Sinuses (surgery required)
42	Varicose Veins (Hemorrhoids)
43	Emergency Surgical Conditions (Nontraumatic) to Include: Appendicitis, Hernia, Gall Bladders
44	Ulcer (Bleeding or Obstructing)
45	Burns: 1° - 2° - 3°
46	Lacerations and Contusions to Include: Lacerations, NEC; Contusions, Abrasions, Hematomas; Foreign Bodies, and Puncture Wounds, Mild, Not Elsewhere Covered
47	Wounds/Injuries of Genito-Urinary System
48	Diseases of the Urinary System to Include: Renal Calculus, Hematuria
49	Neurosurgical Conditions (Nontraumatic) to Include: Brain Tumors; Brain Abscesses; Increased Intracranial Pressure; Aneurysms of Blood Vessels of Brain, and Hyperthermia
50	Spinal Injuries to Include: Cord Compression, Herniated Intervertebral Disk, and Tumors, and Cord Involvement
51	Tuberculosis and body areas affected by Tubercule Bacilli
52	Allergies to Include: Allergic Reactions; Urticaria (Hives); Angioneurotic Edema, and Allergic Rhinitis (Hay Fever)
53	Diseases of Skin and Cellular Tissue to Include: Eczema; Psoriasis; Impetigo Contagiosa; Verrucae (Warts); Scabies Herpes (Simple/Zoster); Furuncle, Carbuncle; Furunculosis; Dermatophytosis, and Dermatitis
54	Venereal Diseases

TABLE A-4 (Cont.)

PATIENT CLASS	DESCRIPTION
55	Cardiac Conditions to Include: Arrhythmias; Congestive Heart Failure; Bacterial Endocarditis; Pericarditis; Acute Pulmonary Edema; Coronary Heart Disease (Myocardial Infarct and Angina Pectoris); Rheumatic Heart Disease; Rheumatic Fever, and Hypertension
56	Acute Respiratory Infections to Include: Pneumonia; Pleurisy; Influenza; Bronchitis, Acute/Chronic
57	Disease of Nose and Throat to Include: Laryngitis; Pharyngitis; Nasopharyngitis; Tonsillitis; Peritonsillar Abscess; Strep Throat
58	Diseases of the Sinuses and Nose to Include: Sinusitis, Acute; Sinusitis, Chronic; Deviated Septum; Polyps, and Epistaxis
59	Other Pulmonary Disorders to Include: Emphysema; Bronchiectasis; Empyema; Lung Abscess, and Bronchial Asthma
60	Metabolic and Nutritional Diseases
61	Intestinal Diseases and Conditions to Include: Gastritis, Gastroenteritis, and Enteritis
62	Peptic Ulcer
63	FUO
64	Blood Dyscresias
65	Poisoning: Food, Drug, Alcohol (Acute), and Gas
66	Exposure to Extreme Temperatures to Include: Heatstroke, Heat Exhaustion, Heat Cramps, and Frost Bite
67	Insect and Reptile Bites
68	All Other Diagnoses and Conditions
69	Contagious Viral Diseases: Hepatitis; Infectious Mononucleosis; Meningitis, Aseptic and Meningitis, and Meningococcal
70	Malaria

TABLE A-4 (Cont.)

PATIENT CLASS	DESCRIPTION
71	All Other Viral Diseases to Include: Poliomyelitis, Smallpox, Yellow Fever, Rabies, Psittasocis, Trachoma, Measles, Chicken Pox, and Rubella, Mumps, Whooping Cough
72	All Bacterial Diseases to Include: Hansen's Disease, Typhoid, Cholera, Plague, Brucellosis, Bacillary Dysentery, and Tetanus; Protozoan Infections (Ambeic Dysentery), and Rickettsial Infection (Typhus)
73	Psychosis
74	Psychiatric Conditions Except Psychosis to Include: Anxiety Reactions; Situational Maladjustment, Character Disorders; and Drug Abuse
75	Neurological Problems to Include: Paraplegia, Quadraplegia, Epilepsy, Migraine, Hemiplegia, Encephalitis, Headache, Multiple Sclerosis, Myasthenia Gravia, and Parkinson's Disease

TABLE A-5

TREATMENT PARAMETERS FOR EACH PATIENT CLASS

PATIENT CLASS [1]	PRIORITY[2]	L OR A[3]	WORK UNITS[4]
1	1	L	6, 17, 9, 15, 33, 14, 41, 42, 11, 13, 5, 6
2	1	50%L	6, 33, 9, 42, 11, 5
3	1	L	6, 9, 15, 33, 14, 41, 42, 13, 11, 5, 6
4	2	L	6, 12, 33, 29, 11, 9, 5, 6
5	2	L	6, 33, 43, 5, 6
6	3	L	6, 33, 43, 5, 6
7	1	L	6, 9, 15, 12, 33, 41, 42, 13, 11, 5, 6
8	1	L	6, 17, 33, 41, 42, 13, 11, 9, 5, 6
9	3	A	33, 9, 10, 5
10	1	L	6, 15, 12, 33, 41, 42, 43, 13, 13, 11, 5, 6
11	2	A	17, 33, 41, 11, 5
12	2	L	6, 9, 12, 33, 41, 42, 11, 13, 5, 6
13	3	A	9, 33, 29, 11, 13, 5
14	1	L	6, 9, 35, 11, 38, 5, 6
15	2	A	9, 35, 11, 38, 5
16	2	L	6, 17, 9, 15, 41, 42, 11, 13, 5, 6
17	3	A	9, 29, 11, 11, 5
18	3	A	8, 35, 38, 5
19	3	A	35, 5
20	3	A	8, 5
21	3	A	7, 40, 5
22	2	L	6, 33, 9, 12, 41, 43, 11, 10, 13, 5, 6
23	3	L	6, 33, 9, 12, 41, 43, 11, 10, 13, 5, 6
24	3	A	33, 9, 11, 10, 8, 5
25	2	50%L	6, 33, 9, 41, 43, 11, 10, 13, 5

[1] See Table A-4 for Patient Class Descriptions.
[2] 1 = Urgent, 2 = Immediate, 3 = Routine.
[3] L = litter, A = ambulatory.
[4] See Table A-6 for Work Unit Descriptions.

TABLE A-5 (Cont.)

TREATMENT PARAMETERS FOR EACH PATIENT CLASS

PATIENT CLASS[1]	PRIORITY[2]	L OR A[3]	WORK UNITS[4]
26	3	A	33, 9, 29, 11, 8, 5
27	1	L	6, 33, 9, 14, 27, 41, 43, 11, 10, 13, 38, 5, 6
28	1	L	6, 33, 9, 14, 27, 41, 43, 11, 10, 13, 38, 5, 6
29	1	L	6, 33, 9, 14, 27, 41, 43, 11, 10, 13, 38, 5, 6
30	2	L	6, 33, 9, 14, 27, 41, 43, 11, 10, 22, 13, 38, 5, 6
31	1	L	6, 33, 9, 12, 41, 43, 11, 13, 5, 6
32	3	A	33, 9, 29, 11, 13, 5
33	2	L	6, 33, 9, 27, 28, 41, 10, 13, 9, 5, 6
34	3	A	33, 44, 45, 8, 38, 5
35	3	A	33, 44, 45, 8, 38, 5
36	1	L	6, 17, 16, 41, 43, 11, 30, 13, 33, 31, 9, 5, 6
37	1	L	6, 17, 41, 43, 11, 30, 33, 9, 5, 6
38	1	L	6, 17, 15, 14, 41, 33, 42, 11, 30, 13, 9, 5, 6
39	1	L	6, 41, 30, 33, 28, 44, 43, 11, 13, 9, 6
40	1	L	6, 41, 33, 30, 44, 11, 13, 9, 6
41	3	A	19, 11, 8, 5
42	3	A	19, 8, 5
43	1	50%L	6, 41, 44, 43, 11, 13, 9, 5
44	1	L	6, 33, 41, 13, 30, 9, 5
45	2	L	6, 14, 41, 30, 31, 11, 13, 9, 5, 6
46	3	A	33, 29, 18, 11, 9, 5
47	1	L	6, 33, 41, 31, 11, 13, 30, 5
48	3	A	33, 31, 9, 5
49	1	L	6, 33, 41, 9, 5
50	1	L	6, 33, 41, 10, 9, 8, 38, 5

TABLE A-5 (Cont.)

TREATMENT PARAMETERS FOR EACH PATIENT CLASS

PATIENT CLASS[1]	PRIORITY[2]	L OR A[3]	WORK UNITS[4]
51	3	A	33, 31, 8, 38, 5
52	3	A	31, 9, 8, 38, 5
53	3	A	11, 9, 8, 38, 5
54	3	A	2, 31, 9, 8, 5
55	1	L	6, 34, 33, 43, 9, 8, 38, 5
56	1	A	33, 31, 9, 8, 5
57	3	A	2, 33, 31, 9, 8, 5
58	3	A	2, 31, 8, 5
59	3	A	2, 33, 31, 9, 8, 5
60	3	A	33, 31, 8, 38, 5
61	3	A	31, 8, 5
62	3	A	33, 31, 8, 38, 5
63	3	A	31, 8, 5
64	3	A	31, 8, 5
65	1	75%L	6, 17, 31, 43, 45, 8, 5
66	1	75%L	6, 20, 13, 31, 8, 5
67	3	A	23, 9, 8, 5
68	3	A	2, 33, 11, 31, 9, 8, 38, 5
69	1	80%L	6, 33, 31, 32, 9, 8, 38, 5
70	2	A	31, 32, 9, 8, 38, 5
71	1	A	33, 31, 45, 9, 8, 5
72	1	50%L	6, 13, 31, 45, 9, 38, 5
73	2	75%L	6, 1, 9, 8, 36, 5
74	2	50%L	6, 1, 9, 8, 36, 5
75	1	50%L	6, 31, 45, 8, 4, 38, 43, 5

TABLE A-6

WORK UNIT DESCRIPTIONS

NO.	SHORT TITLES	BRIEF DESCRIPTIONS
1	Psychotherapy	Psychological first aid
2	Sick Call	Routine DX/TX, e.g., URI, sore throats, etc.
3	Sorting (Triage)	Arranging for patient evacuation to facility best suited for illness or injury.
4	Resuscitative Nursing Care	Initial care given.
5	Administration	Clinical records prepared by professional staff.
6	Litter Hauling	Performed in and around facility.
7	Dental Screen	Preliminary dental examinations based upon a painful condition.
8	Issue Medication	Dispensing non-inject-type medications.
9	Give Injections	Administration of injectible medications.
10	Splints	Immobilize the affected site.
11	Dressings	Protect wound.
12	Clamp Ligate	To obtain effective hemostasis.
13	IV Fluids	Use of plasmanate, ringers, Lactage, etc.
14	Cut Down	Surgical insert of an intra-cath.
15	Surgical Airway (Allowable delay time - 30 minutes)	Surgical procedures to open an airway and/or endotracheal tube insertation.
16	Seal Sucking Chest Wound. (15 minutes)	
17	Resp. Resuscitation (5 minutes)	Perform mouth-to-mouth resuscitation. Mechanical resuscitation (pulmotor) where equipment is available.
18	RX Minor Abrasions	Wash, clean, dress minor contusions/abrasions
19	I&D Abscess	Surgical drain minor abscess.
20	Environment Stress Treatment	Treat heat and cold injuries.

TABLE A-6 (Cont.)

WORK UNIT DESCRIPTIONS

NO.	SHORT TITLES	BRIEF DESCRIPTIONS
21	Follow-up Nursing Care	Continuing Care.
22	Cast Fx	Immobilize closed Fx or minor bones
23	Antidote for Insect & Reptile bites	Antidote for insect and reptile bites.
24	Thorocentesis	Withdrawal of air/blood.
25	Insert Chest Tube and Intercostal N Block	Use of local anesthetic to reduce pain from insertion of chest tube.
26	N/A	
27	Insert Foley Cath.	Insert Foley Cath. in GU injuries.
28	Insert N/G Tube	Inserted to reduce abdominal gases.
29	Debridement	Surgical cleansing of minor wounds.
30	Administer Blood	Capability of administering type O low titer
31	Lab Exams	Simple lab studies, e.g., urine, Hb, WBC.
32	Dx Malaria	With lab can perform malaria screen of Dx.
33	Xray (per film)	Diagnostic chest and bone xrays.
34	EKG	Can perform emergency electrocardiograms
35	Eye care	Eye care including eye surgery, nursing care, etc.
36	Psychiatric Care	Emergency psychiatric care.
37	Ward Rounds	Daily rounds on ward patients.
38	Consultation	Referral cases.
39	N/A	
40	Dental Care	Expedient dental care.

TABLE A-6 (Cont.)

WORK UNIT DESCRIPTIONS

NO.	SHORT TITLES	BRIEF DESCRIPTIONS
41		Major debridement or major surgery at the hospital.
42		Treatment of head, face and throat injuries requiring specially trained nurse.
43		Treatment requiring Operating Room Nurse or specially trained Hospital Corpsman.
44		Treatment requiring Internist.
45		Extensive Lab Exams.

TABLE A-7

PREFERRED TREATER CODES FOR EACH WORK UNIT AND ASSOCIATED TIMES

WORK UNIT [1]	PREFERRED TREATER		1ST ALTERNATE		2ND ALTERNATE		3RD ALTERNATE	
	CODE [2]	E [3]	CODE [4]	E [3]	CODE [2]	E [3]	CODE [4]	E [3]
1	7	45	4	45	6	45	5	45
2	3	5	2	5	4	5	6	5
3	1	4	3	4	4	5	6	5
4	3	30	4	30	2	30	6	30
5	3	3	4	3	6	3	5	3
6	15	3						
7	9	5	3	8	4	9		
8	5	2	6	2				
9	5	1	6	1	4	1		
10	5	15	6	15	4	15		
11	6	10	5	10	4	10		
12	3	10	4	10	6	10	1	10
13	3	6	4	6	6	6		
14	6	15	3	15	4	15		
15	6	3	1	3	3	3	4	3
16	5	15	6	15	4	15		
17	4	3	5	3				
18	5	9	6	9				
19	3	7	4	7	6	7		
20	6	45	5	45				
21	5	25	6	25				
22	7	25	5	25				
23	5	10	6	10	4	10		
24	1	15	3	15	2	15		
25	1	15	3	15	6	15		
26								
27	1	9	6	9	5	9		
28	2	9	3	9	6	9		
29	1	35	3	35	6	35		
30	2	8	1	8	4	8	6	8
31	13	5	5	5	6	5		
32	2	30	4	30	13	30		
33	16	8	6	8				
34	5	12	6	12				
35	14	20						

1 See Table A-6 for work unit descriptions.

2 See Table A-3 for treater code descriptions.

3 Expected treatment time in minutes.

TABLE A-7 (Cont.)

PREFERRED TREATER CODES FOR EACH WORK UNIT AND ASSOCIATED TIMES

WORK UNIT[1]	PREFERRED TREATER		1ST ALTERNATE		2ND ALTERNATE		3RD ALTERNATE	
	CODE[2]	E[3]	CODE[2]	E[3]	CODE[2]	E[3]	CODE[2]	E[3]
36	10	30	11	30	7	30		
37	3	2	4	2	2	2	1	2
38	2	12	1	12				
39								
40	9	60						
41	1	35	3	70				
42	19	25						
43	18	25	6	50				
44	17	45	3	45				
45	20	15	13	30				

TABLE A-8

CRITICAL TREATMENT THRESHOLD TIMES AND WORK UNITS

PATIENT CLASS[1]	MORTALITY THRESHOLD TIME AT ENTRY FACILITY (MINUTES)	CRITICAL MORTALITY WORK UNIT[2] (TO KEEP PATIENT FUNCTIONAL)	ALLOWABLE DELAY TIME TO COMPLETE (MINUTES)	CRITICAL CONVALESCENT WORK UNIT[2]	ALLOWABLE DELAY TIME TO COMPLETE (HOURS)
1	5	41	180	41	1
2		42	360	42	3
3	30	41	180	41	1
4		29	720	29	6
5		43	180	43	1
6		43	1440	43	12
7	30	41	180	41	1
8	5	41	360	41	3
9		10	1440	10	12
10	30	41	180	41	1
11	5	41	360	41	3
12		41	180	41	1
13		29	720	29	6
14		35	720	35	6
15		35	720	35	6
16	5	41	120	41	1
17		29	720	29	6
18		35	1440	35	12
19		99		35	12
20		99		8	12
21		99		40	36
22		41	180	41	1
23		41	180	41	1
24		99		10	72
25		41	360	41	3

[1] See Table A-4 for Patient Class Descriptions

[2] See Table A-6 for Work Unit Descriptions.

TABLE A-8 (Cont.)

CRITICAL TREATMENT THRESHOLD TIMES AND WORK UNITS

PATIENT CLASS[1]	MORTALITY THRESHOLD TIME AT ENTRY FACILITY (MINUTES)	CRITICAL MORTALITY WORK UNIT[2] (TO KEEP PATIENT FUNCTIONAL)	ALLOWABLE DELAY TIME TO COMPLETE (MINUTES)	CRITICAL CONVALESCENT WORK UNIT[2]	ALLOWABLE DELAY TIME TO COMPLETE (HOURS)
26		29	720	29	6
27		41	180	41	1
28		41	180	41	1
29		41	240	41	2
30		41	480	41	4
31		41	360	41	3
32		29	720	29	6
33		41	240	41	2
34		99		8	72
35		99		8	72
36	5	41	180	41	1
37	5	41	360	41	3
38	5	41	180	41	1
39		41	180	41	1
40		41	360	41	3
41		19	1440	19	12
42		19	1440	19	12
43		41	360	41	3
44		41	1440	41	12
45		41	1440	41	12
46		99		29	6
47		41	360	41	3
48		99		9	24
49		41	1440	41	12
50		41	360	41	4

TABLE A-8 (Cont.)

CRITICAL TREATMENT THRESHOLD TIMES AND WORK UNITS

PATIENT CLASS[1]	MORTALITY THRESHOLD TIME AT ENTRY FACILITY (MINUTES)	CRITICAL MORTALITY WORK UNIT[2] (TO KEEP PATIENT FUNCTIONAL)	ALLOWABLE DELAY TIME TO COMPLETE (MINUTES)	CRITICAL CONVALESCENT WORK UNIT[2]	ALLOWABLE DELAY TIME TO COMPLETE (HOURS)
51		99		8	12
52		99		9	12
53		99		9	12
54		99		9	24
55		43	240	43	2
56		9	720	9	6
57		8	1440	8	12
58		99		8	72
59		99		8	72
60		99		8	72
61		99		8	24
62		99		8	24
63		99		8	24
64		99		8	24
65	5	43	180	43	2
66		20	180	20	1
67	5	99		9	12
68		99		99	
69		9	240	9	2
79		9	360	9	3
71		9	240	9	2
72		9	240	9	2
73		36	360	36	3
74		36	480	36	4
75		4	360	4	3

TABLE A-9

SECOND FACILITY LEVEL (SECFAC) FOLLOWING EVACUATION FROM ENTRY FACILITY

Patient Class[1]	SECFAC Level[2]	Patient Class[1]	SECFAC Level[2]	Patient Class[1]	SECFAC Level[2]
1	4	26	2	51	3
2	4	27	4	52	3
3	4	28	4	53	3
4	2	29	4	54	2
5	2	30	3	55	4
6	2	31	4	56	4
7	4	32	2	57	2
8	4	33	4	58	2
9	2	34	3	59	2
10	4	35	4	60	3
11	2	36	4	61	2
12	4	37	4	62	3
13	2	38	4	63	2
14	4	39	4	64	2
15	4	40	4	65	4
16	4	41	2	66	4
17	2	42	2	67	2
18	4	43	4	68	3
19	4	44	4	69	4
20	2	45	2	70	3
21	4	46	2	71	4
22	4	47	4	72	4
23	4	48	2	73	3
24	2	49	4	74	3
25	4	50	4	75	4

1 - See Table A-4 for Patient Class Descriptions.

2 - SECFAC Level 2 = BAS, 3 = CS, 4 = Hospital.

APPENDIX B

INSTRUCTIONS FOR PREPARATION OF NAMES II INPUTS

The inputs required to successfully operate the NAMES II Model consist of the following:

- The patient class data describing the attributes and treatment characteristics of each patient class.
- The work unit data describing for each work unit the preferred and alternate treaters and the associated treatment times.
- The patient type data describing for each type of patient (inpatients and outpatients) the proportional distribution of patients entering the evacuation chain at each facility level and the proportional distribution of casualties among the patient classes.
- The patient priority data describing for each patient priority the associated stabilization time prior to evacuation, the evacuation queue threshold time and the additional treatment threshold time.
- The rate of arrival data specifying for each patient type (inpatients and outpatients) the average daily arrivals during the combat period as well as the proportional distribution of the arrivals for each hour of the day.
- The configuration data which describes the structure of the evacuation system, including the resources allocated to each facility and the rules for the employment of evacuation vehicles.

The NAMES II Model reads all the above inputs in free form fashion (i.e., no specific card column has to be used to present an input datum to the model); rather, the input is treated as a stream consisting of fields. Fields are, of necessity, order-dependent and must be separated from each other by at least one blank. Depending on the requirements of the model, fields may contain either alphanumeric data, integer data or real data. An alphanumeric field can contain any character; an integer field represents a number and therefore can only contain the digits 0 through 9; a real field represents a decimal number and therefore contains a decimal point in addition to the digits 0 through 9.

Each group of data, such as the patient class data or the rate of arrival data is headed by an alphanumeric keyword identifying the data that follows it. For instance, the patient class data starts with the keyword CLASS and the rate of arrival data is headed by the keyword RATES.

The following describes each required data group in detail.

PATIENT CLASS DATA GROUP

The patient class data group must contain the following two descriptive fields before the data for each patient class:

- First Field: The word CLASS.
- Second Field: The total number of patient classes (integer).

The data describing each patient class follows and must be prepared for each class in ascending order. It consists of the following information to be repeated for each patient class:

Field 1. Patient class number.
Field 2. Priority associated with the patient class. An integer number between 1 and 4.
Field 3. Mobility factor associated with the class. This is the probability that the patient will be ambulatory and is a real number between 0.0 and 1.0. A mobility factor of 0.0 indicates that a patient within this class will be a litter patient, whereas a mobility factor of 1.0 indicates an ambulatory patient. Any number between 0.0 and 1.0 can be specified.
Field 4. Mortality threshold time at the entry facility, specified in minutes. Treatment must begin before this amount of time elapses, otherwise the patient will die. It must be an integer number. A value of 0 in the field indicates that it is not applicable for this patient class.
Field 5. Critical mortality work unit allowable delay time, in minutes. This represents the amount of time within which a patient of this class must complete his critical mortality work unit, otherwise he will die. It must be an integer number.
Field 6. Critical convalescent work unit allowable delay time, in hours. This represents the amount of time within which a patient of this class must complete his critical convalescent work unit to avoid an increase in his convalescent time.
Field 7. Second facility (SECFAC) level to which a patient of this class should be evacuated following his entry in the system. Facility levels are numbered from 1 to n starting at the Forward Edge of the Battle Area (FEBA).
Field 8. The alphanumeric keyword WU marking the beginning of the list of work units associated with this patient class.
Field 9. An integer number indicating the total number of work units to be performed (nwu) for this class.
Field 10. to nwu These fields represent the list of the treatment work units which must be performed on the patients of this class. Each work unit in the list is described by the following elements:

- The work unit number which must be an integer number in the range of 1 to the maximum number of work units as specified in the work unit data group.

- Following the work unit number, the user can specify whether that work unit is a _first aid work unit_, a _critical mortality work unit_, or a _critical convalescent work unit_.
  - The first aid work unit is identified by the letter F following the work unit number.
  - The critical mortality work unit is identified by the letter M.
  - The critical convalescent work unit is identified by the letter C.

When present, each of these letters constitutes a field, and must therefore be separated from other fields by blanks.

Any work unit can be described as first aid, critical to mortality or critical to convalescence. If the same work unit has more than one of the properties described above, it must be followed by the corresponding descriptive letters. These descriptive letters can appear in any order. If a given patient class does not have a first aid work unit, a critical convalescent work unit or a critical mortality work unit, the corresponding descriptive letters must be omitted.

Remaining Fields

The remaining data fields for a patient class contain the _convalescent time probability distribution_. This probability distribution consists of an arbitrarily long sequence of pairs of numbers. The first number in the pair represents the probability, and must be a real number; the second number represents the number of days of convalescence associated with that probability and must be an integer number. This probability distribution can be input in terms of individual probabilities or in terms of cumulative probabilities. If it is a cumulative probability distribution, the last probability must be equal to 1.0; if it is an individual probability distribution the sum of the probabilities must be equal to 1.0. The distribution must be terminated by a *.

An example of patient class data is presented in Figure B-1 for the first six patient classes used in the NAMES II baseline simulation. For example, patient class 2, which is a simple head fracture, consists of urgent patients (Priority 1), having a 50% probability of being ambulatory; there is no mortality threshold time at the entry facility; the critical mortality work unit must be completed within 360 minutes to keep the patients alive and the critical convalescent work unit must be completed within three hours to prevent an increase in the patients' convalescent time. Patients within this class will be evacuated to the fourth level in the system, which in this case represents the hospital. A total of 6 work units must be performed in sequence to treat these patients: first, work unit 6 (litter hauling), followed by work unit 33 (X-ray), work unit 9 (injections), work unit 42 (treatment of head injuries), which is the first aid work unit, the critical mortality work unit and the critical convalescent work unit, then work unit 11 (dressings) and finally work unit 5 (administration). The convalescent time distribution

```
 CLASS
    75
 1     1  0.        5  180     1     4
  WU   12     6  17     9   15   33   14   41 C M F   42   11   13    5    6
0.         1  .0034  2  .0052  3  .0095  4  .0095  5  .0112  6  .0138  7
 .0172  8  .0198  9  .0233 10  .0250 11  .0258 12  .0267 13  .0301 14
 .0301 15  .0310 16  .0319 17  .0319 18  .0362 19  .0396 20  .0422 21
 .0457 22  .0474 23  .0491 24  .0508 25  .0508 26  .0508 27  .0508 28
 .0534 29  .0534 30  .0568 31  .0568 32  .0577 33  .0594 34  .0629 35
 .0646 36  .0646 37  .0672 38  .0698 39  .0698 40  .0724 41  .0732 42
 .0749 43  .0784 44  .0784 45  .0801 46  .0827 47  .0853 48  .0904 49
 .0913 50  .0956 51  .0956 52  .0965 53  .1034 54  .1051 55  .1059 56
 .1120 57  .1171 58  .1180 59  .1249 60 1.0000 61 *
 2     1   .50     0  360     3     4
  WU    6     6  33     9  42 C M F   11     5
0.         1  .0238  2  .0317  3  .0476  4  .0476  5  .0635  6  .0794  7
 .0873  8  .0952  9  .1032 10  .1190 11  .1190 12  .1508 13  .1746 14
 .1746 15  .1905 16  .2063 17  .2063 18  .2063 19  .2143 20  .2143 21
 .2143 22  .2222 23  .2222 24  .2302 25  .2302 26  .2381 27  .2540 28
 .2540 29  .2540 30  .2619 31  .2857 32  .2937 33  .3016 34  .3016 35
 .3175 36  .3175 37  .3254 38  .3254 39  .3333 40  .3492 41  .3571 42
 .3651 43  .3651 44  .3651 45  .3651 46  .3651 47  .3730 48  .3889 49
 .3889 50  .3889 51  .3889 52  .3889 53  .3968 54  .4048 55  .4048.56
 .4048 57  .4048 58  .4048 59  .4127 60 1.0000 61 *
 3     1  0.        30  180     1     4
  WU   11     6     9  15   33   14   41 C M F   42   13   11    5    6
0.         0  .0601  1  .1166  2  .1508  3  .2038  4  .2450  5  .2945  6
 .3298  7  .3663  8  .3852  9  .4075 10  .4346 11  .4594 12  .4759 13
 .4947 14  .5159 15  .5371 16  .5583 17  .5677 18  .5793 19  .5901 20
 .6101 21  .6184 22  .6302 23  .6419 24  .6537 25  .6643 26  .6796 27
 .6867 28  .6938 29  .7008 30  .7055 31  .7114 32  .7220 33  .7256 34
 .7279 35  .7314 36  .7397 37  .7479 38  .7491 39  .7527 40  .7562 41
 .7597 42  .7597 43  .7609 44  .7621 45  .7633 46  .7633 47  .7656 48
 .7703 49  .7739 50  .7762 51  .7809 52  .7821 53  .7845 54  .7868 55
 .7915 56  .7951 57  .8021 58  .8057 59  .8057 60 1.0000 61 *
 4     2  0.         0  720     6     2
  WU    8     6  12    33   29 C M F   11    9    5    6
0.         0  .2189  1  .3434  2  .4317  3  .4818  4  .5199  5  .5606  6
 .5917  7  .6228  8  .6505  9  .6713 10  .6843 11  .6964 12  .7057 13
 .7180 14  .7292 15  .7370 16  .7465 17  .7535 18  .7595 19  .7630 20
 .7647 21  .7716 22  .7803 23  .7829 24  .7863 25  .7889 26  .7924 27
 .7967 28  .7993 29  .8019 30  .8036 31  .8097 32  .8157 33  .8192 34
 .8218 35  .8227 36  .8253 37  .8287 38  .8313 39  .8339 40  .8365 41
 .8374 42  .8400 43  .8417 44  .8452 45  .8460 46  .8503 47  .8529 48
 .8555 49  .8581 50  .8607 51  .8642 52  .8651 53  .8668 54  .8668 55
 .8676 56  .8685 57  .8702 58  .8702 59  .8728 60 1.0000 61 *
 5     2  0.         0  180     1     2
  WU    5     6  33    43 C M F     5    6
0.         9  .0363 10  .0881 11  .1140 12  .1710 13  .1813 14  .2021 15
 .2435 16  .2642 17  .2953 18  .3161 19  .3212 20  .3316 21  .3627 22
 .3679 23  .3938 24  .4041 25  .4093 26  .4456 27  .4560 28  .4560 29
 .4560 30  .4611 31  .4767 32  .4870 33  .4870 34  .4922 35  .4974 36
 .5130 37  .5181 38  .5233 39  .5285 40  .5440 41  .5544 42  .5544 43
 .5596 44  .5596 45  .5596 46  .5648 47  .5648 48  .5751 49  .5751 50
 .5751 51  .5803 52  .5907 53  .5907 54  .5959 55  .6010 56  .6114 57
 .6114 58  .6218 59  .6321 60 1.0000 61 *
 6     3  0.         0 1440    12     2
  WU    5     6  33    43 C M F     5    6
0.         0  .3304  1  .5927  2  .7251  3  .7894  4  .8550  5  .9016  6
 .9395  7  .9786  8  .9912  9 1.0000 10 *
```

Fig. B-1 — Sample patient class data (first 6 of 75 patient classes) is prepared as a cumulative distribution and specifies that each patient in this class will have a convalescent time of between 2 and 61 days with a 0.2857 probability that his convalescent time will be 32 days or less (if not increased due to delays in treatment).

WORK UNIT DATA GROUP

This data group is identified by the words WORK UNIT and must contain the following information:

- The total number of work units.
- The description of the treater codes and treatment times for each work unit in ascending order as follows:
    - The work unit number.
    - The letter T must follow the work unit number designated for triage. If no work unit number is so identified, the model will assume that work unit 3 is the triage work unit.
    - The number of types of treaters who can perform the work unit.
    - For each type of treater, a pair of numbers where the first number represents the treater code and the second number represents the treatment time in minutes for the corresponding treater code.

All the numbers in this data group must be integers. Sample work unit input data is presented in Figure B-2. For example, work unit 41 (major surgery) can be performed by 2 treaters; the preferred treater is treater code 1 (general surgeon) who can perform this work unit in 35 minutes; the first alternate treater is treater code 3 (medical general practitioner) who can perform this same work unit in 70 minutes.

The treater codes specified in this data group must be consistent with the treater codes assigned at each treatment facility (see configuration data group). If the treater code and associated treatment time are both zero for a particular work unit number, that work unit number is not applicable. (See work units 26 and 39 in Figure B-2).

PATIENT TYPE DATA GROUP

This group of data is identified by the word TYPE followed by the number of patient types coming in the system (typically 1 or 2). In the NAMES II baseline simulation (see Figure B-3) there are 2 types, inpatients and outpatients.

The data describing each type follows and must be prepared for each type in ascending order.

Field 1 and Field 2. In the current NAMES II model these fields must contain the values 0.0 and 1, respectively.

```
 WORK.UNIT
    45
 1   4   7  45   4  45   6  45   5  45
 2   4   3   5   2   5   4   5   6   5
 3   4   1   4   3   4   4   5   6   5
 4   4   3  30   4  30   2  30   6  30
 5   4   3   3   4   3   6   3   5   3
 6   1  15   3
 7   3   9   5   3   8   4   9
 8   2   5   2   6   2
 9   3   5   1   6   1   4   1
10   3   5  15   6  15   4  15
11   3   6  10   5  10   4  10
12   4   3  10   4  10   6  10   1  10
13   3   3   6   4   6   6   6
14   3   6  15   3  15   4  15
15   4   6   3   1   3   3   3   4   3
16   3   5  15   6  15   4  15
17   2   4   3   5   3
18   2   5   9   6   9
19   3   3   7   4   7   6   7
20   2   6  45   5  45
21   2   5  25   6  25
22   2   7  25   5  25
23   3   5  10   6  10   4  10
24   3   1  15   3  15   2  15
25   3   1  15   3  15   6  15
26   1   0   0
27   3   1   9   6   9   5   9
28   3   2   9   3   9   6   9
29   3   1  35   3  35   6  35
30   4   2   8   1   8   4   8   6   8
31   3  13   5   5   5   6   5
32   3   2  30   4  30  13  30
33   2  16   8   6   8
34   2   5  12   6  12
35   1  14  20
36   3  10  30  11  30   7  30
37   4   3   2   4   2   2   2   1   2
38   2   2  12   1  12
39   1   0   0
40   1   9  60
41  2  1  35  3  70
42   1  19  25
43   2  18  25   6  50
44   2  17  45   3  45
45   2  20  15  13  30
```

Fig. B-2 — Sample work unit input data

```
  TYPE
 2
0.0  1   1.0  1   *
0.0       0 0.0015  1 0.0017  2 0.0141  3 0.0183  4 0.0206  5 0.0296  6
0.0333  7 0.0370  8 0.0370  9 0.0419 10 0.0534 11 0.0682 12 0.1028 13
0.1044 14 0.1108 15 0.1129 16 0.1178 17 0.1205 18 0.1246 19 0.1353 20
0.1369 21 0.1407 22 0.1445 23 0.1587 24 0.1837 25 0.2838 26 0.2836 27
0.2934 28 0.2987 29 0.3110 30 0.3644 31 0.4178 32 0.4576 33 0.4579 34
0.4755 35 0.5333 36 0.5397 37 0.5515 38 0.5877 39 0.5896 40 0.5965 41
0.6022 42 0.6132 43 0.6133 44 0.6271 45 0.6544 46 0.6591 47 0.6815 48
0.6957 49 0.6983 50 0.6987 51 0.7018 52 0.7426 53 0.7458 54 0.7551 55
0.7698 56 0.7782 57 0.7797 58 0.7838 59 0.7864 60 0.8153 61 0.8183 62
0.8549 63 0.8567 64 0.8592 65 0.8727 66 0.8727 67 0.9033 68 0.9091 69
0.9404 70 0.9411 71 0.9585 72 0.9611 73 0.9912 74 1.0000 75
*
0.0  1   0.5  1   0.7  2  0.9   3   1.0   4   *.
0.0000    0 0.018   18 0.023   20 0.029   45 0.302   46 0.309   47 0.316   48
0.436    50 0.460   52 0.534   53 0.551   54 0.555   55 0.618   56 0.760   57
0.811    58 0.822   59 0.870   61 0.881   63 0.896   67 0.950   68 0.956   71
0.962    72 1.000   74
*
```

Fig. B-3 — Sample data for the distribution of patients over each facility level and over each patient class for each type of patient

Field 3 and Field 4.	A real number between 0.0 and 1.0, indicating the cumulative proportion of patients of that type entering the evacuation chain at the FEBA (level 1), followed by the integer 1 designating that level.
Field 5 and Field 6.	A real number between 0.0 and 1.0, indicating the cumulative proportion of patients of that type entering the chain at facility level 2, followed by the integer 2.

Additional fields are included, as appropriate, to describe the entry levels of all patients of each type. In Figure B-3, for example, all the inpatients enter the baseline simulation at the FEBA, whereas the outpatients are distributed over the 4 levels in the proportions .5, .2, .2 and .1.

Remaining Fields	The remaining data fields for each type of patienc contain individual or cumulative probability distributions of patients of each type over the patient classes. This data consists of pairs of numbers: the first number is the probability, and must be a real number between 0 and 1; the second number represents the associated patient class. Figure B-3 contains cumulative probability distributions of inpatients and outpatients over the 75 classes employed in the baseline simulation.

PATIENT PRIORITY DATA GROUP

The patient priority data group describes the attributes associated with a given priority. It is identified by the word PRIORITY followed by the number of patient priorities. (This number must be equal to 4 at the present time.)

For each patient priority, the following data must be provided:

- The stabilization time in hours.
- The evacuation queue threshold time in hours.
- The additional treatment threshold time in minutes.

All these numbers are decimal numbers. In Figure B-4, for example, the stabilization time of a Priority 1 patient is 24 hours, there is no evacuation queue threshold time and the additional treatment threshold is 20 minutes.

```
PRIORITY
4
24.    0.    20.
12.    1.    80.
 0.   24.  1460.
 0.   24.  1460.
```

Fig. B-4 — Sample patient priority data

ARRIVAL RATES DATA GROUP

This group of data specifies the average rates of arrivals for both inpatients and outpatients for each day of the simulation, preceded by the proportional distribution of these arrivals over each hour of the day. This section is identified by the word RATES and consists of the following elements:

- The proportion of inpatients arriving during each hour of the day. This consists of 24 real numbers, one for each hour of the day. The sum of these numbers must be equal to 1.0.
- The proportion of outpatients arriving during each hour of the day. This list should also consist of 24 real numbers adding up to 1.0.
- The number of days for which average patient arrival data is provided (length of combat period).
- The average number of inpatients for each day. This list consists of one real number for each day. There must be as many entries in the list as specified by the number of days field.
- The average number of outpatients for each day.

Figure B-5 shows a sample of patient arrival rates.

```
   RATES
   .01   .01   .01   .01   .03   .05   .05   .07   .10   .07
   .05   .04   .04   .05   .07   .10   .07   .05   .05   .03
   .01   .01   .01   .01
   .0    .0    .0    .0    .0    .0    .05   .80   .05   .0
   .0    .0    .05   .0    .0    .05   .0    .0    .0    .0
   .0    .0    .0    .0
   15
241.0   680.0   512.0   222.0   158.0   321.0   217.0 222.0
 92.0   255.0   348.0   168.0    60.0    65.0    54.0
150.0   150.0   150.0   150.0   150.0   150.0   150.0   150.0
150.0   150.0   150.0   150.0   150.0   150.0   150.0
```

Fig. B-5 — Sample patient arrival data

CONFIGURATION DATA GROUP

The configuration data allows the user to easily specify the structure of the evacuation chain in the combat zone, to allocate the various resources at each facility level and to specify the evacuation rules to be used at each facility level. This data is entirely free-form and is keyword oriented. It contains the following information:

- A description of the type of evacuation vehicles assigned in the evacuation chain.
- A description of the default evacuation rules (if any) and evacuation vehicle speeds.
- A description of each treatment and evacuation level in the system together with the resources and parameters associated with a given level.
- A description of required operational inputs which control the simulation.
- Additional inputs which enable the user to select the type, level of detail and frequency of the outputs of the simulation.

The description of the types of evacuation vehicles assigned in the evacuation chain is identified by the keyword VEHICLES followed by an integer number specifying the number of different evacuation vehicle types. Each vehicle type is then identified by a name and by its mode of transportation, either AIR or GROUND.

The description of the default evacuation rules and vehicle speeds is identified by the keyword DEFAULTS. This block of data can be supplied when the evacuation rules or vehicle speeds are identical at each facility level. It provides the user with a concise way of specifying these characteristics of the system. Default rules or vehicle speeds can be overridden at a specific facility level. The input formats for these rules are described below under RULES.

The description of the treatment and evacuation levels present in the system is identified by the keyword LEVELS followed by an integer number specifying the number of levels in the chain. Then, for each level in the chain starting with the FEBA level and progressing toward the rear, the following information must be provided:

- The name of the level (e.g., FEBA, BAS, CS, etc...) This is an alphanumeric field of less than 10 characters chosen by the user. It is used in the model outputs to identify the level.

- The number of facility units at the given level. This must be an integer number. In addition at the present time the ratio of the number of facility units at a given level over the number of facility units at the level to its immediate rear must be a whole number (e.g., if there are 10 facility units at the BAS level, and if the next level to the rear is a CS level, the user must specify either 1, 2, 5 or 10 CS since those are the only numbers which divide exactly into 10).

- The remainder of the data describing a facility level is described using English like keywords. Each keyword identifies the attribute of the level and is followed by data which is a function of the keyword. The keywords can appear in any order and the description of a facility level is terminated by the keyword DONE. It should be noted that, at the present time, all the facility units within a facility level must be identical. The keywords to describe a facility level are:

    - DISTANCE which specifies the distance between a level and the FEBA. The distance is an integer number which can be in any unit provided it is consistent with the vehicle speeds.

    - BEDS which specifies the number of convalescent beds allocated at each unit within the level. It must be an integer number.

    - EVAC which specifies the evacuation policy in force at the level. It must be an integer number of days.
    - VEHICLES which specifies the number and type of vehicles assigned at each facility unit within the level. The input associated with this keyword consists of three fields:

        - The first field is the vehicle type which is the alphanumeric name of the vehicle as entered in the VEHICLES data.

        - The second field is the number of vehicles assigned at each facility unit within the level.

- The third field is the vehicle capacity (number of spaces aboard the vehicle).

o TREATER which specifies the type and number of treaters assigned at each facility unit within the level. The input data describing the treater assignment consists of an arbitrarily long list of pairs of numbers. The first number is the treater code, the second number is the number of treaters of that type which are assigned. The treater codes must be consistent with those codes associated with the work unit data. The list of assigned treaters must be terminated with a $.

o LOAD which specifies the proportion of impatients or outpatients which enter the system at this level. It contains the following data fields:

- First, the word INPATIENT or OUTPATIENT to identify the type of patient.

- Second, the proportion associated with this patient type. It must be expressed as a real number beyween 0.0 and 1.0. In addition, the sum of these numbers for each type of patient over all the levels must add up to 1.0.

- The list is terminated with a $.

o SPEED which specifies the speed of the evacuation vehicles between this level and the next level to the rear. It contains the following data fields:

- First, the vehicle type which is the alphanumeric name of the vehicle as entered in the VEHICLES data.
- Second, the vehicle speed in any unit consistent with the distances.

o SEC.FAC which specifies the patient classes which should be evacuated to this level, if possible. The list consists of a sequence of integer numbers each identifying a patient class. It is terminated by a $. Patients of the specified classes will be evacuated to this facility provided they are coming from a facility closer to the FEBA. If they are already at or beyond their secondary facility, they will be evacuated to the next facility to the rear.

- RULES which identifies the vehicle evacuation rules to be used at the facility. This group of data consists of a sequence of keywords identifying the type of rule and the rule itself within each type. It must be terminated by the word END.RULE.

  Within each rule, the vehicle to which it applies is specified by following the rule name with the name of the vehicle. The rules which can be selected are the following:

  - REQUEST to indicate the levels from which a given vehicle can be requested. It consists of a sequence of facility level names and is terminated by a , and a $.

  - LOAD.1 to indicate the rule to be used to load patients at a vehicle's first stop. It is followed by the rule number:
    1: Load none.
    2: Load all by priority.
    3: Load selected priorities (In this case the permitted priorities follow.).

  - DESTN.1 to indicate the destination of the vehicle after its first stop, based on its state (1 for empty, 2 for not empty). Following each state, the applicable rule can be specified as:

    1: User selected facility followed by the facility name or HOME.
    2: Remain at present facility.
    3: Closest facility to which any patient is designated to go.
    4: As far to the rear as required by any patient.
    5: Facility required by highest priority patient.

- UNLOAD.1 to indicate the rule to be followed to unload patients at vehicle's second stop (a vehicle always arrives empty at its first stop):

  1: Unload none.
  2: Unload all.
  3: Unload patients designated for evacuation to this facility.
  4: Unload designated priorities.

- LOAD.2 to indicate the rule to be followed for patient loading at a vehicle's second stop. It is based on the following states:

  1: vehicle empty and other vehicle enroute
  2: vehicle empty and no other vehicle enroute
  3: vehicle not empty and other vehicle enroute
  4: vehicle not empty and no other vehicle enroute

  The applicable rules include those of LOAD.1 plus a fourth rule:

  4: Load those designated to go to facilities which are the destinations of patients already on board.

- DESTN.2 to indicate the rule to be followed for dispatching a vehicle after its second stop. The inputs are similar to the DESTN.1 rules.

- UNLOAD.2 to indicate the rule to be followed to unload patients at a vehicle's third or subsequent stops. The inputs are similar to the UNLOAD.1 rule.

The operational inputs which must be provided for a simulation are also identified by keywords. They are identified by the keyword OPERATION and can be presented in any order; the list must be terminated by the word DONE. They are:

- o DAYS to specify the number of days of simulation. It must be an integer number.

o	DAWN and DUSK	to specifiy the range of daylight hours. Each time must be input as a real number using military clock hours, not A.M. or P.M.
o	AIR.TRIG and GRND.TRIG	to specify the number of non-urgent patients which trigger a request for an air vehicle or a ground vehicle.
o	CONV	to specify the multiplicative factor by which convalescent time is increased for patients who do not receive their critical convalescent work unit within the allowable delay time.
o	POOL	to specify the distance of the POOL to the FEBA and the type of evacuation vehicles assigned at the pool. The input fields associated with this keyword are identical to those for the VEHICLES keyword.

The additional input elements are used to control the type of statistics to be produced by the model, the printing frequency of these statistics, etc... They are:

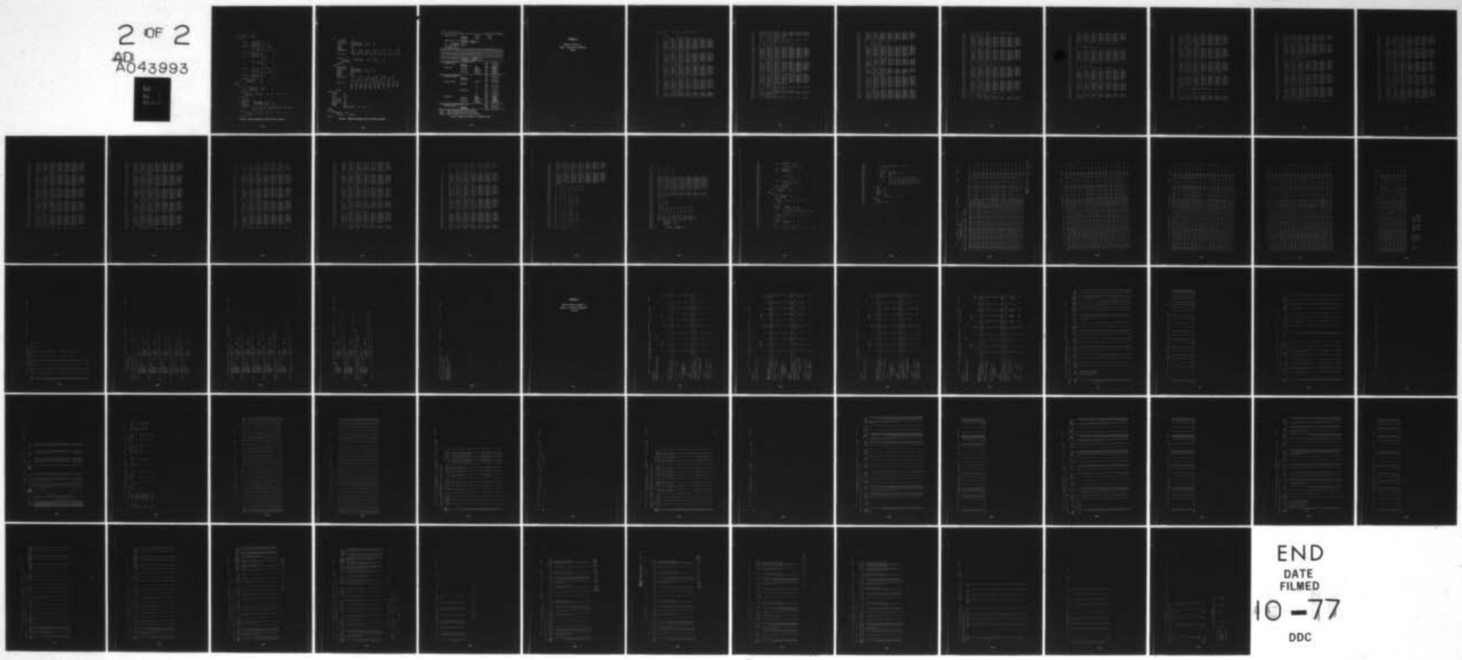
o	ECHO	to provide a listing of the medical and configuration input data (See input reports.).
o	FREQUENCY	to specify the printing frequeny of the statistics in days.
o	RUN.NO	to identify the run, the run number is printed at the top of every page.

Figures B-6 and B-7 present the sample configuration data for the baseline simulation. In this example, there are four levels of evacuation called, respectively, FEBA, BAS, CS and HOSP. The FEBA has 36 landing zones with 10 medics at each landing zone; there are 9 BAS, 3 miles from the FEBA; each BAS has 1 ambulance with a capacity of 8 and a speed of 25 miles/hour; there are no beds or evacuation policy at the BAS; there are 2 treaters of type 3, 15 treaters of type 5, etc....The CS and the HOSP are described in the same manner. The simulation will run for 15 days, daylight hours are from 0600 to 1800, 6 non-urgent patients will trigger an air vehicle and 2 a ground vehicle. The convalescent time of patients will be doubled for patients who do not receive their critical convalescent work unit in the required time. The MEDEVAC pool has 16 helicopters with a capacity of 24. The speed of the helicopters and ambulances is 100 mph and 25 mph, respectively.

Figure B-8 is a sample format for use by the model user in providing configuration data. The data shown is for the clearing station level (level 3) of the baseline simulation.

AD-A043 993   NAVAL RESEARCH LAB WASHINGTON D C   F/G 6/5
NAMES II (NAVY AMPHIBIOUS MEDICAL EVACUATION SIMULATION) USER'S--ETC(U)
JUL 77 P B RICHARDS, J R FLETCHER, C DELFOSSE
UNCLASSIFIED   NRL-MR-3567   NL

2 OF 2
AD
A043993



END
DATE
FILMED
10-77
DDC

```
VEHICLES  2
     HELICOPTER     AIR
     AMBULANCE      GROUND
DEFAULTS
     RULES
          REQUEST     HELICOPTER POOL    ,   $
          LOAD.1      AMBULANCE   2         ,
                      HELICOPTER  2         ,   $
          DESTN.1     AMBULANCE   1   1   HOME     ,
                                  2   3            ,
                      HELICOPTER  1   1   HOME     ,
                                  2   3            ,     $
          UNLOAD.1    AMBULANCE   3                ,
                      HELICOPTER  3                ,     $
          LOAD.2      AMBULANCE   1   2            ,
                                  2   2            ,
                                  3   2            ,
                                  4   2            ,
                      HELICOPTER  1   2            ,
                                  2   2            ,
                                  3   2            ,
                                  4   2            ,     $
          DESTN.2     AMBULANCE   1   1   HOME     ,
                                  2   3            ,
                      HELICOPTER  1   1   HOME     ,
                                  2   3            ,     $
          UNLOAD.2    AMBULANCE   3                ,
                      HELICOPTER  3                ,     $
          END.RULE
     SPEED     HELICOPTER      100
               AMBULANCE       25         $
DONE
LEVELS     4
     FEBA      36
          LOAD      INPATIENT      1.0
                    OUPATIENT      0.5          $
          TREATERS   0  10                      $
          RULES
               REQUEST     AMBULANCE     BAS    CS    HOSP   ,   $
               END.RULE
          DONE
     BAS          9
          DISTANCE          3
          VEHICLES          AMBULANCE     1   8    $
          LOAD              OUTPATIENT    0.2      $
          TREATERS          3 2    5 15    5 6    15 1   $
          SEC.FAC           4    5    6    9    11    13    17    20    24
                          26   32   41   42   45   46   48   54   57   58   59
                          61   63   64   67     $
          RULES
               REQUEST     AMBULANCE     BAS    CS    HOSP   ,   $
               END.RULE
          DONE
```

Fig. B-6 — Sample configuration data for baseline simulation

```
    CS        3
         DISTANCE       12
         VEHICLES       AMBULANCE       3   8     $
         LOAD           OUTPATIENT     0.2        $
         BEDS           60
         EVAC            3
         TREATERS        1 2     2 2     3 2     5 12    6 10     7 4     13 2
                        15 4    16 2    18 4        $
         SEC.FAC         30    34    51    52    53    60    62    68    70    73    74
                          $
         RULES
              REQUEST    AMBULANCE    CS     HOSP   ,     $
              END.RULE
         DONE
    HOSP      1
         DISTANCE       30
         VEHICLES       AMBULANCE       6   8     $
         LOAD           OUTPATIENT     0.1        $
         BEDS           200
         EVAC            15
         TREATERS        1 2     2 19     3 6     4 26     5 27     6 16
                         7 3     9  1    10 1    11  1    13  3    14  1
                        15 6    16  3    17 1    18 11    19  3    20  1    $
         SEC.FAC         1     2     3     7     8    10    12    14    15    16    18
                        19    21    22    23    25    27    28    29    31    33    35
                        36    37    38    39    40    43    44    47    49    50    55
                        56    65    66    69    71    72    75     $
         DONE
OPERATION
     DAYS          15
     DAWN           6.
     DUSK          18.
     AIR.TRIG       6
     GRND.TRIG      2
     CONV           2.
     POOL          30
                   HELICOPTER    16   24     $
DONE
OUTPUT
     FREQUENCY   1.0
          RUN.NO        II-39
DONE
```

Fig. B-7 — Sample configuration data for baseline simulation

NUMBER OF LEVELS 4

THIS IS FACILITY LEVEL k= 3 (CS) NUMBER OF UNITS 3 DISTANCE FROM FEBA 12 MILES

ASSIGNED VEHICLES		NUMBER	SPACES
	AMBULANCE	3	8
	HELICOPTER	0	

SPEED BETWEEN k & k+1	AMBULANCE	25 mph
	HELICOPTERS	100 mph

LOAD - % INPATIENTS 0

% OUTPATIENTS 0.2

NO. OF BEDS 60

EVAC POLICY 3

TREATERS (CODE & NO.) 1 2 2 2 3 2 5 12 6 10 7 4 13 2 15 4 16 2 18 4

SECFAC (CLASSES) 30 34 51 52 53 60 62 68 70 73 74

LEVELS VEH. REQUESTED FROM - AMBULANCE CS HOSP

HELICOPTER POOL

THIS IS VEHICLE'S FIRST STOP; IT ARRIVES EMPTY

PATIENTS LOADED			RULE	PRIORITIES
	AMBULANCE		2	
	HELICOPTER		2	
DESTINATION		STATE	RULE	FACILITY
	AMBULANCE	Empty	1	HOME
		Not Empty	3	
	HELICOPTER	Empty	1	HOME
		Not Empty	3	

THIS IS VEHICLE'S SECOND STOP

PATIENTS UNLOADED			RULE	PRIORITIES
	AMBULANCE		3	
	HELICOPTER		3	
PATIENTS LOADED		STATE*	RULE	PRIORITIES
	AMBULANCE	1	2	
		2	2	
		3	2	
		4	2	
	HELICOPTER	1	2	
		2	2	
		3	2	
		4	2	
DESTINATION		STATE	RULE	FACILITY
	AMBULANCE	Empty	1	HOME
		Not Empty	3	
	HELICOPTER	Empty	1	HOME
		Not Empty	3	

THIS IS VEHICLE'S THIRD/SUBSEQUENT STOP

PATIENTS UNLOADED		RULE	PRIORITIES
	AMBULANCE	3	
	HELICOPTER	3	

* State 1: vehicle empty and other vehicle enroute.
State 2: vehicle empty and no other vehicle enroute.
State 3: vehicle not empty and other vehicle enroute.
State 4: vehicle not empty and no other vehicle enroute.

Fig. B-8 — Sample user format for configuration data

APPENDIX C

COMPUTER REPORTS OF NAMES II BASELINE SIMULATION INPUTS

```
======================    INPUT DATA.    ======================

 1 .      CLASS
 2 .        75
 3 .      1    1  0.       5   180     1     4
 4 .       WU  12    6  17    9  15   33   14   41 C M F   42   11   13    5    6
 5 .     0.        1  .0034  2  .0052  3  .0095  4  .0095  5  .0112  6  .0138  7
 6 .      .0172  8  .0198  9  .0233 10  .0250 11  .0258 12  .0267 13  .0301 14
 7 .      .0301 15  .0310 16  .0319 17  .0319 18  .0362 19  .0396 20  .0422 21
 8 .      .0457 22  .0474 23  .0491 24  .0508 25  .0508 26  .0508 27  .0508 28
 9 .      .0534 29  .0534 30  .0568 31  .0568 32  .0577 33  .0594 34  .0629 35
10 .      .0646 36  .0646 37  .0672 38  .0698 39  .0698 40  .0724 41  .0732 42
11 .      .0749 43  .0784 44  .0784 45  .0801 46  .0827 47  .0853 48  .0904 49
12 .      .0913 50  .0956 51  .0956 52  .0965 53  .1034 54  .1051 55  .1059 56
13 .      .1120 57  .1171 58  .1180 59  .1249 60 1.0000 61 *
14 .      2    1   .50      0  360     3     4
15 .       WU    6    6   33    9   42 C M F   11    5
16 .     0.        1  .0238  2  .0317  3  .0476  4  .0476  5  .0635  6  .0794  7
17 .      .0873  8  .0952  9  .1032 10  .1190 11  .1190 12  .1508 13  .1746 14
18 .      .1746 15  .1905 16  .2063 17  .2063 18  .2063 19  .2143 20  .2143 21
19 .      .2143 22  .2222 23  .2222 24  .2302 25  .2302 26  .2381 27  .2540 28
20 .      .2540 29  .2540 30  .2619 31  .2857 32  .2937 33  .3016 34  .3016 35
21 .      .3175 36  .3175 37  .3254 38  .3254 39  .3333 40  .3492 41  .3571 42
22 .      .3651 43  .3651 44  .3651 45  .3651 46  .3651 47  .3730 48  .3889 49
23 .      .3889 50  .3889 51  .3889 52  .3889 53  .3968 54  .4048 55  .4048 56
24 .      .4048 57  .4048 58  .4048 59  .4127 60 1.0000 61 *
25 .      3    1  0.      30   180     1     4
26 .       WU  11    6    9   15   33   14   41 C M F   42   13   11    5    6
27 .     0.        0  .0601  1  .1166  2  .1508  3  .2038  4  .2450  5  .2945  6
28 .      .3298  7  .3663  8  .3852  9  .4075 10  .4346 11  .4594 12  .4759 13
29 .      .4947 14  .5159 15  .5371 16  .5583 17  .5677 18  .5783 19  .5901 20
30 .      .6101 21  .6134 22  .6302 23  .6419 24  .6537 25  .6643 26  .6796 27
31 .      .6867 28  .6938 29  .7008 30  .7055 31  .7114 32  .7220 33  .7256 34
32 .      .7279 35  .7314 36  .7397 37  .7479 38  .7491 39  .7527 40  .7562 41
33 .      .7597 42  .7597 43  .7609 44  .7621 45  .7633 46  .7633 47  .7656 48
34 .      .7703 49  .7739 50  .7762 51  .7809 52  .7821 53  .7845 54  .7868 55
35 .      .7915 56  .7951 57  .8021 58  .8057 59  .8057 60 1.0000 61 *
36 .      4    2  0.       0   720     6     2
37 .       WU    8    6   12   33   29 C M F   11    9    5    6
38 .     0.        0  .2199  1  .3434  2  .4317  3  .4818  4  .5199  5  .5616  6
39 .      .5917  7  .6228  8  .6505  9  .6713 10  .6843 11  .6964 12  .7057 13
40 .      .7190 14  .7292 15  .7370 16  .7465 17  .7535 18  .7595 19  .7630 20
41 .      .7647 21  .7716 22  .7803 23  .7829 24  .7863 25  .7889 26  .7924 27
42 .      .7967 28  .7993 29  .8019 30  .8036 31  .8097 32  .8157 33  .8192 34
43 .      .8218 35  .8227 36  .8253 37  .8287 38  .8313 39  .8339 40  .8365 41
44 .      .8374 42  .8400 43  .8417 44  .8452 45  .8460 46  .8503 47  .8529 48
45 .      .8555 49  .8581 50  .8607 51  .8642 52  .8651 53  .8668 54  .8668 55
46 .      .8676 56  .8685 57  .8712 58  .8712 59  .8728 60 1.0000 61 *
47 .      5    2  0.       0   180     1     2
48 .       WU    5    6   33   43 C M F    5    6
49 .     0.        9  .0363 10  .0881 11  .1140 12  .1710 13  .1813 14  .2021 15
50 .      .2435 16  .2642 17  .2953 18  .3161 19  .3212 20  .3316 21  .3627 22
51 .      .3679 23  .3938 24  .4041 25  .4093 26  .4456 27  .4560 28  .4560 29
52 .      .4560 30  .4611 31  .4767 32  .4870 33  .4870 34  .4922 35  .4974 36
```

```
 53 .     .5130 37  .5181 38  .5233 39  .5285 40  .5440 41  .5544 42  .5544 43
 54 .     .5596 44  .5596 45  .5596 46  .5648 47  .5648 48  .5751 49  .5751 50
 55 .     .5751 51  .5803 52  .5907 53  .5907 54  .5959 55  .6010 56  .6114 57
 56 .     .6114 58  .6218 59  .6321 60 1.0000 61 *
 57 .    6    3  0.       0 1440   12    2
 58 .     WU   5   6  33  43 C M F   5   6
 59 .    0.       0  .3304  1  .5927  2  .7251  3  .7894  4  .8550  5  .9016  6
 60 .     .9395  7  .9786  8  .9912  9 1.0000 10 *
 61 .    7    1  0.      30  180    1    4
 62 .     WU  11   6   9  15  12  33  41 C M F  42  13  11   5   6
 63 .    0.      60 1.0000 61 *
 64 .    8    1  0.       5  360    3    4
 65 .     WU  11   6  17  33  41 C M F  42  13  33  11   9   5   6
 66 .    0.       0  .0355  1  .0620  2  .0945  3  .1196  4  .1492  5  .1758  6
 67 .     .1965  7  .2230  8  .2482  9  .2703 10  .2939 11  .3176 12  .3309 13
 68 .     .3516 14  .3737 15  .3944 16  .4077 17  .4165 18  .4239 19  .4402 20
 69 .     .4505 21  .4579 22  .4742 23  .4919 24  .5126 25  .5214 26  .5229 27
 70 .     .5288 28  .5347 29  .5362 30  .5421 31  .5583 32  .5716 33  .5879 34
 71 .     .6041 35  .6100 36  .6204 37  .6307 38  .6440 39  .6588 40  .6706 41
 72 .     .6913 42  .7061 43  .7242 44  .7386 45  .7533 46  .7666 47  .7755 48
 73 .     .7829 49  .7976 50  .8065 51  .8242 52  .8360 53  .8526 54  .8789 55
 74 .     .8951 56  .9084 57  .9247 58  .9334 59  .9498 60 1.0000 61 *
 75 .    9    3  1.00     0 1440   12    2
 76 .     WU   4  33   9  10 C M F   5
 77 .    0.       0  .0210  1  .0580  2  .0750  3  .0920  4  .1230  5  .1540  6
 78 .     .1610  7  .1680  8  .1920  9  .2290 10  .2400 11  .2500 12  .2600 13
 79 .     .2710 14  .2810 15  .2880 16  .2910 17  .3050 18  .3220 19  .3320 20
 80 .     .3420 21  .3460 22  .3530 23  .3630 24  .3700 25  .3840 26  .3940 27
 81 .     .4040 28  .4210 29  .4320 30  .4350 31  .4420 32  .4420 33  .4450 34
 82 .     .4520 35  .4650 36  .4690 37  .4730 38  .4830 39  .4900 40  .4970 41
 83 .     .5070 42  .5070 43  .5270 44  .5310 45  .5410 46  .5550 47  .5620 48
 84 .     .5790 49  .5920 50  .6130 51  .6160 52  .6200 53  .6230 54  .6270 55
 85 .     .6440 56  .6470 57  .6540 58  .6610 59  .6750 60 1.0000 61 *
 86 .   10    1  0.      30  180    1    4
 87 .     WU  12   6  15  12  33  41 C M F  42  43  13  13  11   5   6
 88 .    0.       9  .0750 10  .1445 11  .1895 12  .2514 13  .3002 14  .3358 15
 89 .     .3602 16  .3921 17  .4165 18  .4353 19  .4484 20  .4690 21  .4833 22
 90 .     .4991 23  .5159 24  .5328 25  .5460 26  .5478 27  .5591 28  .5722 29
 91 .     .5835 30  .5929 31  .6079 32  .6210 33  .6295 34  .6323 35  .6417 36
 92 .     .6492 37  .6510 38  .6604 39  .6717 40  .6811 41  .6829 42  .6867 43
 93 .     .6867 44  .6923 45  .6942 46  .6979 47  .6979 48  .6998 49  .7017 50
 94 .     .7129 51  .7148 52  .7186 53  .7242 54  .7290 55  .7373 56  .7392 57
 95 .     .7392 58  .7411 59  .7430 60 1.0000 61 *
 96 .   11    2  1.00     5  360    3    2
 97 .     WU   5  17  33  41 C M F  11   5
 98 .    0.       0  .2502  1  .4297  2  .5468  3  .6395  4  .7384  5  .8327  6
 99 .     .8928  7  .9460  8  .9848  9 1.0000 10 *
100 .   12    2  0.       0  180    1    4
101 .     WU  10   6   9  12  33  41 C M F  42  11  13   5   6
102 .    0.      46  .0013 47  .0179 48  .0357 49  .0510 50  .0702 51  .0842 52
103 .     .0982 53  .1173 54  .1237 55  .1403 56  .1505 57  .1645 58  .1824 59
104 .     .1939 60 1.0000 61 *
105 .   13    3  1.00     0  720    5    2
106 .     WU   6   9  33  29 C M F  11  13   5
107 .    0.       0  .0845  1  .1397  2  .1950  3  .2476  4  .3034  5  .3518  6
```

```
108 .    .3884  7  .4208  8  .4527  9  .4846 10  .5021 11  .5271 12  .5579 13
109 .    .5818 14  .6068 15  .6344 16  .6552 17  .6817 18  .7104 19  .7295 20
110 .    .7444 21  .7641 22  .7848 23  .8023 24  .8135 25  .8220 26  .8332 27
111 .    .8433 28  .8549 29  .8645 30  .8767 31  .8905 32  .8980 33  .9081 34
112 .    .9156 35  .9235 36  .9304 37  .9378 38  .9431 39  .9474 40  .9575 41
113 .    .9617 42  .9681 43  .9782 44  .9846 45  .9931 46 1.0000 47 *
114 .   14    1  0.       0  720     6    4
115 .     WU   7    6    9   35 C M F   11   38    5    6
116 .   0.       60 1.0000 61 *
117 .   15    2  1.00     0  720     6    4
118 .     WU   5    9   35 C M F   11   38    5
119 .   0.        0  .0865  1  .1586  2  .1966  3  .2401  4  .2759  5  .3018  6
120 .    .3238  7  .3409  8  .3557  9  .3678 10  .3767 11  .3844 12  .3932 13
121 .    .3981 14  .4042 15  .4075 16  .4157 17  .4218 18  .4262 19  .4295 20
122 .    .4345 21  .4361 22  .4383 23  .4411 24  .4422 25  .4444 26  .4482 27
123 .    .4493 28  .4515 29  .4526 30  .4543 31  .4559 32  .4570 33  .4598 34
124 .    .4609 35  .4648 36  .4686 37  .4703 38  .4714 39  .4741 40  .4747 41
125 .    .4769 42  .4780 43  .4807 44  .4824 45  .4873 46  .4895 47  .4917 48
126 .    .4923 49  .4956 50  .4967 51  .4983 52  .5011 53  .5022 54  .5033 55
127 .    .5061 56  .5083 57  .5127 58  .5154 59  .5165 60 1.0000 61 *
128 .   16    2  0.       5  120     1    4
129 .     WU  10    6   17    9   15   41 C M F   42   11   13    5    6
130 .   0.       26  .0219 27  .0395 28  .0702 29  .1009 30  .1184 31  .1272 32
131 .    .1447 33  .1711 34  .1886 35  .1974 36  .2193 37  .2281 38  .2500 39
132 .    .2675 40  .2675 41  .2807 42  .2982 43  .3114 44  .3114 45  .3158 46
133 .    .3202 47  .3246 48  .3553 49  .3640 50  .3960 51  .4123 52  .4298 53
134 .    .4386 54  .4430 55  .4518 56  .4605 57  .4649 58  .4649 59  .4693 60
135 .   1.0000 61 *
136 .   17    3  1.00     0  720     6    2
137 .     WU   5    9   29 C M F   11   11    5
138 .   0.        0  .1000  1  .1839  2  .2532  3  .3371  4  .4048  5  .4597  6
139 .    .5226  7  .5935  8  .6435  9  .6871 10  .7177 11  .7468 12  .7742 13
140 .    .8016 14  .8210 15  .8532 16  .8742 17  .9032 18  .9177 19  .9339 20
141 .    .9484 21  .9581 22  .9694 23  .9823 24  .9855 25 1.0000 26 *
142 .   18    3  1.00     0 1440    12    4
143 .     WU   4    8   35 C M F   38    5
144 .   0.        0  .1455  1  .2817  2  .4143  3  .5005  4  .5709  5  .6330  6
145 .    .6886  7  .7201  8  .7461  9  .7692 10  .7859 11  .8007 12  .8109 13
146 .    .8211 14  .8341 15  .8415 16  .8443 17  .8489 18  .8545 19  .8573 20
147 .    .8610 21  .8638 22  .8656 23  .8684 24  .8693 25  .8703 26  .8721 27
148 .    .8758 28  .8777 29  .8777 30  .8795 31  .8795 32  .8795 33  .8842 34
149 .    .8860 35  .8869 36  .8879 37  .8897 38  .8897 39  .8925 40  .8953 41
150 .    .8990 42  .8999 43  .9018 44  .9027 45  .9045 46  .9045 47  .9092 48
151 .    .9101 49  .9120 50  .9147 51  .9147 52  .9184 53  .9184 54  .9222 55
152 .    .9231 56  .9240 57  .9249 58  .9258 59  .9268 60 1.0000 61 *
153 .   19    3  1.00     0     0    12    4
154 .     WU   2   35 C    5
155 .   0.        0  .0829  1  .1261  2  .2018  3  .2721  4  .3351  5  .3838  6
156 .    .4072  7  .4396  8  .4667  9  .4865 10  .5027 11  .5189 12  .5333 13
157 .    .5495 14  .5550 15  .5622 16  .5658 17  .5766 18  .5838 19  .5874 20
158 .    .5910 21  .5910 22  .5982 23  .6054 24  .6054 25  .6108 26  .6126 27
159 .    .6162 28  .6180 29  .6306 30  .6342 31  .6396 32  .6396 33  .6432 34
160 .    .6468 35  .6468 36  .6486 37  .6541 38  .6559 39  .6577 40  .6631 41
161 .    .6631 42  .6631 43  .6703 44  .6703 45  .6721 46  .6757 47  .6793 48
162 .    .6811 49  .6811 50  .6811 51  .6829 52  .6865 53  .6937 54  .6955 55
```

```
163 .      .6955 56  .7027 57  .7045 58  .7081 59  .7099 60 1.0000 61 *
164 .     20     3 1.00     0     0   12     2
165 .       WU   2   8 C    5
166 .      .0007  0  .1167  1  .2037  2  .2720  3  .3275  4  .3712  5  .4126  6
167 .      .4428  7  .4664  8  .4919  9  .5104 10  .5239 11  .5427 12  .5572 13
168 .      .5709 14  .5804 15  .5878 16  .5989 17  .6113 18  .6187 19  .6274 20
169 .      .6345 21  .6412 22  .6459 23  .6547 24  .6601 25  .6644 26  .6728 27
170 .      .6739 28  .6896 29  .6940 30  .6987 31  .7031 32  .7078 33  .7108 34
171 .      .7182 35  .7229 36  .7286 37  .7337 38  .7381 39  .7431 40  .7471 41
172 .      .7505 42  .7552 43  .7596 44  .7623 45  .7653 46  .7697 47  .7727 48
173 .      .7767 49  .7814 50  .7865 51  .7873 52  .7912 53  .7966 54  .7999 55
174 .      .8067 56  .8107 57  .8141 58  .8181 59  .8194 60 1.0000 61 *
175 .     21     3 1.00     0     0   36     4
176 .       WU   3   7  40 C    5
177 .     0.        0  .3207  1  .4620  2  .5655  3  .6442  4  .7011  5  .7552  6
178 .      .7922  7  .8178  8  .8435  9  .8643 10  .8795 11  .8909 12  .8985 13
179 .      .9023 14  .9042 15  .9118 16  .9146 17  .9203 18  .9231 19  .9279 20
180 .      .9288 21  .9326 22  .9336 23  .9355 24  .9364 25  .9383 26  .9402 27
181 .      .9421 28  .9440 29  .9478 30  .9478 31  .9478 32  .9488 33  .9497 34
182 .      .9507 35  .9507 36  .9516 37  .9535 38  .9545 39  .9545 40  .9564 41
183 .      .9564 42  .9583 43  .9592 44  .9592 45  .9592 46  .9602 47  .9602 48
184 .      .9602 49  .9602 50  .9602 51  .9620 52  .9639 53  .9639 54  .9639 55
185 .      .9639 56  .9649 57  .9649 58  .9649 59  .9649 60 1.0000 61 *
186 .     22     2  0.          0  180     1     4
187 .       WU  11    6  33    9  12  41 C M F  43  11  10  13   5   6
188 .     0.        60 1.0000 61 *
189 .     23     3  0.          0  180     1     4
190 .       WU  11    6  33    9  12  41 C M F  43  11  10  13   5   6
191 .      .0003  0  .0037  1  .0080  2  .0170  3  .0233  4  .0300  5  .0363  6
192 .      .0433  7  .0543  8  .0639  9  .0693 10  .0773 11  .0849 12  .0896 13
193 .      .0952 14  .1002 15  .1092 16  .1146 17  .1172 18  .1222 19  .1265 20
194 .      .1299 21  .1349 22  .1405 23  .1449 24  .1512 25  .1562 26  .1638 27
195 .      .1695 28  .1732 29  .1818 30  .1911 31  .1951 32  .2001 33  .2051 34
196 .      .2081 35  .2161 36  .2241 37  .2281 38  .2321 39  .2368 40  .2394 41
197 .      .2444 42  .2504 43  .2554 44  .2611 45  .2647 46  .2707 47  .2791 48
198 .      .2854 49  .2910 50  .2984 51  .3070 52  .3107 53  .3207 54  .3260 55
199 .      .3317 56  .3400 57  .3470 58  .3590 59  .3686 60 1.0000 61 *
200 .     24     3 1.00     0     0   72     2
201 .       WU    6  33    9  11  10 C    8    5
202 .     0.        0  .0618  1  .1137  2  .1745  3  .2059  4  .2225  5  .2441  6
203 .      .2588  7  .2686  8  .2794  9  .2843 10  .2902 11  .3010 12  .3049 13
204 .      .3088 14  .3137 15  .3176 16  .3235 17  .3275 18  .3333 19  .3382 20
205 .      .3402 21  .3402 22  .3441 23  .3451 24  .3461 25  .3490 26  .3559 27
206 .      .3588 28  .3618 29  .3676 30  .3706 31  .3745 32  .3775 33  .3843 34
207 .      .3853 35  .3892 36  .3912 37  .3961 38  .4020 39  .4049 40  .4078 41
208 .      .4098 42  .4147 43  .4216 44  .4255 45  .4275 46  .4304 47  .4343 48
209 .      .4373 49  .4412 50  .4451 51  .4520 52  .4578 53  .4657 54  .4706 55
210 .      .4765 56  .4794 57  .4843 58  .4902 59  .4941 60 1.0000 61 *
211 .     25     2   .50        0  360     3     4
212 .       WU   9    6  33    9  41 C M F  43  11  10  13    5
213 .     0.        60 1.0000 61 *
214 .     26     3 1.00     0  720     6     2
215 .       WU    6  33    9  29 C M F  11    8    5
216 .     0.        0  .0701  1  .1213  2  .1731  3  .2260  4  .2741  5  .3154  6
217 .      .3464  7  .3732  8  .3995  9  .4233 10  .4451 11  .4682 12  .4930 13
```

```
218 .     .5176 14  .5391 15  .5629 16  .5826 17  .6028 18  .6205 19  .6399 20
219 .     .6550 21  .6692 22  .6818 23  .6946 24  .7053 25  .7169 26  .7282 27
220 .     .7379 28  .7473 29  .7564 30  .7655 31  .7730 32  .7799 33  .7857 34
221 .     .7931 35  .7988 36  .8044 37  .8110 38  .8168 39  .8229 40  .8284 41
222 .     .8334 42  .8386 43  .8430 44  .8469 45  .8510 46  .8561 47  .8607 48
223 .     .8650 49  .8683 50  .8718 51  .8761 52  .8805 53  .8844 54  .8893 55
224 .     .8925 56  .8969 57  .9015 58  .9048 59  .9084 60 1.0000 61 *
225 .     27    1  0.        0  180    1    4
226 .      WU  13   6  33    9  14  27  41 C M F  43  11  10  13  38   5   6
227 .
228 .     0.      60 1.0000 61 *
229 .     28    1  0.        0  180    1    4
230 .      WU  13   6  33    9  14  27  41 C M F  43  11  10  13  38   5   6
231 .
232 .     0.       0  .0007  1  .0022  2  .0047  3  .0072  4  .0090  5  .0110  6
233 .     .0139  7  .0171  8  .0211  9  .0247 10  .0268 11  .0306 12  .0337 13
234 .     .0346 14  .0389 15  .0416 16  .0452 17  .0499 18  .0535 19  .0562 20
235 .     .0592 21  .0621 22  .0650 23  .0693 24  .0718 25  .0765 26  .0783 27
236 .     .0826 28  .0882 29  .0918 30  .0954 31  .0994 32  .1033 33  .1071 34
237 .     .1111 35  .1136 36  .1156 37  .1199 38  .1235 39  .1271 40  .1339 41
238 .     .1379 42  .1431 43  .1474 44  .1516 45  .1593 46  .1631 47  .1690 48
239 .     .1735 49  .1790 50  .1829 51  .1901 52  .1951 53  .2016 54  .2081 55
240 .     .2144 56  .2205 57  .2254 58  .2315 59  .2355 60 1.0000 61 *
241 .     29    1  0.        0  240    2    4
242 .      WU  13   6  33    9  14  27  41 C M F  43  11  10  13  38   5   6
243 .
244 .     0.      60 1.0000 61 *
245 .     30    2  0.        0  480    4    3
246 .      WU  14   6  33    9  14  27  41 C M F  43  11  10  22  13  38   5
247 .                6
248 .     0.       0  .0446  1  .0866  2  .1371  3  .1745  4  .2054  5  .2231  6
249 .     .2388  7  .2421  8  .2474  9  .2539 10  .2598 11  .2638 12  .2690 13
250 .     .2736 14  .2769 15  .2808 16  .2861 17  .2874 18  .2894 19  .2920 20
251 .     .2927 21  .2940 22  .2956 23  .2972 24  .2999 25  .3005 26  .3012 27
252 .     .3031 28  .3045 29  .3084 30  .3104 31  .3117 32  .3136 33  .3182 34
253 .     .3202 35  .3215 36  .3241 37  .3294 38  .3301 39  .3320 40  .3327 41
254 .     .3332 42  .3392 43  .3438 44  .3451 45  .3504 46  .3543 47  .3589 48
255 .     .3609 49  .3622 50  .3642 51  .3675 52  .3734 53  .3766 54  .3786 55
256 .     .3819 56  .3845 57  .3871 58  .3924 59  .3950 60 1.0000 61 *
257 .     31    1  0.        0  360    3    4
258 .      WU  10   6  33    9  12  41 C M F  43  11  13   5   6
259 .     0.      20  .0016 21  .0274 22  .0531 23  .0772 24  .0974 25  .1185 26
260 .     .1375 27  .1561 28  .1735 29  .1907 30  .2067 31  .2254 32  .2399 33
261 .     .2551 34  .2701 35  .2822 36  .2950 37  .3085 38  .3195 39  .3316 40
262 .     .3410 41  .3550 42  .3639 43  .3738 44  .3850 45  .3917 46  .4000 47
263 .     .4074 48  .4171 49  .4238 50  .4325 51  .4415 52  .4510 53  .4571 54
264 .     .4627 55  .4708 56  .4790 57  .4866 58  .4938 59  .4987 60 1.0000 61
265 .     *
266 .     32    3  1.00      0  720    6    2
267 .      WU   6  33    9  29 C M F  11  13   5
268 .     0.       0  .0866  1  .1702  2  .2455  3  .3214  4  .3905  5  .4556  6
269 .     .5089  7  .5569  8  .5956  9  .6324 10  .6626 11  .6958 12  .7312 13
270 .     .7740 14  .8138 15  .8457 16  .8823 17  .9149 18  .9454 19  .9740 20
271 .     1.0000 21 *
272 .     33    2  0.        0  240    2    4
```

```
  WU  11   6  33   9  27  28  41 C M F  10  13   9   5   6
0.       0  .0856  1  .1923  2  .2525  3  .2971  4  .3276  5  .3508  6
 .3672  7  .3823  8  .3905  9  .4002 10  .4067 11  .4145 12  .4199 13
 .4249 14  .4303 15  .4357 16  .4391 17  .4421 18  .4455 19  .4486 20
 .4513 21  .4545 22  .4579 23  .4604 24  .4634 25  .4655 26  .4676 27
 .4695 28  .4713 29  .4734 30  .4752 31  .4778 32  .4800 33  .4827 34
 .4851 35  .4867 36  .4884 37  .4905 38  .4923 39  .4943 40  .4963 41
 .4989 42  .5024 43  .5052 44  .5061 45  .5092 46  .5108 47  .5125 48
 .5143 49  .5168 50  .5194 51  .5222 52  .5244 53  .5271 54  .5299 55
 .5320 56  .5350 57  .5381 58  .5404 59  .5442 60 1.0000 61 *
34     3  1.00      0      0   72     3
  WU   6  33  44  45   8 C  38   5
0.       0  .0490  1  .1049  2  .1609  3  .1888  4  .2517  5  .2657  6
 .2727  7  .2797  8  .3007  9  .3077 10  .3147 11  .3287 12  .3497 13
 .3636 14  .3706 15  .3846 16  .3916 17  .3916 18  .4126 19  .4126 20
 .4126 21  .4196 22  .4266 23  .4266 24  .4406 25  .4476 26  .4475 27
 .4545 28  .4545 29  .4755 30  .4755 31  .4755 32  .4825 33  .4825 34
 .4825 35  .4895 36  .4965 37  .5035 38  .5035 39  .5245,40  .5315 41
 .5315 42  .5315 43  .5385 44  .5455 45  .5455 46  .5594 47  .5664 48
 .5664 49  .5664 50  .5734 51  .5734 52  .5734 53  .5734 54  .5804 55
 .6014 56  .6084 57  .6154 58  .6154 59  .6154 60 1.0000 61 *
35     3  1.00      0      0   72     4
  WU   6  33  44  45   8 C  38   5
0.       0  .0909  1  .1856  2  .2692  3  .3277  4  .3749  5  .4124  6
 .4441  7  .4634  8  .4855  9  .5023 10  .5164 11  .5288 12  .5375 13
 .5465 14  .5540 15  .5645 16  .5712 17  .5773 18  .5824 19  .5883 20
 .5927 21  .5973 22  .6033 23  .6074 24  .6113 25  .6162 26  .6210 27
 .6255 28  .6310 29  .6350 30  .6388 31  .6439 32  .6472 33  .6495 34
 .6536 35  .6533 36  .6616 37  .6651 38  .6689 39  .6723 40  .6756 41
 .6814 42  .6850 43  .6901 44  .6939 45  .6993 46  .7019 47  .7055 48
 .7098 49  .7142 50  .7193 51  .7226 52  .7262 53  .7299 54  .7325 55
 .7361 56  .7402 57  .7448 58  .7498 59  .7539 60 1.0000 61 *
36     1  0.        5  180     1     4
  WU  13   6  17  16  41 C M F  43  11  30  13  33  31   9   5   6

0.       5  .0069  6  .0247  7  .0410  8  .0559  9  .0685 10  .0824 11
 .0992 12  .1167 13  .1362 14  .1561 15  .1733 16  .1904 17  .2073 18
 .2237 19  .2438 20  .2588 21  .2753 22  .2930 23  .3085 24  .3231 25
 .3379 26  .3503 27  .3616 28  .3732 29  .3855 30  .3946 31  .4058 32
 .4180 33  .4264 34  .4356 35  .4452 36  .4543 37  .4634 38  .4718 39
 .4806 40  .4890 41  .4957 42  .5034 43  .5114 44  .5180 45  .5237 46
 .5310 47  .5384 48  .5441 49  .5500 50  .5560 51  .5632 52  .5706 53
 .5778 54  .5826 55  .5899 56  .5955 57  .6022 58  .6086 59  .6137 60
1.0000 61 *
37     1  0.        5  360     3     4
  WU  10   6  17  41 C M F  43  11  30  33   9   5   6
0.       0  .1634  1  .3538  2  .4977  3  .6798  4  .8805  5 1.0000  6
*
38     1  0.        5  180     1     4
  WU  13   6  17  15  14  41 C M F  33  42  11  30  13   9   5   6

0.       0  .0601  1  .1007  2  .1446  3  .1982  4  .2510  5  .2835  6
 .3233  7  .3505  8  .3737  9  .3989 10  .4289 11  .4533 12  .4907 13
 .5215 14  .5467 15  .5743 16  .5987 17  .6231 18  .6377 19  .6523 20
 .6694 21  .6807 22  .6921 23  .6986 24  .7043 25  .7173 26  .7262 27
```

```
328 .    .7335 28  .7425 29  .7539 30  .7620 31  .7669 32  .7734 33  .7782 34
329 .    .7823 35  .7896 36  .7920 37  .7937 38  .8010 39  .8050 40  .8107 41
330 .    .8156 42  .8213 43  .8236 44  .8335 45  .8343 46  .8367 47  .8408 48
331 .    .8424 49  .8457 50  .8465 51  .8465 52  .8489 53  .8546 54  .8562 55
332 .    .8587 56  .8587 57  .8611 58  .8668 59  .8692 60 1.0000 61 *
333 .    39    1  0.        0  180     1     4
334 .      WU  11    6   41 C M F   30   33   28   44   43   11   13    9    6
335 .    0.        1  .0318  2  .0657  3  .1037  4  .1348  5  .1644  6  .1943  7
336 .    .2144  8  .2346  9  .2492 10  .2696 11  .2970 12  .3108 13  .3274 14
337 .    .3509 15  .3674 16  .3847 17  .4014 18  .4194 19  .4340 20  .4480 21
338 .    .4583 22  .4714 23  .4816 24  .4915 25  .5016 26  .5104 27  .5187 28
339 .    .5291 29  .5395 30  .5513 31  .5624 32  .5697 33  .5742 34  .5820 35
340 .    .5897 36  .5948 37  .6008 38  .6088 39  .6140 40  .6199 41  .6248 42
341 .    .6299 43  .6342 44  .6388 45  .6437 46  .6477 47  .6521 48  .6559 49
342 .    .6599 50  .6624 51  .6662 52  .6722 53  .6779 54  .6821 55  .6870 56
343 .    .6923 57  .6972 58  .7023 59  .7070 60 1.0000 61 *
344 .    40    1  0.        0  360     3     4
345 .      WU   9    6   41 C M F   33   30   44   11   13    9    5
346 .    0.        0  .8197  1 1.0000  2 *
347 .    41    3  1.00      0 1440    12     2
348 .      WU   4   19 C M F   11    8    5
349 .    0.        0  .0510  1  .1158  2  .1794  3  .2347  4  .2770  5  .3208  6
350 .    .3540  7  .3856  8  .4031  9  .4263 10  .4401 11  .4528 12  .4690 13
351 .    .4832 14  .4978 15  .5057 16  .5164 17  .5259 18  .5350 19  .5409 20
352 .    .5454 21  .5559 22  .5610 23  .5674 24  .5717 25  .5753 26  .5800 27
353 .    .5847 28  .5911 29  .5982 30  .6029 31  .6112 32  .6140 33  .6175 34
354 .    .6239 35  .6286 36  .6322 37  .6385 38  .6452 39  .6499 40  .6535 41
355 .    .6594 42  .6646 43  .6701 44  .6744 45  .6792 46  .6827 47  .6891 48
356 .    .6962 49  .7017 50  .7060 51  .7100 52  .7167 53  .7222 54  .7266 55
357 .    .7305 56  .7365 57  .7412 58  .7463 59  .7479 60 1.0000 61 *
358 .    42    3  1.00      0 1440    12     2
359 .      WU   3   19 C M F    8    5
360 .    .0015  0  .0720  1  .1718  2  .2701  3  .3416  4  .4115  5  .4673  6
361 .    .5160  7  .5595  8  .5854  9  .6133 10  .6376 11  .6543 12  .6690 13
362 .    .6903 14  .6994 15  .7101 16  .7192 17  .7278 18  .7369 19  .7435 20
363 .    .7506 21  .7567 22  .7638 23  .7699 24  .7765 25  .7841 26  .7856 27
364 .    .7897 28  .7922 29  .7952 30  .7998 31  .8018 32  .8044 33  .8064 34
365 .    .8099 35  .8130 36  .8170 37  .8201 38  .8241 39  .8282 40  .8317 41
366 .    .8353 42  .8409 43  .8454 44  .8479 45  .8510 46  .8545 47  .8576 48
367 .    .8606 49  .8632 50  .8657 51  .8687 52  .8713 53  .8743 54  .8779 55
368 .    .8809 56  .8849 57  .8870 58  .8875 59  .8890 60 1.0000 61 *
369 .    43    1   .50      0  360     3     4
370 .      WU   8    6   41 C M F   44   43   11   13    9    5
371 .    0.        0  .0159  1  .0345  2  .0498  3  .0607  4  .0748  5  .0931  6
372 .    .1455  7  .2045  8  .2541  9  .2961 10  .3288 11  .3670 12  .3985 13
373 .    .4292 14  .4613 15  .4832 16  .5141 17  .5336 18  .5544 19  .5709 20
374 .    .5931 21  .6132 22  .6342 23  .6505 24  .6640 25  .6748 26  .6847 27
375 .    .6961 28  .7093 29  .7159 30  .7258 31  .7360 32  .7420 33  .7492 34
376 .    .7556 35  .7625 36  .7721 37  .7772 38  .7829 39  .7904 40  .7961 41
377 .    .8006 42  .8091 43  .8132 44  .8168 45  .8222 46  .8261 47  .8315 48
378 .    .8363 49  .8396 50  .8423 51  .8486 52  .8509 53  .8532 54  .8565 55
379 .    .8616 56  .8637 57  .8667 58  .8709 59  .8730 60 1.0000 61 *
380 .    44    1  0.        0 1440    12     4
381 .      WU   7    6   33   41 C M F   13   30    9    5
382 .    .0071  0  .0071  1  .0071  2  .0355  3  .0496  4  .0638  5  .0851  6
```

```
383 .     .0851  7  .1064  8  .1277  9  .1419 10  .1631 11  .1773 12  .1915 13
384 .     .1986 14  .2270 15  .2270 16  .2340 17  .2340 18  .2411 19  .2482 20
385 .     .2624 21  .2766 22  .2766 23  .2837 24  .2908 25  .2979 26  .3121 27
386 .     .3333 28  .3475 29  .3475 30  .3546 31  .3546 32  .3546 33  .3546 34
387 .     .3688 35  .3688 36  .3759 37  .3901 38  .4043 39  .4113 40  .4681 41
388 .     .4681 42  .4965 43  .5035 44  .5106 45  .5248 46  .5248 47  .5390 48
389 .     .5461 49  .5532 50  .5532 51  .5532 52  .5532 53  .5674 54  .5887 55
390 .     .5887 56  .5957 57  .6099 58  .6099 59  .6312 60 1.0000 61 *
391 .    45     2  0.        0 1440    12      2
392 .     WU  10    6  14   41 C M F   30  31   11   13    9    5    6
393 .    0.        0  .1148  1  .1987  2  .2513  3  .2780  4  .3022  5  .3212  6
394 .     .3384  7  .3545  8  .3714  9  .3875 10  .3994 11  .4103 12  .4187 13
395 .     .4239 14  .4356 15  .4465 16  .4538 17  .4626 18  .4682 19  .4746 20
396 .     .4781 21  .4869 22  .4903 23  .4932 24  .4984 25  .5023 26  .5051 27
397 .     .5068 28  .5100 29  .5142 30  .5181 31  .5226 32  .5272 33  .5311 34
398 .     .5356 35  .5412 36  .5423 37  .5455 38  .5483 39  .5521 40  .5550 41
399 .     .5598 42  .5630 43  .5676 44  .5707 45  .5753 46  .5774 47  .5813 48
400 .     .5855 49  .5885 50  .5911 51  .5956 52  .5995 53  .6055 54  .6093 55
401 .     .6164 56  .6230 57  .6279 58  .6353 59  .6409 60 1.0000 61 *
402 .    46     3  1.00      0      0     6      2
403 .     WU     6   33   29 C   18   11     9    5
404 .     .0000  0  .2339  1  .4215  2  .5520  3  .6360  4  .6985  5  .7407  6
405 .     .7737  7  .8043  8  .8227  9  .8354 10  .8485 11  .8561 12  .8647 13
406 .     .8747 14  .8848 15  .8905 16  .8940 17  .8975 18  .9012 19  .9051 20
407 .     .9093 21  .9128 22  .9139 23  .9165 24  .9191 25  .9215 26  .9241 27
408 .     .9259 28  .9265 29  .9279 30  .9292 31  .9314 32  .9324 33  .9333 34
409 .     .9335 35  .9344 36  .9359 37  .9383 38  .9392 39  .9410 40  .9421 41
410 .     .9432 42  .9438 43  .9443 44  .9477 45  .9484 46  .9497 47  .9504 48
411 .     .9508 49  .9521 50  .9530 51  .9547 52  .9552 53  .9556 54  .9561 55
412 .     .9567 56  .9574 57  .9578 58  .9589 59  .9591 60 1.0000 61 *
413 .    47     1  0.        0  360      3      4
414 .     WU     8    6   33   41 C M F   31   11   13   30    5
415 .    0.        0  .0070  1  .0113  2  .0215  3  .0274  4  .0350  5  .0387  6
416 .     .0425  7  .0457  8  .0490  9  .0533 10  .0549 11  .0602 12  .0624 13
417 .     .0646 14  .0667 15  .0699 16  .0732 17  .0737 18  .0748 19  .0764 20
418 .     .0780 21  .0812 22  .0855 23  .0893 24  .0909 25  .0931 26  .0963 27
419 .     .0979 28  .0984 29  .1001 30  .1060 31  .1076 32  .1097 33  .1157 34
420 .     .1189 35  .1216 36  .1248 37  .1275 38  .1291 39  .1350 40  .1361 41
421 .     .1404 42  .1425 43  .1474 44  .1490 45  .1528 46  .1565 47  .1603 48
422 .     .1619 49  .1668 50  .1711 51  .1748 52  .1781 53  .1807 54  .1856 55
423 .     .1899 56  .1942 57  .1980 58  .2006 59  .2144 60 1.0000 61 *
424 .    48     3  1.00      0      0    24      2
425 .     WU     4   33   31     9 C    5
426 .     .0001  0  .0739  1  .1938  2  .3127  3  .4263  4  .5180  5  .5968  6
427 .     .6617  7  .7169  8  .7550  9  .7827 10  .8039 11  .8211 12  .8364 13
428 .     .8494 14  .8593 15  .8685 16  .8772 17  .8842 18  .8880 19  .8915 20
429 .     .8962 21  .9007 22  .9037 23  .9068 24  .9094 25  .9134 26  .9162 27
430 .     .9183 28  .9202 29  .9220 30  .9238 31  .9251 32  .9268 33  .9283 34
431 .     .9305 35  .9319 36  .9336 37  .9345 38  .9353 39  .9371 40  .9387 41
432 .     .9400 42  .9408 43  .9420 44  .9435 45  .9443 46  .9448 47  .9453 48
433 .     .9461 49  .9462 50  .9465 51  .9474 52  .9483 53  .9489 54  .9496 55
434 .     .9510 56  .9524 57  .9534 58  .9541 59  .9546 60 1.0000 61 *
435 .    49     1  0.        0 1440    12      4
436 .     WU     5    6   33   41 C M F    9    5
437 .    0.        0  .1109  1  .1745  2  .2050  3  .2286  4  .2432  5  .2590  6
```

```
438 .     .2742  7  .2821  8  .2900  9  .2967 10  .3069 11  .3131 12  .3181 13
439 .     .3249 14  .3294 15  .3316 16  .3356 17  .3373 18  .3401 19  .3407 20
440 .     .3418 21  .3446 22  .3457 23  .3480 24  .3514 25  .3519 26  .3530 27
441 .     .3542 28  .3564 29  .3564 30  .3570 31  .3581 32  .3587 33  .3592 34
442 .     .3604 35  .3615 36  .3620 37  .3632 38  .3649 39  .3660 40  .3671 41
443 .     .3682 42  .3694 43  .3727 44  .3756 45  .3767 46  .3801 47  .3829 48
444 .     .3840 49  .3863 50  .3891 51  .3908 52  .3936 53  .3958 54  .3981 55
445 .     .4009 56  .4026 57  .4054 58  .4082 59  .4099 60 1.0000 61 *
446 .    50     1  0.      0  360     4     4
447 .      WU    9    6   33   41 C 4 F   10    9    8   38    5
448 .    0.       0  .0029  1  .0144  2  .0230  3  .0317  4  .0354  5  .0374  6
449 .     .0441  7  .0508  8  .0575  9  .0651 10  .0670 11  .0757 12  .0805 13
450 .     .0862 14  .0881 15  .0920 16  .0948 17  .0958 18  .0967 19  .1025 20
451 .     .1044 21  .1044 22  .1092 23  .1111 24  .1130 25  .1140 26  .1149 27
452 .     .1159 28  .1178 29  .1216 30  .1236 31  .1255 32  .1255 33  .1303 34
453 .     .1351 35  .1389 36  .1399 37  .1437 38  .1456 39  .1504 40  .1600 41
454 .     .1657 42  .1695 43  .1715 44  .1743 45  .1810 46  .1849 47  .1849 48
455 .     .1906 49  .1944 50  .1973 51  .1983 52  .1992 53  .2031 54  .2040 55
456 .     .2107 56  .2155 57  .2222 58  .2280 59  .2318 60 1.0000 61 *
457 .    51     3  1.00      0      0   12     3
458 .      WU    5   33   31    9 C   38    5
459 .    0.       0  .0046  1  .0138  2  .0138  3  .0138  4  .0183  5  .0183  6
460 .     .0183  7  .0229  8  .0275  9  .0275 10  .0275 11  .0275 12  .0275 13
461 .     .0275 14  .0275 15  .0275 16  .0275 17  .0275 18  .0275 19  .0275 20
462 .     .0275 21  .0275 22  .0275 23  .0275 24  .0275 25  .0275 26  .0275 27
463 .     .0275 28  .0275 29  .0275 30  .0275 31  .0275 32  .0275 33  .0275 34
464 .     .0275 35  .0275 36  .0275 37  .0275 38  .0275 39  .0275 40  .0275 41
465 .     .0275 42  .0321 43  .0321 44  .0321 45  .0321 46  .0321 47  .0321 48
466 .     .0321 49  .0321 50  .0321 51  .0321 52  .0367 53  .0367 54  .0367 55
467 .     .0367 56  .0367 57  .0367 58  .0367 59  .0367 60 1.0000 61 *
468 .    52     3  1.00      0      0   12     3
469 .      WU    5   31    9 C    8   38    5
470 .    0.       0  .1604  1  .2787  2  .3770  3  .4378  4  .4926  5  .5314  6
471 .     .5615  7  .5782  8  .5983  9  .6103 10  .6203 11  .6270 12  .6350 13
472 .     .6430 14  .6511 15  .6584 16  .6644 17  .6725 18  .6765 19  .6838 20
473 .     .6885 21  .6932 22  .6999 23  .7032 24  .7079 25  .7146 26  .7213 27
474 .     .7259 28  .7313 29  .7380 30  .7420 31  .7507 32  .7560 33  .7580 34
475 .     .7634 35  .7680 36  .7714 37  .7754 38  .7794 39  .7848 40  .7894 41
476 .     .7949 42  .7981 43  .8028 44  .8082 45  .8108 46  .8148 47  .8168 48
477 .     .8222 49  .8242 50  .8275 51  .8329 52  .8362 53  .8369 54  .8402 55
478 .     .8422 56  .8449 57  .8483 58  .8503 59  .8556 60 1.0000 61 *
479 .    53     3  1.00      0      0   12     3
480 .      WU    5   11    9 C    8   38    5
481 .    0.       0  .0966  1  .2424  2  .3772  3  .4732  4  .5584  5  .6198  6
482 .     .6681  7  .7082  8  .7395  9  .7641 10  .7834 11  .8002 12  .8133 13
483 .     .8252 14  .8349 15  .8439 16  .8517 17  .8591 18  .8640 19  .8705 20
484 .     .8741 21  .8778 22  .8821 23  .8856 24  .8882 25  .8903 26  .8930 27
485 .     .8960 28  .8992 29  .9007 30  .9033 31  .9056 32  .9072 33  .9093 34
486 .     .9120 35  .9137 36  .9160 37  .9181 38  .9193 39  .9206 40  .9224 41
487 .     .9245 42  .9258 43  .9272 44  .9285 45  .9302 46  .9313 47  .9331 48
488 .     .9345 49  .9364 50  .9379 51  .9391 52  .9404 53  .9418 54  .9439 55
489 .     .9448 56  .9467 57  .9482 58  .9493 59  .9501 60 1.0000 61 *
490 .    54     3  1.00      0      0   24     2
491 .      WU    5    2   31    9 C    8    5
492 .    0.       0  .1077  1  .2038  2  .3020  3  .3933  4  .4736  5  .5523  6
```

```
493 .     .6072  7  .6589  8  .6996  9  .7323 10  .7614 11  .7899 12  .8141 13
494 .     .8305 14  .8464 15  .8517 16  .8733 17  .8833 18  .8928 19  .9007 20
495 .     .9071 21  .9124 22  .9161 23  .9197 24  .9234 25  .9293 26  .9324 27
496 .     .9366 28  .9393 29  .9403 30  .9424 31  .9446 32  .9456 33  .9467 34
497 .     .9488 35  .9509 36  .9551 37  .9562 38  .9567 39  .9572 40  .9593 41
498 .     .9599 42  .9599 43  .9609 44  .9609 45  .9630 46  .9636 47  .9646 48
499 .     .9652 49  .9657 50  .9667 51  .9683 52  .9694 53  .9699 54  .9710 55
500 .     .9710 56  .9720 57  .9720 58  .9731 59  .9741 60 1.0000 61 *
501 .    55     1  0.        0  240     2     4
502 .     WU    8    6   34   33   43 C M F    9    8   38    5
503 .    0.      0  .0979  1  .1830  2  .2543  3  .3267  4  .3881  5  .4409  6
504 .     .4831  7  .5049  8  .5246  9  .5457 10  .5597 11  .5766 12  .5850 13
505 .     .5959 14  .6042 15  .6092 16  .6137 17  .6170 18  .6220 19  .6264 20
506 .     .6308 21  .6355 22  .6413 23  .6457 24  .6497 25  .6548 26  .6588 27
507 .     .6635 28  .6708 29  .6733 30  .6773 31  .6806 32  .6853 33  .6904 34
508 .     .6941 35  .6970 36  .7021 37  .7046 38  .7064 39  .7093 40  .7130 41
509 .     .7152 42  .7194 43  .7217 44  .7250 45  .7286 46  .7301 47  .7323 48
510 .     .7348 49  .7370 50  .7395 51  .7429 52  .7446 53  .7468 54  .7505 55
511 .     .7541 56  .7552 57  .7570 58  .7595 59  .7617 60 1.0000 61 *
512 .    56     1  1.00      0  720     6     4
513 .     WU    5   33   31    9 C M F    8    5
514 .    0.      0  .3019  1  .5430  2  .6624  3  .7304  4  .7836  5  .8228  6
515 .     .8543  7  .8764  8  .8920  9  .9050 10  .9149 11  .9223 12  .9297 13
516 .     .9354 14  .9401 15  .9442 16  .9478 17  .9506 18  .9523 19  .9542 20
517 .     .9558 21  .9568 22  .9598 23  .9601 24  .9608 25  .9619 26  .9630 27
518 .     .9643 28  .9647 29  .9654 30  .9664 31  .9672 32  .9680 33  .9685 34
519 .     .9695 35  .9701 36  .9709 37  .9718 38  .9727 39  .9734 40  .9743 41
520 .     .9748 42  .9753 43  .9756 44  .9760 45  .9763 46  .9766 47  .9769 48
521 .     .9774 49  .9777 50  .9780 51  .9781 52  .9784 53  .9787 54  .9789 55
522 .     .9797 56  .9800 57  .9802 58  .9803 59  .9806 60 1.0000 61 *
523 .    57     3  1.00      0 1440    12     2
524 .     WU    6    2   33   31    9    8 C M F    5
525 .    0.      0  .3085  1  .5861  2  .7321  3  .8088  4  .8626  5  .8959  6
526 .     .9172  7  .9346  8  .9470  9  .9578 10  .9626 11  .9685 12  .9726 13
527 .     .9758 14  .9788 15  .9820 16  .9831 17  .9839 18  .9847 19  .9847 20
528 .     .9857 21  .9857 22  .9866 23  .9868 24  .9868 25  .9874 26  .9879 27
529 .     .9887 28  .9887 29  .9892 30  .9903 31  .9911 32  .9914 33  .9919 34
530 .     .9925 35  .9925 36  .9933 37  .9933 38  .9938 39  .9941 40  .9949 41
531 .     .9957 42  .9962 43  .9962 44  .9965 45  .9965 46  .9965 47  .9965 48
532 .     .9965 49  .9965 50  .9965 51  .9965 52  .9965 53  .9965 54  .9965 55
533 .     .9968 56  .9968 57  .9968 58  .9968 59  .9973 60 1.0000 61 *
534 .    58     3  1.00      0     0   72     2
535 .     WU    4    2   31    8 C    5
536 .    0.      0  .1860  1  .3488  2  .4667  3  .5364  4  .5939  5  .6558  6
537 .     .7194  7  .7535  8  .7783  9  .8093 10  .8264 11  .8372 12  .8481 13
538 .     .8543 14  .8549 15  .8636 16  .8744 17  .8760 18  .8822 19  .8853 20
539 .     .8853 21  .8868 22  .8899 23  .8946 24  .8961 25  .9008 26  .9008 27
540 .     .9039 28  .9054 29  .9070 30  .9116 31  .9163 32  .9178 33  .9209 34
541 .     .9209 35  .9240 36  .9271 37  .9287 38  .9318 39  .9333 40  .9349 41
542 .     .9380 42  .9380 43  .9380 44  .9380 45  .9380 46  .9395 47  .9411 48
543 .     .9442 49  .9442 50  .9473 51  .9488 52  .9488 53  .9504 54  .9535 55
544 .     .9535 56  .9535 57  .9550 58  .9566 59  .9566 60 1.0000 61 *
545 .    59     3  1.00      0     0   72     2
546 .     WU    6    2   33   31    9    8 C    5
547 .    0.      0  .1519  1  .2818  2  .3749  3  .4355  4  .4881  5  .5268  6
```

```
548 .        .5853  7  .5900  8  .6137  9  .6296 10  .6471 11  .6532 12  .6590 13
549 .        .6783 14  .6839 15  .6927 16  .7032 17  .7112 18  .7123 19  .7165 20
550 .        .7141 21  .7243 22  .7270 23  .7287 24  .7340 25  .7349 26  .7401 27
551 .        .7445 28  .7471 29  .7498 30  .7577 31  .7594 32  .7621 33  .7633 34
552 .        .7682 35  .7726 36  .7779 37  .7814 38  .7831 39  .7849 40  .7858 41
553 .        .7893 42  .7946 43  .7989 44  .8042 45  .8060 46  .8068 47  .8104 48
554 .        .8147 49  .8191 50  .8219 51  .8235 52  .8270 53  .8306 54  .8349 55
555 .        .8397 56  .8420 57  .8457 58  .8472 59  .8490 60 1.0000 61 *
556 .       60      3  1.00     0     0   72      3
557 .         WU    5   33   31    8 C   38     5
558 .        .0053  0  .0457  1  .0878  2  .1194  3  .1651  4  .1944  5  .2166  6
559 .        .2283  7  .2600  8  .2728  9  .2834 10  .2963 11  .3056 12  .3138 13
560 .        .3197 14  .3267 15  .3326 16  .3431 17  .3466 18  .3513 19  .3550 20
561 .        .3665 21  .3724 22  .3806 23  .3899 24  .3933 25  .4052 26  .4169 27
562 .        .4227 28  .4239 29  .4321 30  .4356 31  .4450 32  .4509 33  .4555 34
563 .        .4672 35  .4719 36  .4778 37  .4871 38  .4918 39  .4977 40  .5035 41
564 .        .5094 42  .5141 43  .5199 44  .5246 45  .5293 46  .5386 47  .5445 48
565 .        .5492 49  .5504 50  .5539 51  .5562 52  .5562 53  .5609 54  .5621 55
566 .        .5703 56  .5749 57  .5831 58  .5855 59  .5984 60 1.0000 61 *
567 .       61      3  1.00     0     0   24      2
568 .         WU    3   31    8 C    5
569 .       0.      0  .3379  1  .5553  2  .6800  3  .7542  4  .8041  5  .8406  6
570 .        .8658  7  .8864  8  .9015  9  .9140 10  .9227 11  .9311 12  .9371 13
571 .        .9420 14  .9467 15  .9498 16  .9527 17  .9552 18  .9570 19  .9594 20
572 .        .9616 21  .9631 22  .9639 23  .9647 24  .9667 25  .9676 26  .9683 27
573 .        .9692 28  .9698 29  .9712 30  .9725 31  .9731 32  .9739 33  .9742 34
574 .        .9744 35  .9748 36  .9750 37  .9756 38  .9762 39  .9765 40  .9768 41
575 .        .9773 42  .9778 43  .9784 44  .9787 45  .9791 46  .9793 47  .9797 48
576 .        .9801 49  .9806 50  .9811 51  .9816 52  .9820 53  .9820 54  .9827 55
577 .        .9828 56  .9834 57  .9834 58  .9838 59  .9839 60 1.0000 61 *
578 .       62      3  1.00     0     0   24      3
579 .         WU    5   33   31    8 C   38     5
580 .       0.      0  .0340  1  .0926  2  .1574  3  .2000  4  .2362  5  .2723  6
581 .        .3074  7  .3404  8  .3747  9  .4053 10  .4277 11  .4372 12  .4564 13
582 .        .4681 14  .4809 15  .4904 16  .5011 17  .5085 18  .5181 19  .5298 20
583 .        .5362 21  .5457 22  .5564 23  .5617 24  .5649 25  .5734 26  .5830 27
584 .        .5894 28  .5936 29  .6021 30  .6106 31  .6149 32  .6277 33  .6383 34
585 .        .6489 35  .6506 36  .6691 37  .6819 38  .6883 39  .6894 40  .6979 41
586 .        .7032 42  .7117 43  .7255 44  .7330 45  .7372 46  .7479 47  .7521 48
587 .        .7574 49  .7670 50  .7723 51  .7777 52  .7798 53  .7840 54  .7904 55
588 .        .7936 56  .7979 57  .7989 58  .8021 59  .8085 60 1.0000 61 *
589 .       63      3  1.00     0     0   24      2
590 .         WU    3   31    8 C    5
591 .       0.      0  .1308  1  .3667  2  .5699  3  .6950  4  .7757  5  .8296  6
592 .        .8639  7  .8943  8  .9134  9  .9300 10  .9426 11  .9536 12  .9611 13
593 .        .9678 14  .9732 15  .9767 16  .9804 17  .9824 18  .9852 19  .9871 20
594 .        .9889 21  .9902 22  .9911 23  .9922 24  .9925 25  .9931 26  .9934 27
595 .        .9938 28  .9945 29  .9946 30  .9950 31  .9953 32  .9956 33  .9959 34
596 .        .9962 35  .9965 36  .9966 37  .9967 38  .9969 39  .9971 40  .9972 41
597 .        .9974 42  .9975 43  .9977 44  .9977 45  .9977 46  .9977 47  .9977 48
598 .        .9978 49  .9978 50  .9978 51  .9979 52  .9979 53  .9979 54  .9979 55
599 .        .9979 56  .9980 57  .9981 58  .9981 59  .9981 60 1.0000 61 *
600 .       64      3  1.00     0     0   24      2
601 .         WU    3   31    8 C    5
602 .        .0077  0  .0345  1  .0575  2  .0996  3  .1341  4  .1494  5  .1762  6
```

```
603 .      .1992  7  .2184  8  .2375  9  .2490 10  .2797 11  .3180 12  .3180 13
604 .      .3190 14  .3410 15  .3525 16  .3640 17  .3755 18  .3870 19  .3995 20
605 .      .4138 21  .4291 22  .4416 23  .4444 24  .4521 25  .4713 26  .4904 27
606 .      .4981 28  .5096 29  .5211 30  .5326 31  .5364 32  .5479 33  .5632 34
607 .      .5670 35  .5747 36  .5785 37  .5977 38  .6054 39  .6130 40  .6169 41
608 .      .6207 42  .6284 43  .6360 44  .6513 45  .6590 46  .6590 47  .6628 48
609 .      .6628 49  .6628 50  .6705 51  .6820 52  .6897 53  .6897 54  .6935 55
610 .      .7011 56  .7126 57  .7165 58  .7203 59  .7203 60 1.0000 61 *
611 .     65    1   .25    5  180    2    4
612 .       WU   7   6  17   31   43 C M F  45   8   5
613 .     0.      0  .4374  1  .6501  2  .7632  3  .8024  4  .8341  5  .8492  6
614 .      .8597  7  .8688  8  .8793  9  .8974 10  .9035 11  .9125 12  .9146 13
615 .      .9216 14  .9231 15  .9276 16  .9306 17  .9321 18  .9336 19  .9336 20
616 .      .9336 21  .9336 22  .9336 23  .9367 24  .9397 25  .9397 26  .9412 27
617 .      .9427 28  .9427 29  .9442 30  .9472 31  .9472 32  .9487 33  .9487 34
618 .      .9487 35  .9487 36  .9487 37  .9487 38  .9487 39  .9487 40  .9487 41
619 .      .9502 42  .9517 43  .9517 44  .9532 45  .9548 46  .9548 47  .9578 48
620 .      .9578 49  .9593 50  .9593 51  .9593 52  .9593 53  .9608 54  .9618 55
621 .      .9618 56  .9623 57  .9623 58  .9623 59  .9623 60 1.0000 61 *
622 .     66    1   .25    0  180    1    4
623 .       WU   6   6  20 C M F  13   31    4   5
624 .     0.      0  .4728  1  .7046  2  .8156  3  .8936  4  .9121  5  .9407  6
625 .      .9547  7  .9596  8  .9650  9  .9725 10  .9763 11  .9801 12  .9833 13
626 .      .9854 14  .9860 15  .9881 16  .9892 17  .9914 18  .9925 19  .9925 20
627 .      .9925 21  .9925 22  .9925 23  .9925 24  .9925 25  .9925 26  .9925 27
628 .      .9925 28  .9930 29  .9930 30  .9930 31  .9930 32  .9935 33  .9935 34
629 .      .9946 35  .9946 36  .9951 37  .9951 38  .9951 39  .9951 40  .9951 41
630 .      .9957 42  .9957 43  .9957 44  .9957 45  .9957 46  .9957 47  .9962 48
631 .      .9962 49  .9962 50  .9962 51  .9962 52  .9962 53  .9962 54  .9962 55
632 .      .9962 56  .9968 57  .9968 58  .9968 59  .9968 60 1.0000 61 *
633 .     67    3  1.00    5    0   12    2
634 .       WU   4  23    9 C    8    5
635 .     0.      0  .1980  1  .4290  2  .6150  3  .6590  4  .7250  5  .7800  6
636 .      .7910  7  .7910  8  .8350  9  .8460 10  .8570 11  .8790 12  .9010 13
637 .      .9010 14  .9010 15  .9230 16  .9230 17  .9450 18  .9560 19  .9670 20
638 .      .9670 21  .9780 22  .9780 23  .9890 24  .9890 25  .9890 26  .9890 27
639 .      .9890 28  .9890 29  .9890 30  .9890 31  .9890 32  .9890 33  .9890 34
640 .      .9890 35  .9890 36  .9890 37  .9890 38  .9890 39  .9890 40  .9890 41
641 .     1.0000 42 *
642 .     68    3  1.00    0    0    0    3
643 .       WU   9   2  33   11   31    9    8  38    5
644 .     0.      0  .2190  1  .3744  2  .4730  3  .5350  4  .5892  5  .6291  6
645 .      .6598  7  .6822  8  .6983  9  .7130 10  .7249 11  .7339 12  .7427 13
646 .      .7504 14  .7570 15  .7628 16  .7682 17  .7713 18  .7750 19  .7778 20
647 .      .7797 21  .7829 22  .7844 23  .7868 24  .7901 25  .7936 26  .7964 27
648 .      .7988 28  .8008 29  .8031 30  .8055 31  .8074 32  .8087 33  .8105 34
649 .      .8128 35  .8142 36  .8156 37  .8184 38  .8207 39  .8214 40  .8222 41
650 .      .8244 42  .8265 43  .8286 44  .8301 45  .8324 46  .8345 47  .8366 48
651 .      .8383 49  .8403 50  .8418 51  .8449 52  .8470 53  .8489 54  .8511 55
652 .      .8532 56  .8548 57  .8573 58  .8584 59  .8605 60 1.0000 61 *
653 .     69    1   .20    0  240    2    4
654 .       WU   9   6  33   31   32    9 C M F   8  38    5
655 .     0.      0  .0034  1  .0085  2  .0164  3  .0208  4  .0273  5  .0338  6
656 .      .0417  7  .0522  8  .0576  9  .0677 10  .0760 11  .0845 12  .0914 13
657 .      .0993 14  .1071 15  .1156 16  .1262 17  .1360 18  .1479 19  .1596 20
```

```
658 .      .1712 21  .1878 22  .1974 23  .2097 24  .2237 25  .2360 26  .2488 27
659 .      .2617 28  .2746 29  .2940 30  .3106 31  .3227 32  .3395 33  .3521 34
660 .      .3647 35  .3884 36  .4043 37  .4164 38  .4316 39  .4422 40  .4529 41
661 .      .4653 42  .4743 43  .4957 44  .5133 45  .5217 46  .5345 47  .5495 48
662 .      .5628 49  .5765 50  .5879 51  .5979 52  .6125 53  .6253 54  .6365 55
663 .      .6437 56  .6600 57  .6710 58  .6820 59  .6939 60 1.0000 61 •
664 .     70     2  1.00     0  360      3     3
665 .      WU    6   31   32     9 C M F    8   38    5
666 .     0.         0  .0012  1  .0039  2  .0095  3  .0199  4  .0343  5  .0498  6
667 .      .0665  7  .0831  8  .1011  9  .1178 10  .1350 11  .1525 12  .1693 13
668 .      .1945 14  .2222 15  .2468 16  .2722 17  .2944 18  .3137 19  .3314 20
669 .      .3495 21  .3668 22  .3837 23  .4015 24  .4204 25  .4378 26  .4550 27
670 .      .4723 28  .4918 29  .5120 30  .5355 31  .5586 32  .5803 33  .6006 34
671 .      .6231 35  .6448 36  .6650 37  .6836 38  .7008 39  .7152 40  .7278 41
672 .      .7418 42  .7549 43  .7684 44  .7789 45  .7891 46  .7973 47  .8060 48
673 .      .8142 49  .8207 50  .8268 51  .8321 52  .8395 53  .8434 54  .8492 55
674 .      .8551 56  .8593 57  .8639 58  .8689 59  .8736 60 1.0000 61 •
675 .     71     1  1.00     0  240      2     4
676 .      WU    6   33   31   45    9 C M F    8    5
677 .     0.         0  .0822  1  .2589  2  .3945  3  .4932  4  .5890  5  .6877  6
678 .      .7753  7  .8151  8  .8438  9  .8740 10  .8986 11  .9178 12  .9342 13
679 .      .9411 14  .9534 15  .9603 16  .9630 17  .9685 18  .9685 19  .9699 20
680 .      .9699 21  .9712 22  .9712 23  .9726 24  .9753 25  .9767 26  .9767 27
681 .      .9767 28  .9781 29  .9781 30  .9781 31  .9781 32  .9781 33  .9781 34
682 .      .9795 35  .9795 36  .9795 37  .9808 38  .9808 39  .9808 40  .9822 41
683 .      .9822 42  .9836 43  .9836 44  .9836 45  .9836 46  .9836 47  .9836 48
684 .      .9836 49  .9836 50  .9836 51  .9849 52  .9849 53  .9849 54  .9849 55
685 .      .9863 56  .9863 57  .9877 58  .9877 59  .9877 60 1.0000 61 •
686 .     72     1   .50     0  240      2     4
687 .      WU    7    6   13   31   45    9 C M F   38    5
688 .     0.         0  .1207  1  .2192  2  .3073  3  .3759  4  .4346  5  .4894  6
689 .      .5442  7  .5911  8  .6301  9  .6651 10  .6949 11  .7204 12  .7415 13
690 .      .7603 14  .7751 15  .7889 16  .8018 17  .8096 18  .8185 19  .8259 20
691 .      .8335 21  .8385 22  .8442 23  .8518 24  .8550 25  .8611 26  .8667 27
692 .      .8694 28  .8732 29  .8762 30  .8809 31  .8843 32  .8874 33  .8908 34
693 .      .8956 35  .8963 36  .8987 37  .9005 38  .9021 39  .9033 40  .9051 41
694 .      .9071 42  .9086 43  .9100 44  .9115 45  .9132 46  .9150 47  .9163 48
695 .      .9172 49  .9184 50  .9192 51  .9202 52  .9211 53  .9224 54  .9238 55
696 .      .9253 56  .9267 57  .9281 58  .9294 59  .9311 60 1.0000 61 •
697 .     73     2   .25     0  360      3     3
698 .      WU    5    5    1    9    8   35 C M F    5
699 .     0.         0  .0244  1  .0475  2  .0640  3  .0768  4  .0914  5  .1085  6
700 .      .1251  7  .1328  8  .1481  9  .1554 10  .1627 11  .1700 12  .1773 13
701 .      .1834 14  .1895 15  .1926 16  .1962 17  .1999 18  .2035 19  .2066 20
702 .      .2102 21  .2115 22  .2151 23  .2188 24  .2200 25  .2206 26  .2236 27
703 .      .2243 28  .2273 29  .2285 30  .2310 31  .2334 32  .2352 33  .2371 34
704 .      .2413 35  .2419 36  .2450 37  .2456 38  .2505 39  .2529 40  .2541 41
705 .      .2584 42  .2596 43  .2645 44  .2675 45  .2693 46  .2761 47  .2779 48
706 .      .2791 49  .2821 50  .2846 51  .2876 52  .2925 53  .2949 54  .2992 55
707 .      .3041 56  .3096 57  .3120 58  .3169 59  .3205 60 1.0000 61 •
708 .     74     2   .50     0  480      4     3
709 .      WU    6    6    1    9    8   36 C M F    5
710 .      .0001  0  .2023  1  .3577  2  .4577  3  .5374  4  .5915  5  .6371  6
711 .      .6741  7  .7022  8  .7213  9  .7384 10  .7525 11  .7636 12  .7755 13
712 .      .7837 14  .7888 15  .7945 16  .8000 17  .8044 18  .8090 19  .8140 20
```

```
713 .      .8178 21  .8227 22  .8264 23  .8291 24  .8329 25  .8367 26  .8396 27
714 .      .8429 28  .8462 29  .8490 30  .8514 31  .8538 32  .8566 33  .8596 34
715 .      .8618 35  .8646 36  .8675 37  .8704 38  .8726 39  .8760 40  .8795 41
716 .      .8826 42  .8851 43  .8868 44  .8898 45  .8896 46  .8917 47  .8938 48
717 .      .8970 49  .8993 50  .9016 51  .9041 52  .9079 53  .9091 54  .9121 55
718 .      .9143 56  .9166 57  .9185 58  .9203 59  .9227 60 1.0000 61 *
719 .     75    1   .50    0  360    3    4
720 .      WU   8   6  31   45   9   4 C  M F   38   43    5
721 .     0.        0  .1526  1  .2593  2  .3451  3  .4058  4  .4436  5  .4783  6
722 .      .5033  7  .5166  8  .5314  9  .5406 10  .5477 11  .5615 12  .5702 13
723 .      .5819 14  .5886 15  .5942 16  .6023 17  .6069 18  .6100 19  .6136 20
724 .      .6192 21  .6269 22  .6320 23  .6360 24  .6422 25  .6473 26  .6544 27
725 .      .6595 28  .6641 29  .6697 30  .6764 31  .6835 32  .6896 33  .6973 34
726 .      .7024 35  .7039 36  .7085 37  .7111 38  .7141 39  .7192 40  .7254 41
727 .      .7315 42  .7386 43  .7443 44  .7504 45  .7540 46  .7586 47  .7611 48
728 .      .7657 49  .7713 50  .7723 51  .7745 52  .7815 53  .7836 54  .7866 55
729 .      .7912 56  .7953 57  .8019 58  .8060 59  .8091 60 1.0000 61 *
730 .      WORK.UNIT
731 .         45
732 .      1    4   7  45    4  45    6  45    5  45
733 .      2    4   3   5    2   5    4   5    6   5
734 .      3    4   1   4    3   4    4   5    6   5
735 .      4    4   3  30    4  30    2  30    6  30
736 .      5    4   3   3    4   3    6   3    5   3
737 .      6    1  15   3
738 .      7    3   9   5    3   9    4   9
739 .      8    2   5   2    6   2
740 .      9    3   5   1    6   1    4   1
741 .     10    3   3  15    6  15    4  15
742 .     11    3   6  10    5  10    4  10
743 .     12    4   3  10    4  10    5  10    1  10
744 .     13    3   3   6    4   5    6   6
745 .     14    3   6  15    3  15    4  15
746 .     15    4   6   3    1   3    3   3    4   3
747 .     16    3   5  15    6  15    4  15
748 .     17    2   4   3    5   3
749 .     18    2   5   9    6   9
750 .     19    3   3   7    4   7    6   7
751 .     20    2   6  45    5  45
752 .     21    2   5  25    6  25
753 .     22    2   7  25    5  25
754 .     23    3   5  10    6  10    4  10
755 .     24    3   1  15    3  15    2  15
756 .     25    3   1  15    3  15    6  15
757 .     26    1   0   0
758 .     27    3   1   9    6   9    5   9
759 .     28    3   2   9    3   9    6   9
760 .     29    3   1  35    3  35    6  35
761 .     30    4   2   8    1   8    4   8    6   8
762 .     31    3  13   5    5   5    6   5
763 .     32    3   2  30    4  30   13  30
764 .     33    2  15   8    6   8
765 .     34    2   5  12    6  12
766 .     35    1  14  20
767 .     36    3  10  30   11  30    7  30
```

```
37   4   7   2   4   2   2   2   1   2
38   2   2  12   1  12
39   1   0   0
40   1   1  60
41   2   1  15   1  70
42   1  14  28
43   2  13  25   6  50
44   2  17  45   3  45
45   2  20  15  13  30
  TYPE
 2
0.0  1  1.0  1  *
0.0       0 0.0015  1 0.0017  2 0.0141  3 0.0183  4 0.0206  5 0.0296  6
0.0333  7 0.0370  8 0.0370  9 0.0419 10 0.0534 11 0.0682 12 0.1028 13
0.1044 14 0.1108 15 0.1129 16 0.1173 17 0.1205 18 0.1246 19 0.1353 20
0.1369 21 0.1407 22 0.1445 23 0.1587 24 0.1837 25 0.2838 26 0.2886 27
0.2934 28 0.2947 29 0.3110 30 0.3644 31 0.4178 32 0.4576 33 0.4579 34
0.4755 35 0.5333 36 0.5397 37 0.5515 38 0.5877 39 0.5896 40 0.5965 41
0.6022 42 0.6132 43 0.6133 44 0.6271 45 0.6544 46 0.6591 47 0.6815 48
0.6957 49 0.6983 50 0.6987 51 0.7018 52 0.7426 53 0.7458 54 0.7551 55
0.7648 56 0.7782 57 0.7797 58 0.7838 59 0.7864 60 0.8153 61 0.8183 62
0.8549 63 0.8567 64 0.8592 65 0.8727 66 0.8727 67 0.9033 68 0.9091 69
0.9404 70 0.9411 71 0.9585 72 0.9611 73 0.9912 74 1.0000 75
*
0.0  1  0.5  1  0.7  2  0.9  3  1.0  4  *
0.0000  0 0.018  18 0.028  20 0.029  45 0.302  46 0.309  47 0.316  48
0.436  50 0.460  52 0.534  53 0.551  54 0.555  55 0.618  56 0.760  57
0.811  58 0.822  59 0.870  61 0.881  63 0.896  67 0.950  68 0.956  71
0.962  72 1.000  74
*
  PRIORITY
 4
 24.   0.   20.
 12.   1.   80.
  0.  24. 1460.
  0.  24. 1460.
  RATES
  .01  .01  .01  .01  .03  .05  .05  .07  .10  .07
  .05  .04  .04  .05  .07  .10  .07  .05  .05  .03
  .01  .01  .01  .01
  .0   .0   .0   .0   .0   .0   .05  .80  .05  .0
  .0   .0   .0   .0   .0   .05  .0   .0   .0   .0
  .0   .0   .0   .0
  15
241.0  680.0  512.0  222.0  158.0  321.0  217.0 222.0
 92.0  255.0  348.0  168.0   60.0   65.0   54.0
150.0  150.0  150.0  150.0  150.0  150.0  150.0  150.0
150.0  150.0  150.0  150.0  150.0  150.0  150.0
        VEHICLES  2
            HELICOPTER   AIR
            AMBULANCE    GROUND
        DEFAULTS
            RULES
                REQUEST   HELICOPTER POOL  ,  3
                LOAD.1    AMBULANCE  2     .
```

```
                          HELICOPTER 2        .  $
                DESTN.1   AMBULANCE  1  1  HOME  .
                                     2  3        .
                          HELICOPTER 1  1  HOME  .
                                     2  3        .  $
                UNLOAD.1  AMBULANCE  3           .
                          HELICOPTER 3           .  $
                LOAD.2    AMBULANCE  1  2        .
                                     2  2        .
                                     3  2        .
                                     4  2        .
                          HELICOPTER 1  2        .
                                     2  2        .
                                     3  2        .
                                     4  2        .  $
                DESTN.2   AMBULANCE  1  1  HOME  .
                                     2  3        .
                          HELICOPTER 1  1  HOME  .
                                     2  3        .  $
                UNLOAD.2  AMBULANCE  3           .
                          HELICOPTER 3           .  $
                END.RULE
            SPEED    HELICOPTER     100
                     AMBULANCE       25        $
        DONE
        LEVELS     4
            FEBA       36
                LOAD     INPATIENT     1.0
                         OUPATIENT     0.5          $
                TREATERS  0  10                     $
                RULES
                    REQUEST   AMBULANCE   BAS   CS   HOSP  ,  $
                    END.RULE
                DONE
            BAS         9
                DISTANCE        3
                VEHICLES        AMBULANCE   1  8    $
                LOAD            OUTPATIENT  0.2     $
                TREATERS        3 2   5 15   6 6   15 1   $
                SEC.FAC         4   5   6   9   11   13   17   20   24
                               26  32  41  42  45  46  48  54  57  58  59
                               61  63  64  67    $
                RULES
                    REQUEST   AMBULANCE   BAS   CS   HOSP  ,  $
                    END.RULE
                DONE
            CS          $
                DISTANCE       12
                VEHICLES       AMBULANCE      3  8    $
                LOAD           OUTPATIENT     0.2     $
                BEDS           60
                EVAC            3
                TREATERS        1 2   2 2   3 2   5 12   6 10   7 4   13 2
                               15 4  16 2  19 4      $
                SEC.FAC         30  34  51  52  53  60  62  68  70  73  74
```

```
                      $
        RULES
            REQUEST  AMBULANCE   CS   HOSP  ,    $
            END.RULE
        DONE
    HOSP     1
        DISTANCE    30
        VEHICLES    AMBULANCE    6  8    $
        LOAD        OUTPATIENT   0.1     $
        BEDS        200
        EVAC         15
        TREATERS     1 2   2 19    3 6   4 25   5 27   6 16
                      7 3   9  1  10 1  11  1  13  3  14  1
                    15 6  16  3  17 1  18 11  19  3  20  1  $
        SEC.FAC      1   2   3   7   8  10  12  14  15  16  18
                    19  21  22  23  25  27  28  29  31  33  35
                    36  37  38  39  40  43  44  47  49  50  55
                    56  65  66  69  71  72  75   $
        DONE
OPERATION
    DAYS      15
    DAWN       6.
    DUSK      18.
    AIR.TRIG   6
    GRND.TRIG  2
    CONV       2.
    POOL      30
              HELICOPTER   16  24   $
DONE
OUTPUT
    ECHO
    FREQUENCY  1.0
    RUN.NO     II-39
DONE
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39     ---     06/17/77     PAGE: 19

          MEDICAL TECHNOLOGY INPUTS.
               PATIENT CLASS DATA.
--------------------------------------------------------------------

  CLASS PRIORITY MOBILITY THRESHOLDS NEXT LEVEL   WORK UNITS.
  ----- -------- -------- ---------- ----------   -----------

   1        1        0.      5  180   1     4         6  17   9  15  33  14  41FCM  42  11  13   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  115,  150 .FIRST AID:   68,  103 .CONV:   69,  103 .MORT:   58,  103 .
   ... NOTE   ... ALL PATIENTS IN THIS CLASS WILL INCREASE THEIR CONV.
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   2        1      .50  99  360   3     4         6  33   9  42FCM  11   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   50,   50 .FIRST AID:   37,   37 .CONV:   37,   37 .MORT:   37,   37 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   3        1        0.     30  180   1     4         6   9  15  33  14  41FCM  42  13  11   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  112,  147 .FIRST AID:   65,  100 .CONV:   65,  100 .MORT:   65,  100 .
   ... NOTE   ... ALL PATIENTS IN THIS CLASS WILL INCREASE THEIR CONV.
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   4        2        0.     99  720   6     2         6  12  33  29FCM  11   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   73,   73 .FIRST AID:   56,   56 .CONV:   56,   56 .MORT:   56,   56 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   5        2        0.     99  180   1     2         6  33  43FCM   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   42,   67 .FIRST AID:   36,   61 .CONV:   36,   61 .MORT:   36,   61 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   6        3        0.     99 1440  12     2         6  33  43FCM   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   42,   67 .FIRST AID:   36,   61 .CONV:   36,   61 .MORT:   36,   61 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   7        1        0.     30  180   1     4         6   9  15  12  33  41FCM  42  13  11   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  137,  142 .FIRST AID:   60,   95 .CONV:   60,   95 .MORT:   60,   95 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   8        1        0.      5  360   3     4         6  17  33  41FCM  42  13  33  11   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  135,  140 .FIRST AID:   49,   84 .CONV:   49,   84 .MORT:   49,   84 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   9        3      1.00  99 1440  12     2        33   9  10FCM   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   27,   27 .FIRST AID:   24,   24 .CONV:   24,   24 .MORT:   24,   24 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  10        1        0.     30  180   1     4         6  15  12  33  41FCM  42  43  13  13  11   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  137,  197 .FIRST AID:   59,   94 .CONV:   59,   94 .MORT:   59,   94 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  11        2      1.00   5  360   3     2        17  33  41FCM  11   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   59,   94 .FIRST AID:   46,   81 .CONV:   46,   81 .MORT:   46,   81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  12        2        0.     99  180   1     4         6   9  12  33  41FCM  42  11  13   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  134,  139 .FIRST AID:   57,   92 .CONV:   57,   92 .MORT:   57,   92 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  13        3      1.00  99  720   6     2         9  33  29FCM  11  13   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   63,   63 .FIRST AID:   44,   44 .CONV:   44,   44 .MORT:   44,   44 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  14        1        0.     99  720   6     4         6   9  35FCM  11  38   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   52,   52 .FIRST AID:   24,   24 .CONV:   24,   24 .MORT:   24,   24 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  15        2      1.00  99  720   6     4         9  35FCM  11  39   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   46,   46 .FIRST AID:   21,   21 .CONV:   21,   21 .MORT:   21,   21 .
```

BEST AVAILABLE COPY

```
      NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      06/17/77      PAGE:  20
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   16     2      0.     6  120   1    4          6  17   9  15  41FCM  42  11  13   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   92,  127 .FIRST AID:   45,   80 .CONV:   45,   80 .MORT:   45,   80 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   17     3      1.00  99  720   6    2          9  29FCM  11  11   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   59,   59 .FIRST AID:   36,   36 .CONV:   36,   36 .MORT:   36,   36 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   18     3      1.00  99 1440  12    4          8  35FCM  18   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   37,   37 .FIRST AID:   22,   22 .CONV:   22,   22 .MORT:   22,   22 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   19     3      1.00  99    0  12    4          35C   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   23,   23 .FIRST AID:    0,    0 .CONV:   20,   20 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   20     3      1.00  99    0  12    2          8C   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    5,    5 .FIRST AID:    0,    0 .CONV:    2,    2 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   21     3      1.00  99    0  36    4          7  40C   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   68,   72 .FIRST AID:    0,    0 .CONV:   65,   69 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   22     2      0.    99  180   1    4          6  33   9  12  41FCM  43  11  10  13   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  119,  179 .FIRST AID:   57,   92 .CONV:   57,   92 .MORT:   57,   92 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   23     3      0.    99  180   1    4          6  33   9  12  41FCM  43  11  10  13   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  119,  179 .FIRST AID:   57,   92 .CONV:   57,   92 .MORT:   57,   92 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   24     3      1.00  99    0  72    2          33   9  11  10C   4   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   39,   39 .FIRST AID:    0,    0 .CONV:   34,   34 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   25     2       .50  99  360   3    4          6  33   9  41FCM  43  11  10  13   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  106,  166 .FIRST AID:   47,   82 .CONV:   47,   82 .MORT:   47,   82 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   26     3      1.00  99  720   6    2          33   9  29FCM  11   3   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   59,   59 .FIRST AID:   44,   44 .CONV:   44,   44 .MORT:   44,   44 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   27     1      0.    99  180   1    4          6  33   9  14  27  41FCM  43  11  10  13  38   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  145,  205 .FIRST AID:   71,  106 .CONV:   71,  106 .MORT:   71,  106 .
    ... NOTE  ... ALL PATIENTS IN THIS CLASS WILL INCREASE THEIR CONV.
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   28     1      0.    99  180   1    4          6  33   9  14  27  41FCM  43  11  10  13  38   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  145,  205 .FIRST AID:   71,  106 .CONV:   71,  106 .MORT:   71,  106 .
    ... NOTE  ... ALL PATIENTS IN THIS CLASS WILL INCREASE THEIR CONV.
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   29     1      0.    99  240   2    4          6  33   9  14  27  41FCM  43  11  10  13  38   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  145,  205 .FIRST AID:   71,  106 .CONV:   71,  106 .MORT:   71,  106 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   30     2      0.    99  480   4    3          6  33   9  14  27  41FCM  43  11  10  22  13  38   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  170,  230 .FIRST AID:   71,  106 .CONV:   71,  106 .MORT:   71,  106 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   31     1      0.    99  360   3    4          6  33   9  12  41FCM  43  11  13   5   6
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:  104,  164 .FIRST AID:   57,   92 .CONV:   57,   92 .MORT:   57,   92 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
   32     3      1.00  99  720   6    2          33   9  29FCM  11  13   5
    MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   63,   63 .FIRST AID:   44,   44 .CONV:   44,   44 .MORT:   44,   44 .
```

```
      NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39      ---      06/17/77      PAGE: 21

.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  33       2       0.      99  240   2     4          6  33   9  27  28  41FCM  10  13   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    93,  128 .FIRST AID:    65,   100 .CONV:    65,   100 .MORT:    65,   100 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  34       3       1.00  99    0  72     3          33  44  45   80  38   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    85,  100 .FIRST AID:     0,     0 .CONV:    70,    85 .MORT:     0,     0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  35       3       1.00  99    0  72     4          33  44  45   80  38   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    85,  100 .FIRST AID:     0,     0 .CONV:    70,    85 .MORT:     0,     0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  36       1       0.       5  180   1     4          6  17  16  41FCM  43  11  30  13  33  31   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   125,  185 .FIRST AID:    56,    91 .CONV:    56,    91 .MORT:    56,    91 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  37       1       0.       5  360   3     4          6  17  41FCM  43  11  30  33   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    93,  159 .FIRST AID:    41,    76 .CONV:    41,    76 .MORT:    41,    76 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  38       1       0.       5  180   1     4          6  17  15  14  41FCM  33  42  11  30  13   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   123,  158 .FIRST AID:    59,    94 .CONV:    59,    94 .MORT:    59,    94 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  39       1       0.      99  180   1     4          6  41FCM  30  33  28  44  43  11  13   9   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   153,  213 .FIRST AID:    38,    73 .CONV:    38,    73 .MORT:    38,    73 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  40       1       0.      99  360   3     4          6  41FCM  33  30  44  11  13   9   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   119,  154 .FIRST AID:    38,    73 .CONV:    38,    73 .MORT:    38,    73 .
.... .... .... .. .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  41       3       1.33  99 1440  12     2          19FCM  11   8   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    22,   22 .FIRST AID:     7,     7 .CONV:     7,     7 .MORT:     7,     7 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  42       3       1.00  99 1440  12     2          19FCM   8   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    12,   12 .FIRST AID:     7,     7 .CONV:     7,     7 .MORT:     7,     7 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  43       1        .50  99  360   3     4          6  41FCM  44  43  11  13   9   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   128,  188 .FIRST AID:    38,    73 .CONV:    38,    73 .MORT:    38,    73 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  44       1       0.      99 1440  12     4          6  33  41FCM  13  30   9   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    64,   99 .FIRST AID:    46,    81 .CONV:    46,    81 .MORT:    46,    81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  45       2       0.      99 1440  12     2          6  14  41FCM  30  31  11  13   9   5   6
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    89,  124 .FIRST AID:    53,    88 .CONV:    53,    88 .MORT:    53,    88 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  46       3       1.00  99    0   6     2          33  290  18  11   9   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    66,   66 .FIRST AID:     0,     0 .CONV:    43,    43 .MORT:     0,     0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  47       1       0.      99  360   3     4          6  33  41FCM  31  11  13  30   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    78,  113 .FIRST AID:    46,    81 .CONV:    46,    81 .MORT:    46,    81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  48       3       1.00  99    0  24     2          33  31   90   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    17,   17 .FIRST AID:     0,     0 .CONV:    14,    14 .MORT:     0,     0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  49       1       0.      99 1440  12     4          6  33  41FCM   9   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:    53,   85 .FIRST AID:    46,    81 .CONV:    46,    81 .MORT:    46,    81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  50       1       0.      99  360   4     4          6  33  41FCM  10   9   8  38   5
```

```
        NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-33      ---       10/17/77      PAGE: 22

  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   79,  114 .FIRST AID:   46,   81 .CONV:   46,   81 .MORT:   46,   81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  51        3       1.00  99     0  12      3            33  31   8C  38   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   30,   30 .FIRST AID:    0,    0 .CONV:   15,   15 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  52        3       1.00  99     0  12      3            31   9C   8  38   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   23,   23 .FIRST AID:    0,    0 .CONV:    6,    6 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  53        3       1.00  99     0  12      3            11   9C   8  38   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   28,   28 .FIRST AID:    0,    0 .CONV:   11,   11 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  54        3       1.00  99     0  24      2           2  31   9C   8   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   16,   16 .FIRST AID:    0,    0 .CONV:   11,   11 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  55        1       0.    99   240   2      4         6  34  33  43FCM   9   8  38   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   66,   91 .FIRST AID:   48,   73 .CONV:   48,   73 .MORT:   48,   73 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  56        1       1.00  99   720   [illegible]      4            33  31   9FCM   8   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   19,   19 .FIRST AID:   14,   14 .CONV:   14,   14 .MORT:   14,   14 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  57        3       1.00  99  1440  12      2           2  33  31   9   8FCM   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   24,   24 .FIRST AID:   21,   21 .CONV:   21,   21 .MORT:   21,   21 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  58        3       1.00  99     0  72      2           2  31   8C   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   15,   15 .FIRST AID:    0,    0 .CONV:   12,   12 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  59        3       1.00  99     0  72      2           2  33  31   9   8C   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   24,   24 .FIRST AID:    0,    0 .CONV:   21,   21 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  60        3       1.00  99     0  72      3            33  31   8C  38   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   30,   30 .FIRST AID:    0,    0 .CONV:   15,   15 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  61        3       1.00  99     0  24      2            31   8C   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   10,   10 .FIRST AID:    0,    0 .CONV:    7,    7 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  62        3       1.00  99     0  24      3            33  31   8C  38   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   30,   30 .FIRST AID:    0,    0 .CONV:   15,   15 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  63        3       1.00  99     0  24      2            31   8C   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   10,   10 .FIRST AID:    0,    0 .CONV:    7,    7 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  64        3       1.00  99     0  24      2            31   8C   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   10,   10 .FIRST AID:    0,    0 .CONV:    7,    7 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  65        1        .25   5   180   2      4         5  17  31  43FCM  45   8   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   56,   96 .FIRST AID:   36,   61 .CONV:   36,   61 .MORT:   36,   61 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  66        1        .25  99   180   1      4         6  20FCM  13  31   8   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   64,   64 .FIRST AID:   48,   48 .CONV:   48,   48 .MORT:   48,   48 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  67        3       1.00   5     0  12      2            23   9C   8   5
  MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   16,   16 .FIRST AID:    0,    0 .CONV:   11,   11 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
```

```
NAME, II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      06/17/77      PAGE: 23

  68        3       1.00  99    0   0    3           2  33  11  31   3   8  38   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   46,   46 .FIRST AID:    0,    0 .CONV:    0,    0 .MORT:    0,    0 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  69        1        .20  99  240   2    4           5  33  31  32   9FCM   8  38   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   64,   64 .FIRST AID:   47,   47 .CONV:   47,   47 .MORT:   47,   47 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  70        2       1.00  99  360   3    3              31  32   9FCM   8  38   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   53,   53 .FIRST AID:   36,   36 .CONV:   36,   36 .MORT:   36,   36 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  71        1       1.00  99  240   2    4             33  31  45   9FCM   8   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   34,   49 .FIRST AID:   29,   44 .CONV:   29,   44 .MORT:   29,   44 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  72        1        .50  99  240   2    4           6  13  31  45   9FCM  38   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   45,   60 .FIRST AID:   30,   45 .CONV:   30,   45 .MORT:   30,   45 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  73        2        .25  99  360   3    3           6   1   9   8  36FCM   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   64,   84 .FIRST AID:   81,   81 .CONV:   81,   81 .MORT:   81,   81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  74        2        .50  99  480   4    3           5   1   9   8  36FCM   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   84,   84 .FIRST AID:   81,   81 .CONV:   81,   81 .MORT:   81,   81 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  75        1        .50  99  360   3    4           6  31  45   8   4FCM  38  43   5
   MIN-MAX TREATMENT TIMES WITHOUT DELAYS. TOTAL:   95,  135 .FIRST AID:   55,   70 .CONV:   55,   70 .MORT:   55,   70 .
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....


  PRIORITY   STABILIZATION  EVACUATION  TREATMENT
                 TIME        THRESHOLD   THRESHOLD
  --------   -------------  ----------  ---------
      1         24.0 HRS        0.  HRS      20.0 MINS
      2         12.0 HRS        1.0 HRS      80.0 MINS
      3          0.  HRS       24.0 HRS    1460.0 MINS
      4          0.  HRS       24.0 HRS    1460.0 MINS
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.    ---SIMULATION: II-39    ---    06/17/77    PAGE: 24

          WORK UNITS AND PREFFRRED TREATERS

WORK   PREFERRED    1ST  ALT.    2ND  ALT.    3RD  ALT.
----   ---------    ---------    ---------    ---------

  1      7    45      4    45      6    45      5    45
  2      3     5      2     5      4     5      6     5
 3T      1     4      3     4      4     5      6     5
  4      3    30      4    30      2    30      6    30
  5      3     3      4     3      6     3      5     3
  6     15     3
  7      9     5      3     8      4     9
  8      5     2      6     2
  9      5     1      6     1      4     1
 10      5    15      6    15      4    15
 11      6    10      5    10      4    10
 12      3    10      4    10      6    10      1    10
 13      3     6      4     6      6     6
 14      5    15      3    15      4    15
 15      6     3      1     3      3     3      4     3
 16      5    15      6    15      4    15
 17      4     3      5     3
 18      5     9      6     9
 19      3     7      4     7      6     7
 20      6    45      5    45
 21      5    25      6    25
 22      7    25      5    25
 23      5    10      6    10      4    10
 24      1    15      3    15      2    15
 25      1    15      3    15      6    15
 26      0     0
 27      1     9      6     9      5     9
 28      2     9      3     9      6     9
 29      1    35      3    35      6    35
 30      2     8      1     8      4     8      6     8
 31     13     5      5     5      6     5
 32      2    30      4    30     13    30
 33     16     8      6     8
 34      5    12      6    12
 35     14    20
 36     10    30     11    30      7    30
 37      3     2      4     2      2     2      1     2
 38      2    12      1    12
 39      0     0
 40      9    60
 41      1    35      3    70
 42     19    25
 43     18    25      6    50
 44     17    45      3    45
 45     20    15     13    30
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---       06/17/77      PAGE: 25

           OPERATIONAL INPUTS.
           -------------------

==================================================================================
..... ..... FACILITY LEVEL : FEBA                         36  UNITS

==================================================================================
..... ..... FACILITY LEVEL : BAS                           9  UNITS

# 1      DISTANCE              :    3 MILES TO FEBA
         EVACUATION POLICY     :    3 DAYS
         BEDS                  :    0
         SUPPORTING UNIT       : CS     # 1
         HELICOPTER            :    0 ASSIGNED.     SPEED :  100
         AMBULANCE             :    1 ASSIGNED.     SPEED :   25
         TREATERS              :    4 TYPES
                                    3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 2      DISTANCE              :    3 MILES TO FEBA
         EVACUATION POLICY     :    3 DAYS
         BEDS                  :    0
         SUPPORTING UNIT       : CS     # 1
         HELICOPTER            :    0 ASSIGNED.     SPEED :  100
         AMBULANCE             :    1 ASSIGNED.     SPEED :   25
         TREATERS              :    4 TYPES
                                    3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 3      DISTANCE              :    3 MILES TO FEBA
         EVACUATION POLICY     :    3 DAYS
         BEDS                  :    0
         SUPPORTING UNIT       : CS     # 1
         HELICOPTER            :    0 ASSIGNED.     SPEED :  100
         AMBULANCE             :    1 ASSIGNED.     SPEED :   25
         TREATERS              :    4 TYPES
                                    3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 4      DISTANCE              :    3 MILES TO FEBA
         EVACUATION POLICY     :    3 DAYS
         BEDS                  :    0
         SUPPORTING UNIT       : CS     # 2
         HELICOPTER            :    0 ASSIGNED.     SPEED :  100
         AMBULANCE             :    1 ASSIGNED.     SPEED :   25
         TREATERS              :    4 TYPES
                                    3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 5      DISTANCE              :    3 MILES TO FEBA
         EVACUATION POLICY     :    3 DAYS
         BEDS                  :    0
         SUPPORTING UNIT       : CS     # 2
         HELICOPTER            :    0 ASSIGNED.     SPEED :  100
         AMBULANCE             :    1 ASSIGNED.     SPEED :   25
         TREATERS              :    4 TYPES
                                    3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 6     DISTANCE              :    3 MILES TO FEBA
        EVACUATION POLICY     :    0 DAYS
        BEDS                  :    0
        SUPPORTING UNIT       : CS     # 2
        HELICOPTER            :    0 ASSIGNED.     SPEED : · 100
        AMBULANCE             :    1 ASSIGNED.     SPEED :   25
        TREATERS              :    4 TYPES
                                   3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 7     DISTANCE              :    3 MILES TO FEBA
        EVACUATION POLICY     :    0 DAYS
        BEDS                  :    0
        SUPPORTING UNIT       : CS     # 3
        HELICOPTER            :    0 ASSIGNED.     SPEED :  100
        AMBULANCE             :    1 ASSIGNED.     SPEED :   25
        TREATERS              :    4 TYPES
                                   3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 8     DISTANCE              :    3 MILES TO FEBA
        EVACUATION POLICY     :    0 DAYS
        BEDS                  :    0
        SUPPORTING UNIT       : CS     # 3
        HELICOPTER            :    0 ASSIGNED.     SPEED :  100
        AMBULANCE             :    1 ASSIGNED.     SPEED :   25
        TREATERS              :    4 TYPES
                                   3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 9     DISTANCE              :    3 MILES TO FEBA
        EVACUATION POLICY     :    0 DAYS
        BEDS                  :    0
        SUPPORTING UNIT       : CS     # 3
        HELICOPTER            :    0 ASSIGNED.     SPEED :  100
        AMBULANCE             :    1 ASSIGNED.     SPEED :   25
        TREATERS              :    4 TYPES
                                   3   2,  5  15,  6   6, 15   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
========================================================================
 ..... ..... FACILITY LEVEL : CS                          3  UNITS

# 1     DISTANCE              :   12 MILES TO FEBA
        EVACUATION POLICY     :    3 DAYS
        BEDS                  :   63
        SUPPORTING UNIT       : HOSP  # 1
        HELICOPTER            :    0 ASSIGNED.     SPEED :  100
        AMBULANCE             :    3 ASSIGNED.     SPEED :   25
        TREATERS              :   10 TYPES
                                   1   2,  2   2,  3   2,  5  12,  6  10,  7   4, 13   2, 15   4,
                                  16   2, 18   4,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
# 2     DISTANCE              :   12 MILES TO FEBA
        EVACUATION POLICY     :    3 DAYS
        BEDS                  :   63
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39      ---      06/17/77      PAGE: 27

          SUPPORTING UNIT     : HOSP  #  1
          HELICOPTER          :   0 ASSIGNED.     SPEED :  100
          AMBULANCE           :   3 ASSIGNED.     SPEED :   25
          TREATERS            :  10 TYPES
                                  1   2,  2   2,  3   2,  5  12,  6  13,  7   4, 13   2, 15   4,
                                 16   2, 18   4,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
 #  3     DISTANCE            :  12 MILES TO FEBA
          EVACUATION POLICY   :   3 DAYS
          BEDS                :  60
          SUPPORTING UNIT     : HOSP  #  1
          HELICOPTER          :   0 ASSIGNED.     SPEED :  100
          AMBULANCE           :   3 ASSIGNED.     SPEED :   25
          TREATERS            :  10 TYPES
                                  1   2,  2   2,  3   2,  5  12,  5  13,  7   4, 13   2, 15   4,
                                 16   2, 18   4,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
========================================================================
 ..... ..... FACILITY LEVEL : HOSP                     1  UNITS

 #  1     DISTANCE            :  30 MILES TO FEBA
          EVACUATION POLICY   :  15 DAYS
          BEDS                : 200
          HELICOPTER          :   5 ASSIGNED.     SPEED :  100
          AMBULANCE           :   6 ASSIGNED.     SPEED :   25
          TREATERS            :  18 TYPES
                                  1   2,  2  19,  3   6,  4  26,  5  27,  6  16,  7   3,  9   1,
                                 10   1, 11   1, 13   3, 14   1, 15   6, 16   3, 17   1, 18  11,
                                 19   3, 20   1,
.... .... .... .... .... .... .... .... .... .... .... .... .... .... ..
```

```
 NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      06/17/77      PAGE: 28

OPERATIONAL AND LOGISTICS INPUTS
--------------------------------

 LENGTH OF COMBAT      :  15 DAYS
 DAYLIGHT HOURS FROM     600 TO  1800
 AIR VEHICLE THRESHOLD:    6
 GROUND VEH  THRESHOLD:    2
```

APPENDIX D

SAMPLE COMPUTER REPORTS OF NAMES II BASELINE SIMULATION OUTPUTS

```
         NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39        ---          06/17/77       PAGE: 249
                             DAILY STATISTICS DURING COMBAT PERIOD               DAY: 11    COMBAT: 15

DAY 11 OF 15
------------

PATIENT STATISTICS FOR EACH LEVEL                       FEBA
---------------------------------                       ----


                                            PRIORITY                              PRIORITY
                                            --------                              --------

                                      1       2       3       4      TOTAL    1       2       3       4      TOTAL
                                      -       -       -       -      -----    -       -       -       -      -----

ENTERED FACILITY                    114      83     153      66      416    1092     628    1537     746    4003
EVACUATED TO THIS FACILITY            0       0       0       0        0       0       0       0       0       0
-----------------------------------------------------------------------------------------------------------------
        TOTAL ADMISSIONS            114      83     153      66      416    1092     628    1537     746    4003
-----------------------------------------------------------------------------------------------------------------

RETURNED TO DUTY - NO CONV            0       0       0      66       66       0       0       0     746     746
                 - WITH CONV          0       0       0       0        0       0       0       0       0       0
                                   ----    ----    ----    ----     ----    ----    ----    ----    ----    ----
     TOTAL                            0       0       0      66       66       0       0       0     746     746

DIED - IN TREATMENT                   0       0       0       0        0       0       0       0       0       0
     - IN TREATMENT QUEUE             0       0       0       0        0       0       0       0       0       0
     - IN EVAC QUEUE                  0       0       2       0        2      17       8      21       0      46
     - IN TRANSIT                     0       0       0       0        0       0       0       0       0       0
                                   ----    ----    ----    ----     ----    ----    ----    ----    ----    ----
     TOTAL                            0       0       2       0        2      17       8      21       0      46

EVACUATED                           115      82     156       0      353    1075     619    1508       0    3202
-----------------------------------------------------------------------------------------------------------------
        TOTAL LEAVING               115      82     158      66      421    1092     627    1529     746    3994
-----------------------------------------------------------------------------------------------------------------
  REMAINING AT END OF PERIOD          0       1       8       0        9
-----------------------------------------------------------------------------------------------------------------

STABILIZED- NO TREATER ASSIGNED       0       0       0       0        0       0       0       0       0       0
          - EVAC POLICY LIMIT         0       0       0       0        0       0       0       0       0       0
          - NO BEDS                   0       0       0       0        0       0       0       0       0       0
                                   ----    ----    ----    ----     ----    ----    ----    ----    ----    ----
     TOTAL                            0       0       0       0        0       0       0       0       0       0

  REMAINING IN STABILIZATION          0       0       0       0        0

CONVALESCENCE - ENTERED               0       0       0       0        0       0       0       0       0       0
              - INCREASED             0       0       0       0        0       0       0       0       0       0
  REMAINING IN CONVALESCENCE          0       0       0       0        0
```

```
        NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-34      ---      10/17/77      PAGE: 254
                          DAILY STATISTICS DURING COMBAT PERIOD                      DAY: 11   COMBAT: 15

DAY 11 OF 15
------------

PATIENT STATISTICS FOR EACH LEVEL                        BAS
---------------------------------                        ----

                                                PRIORITY                                      PRIORITY
                                                --------                                      --------

                                      1       2       3       4       TOTAL     1       2       3       4       TOTAL
                                      -       -       -       -       -----     -       -       -       -       -----

ENTERED FACILITY                      0       0       0      38        38       0       0       0     339        339
EVACUATED TO THIS FACILITY            0      13     133       0       146       0     111    1166       0       1277
---------------------------------------------------------------------------------------------------------------------
        TOTAL ADMISSIONS              0      13     133      38       184       0     111    1166     339       1616
---------------------------------------------------------------------------------------------------------------------

RETURNED TO DUTY - NO CONV            0       0       0      23        23       0       0       0     218        218
                 - WITH CONV          0       0       0       0         0       0       0       0       0          0
                                   ----    ----    ----    ----      ----    ----    ----    ----    ----       ----
     TOTAL                            0       0       0      23        23       0       0       0     218        218

DIED - IN TREATMENT                   0       0       1       0         1       0       2       5       0          7
     - IN TREATMENT QUEUE             0       0       0       0         0       0       0       0       0          0
     - IN EVAC QUEUE                  0       0       0       0         0       0       0       0       0          0
     - IN TRANSIT                     0       0       0       0         0       0       0       0       0          0
                                   ----    ----    ----    ----      ----    ----    ----    ----    ----       ----
     TOTAL                            0       0       1       0         1       0       2       5       0          7

EVACUATED                             0       3     133      15       151       0      97    1157     121       1375
---------------------------------------------------------------------------------------------------------------------
        TOTAL LEAVING                 0       3     134      38       175       0      99    1162     339       1600
---------------------------------------------------------------------------------------------------------------------
  REMAINING AT END OF PERIOD          0      12       4       0        15
---------------------------------------------------------------------------------------------------------------------

STABILIZED- NO TREATER ASSIGNED       0       0       0      15        15       0       0       0     121        121
          - EVAC POLICY LIMIT         0      13     131       0       144       0     113    1160       0       1273
          - NO BEDS                   0       0       0       0         0       0       0       0       0          0
                                   ----    ----    ----    ----      ----    ----    ----    ----    ----       ----
     TOTAL                            0      13     131      15       159       0     113    1160     121       1394

  REMAINING IN STABILIZATION          0      12       0       0        12

CONVALESCENCE - ENTERED               0       0       0       0         0       0       0       0       0          0
              - INCREASED             0       2       6       0         8       0       9      73       0         82
  REMAINING IN CONVALESCENCE          0       0       0       0         0
```

```
         NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      08/17/77      PAGE: 259
                      DAILY STATISTICS DURING COMBAT PERIOD              DAY: 11   COMBAT: 15

DAY 11 OF 15
------------

PATIENT STATISTICS FOR EACH LEVEL               CS
---------------------------------               ----

                                         PRIORITY                                 PRIORITY
                                         --------                                 --------

                                   1       2       3       4     TOTAL      1       2       3       4     TOTAL
                                   -       -       -       -     -----      -       -       -       -     -----

ENTERED FACILITY                   0       0       0      24       24       0       0       0     306      306
EVACUATED TO THIS FACILITY         0      42     151       9      202       0     351    1400      63     1814
-----------------------------------------------------------------------------------------------------------------
      TOTAL ADMISSIONS             0      42     151      33      226       0     351    1400     369     2120
-----------------------------------------------------------------------------------------------------------------

RETURNED TO DUTY - NO CONV         0       0       0      32       32       0       0       0     358      358
                 - WITH CONV       0       8      27       0       35       0      69     382       0      451
                                ----    ----    ----    ----     ----    ----    ----    ----    ----     ----
    TOTAL                          0       8      27      32       67       0      69     382     358      809

DIED - IN TREATMENT                0       0       0       0        0       0       2       0       0        2
     - IN TREATMENT QUEUE          0       0       0       0        0       0       0       0       0        0
     - IN EVAC QUEUE               0       0       0       0        0       0       0       0       0        0
     - IN TRANSIT                  0       0       0       0        0       0       1       0       0        1
                                ----    ----    ----    ----     ----    ----    ----    ----    ----     ----
    TOTAL                          0       0       0       0        0       0       3       0       0        3

EVACUATED                          0      25      99       1      125       0     248     939      11     1198
-----------------------------------------------------------------------------------------------------------------
      TOTAL LEAVING                0      33     126      33      192       0     320    1321     369     2010
-----------------------------------------------------------------------------------------------------------------
  REMAINING AT END OF PERIOD       0      31      79       0      110
-----------------------------------------------------------------------------------------------------------------

STABILIZED- NO TREATER ASSIGNED    0       0       0       1        1       0       0       0      11       11
          - EVAC POLICY LIMIT      0      34      99       0      133       0     269     935       0     1204
          - NO BEDS                0       0       0       0        0       0       1       4       0        5
                                ----    ----    ----    ----     ----    ----    ----    ----    ----     ----
    TOTAL                          0      34      99       1      134       0     270     939      11     1220

  REMAINING IN STABILIZATION       0      20       0       0       20

CONVALESCENCE - ENTERED            0       8      51       0       59       0      80     460       0      540
              - INCREASED          0       0       0       0        0       0       8      14       0       22
  REMAINING IN CONVALESCENCE       0      11      78       0       89
```

```
        NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39      ---      06/17/77       PAGE: 264
                         DAILY STATISTICS DURING COMBAT PERIOD               DAY: 11    COMBAT: 15

DAY 11 OF 15
------------

PATIENT STATISTICS FOR EACH LEVEL                 HOSP
---------------------------------                 ----


                                             PRIORITY                               PRIORITY
                                             --------                               --------

                                       1       2       3       4     TOTAL    1       2       3       4      TOTAL
                                       -       -       -       -     -----    -       -       -       -      -----

ENTERED FACILITY                       0       0       0      24       24     0       0       0     156       156
EVACUATED TO THIS FACILITY           115      53     101       7      276  1075     498    1034      69      2676
---------------------------------------------------------------------------------------------------------------------
        TOTAL ADMISSIONS             115      53     101      31      300  1075     498    1034     225      2832
---------------------------------------------------------------------------------------------------------------------

RETURNED TO DUTY - NO CONV             0       0       0      29       29     0       0       0     219       219
                 - WITH CONV          20       7       9       0       36   139      45      90       1       275
                                    ----    ----    ----    ----     ----  ----    ----    ----    ----      ----
     TOTAL                            20       7       9      29       65   139      45      90     220       494

DIED - IN TREATMENT                    1       8       1       2       12    50      41       5       2        98
     - IN TREATMENT QUEUE              0       5       0       0        5     2      34       3       2        41
     - IN EVAC QUEUE                   0       0       0       0        0     0       0       0       0         0
     - IN TRANSIT                      0       0       0       0        0     7       4       0       0        11
                                    ----    ----    ----    ----     ----  ----    ----    ----    ----      ----
     TOTAL                             1      13       1       2       17    59      79       8       4       150

EVACUATED                             67      19      96       0      182   680     289     899       1      1869
---------------------------------------------------------------------------------------------------------------------
        TOTAL LEAVING                 88      39     106      31      264   878     413     997     225      2513
---------------------------------------------------------------------------------------------------------------------
  REMAINING AT END OF PERIOD         197      85      37       0      319
---------------------------------------------------------------------------------------------------------------------

STABILIZED- NO TREATER ASSIGNED        0       0       0       0        0     0       0       0       0         0
          - EVAC POLICY LIMIT         90      32      45       0      167   712     293     431       0      1436
          - NO BEDS                   21       8      51       0       80   223     109     468       1       801
                                    ----    ----    ----    ----     ----  ----    ----    ----    ----      ----
     TOTAL                           111      40      96       0      247   935     402     899       1      2237

  REMAINING IN STABILIZATION          94      23       0       0      117

CONVALESCENCE - ENTERED               22      10       4       0       36   240     107     127       1       475
              - INCREASED             44      19       2       0       65   392     147      18       2       559
  REMAINING IN CONVALESCENCE         101      62      37       0      200
```

```
         NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---        06/17/77       PAGE: 255
                           DAILY STATISTICS DURING COMBAT PERIOD              DAY: 11   COMBAT: 15

PATIENT DISPOSITION BY DAYS OF CONVALESCENCE   LEVEL: HOSP

                           ....         S T A B I L I Z A T I O N          .... ...C O N V A L E S C E N C E ... ...E V A C U A T I O N ...
        DAYS OF    BEDS    NO THEATER     EVAC        BED       REMAINING    ENTERED   ARRIVED FOR   REMAINING   NO TR      EVAC     BED     TOTAL
         CONV.   REQUIRED   ASSIGNED     POLICY    SHORTAGE    IN STBZ.      CONV.    CONV. ONLY    IN CONV.  ASSIGNED  POLICY  SHORTAGE   EVAC
        -------  --------  ----------  ----------  ----------  ----------  --------- -----------  ----------  --------- ------  --------  -----

           0       0   0    0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
           1      43  43    0     0     0     0    10    10     1     1     8     8     0     0    35    35     0     0     0     0     1     1     1     1
           2      90 133    0     0     0     0     2    12     1     2     2    10     0     0    24    59     0     0     0     0     0     1     0     1
           3      55 188    0     0     0     0     1    13     0     2     1    11     0     0    19    78     0     0     0     0     1     2     1     2
           4      81 269    0     0     0     0    12    25     0     2     8    19     0     0    31   109     0     0     0     0     7     9     7     9
           5      57 326    0     0     0     0     1    26     0     2     2    21     0     0    30   139     0     0     0     0     0     9     0     9
           6      40 366    0     0     0     0     8    34     0     2     1    22     0     0    14   153     0     0     0     0     7    16     7    16
           7      41 407    0     0     0     0     8    42     0     2     2    24     0     0    13   166     0     0     0     0     6    22     6    22
           8      26 433    0     0     0     0    10    52     1     3     3    27     0     0     4   170     0     0     0     0     7    29     7    29
           9      12 445    0     0     0     0     2    54     0     3     0    27     0     0     2   172     0     0     0     0     2    31     2    31
          10      22 467    0     0     0     0     9    63     1     4     2    29     0     0     8   180     0     0     0     0     6    37     6    37
          11      17 484    0     0     0     0     7    70     0     4     0    29     0     0     4   184     0     0     0     0     7    44     7    44
          12       8 492    0     0     0     0     2    72     0     4     4    33     0     0     9   193     0     0     0     0     1    45     1    45
          13       6 498    0     0     0     0     2    74     0     4     1    34     0     0     3   196     0     0     0     0     1    46     1    46
          14       6 504    0     0     0     0     3    77     0     4     1    35     0     0     3   199     0     0     0     0     3    49     3    49
   EVAC   15       3 507    0     0     0     0     3    80     0     4     1    36     0     0     1   200     0     0     0     0     2    51     2    51
          16                0     0     3     3     0    80     0     4     0    36     0     0     0   200     0     0     3     3     0    51     3    54
          17                0     0     5     8     0    80     3     7     0    36     0     0     0   200     0     0     3     6     0    51     3    57
          18                0     0     3    11     0    80     0     7     0    36     0     0     0   200     0     0     5    11     0    51     5    62
          19                0     0     2    13     0    80     1     8     0    36     0     0     0   200     0     0     1    12     0    51     1    63
          20                0     0     5    18     0    80     1     9     0    36     0     0     0   200     0     0     5    17     0    51     5    68
          21                0     0     2    20     0    80     0     9     0    36     0     0     0   200     0     0     2    19     0    51     2    70
          22                0     0     2    22     0    80     1    10     0    36     0     0     0   200     0     0     1    20     0    51     1    71
          23                0     0     1    23     0    80     1    11     0    36     0     0     0   200     0     0     1    21     0    51     1    72
          24                0     0     3    26     0    80     2    13     0    36     0     0     0   200     0     0     2    23     0    51     2    74
          25                0     0     1    27     0    80     1    14     0    36     0     0     0   200     0     0     1    24     0    51     1    75
          26                0     0     2    29     0    80     1    15     0    36     0     0     0   200     0     0     1    25     0    51     1    76
          27                0     0     2    31     0    80     1    16     0    36     0     0     0   200     0     0     1    26     0    51     1    77
          28                0     0     2    33     0    80     2    18     0    36     0     0     0   200     0     0     1    27     0    51     1    78
          29                0     0     2    35     0    80     1    19     0    36     0     0     0   200     0     0     3    30     0    51     3    81
          30                0     0     1    36     0    80     1    20     0    36     0     0     0   200     0     0     2    32     0    51     2    83
          31                0     0     1    37     0    80     1    21     0    36     0     0     0   200     0     0     0    32     0    51     0    83
          32                0     0     6    43     0    80     4    25     0    36     0     0     0   200     0     0     3    35     0    51     3    86
          33                0     0     0    43     0    80     0    25     0    36     0     0     0   200     0     0     1    36     0    51     1    87
          34                0     0     1    44     0    80     1    26     0    36     0     0     0   200     0     0     1    37     0    51     1    88
          35                0     0     2    46     0    80     2    28     0    36     0     0     0   200     0     0     2    39     0    51     2    90
          36                0     0     1    47     0    80     1    29     0    36     0     0     0   200     0     0     2    41     0    51     2    92
          37                0     0     4    51     0    80     1    30     0    36     0     0     0   200     0     0     4    45     0    51     4    96
          38                0     0     1    52     0    80     1    31     0    36     0     0     0   200     0     0     1    46     0    51     1    97
          39                0     0     0    52     0    80     0    31     0    36     0     0     0   200     0     0     2    48     0    51     2    99
          40                0     0     2    54     0    80     1    32     0    36     0     0     0   200     0     0     2    50     0    51     2   101
          41                0     0     1    55     0    80     0    32     0    36     0     0     0   200     0     0     1    51     0    51     1   102
          42                0     0     2    57     0    80     1    33     0    36     0     0     0   200     0     0     1    52     0    51     1   103
          43                0     0     0    57     0    80     0    33     0    36     0     0     0   200     0     0     1    53     0    51     1   104
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-34      ---       06/17/77       PAGE: 266
                         DAILY STATISTICS DURING COMBAT PERIOD                  DAY: 11   COMBAT: 15

  44                   0    0     0   57     0   80     0   33     0   36     0    0     0  200     0    0    1   54    0   51     1  105
  45                   0    0     0   57     0   80     0   33     0   36     0    0     0  200     0    0    1   55    0   51     1  106
  46                   0    0     2   59     0   80     1   34     0   36     0    0     0  200     0    0    2   57    0   51     2  108
  47                   0    0     1   60     0   80     0   34     0   36     0    0     0  200     0    0    1   58    0   51     1  109
  48                   0    0     1   61     0   80     1   35     0   36     0    0     0  200     0    0    0   58    0   51     0  109
  49                   0    0     1   62     0   80     0   35     0   36     0    0     0  200     0    0    2   60    0   51     2  111
  50                   0    0     0   62     0   80     0   35     0   36     0    0     0  200     0    0    0   60    0   51     0  111
  51                   0    0     1   63     0   80     0   35     0   36     0    0     0  200     0    0    1   61    0   51     1  112
  52                   0    0     2   65     0   80     1   36     0   36     0    0     0  200     0    0    2   63    0   51     2  114
  53                   0    0     0   65     0   80     0   36     0   36     0    0     0  200     0    0    0   63    0   51     0  114
  54                   0    0     2   67     0   80     2   38     0   36     0    0     0  200     0    0    1   64    0   51     1  115
  55                   0    0     0   67     0   80     0   38     0   36     0    0     0  200     0    0    0   64    0   51     0  115
  56                   0    0     1   68     0   80     1   39     0   36     0    0     0  200     0    0    0   64    0   51     0  115
  57                   0    0     1   69     0   80     0   39     0   36     0    0     0  200     0    0    1   65    0   51     1  116
  58                   0    0     1   70     0   80     1   40     0   36     0    0     0  200     0    0    1   66    0   51     1  117
  59                   0    0     1   71     0   80     0   40     0   36     0    0     0  200     0    0    1   67    0   51     1  118
  60                   0    0     1   72     0   80     1   41     0   36     0    0     0  200     0    0    0   67    0   51     0  118
  61                   0    0    95  167     0   80    76  117     0   36     0    0     0  200     0    0   64  131    0   51    64  182
         --------  ----------  ----------  ----------  ----------  --------  -----------  ----------  -------- -------  -------- -----
TOTAL:     507          0          167         80          117         36          0          200          0      131      51       182
```

```
    NAME: II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      10/17/77      PAGE: 267
                    DAILY STATISTICS DURING COMBAT PERIOD                        DAY: 11   COMBAT: 15

 WORK UNIT REQUIREMENTS AND TREATER AVAILABILITY    LEVEL: HOSP

------------- I N P A T I E N T S -------------            ------------ O U T P A T I E N T S ----------
WORK    NO OF TIMES   TREATER     TREATER     PATIENT       WORK     NO OF TIMES   TREATER     TREATER     PATIENT
UNIT     REQUIRED     ASSIGNED    AVAILABLE    DEATHS       UNIT      REQUIRED     ASSIGNED    AVAILABLE    DEATHS
 NO     DAILY CUMUL DAILY CUMUL DAILY CUMUL DAILY CUMUL      NO.      DAILY CUMUL DAILY CUMUL DAILY CUMUL DAILY CUMUL
-----------------------------------------------------      ------------------------------------------------------

  1         0     0     0     0     0     0     0     0        1         0     6     0     6     0     6     0     0
  2         5    42     5    42     1    21     0     0        2         8    48     8    48     4    33     0     0
  3       259  2592     0     0   269  2592     0     0        3        31   225     0     0    31   225     0     0
  4         2    33     2    33     1    20     0     0        4         0     0     0     0     0     0     0     0
  5        83   986    83   985    33   557     0     0        5        29   221    29   221     7   117     0     0
  6       150  1399   150  1349   150  1399     0     0        6         9    37     9    37     9    37     0     0
  7         1     9     1     9     1     9     0     0        7         0     0     0     0     0     0     0     0
  8        40   505    40   515    40   515     0     0        8        16   116    16   116    16   116     0     0
  9       110  1020   110  1020   110  1020     0     1        9        23   135    23   135    23   135     0     0
 10         1    39     1    39     1    39     0     0       10         4    18     4    18     4    18     0     0
 11        47   537    47   537    47   537     0     0       11         9    54     9    54     9    54     0     0
 12        35   255    35   255    13   122     0     0       12         0     0     0     0     0     0     0     0
 13        30   363    30   363    13   213     0     0       13         2     7     2     7     2     4     0     0
 14        22   139    22   139    22   139     0     0       14         1     1     1     1     1     1     0     0
 15        17   109    17   109    17   109     0     0       15         0     0     0     0     0     0     0     0
 16        16   138    16   138    16   138     0     0       16         0     0     0     0     0     0     0     0
 17        22   284    22   284    22   284     0     0       17         0     0     0     0     0     0     0     0
 18         4    33     4    33     4    33     0     0       18         5    32     5    32     5    32     0     0
 19         0     0     0     0     0     0     0     0       19         0     0     0     0     0     0     0     0
 20         2    40     2    40     2    40     0     1       20         0     0     0     0     0     0     0     0
 21         0     0     0     0     0     0     0     0       21         0     0     0     0     0     0     0     0
 22         0     3     0     3     0     3     0     0       22         0     0     0     0     0     0     0     0
 23         0     0     0     0     0     0     0     0       23         0     5     0     5     0     5     0     0
 24         0     0     0     0     0     0     0     0       24         0     0     0     0     0     0     0     0
 25         0     0     0     0     0     0     0     0       25         0     0     0     0     0     0     0     0
 26         0     0     0     0     0     0     0     0       26         0     0     0     0     0     0     0     0
 27        24   163    24   163     3    37     0     0       27         0     0     0     0     0     0     0     0
 28        15   134    15   134    15   134     0     0       28         0     0     0     0     0     0     0     0
 29         4    33     4    33     0    11     0     0       29         5    32     5    32     1     8     0     0
 30         4    80     4    80     4    80     0     0       30         1     3     1     3     1     3     0     0
 31        28   399    28   399    28   395     0     0       31        11    73    11    73    11    73     0     0
 32         1    26     1    26     1    26     0     0       32         0     0     0     0     0     0     0     0
 33       105   969   105   966    91   881     0     0       33        19   110    19   110     8    64     0     0
 34         0    25     0    26     0    26     0     0       34         0     1     0     1     0     1     0     0
 35         4    38     4    38     3    27     0     0       35         2    21     2    21     2    12     0     0
 36         0     0     0     0     0     0     0     0       36         0     6     0     6     0     5     0     0
 37         0     0     0     0     0     0     0     0       37         0     0     0     0     0     0     0     0
 38        15   229    15   229    15   229     0     0       38        15   115    15   115    15   115     0     0
 39         0     0     0     0     0     0     0     0       39         0     0     0     0     0     0     0     0
 40         1     9     1     9     1     9     0     0       40         0     0     0     0     0     0     0     0
 41       126  1050   126  1050    19   272    15   142       41         7    25     7    25     0     0     2     4
 42         3    32     3    32     3    32     0     0       42         0     0     0     0     0     0     0     0
 43         6   127     6   127     6   127     0     2       43         0     1     0     1     0     1     0     0
 44         5    76     5    76     5    49     0     0       44         0     0     0     0     0     0     0     0
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39     ---      06/17/77      PAGE: 268
                           DAILY STATISTICS DURING COMBAT PERIOD                 DAY: 11   COMBAT: 15

45        10  132   10  152    9  107    0    0         45        3   10    3   10    3   10    0    0
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39      ---       06/17/77        PAGE: 269
                             DAILY STATISTICS DURING COMBAT PERIOD            DAY: 11   COMBAT: 15

  VEHICLE STATISTICS                  DAILY                                 GLOBAL
 VEHICLE                RETURN  TIME    AVG      AVG         RETURN  TIME           AVG        AVG
  TYPE          HOME    TRIPS   IN USE  TRIP     OCCUP.      TRIPS   IN USE         TRIP       OCCUP.
                        HOME                                 HOME
---------     ------  ---------------------------------     -------------------------------------------

THE FOLLOWING VEHICLES ARE WAITING AT HOME
AMBULANCE      BAS      1      8 12.244  1.531    .365         75   115.713        1.543       .314
AMBULANCE      BAS      2      8  9.847  1.231    .330         79   121.496        1.539       .358
AMBULANCE      BAS      3      9 11.526  1.281    .355         79   123.633        1.565       .349
AMBULANCE      BAS      4      9 13.687  1.521    .456         79   118.131        1.495       .350
AMBULANCE      BAS      7      7 12.003  1.715    .360         81   124.342        1.541       .376
AMBULANCE      BAS      8      7 13.443  1.920    .375         68   120.271        1.769       .376
AMBULANCE      CS       1     10 13.924  1.392    .315         89   130.136        1.462       .383
AMBULANCE      CS       1     11 15.608  1.419    .425         90   136.374        1.515       .348
AMBULANCE      CS       2     11 17.046  1.550    .395         92   129.886        1.412       .335
AMBULANCE      HOSP     1      5 11.761  2.352    .185         43    98.172        2.283       .089
AMBULANCE      HOSP     1      6 12.481  2.080    .360         43    97.931        2.277       .065
AMBULANCE      HOSP     1      6 13.203  2.200    .100         42    95.772        2.280       .070
AMBULANCE      HOSP     1      6 12.963  2.160    .130         44    97.459        2.215       .107
AMBULANCE      HOSP     1      6 12.484  2.081    .250         43    94.591        2.203       .100
AMBULANCE      HOSP     1      7 13.920  1.989    .030         46   100.337        2.181       .081
HELICOPTER     POOL            7  4.206   .601    .094         89    53.495         .601       .088
HELICOPTER     POOL            7  4.210   .601    .117         89    53.247         .599       .095
HELICOPTER     POOL            8  4.811   .601    .147         89    53.426         .600       .102
HELICOPTER     POOL            8  4.810   .601    .102         89    53.421         .600       .088
HELICOPTER     POOL            8  4.811   .601    .155         89    53.491         .601       .095
HELICOPTER     POOL            8  4.810   .601    .102         90    53.785         .598       .098
HELICOPTER     POOL            8  4.810   .601    .120         89    53.426         .600       .099
HELICOPTER     POOL            8  4.810   .601    .110         89    53.479         .601       .087
HELICOPTER     POOL            8  4.811   .601    .122         89    53.359         .600       .092
HELICOPTER     POOL            8  4.811   .601    .112         89    53.363         .600       .100
HELICOPTER     POOL            8  4.811   .601    .166         90    54.097         .601       .109
HELICOPTER     POOL            8  4.808   .601    .104         90    54.081         .601       .091
HELICOPTER     POOL            8  4.810   .601    .089         90    54.073         .601       .089
HELICOPTER     POOL            8  4.811   .601    .114         90    53.845         .598       .091
HELICOPTER     POOL            8  4.811   .601    .114         91    54.121         .600       .081
HELICOPTER     POOL            8  4.811   .601    .142         90    54.101         .601       .146
 THE FOLLOWING VEHICLES ARE EN ROUTE
AMBULANCE      CS       2     11 17.768  1.615    .465         85   135.403        1.593       .336
AMBULANCE      BAS      5     10 13.446  1.345    .449         75   122.437        1.632       .349
AMBULANCE      BAS      9      6  9.841  1.640    .285         70   113.555        1.622       .348
AMBULANCE      CS       2      8 14.881  1.860    .641         86   134.683        1.566       .437
AMBULANCE      CS       3      8 11.287  1.411    .360         82   121.737        1.485       .376
AMBULANCE      CS       3      9 13.444  1.494    .384         79   125.079        1.583       .357
AMBULANCE      BAS      6      7 12.724  1.818    .425         81   130.117        1.606       .377
AMBULANCE      CS       1      9 12.487  1.387    .363         88   132.290        1.503       .350
AMBULANCE      CS       3      9 13.684  1.520    .356         82   126.284        1.540       .364
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-33      ---      06/17/77      PAGE: 273
                    DAILY STATISTICS DURING COMBAT PERIOD            DAY: 11   COMBAT: 15

      VEHICLE REQUIREMENTS:                     DAILY                                              GLOBAL
                                 NUMBER OF REQUESTS :                             NUMBER OF REQUESTS :
                VEHICLE      MADE              PLACED              PICKUP   STOPS       MADE              PLACED              PICKUP   STOPS
   LEVEL         TYPE        BY & HONORED      ON & HONORED         TRIPS EN ROUTE       BY & HONORED     ON & HONORED         TRIPS EN ROUTE
----------- ----------    --------------   ---------------      ------ --------     --------------   ---------------      ------ --------

   FEBA         HELICOPTER    125      125          0          0         126        0       1741     1419          0         0      1419        0
                AMBULANCE     233      126          0          0         126        0       3505     1136          0         0      1136        0

   BAS          HELICOPTER      0        0          0          0           0       34         12        9          0         0         9      313
                AMBULANCE     132       42        332         74          41      140        785      346       4290       690       345     1259

   CS           HELICOPTER      0        0          0          0           0       35          5        3          0         0         3      234
                AMBULANCE      75       31        333         69          31      135        547      248       4147       779       248     1621

   HOSP         HELICOPTER      0        0          0          0           0      116          0        0          0         0         0      968
                AMBULANCE       0        0        244         36           0      131          0        0       3368       261         0     1165


   POOL         HELICOPTER                        125        125                                               1758      1431
                AMBULANCE                           0          0  .                                               0         0
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-33     ---     06/17/77     PAGE: 359
                       SUMMARY STATISTICS DURING COMBAT PERIOD           DAY: 15   COMBAT: 15

           I N P A T I E N T     A R R I V A L S .

                                       H O U R S   O F   D A Y
==========================================================================================================
.DAY.   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24.TOTAL.
==========================================================================================================
.  1.   1   2   3   5  10  16   9  17  26  13  16   9   4   5  19  22  18  13  11  12   2   1   5   4.  243.
==========================================================================================================
.  2.   5   9   7   5  21  33  32  57  55  42  41  29  26  34  55  54  38  31  30  22   2   6   9   8.  651.
==========================================================================================================
.  3.   6   3   6   1  12  31  25  30  54  34  26  19  18  32  45  55  43  20  24  18   4   7   3   3.  519.
==========================================================================================================
.  4.   3   3   1   2   3  13  16  16  25  15   6   5  14  15  16  19  20  10   9   9   1   1   3   1.  227.
==========================================================================================================
.  5.   1   0   0   1   4  11   9  10  14   9   9   7   7   9  11  20  15   4   4   5   0   2   1   4.  157.
==========================================================================================================
.  6.   3   1   0   5   6  17  14  18  36  17  23  11  13  18  20  35  20  15  10  13   5   2   2   3.  307.
==========================================================================================================
.  7.   1   3   2   2   6  13  12  20  17  14  12   5   5  16  10  23  15   9  15  13   4   5   4   5.  232.
==========================================================================================================
.  8.   2   0   3   1  11  15   7  13  21  12  13  10   7   5  16  25  15   9   8   8   2   4   1   5.  214.
==========================================================================================================
.  9.   1   1   1   0   2   4   1   9  14   4   4   3   4   5   3  14   8   6   6   5   0   0   1   4.  100.
==========================================================================================================
. 10.   3   2   1   3   7  17  12  23  22  20  13   3   8  12  22  24  19  11  16   5   4   3   1   1.  257.
==========================================================================================================
. 11.   3   3   2   4   9  17  25  22  27  24  17   9  15  22  26  34  27  18  23   9   6   3   4   1.  350.
==========================================================================================================
. 12.   3   3   1   2   4  13   5  13  17   9   7   9   4   7  15  21   8   9   6   5   2   3   1   1.  169.
==========================================================================================================
. 13.   0   0   1   0   0   3   0   4   5   8   2   1   0   2   4   5   5   0   4   4   0   1   0   0.   51.
==========================================================================================================
. 14.   0   0   4   0   0   2   3   2   6   5   4   2   5   6   5   7   5   1   4   3   2   1   0   0.   68.
==========================================================================================================
. 15.   1   0   0   1   1   1   6   5   5   2   1   3   2   2   2   4   4   2   3   2   2   1   0   0.   50.
==========================================================================================================
                                                                                                      3595
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-34      ---      06/17/77      PAGE: 350
                  SUMMARY STATISTICS DURING COMBAT PERIOD                  DAY: 15   COMBAT: 15

          O U T P A T I E N T     A R R I V A L S .

                              H O U R S   O F   D A Y
==========================================================================================================
.DAY.   1    2    3    4    5    6    7    8    9   10   11 . 12   13   14   15   16   17   18   19   20   21   22   23   24.TOTAL.
==========================================================================================================
.  1.   0    0    0    0    0    0    5  125    7    0    0    0    0    0    0    3    0    0    0    0    0    0    0    0.  140.
==========================================================================================================
.  2.   0    0    0    0    0    0    2  117    7    0    0    0    0    0    0   10    0    0    0    0    0    0    0    0.  136.
==========================================================================================================
.  3.   0    0    0    0    0    0    8  121    9    0    0    0    0    0    0   12    0    0    0    0    0    0    0    0.  150.
==========================================================================================================
.  4.   0    0    0    0    0    0    8  104    9    0    0    0    0    0    0    6    0    0    0    0    0    0    0    0.  127.
==========================================================================================================
.  5.   0    0    0    0    0    0   14  123   11    0    0    0    0    0    0    6    0    0    0    0    0    0    0    0.  154.
==========================================================================================================
.  6.   0    0    0    0    0    0   10   92    9    0    0    0    0    0    0    7    0    0    0    0    0    0    0    0.  118.
==========================================================================================================
.  7.   0    0    0    0    0    0    8  110    5    0    0    0    0    0    0    8    0    0    0    0    0    0    0    0.  131.
==========================================================================================================
.  8.   0    0    0    0    0    0    6  119   12    0    0    0    0    0    0    6    0    0    0    0    0    0    0    0.  143.
==========================================================================================================
.  9.   0    0    0    0    0    0   10  116   17    0    0    0    0    0    0    5    0    0    0    0    0    0    0    0.  148.
==========================================================================================================
. 10.   0    0    0    0    0    0    7  128    9    0    0    0    0    0    0    4    0    0    0    0    0    0    0    0.  148.
==========================================================================================================
. 11.   0    0    0    0    0    0    7  129    7    0    0    0    0    0    0    9    0    0    0    0    0    0    0    0.  152.
==========================================================================================================
. 12.   0    0    0    0    0    0    2  121   10    0    0    0    0    0    0    6    0    0    0    0    0    0    0    0.  139.
==========================================================================================================
. 13.   0    0    0    0    0    0    4  125   11    0    0    0    0    0    0   11    0    0    0    0    0    0    0    0.  151.
==========================================================================================================
. 14.   0    0    0    0    0    0    4  107   11    0    0    0    0    0    0    6    0    0    0    0    0    0    0    0.  128.
==========================================================================================================
. 15.   0    0    0    0    0    0   10  120    6    0    0    0    0    0    0   10    0    0    0    0    0    0    0    0.  146.
==========================================================================================================
                                                                                                                          2111
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-30      ---       06/17/77       PAGE: 429
                         SUMMARY STATISTICS AFTER END OF COMBAT              DAY: 30   COMBAT: 15

                  I N P A T I E N T S
        SUMMARY OF WORK UNIT REQUIREMENTS AND TREATER AVAILABILITY
        ----------------------------------------------------------

 WORK      FEBA                    BAS                     CS                      HOSP
 UNIT   ===================    ===================    ===================    ===================
NUMBER   WU     TREATER         WU     TREATER         WU     TREATER         WU     TREATER
        REQ ASGN  AVL DIED     REQ ASGN  AVL DIED     REQ ASGN  AVL DIED     REQ ASGN  AVL DIED
------  ----- ----- -----      ----- ----- -----      ----- ----- -----      ----- ----- -----
   1      0    0    0    0      0    0    0    0    131  131  129    0      0    0    0    0
   2      0    0    0    0     33   33   29    0     65   65   57    0     45   45   23    0
   3      0    0    0    0   1397    0 1397    0   1948    0 1948    0   2934    0 2934    0
   4      0    0    0    0      0    0    0    0      0    0    0    0     37   37   23    0
   5      0    0    0    0      0    0    0    0    606  606  581    0   1113 1113  680    0
   6      0    0    0    0    138  138  137    0    219  219  219    0   1547 1547 1547    0
   7      0    0    0    0      0    0    0    0      0    0    0    0      9    9    9    0
   8      0    0    0    0     33   33   33    0    451  451  451    0    566  566  566    0
   9      0    0    0    4    699  699  699    0    491  491  491    1   1129 1129 1129    1
  10      0    0    0    0      0    0    0    0     12   12   12    0     41   41   41    0
  11      0    0    0    0      2    2    2    0    338  338  338    0    603  603  603    0
  12      0    0    0    0     19   19   19    0      0    0    0    0    277  277  142    0
  13      0    0    0    0      0    0    0    0     80   80   80    0    401  401  246    0
  14      0    0    0    0     49   49   49    0     43   43   43    0    150  150  150    0
  15      0    0    0    0      0    0    0    0      0    0    0    0    117  117  117    0
  16      0    0    0    0      0    0    0    0      0    0    0    0    226  226  225    0
  17      0    0    0    0     45   45   45    0      0    0    0    0    320  320  320    0
  18      0    0    0    0      0    0    0    0     51   51   51    0     43   43   43    0
  19      0    0    0    1     28   28   28    0      0    0    0    0      0    0    0    0
  20      0    0    0    1      0    0    0    0      0    0    0    0     52   52   52    1
  21      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  22      0    0    0    0      0    0    0    0      6    6    6    0      3    3    3    0
  23      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  24      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  25      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  26      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  27      0    0    0    0      0    0    0    0     43   43   37    0    181  181   49    0
  28      0    0    0    0      0    0    0    0      0    0    0    0    148  148  148    0
  29      0    0    0   38    685  685  611    5     51   51   47    0     43   43   21    0
  30      0    0    0    0      2    2    2    0      9    9    9    0     89   89   89    0
  31      0    0    0    0     33   33   33    0    345  345  344    0    441  441  438    0
  32      0    0    0    0      0    0    0    0    112  112  119    0     30   30   30    0
  33      0    0    0    0    782  782  782    0    183  183  181    0   1065 1065  980    0
  34      0    0    0    0      0    0    0    0      0    0    0    0     30   30   30    0
  35      0    0    0    0      0    0    0    0      0    0    0    0     39   39   28    0
  36      0    0    0    2      0    0    0    0    130  130  129    2      0    0    0    0
  37      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  38      0    0    0    0      0    0    0    0    113  113  112    0    261  261  261    0
  39      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  40      0    0    0    0      0    0    0    0      0    0    0    0      9    9    9    0
  41      0    0    0   17     94   94   84    2     43   43   40    0   1157 1157  340  145
  42      0    0    0    0      0    0    0    0      0    0    0    0     36   36   36    0
  43      0    0    0    1     40   40   40    0      6    6    6    0    143  143  143    2
```

```
      NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39        ---       06/17/77       PAGE: 433
                          SUMMARY STATISTICS AFTER END OF COMBAT                DAY: 30   COMBAT: 15

 44       0    0    0    0    0    0    0    0    0    0    0    0   85   85   55    0
 45       0    0    0    0    0    0    0    0    0    0    0    0  148  148  122    0
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39     ---      06/17/77      PAGE: 431
                         SUMMARY STATISTICS AFTER END OF COMBAT             DAY: 30   COMBAT: 15

                    O U T P A T I E N T S
       SUMMARY OF WORK UNIT REQUIREMENTS AND TREATER AVAILABILITY
       ------------------------------------------------------------

 WORK       FEBA                      BAS                       CS                        HOSP
 UNIT   ====================  ====================  ====================  ====================
NUMBER   WU     TREATER        WU     TREATER        WU     TREATER        WU     TREATER
        REQ ASGN  AVL DIED    REQ ASGN  AVL DIED    REQ ASGN  AVL DIED    REQ ASGN  AVL DIED
------  ----- ----- -----     ----- ----- -----     ----- ----- -----     ----- ----- -----
   1      0    0    0    0     15   15   15    0     18   18   18    0     10   10   10    0
   2      0    0    0    0    113  113   99    0    123  123  104    0     63   63   47    0
   3      0    0    0    0    453    0  452    0    499    0  499    0    307    0  307    0
   4      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
   5      0    0    0    0    292  292  237    0    484  484  395    0    303  303  190    0
   6      0    0    0    0     81   81   80    0     77   77   77    0     47   47   47    0
   7      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
   8      0    0    0    0    307  307  307    0    308  308  308    0    156  156  156    0
   9      0    0    0    0    388  388  388    0    344  344  344    0    189  189  189    0
  10      0    0    0    0     60   60   60    0     52   52   52    0     22   22   22    0
  11      0    0    0    0    199  199  199    0    167  167  167    0     79   79   79    0
  12      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  13      0    0    0    0      5    5    4    0      4    4    3    0      9    9    6    0
  14      0    0    0    0      0    0    0    0      1    1    1    0      1    1    1    0
  15      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  16      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  17      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  18      0    0    0    0    136  136  136    0    102  102  102    0     51   51   51    0
  19      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  20      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  21      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  22      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  23      0    0    0    0      8    8    8    0      4    4    4    0      7    7    7    0
  24      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  25      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  26      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  27      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  28      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  29      0    0    0    0    136  136  113    0    102  102   60    0     51   51   14    0
  30      0    0    0    0      1    1    1    0      3    3    2    0      3    3    3    0
  31      0    0    0    0    182  182  182    0    188  188  193    0     99   99   99    0
  32      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  33      0    0    0    0    314  314  314    0    279  279  243    0    140  140   98    0
  34      0    0    0    0      1    1    1    0      2    2    2    0      1    1    1    0
  35      0    0    0    0      7    0    0    0     15    0    0    0     27   27   18    0
  36      0    0    0    0     15    0    0    1     32   32   32    0     10   10    9    0
  37      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  38      0    0    0    0    131    0    0    0    194  194  182    0    149  149  149    0
  39      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  40      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  41      0    0    0    0     61   61   50    0     55   55   29    0     29   29    0    4
  42      0    0    0    0      0    0    0    0      0    0    0    0      0    0    0    0
  43      0    0    0    0      1    1    1    0      2    2    2    0      1    1    1    0
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-3,       ---        06/17/77        PAGE: 432
                    SUMMARY STATISTICS AFTER END OF COMBAT                 DAY: 30   COMBAT: 15

44       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
45       0    0    0    0    0    0    0    0    2    2    2    0   15   15   15    0
```

```
         NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---        06/17/77       PAGE: 435
                                    SUMMARY STATISTICS AFTER END OF COMBAT              DAY: 30   COMBAT: 15

PATIENT DISPOSITION SUMMARY BY DAYS OF CONVALESCENCE    - LEVEL : BAS

                    ......S T A B I L I Z A T I O N.......       .C O N V A L E S C E N C E.       ....... E V A C U A T I O N .......
DAYS OF     BEDS     NO TREAT      EVAC         BED       REMAIN     ENTERED      CONV.      REMAIN     NO TREAT      EVAC         BED        TOTAL
 CONV.   REQUIRED    ASSIGNED     POLICY     SHORTAGE    IN STBZ      CONV.       ONLY     IN CONV.    ASSIGNED     POLICY     SHORTAGE   EVACUATED
-------  --------   ------------------------------------------------   ------------------------------------   ------------------------------------------------

EVAC   0     0     0   161   161     0     0     0     0     0     0     0     0     0     0     0     0     0     0   160   160     0     0     0     0   160   160
       1                 0   161   191   191     0     0     9     9     0     0     0     0     0     0     0   160   189   189     0     0   189   349
       2                 0   161   143   334     0     0    14    23     0     0     0     0     0     0     0   160   142   331     0     0   142   491
       3                 0   161   118   452     0     0     3    26     0     0     0     0     0     0     0   160   118   449     0     0   118   609
       4                 0   161   107   559     0     0     6    32     0     0     0     0     0     0     0   160   107   556     0     0   107   716
       5                 0   161    70   629     0     0     1    33     0     0     0     0     0     0     0   160    70   626     0     0    70   786
       6                 0   161    73   702     0     0     7    40     0     0     0     0     0     0     0   160    73   699     0     0    73   859
       7                 0   161    48   750     0     0     4    44     0     0     0     0     0     0     0   160    48   747     0     0    48   907
       8                 0   161    48   798     0     0     1    45     0     0     0     0     0     0     0   160    48   795     0     0    48   955
       9                 0   161    34   832     0     0     1    46     0     0     0     0     0     0     0   160    34   829     0     0    34   989
      10                 0   161    40   872     0     0     1    47     0     0     0     0     0     0     0   160    40   869     0     0    40  1029
      11                 0   161    23   895     0     0     1    48     0     0     0     0     0     0     0   160    23   892     0     0    23  1052
      12                 0   161    22   917     0     0     2    50     0     0     0     0     0     0     0   160    22   914     0     0    22  1074
      13                 0   161    31   948     0     0     0    50     0     0     0     0     0     0     0   160    31   945     0     0    31  1105
      14                 0   161    30   978     0     0     0    50     0     0     0     0     0     0     0   160    30   975     0     0    30  1135
      15                 0   161    14   992     0     0     0    51     0     0     0     0     0     0     0   160    14   989     0     0    14  1149
      16                 0   161    21  1013     0     0     0    50     0     0     0     0     0     0     0   160    21  1010     0     0    21  1170
      17                 0   161    25  1038     0     0     0    50     0     0     0     0     0     0     0   160    25  1035     0     0    25  1195
      18                 0   161    15  1053     0     0     1    51     0     0     0     0     0     0     0   160    15  1050     0     0    15  1210
      19                 0   161    16  1069     0     0     0    51     0     0     0     0     0     0     0   160    16  1066     0     0    16  1226
      20                 0   161    21  1090     0     0     2    53     0     0     0     0     0     0     0   160    21  1087     0     0    21  1247
      21                 0   161     9  1099     0     0     0    53     0     0     0     0     0     0     0   160     9  1096     0     0     9  1256
      22                 0   161    15  1114     0     0     2    55     0     0     0     0     0     0     0   160    15  1111     0     0    15  1271
      23                 0   161    11  1125     0     0     0    55     0     0     0     0     0     0     0   160    11  1122     0     0    11  1282
      24                 0   161     8  1133     0     0     0    55     0     0     0     0     0     0     0   160     8  1130     0     0     8  1290
      25                 0   161     8  1141     0     0     0    55     0     0     0     0     0     0     0   160     8  1138     0     0     8  1298
      26                 0   161     8  1149     0     0     0    55     0     0     0     0     0     0     0   160     8  1146     0     0     8  1306
      27                 0   161     9  1158     0     0     0    55     0     0     0     0     0     0     0   160     9  1155     0     0     9  1315
      28                 0   161     5  1163     0     0     0    55     0     0     0     0     0     0     0   160     5  1160     0     0     5  1320
      29                 0   161     8  1171     0     0     0    55     0     0     0     0     0     0     0   160     8  1168     0     0     8  1328
      30                 0   161     6  1177     0     0     1    56     0     0     0     0     0     0     0   160     6  1174     0     0     6  1334
      31                 0   161     5  1182     0     0     0    56     0     0     0     0     0     0     0   160     5  1179     0     0     5  1339
      32                 0   161     2  1184     0     0     0    56     0     0     0     0     0     0     0   160     2  1181     0     0     2  1341
      33                 0   161     5  1189     0     0     1    57     0     0     0     0     0     0     0   160     5  1186     0     0     5  1346
      34                 0   161     8  1197     0     0     1    58     0     0     0     0     0     0     0   160     8  1194     0     0     8  1354
      35                 0   161     5  1202     0     0     0    58     0     0     0     0     0     0     0   160     5  1199     0     0     5  1359
      36                 0   161     5  1207     0     0     2    60     0     0     0     0     0     0     0   160     5  1204     0     0     5  1364
      37                 0   161     4  1211     0     0     0    60     0     0     0     0     0     0     0   160     4  1208     0     0     4  1368
      38                 0   161     7  1218     0     0     0    60     0     0     0     0     0     0     0   160     7  1215     0     0     7  1375
      39                 0   161     1  1219     0     0     0    60     0     0     0     0     0     0     0   160     1  1216     0     0     1  1376
      40                 0   161     6  1225     0     0     0    60     0     0     0     0     0     0     0   160     6  1222     0     0     6  1382
      41                 0   161     3  1228     0     0     0    60     0     0     0     0     0     0     0   160     3  1225     0     0     3  1385
      42                 0   161     5  1233     0     0     0    60     0     0     0     0     0     0     0   160     5  1230     0     0     5  1390
      43                 0   161     1  1234     0     0     0    60     0     0     0     0     0     0     0   160     1  1231     0     0     1  1391
```

```
     NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---        06/17/77       PAGE: 436
                                 SUMMARY STATISTICS AFTER END OF COMBAT              DAY: 30   COMBAT: 15

  44               0  161    2 1236    0    0    0   60     0    0    0    0    0    0     0  160    2  1233    0    0    2  1393
  45               0  161    3 1239    0    0    1   61     0    0    0    0    0    0     0  160    3  1236    0    0    3  1396
  46               0  161    3 1242    0    0    0   61     0    0    0    0    0    0     0  160    3  1239    0    0    3  1399
  47               0  161    6 1248    0    0    1   62     0    0    0    0    0    0     0  160    6  1245    0    0    6  1405
  48               0  161    4 1252    0    0    0   62     0    0    0    0    0    0     0  160    4  1249    0    0    4  1409
  49               0  161    0 1252    0    0    0   62     0    0    0    0    0    0     0  160    0  1249    0    0    0  1409
  50               0  161    4 1256    0    0    1   63     0    0    0    0    0    0     0  160    3  1252    0    0    3  1412
  51               0  161    1 1257    0    0    0   63     0    0    0    0    0    0     0  160    1  1253    0    0    1  1413
  52               0  161    4 1261    0    0    0   63     0    0    0    0    0    0     0  160    4  1257    0    0    4  1417
  53               0  161    5 1266    0    0    0   63     0    0    0    0    0    0     0  160    5  1262    0    0    5  1422
  54               0  161    4 1270    0    0    2   65     0    0    0    0    0    0     0  160    4  1266    0    0    4  1426
  55               0  161    2 1272    0    0    0   65     0    0    0    0    0    0     0  160    2  1268    0    0    2  1428
  56               0  161    2 1274    0    0    1   66     0    0    0    0    0    0     0  160    2  1270    0    0    2  1430
  57               0  161    5 1279    0    0    1   67     0    0    0    0    0    0     0  160    5  1275    0    0    5  1435
  58               0  161    4 1283    0    0    0   67     0    0    0    0    0    0     0  160    4  1279    0    0    4  1439
  59               0  161    3 1286    0    0    0   67     0    0    0    0    0    0     0  160    3  1282    0    0    3  1442
  60               0  161    1 1287    0    0    0   67     0    0    0    0    0    0     0  160    1  1283    0    0    1  1443
  61               0  161  107 1394    0    0   10   77     0    0    0    0    0    0     0  160  107  1390    0    0  107  1550
         --------  ------------------------------------  ------------------------------  --------------------------------------
TOTAL:         0     161     1394          0        77          0          0          0       160     1390          0       1550
```

```
          NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---        06/17/77        PAGE: 437
                              SUMMARY STATISTICS AFTER END OF COMBAT               DAY: 30    COMBAT: 15

    PATIENT DISPOSITION SUMMARY BY DAYS OF CONVALESCENCE    - LEVEL : CS

                            .......S T A B I L I Z A T I O N.......    .C O N V A L E S C E N C E .    .......  E V A C U A T I O N        .......
 DAYS OF     BEDS      NO TREAT      EVAC        BED        REMAIN      ENTERED      CONV.      REMAIN      NO TREAT      EVAC       BED          TOTAL
  CONV.    REQUIRED   ASSIGNED      POLICY     SHORTAGE    IN STBZ       CONV.       ONLY      IN CONV.    ASSIGNED      POLICY    SHORTAGE     EVACUATED
 -------   --------   -----------------------------------------------   ---------------------------------   ---------------------------------------------------

         0    0    0   15   15     0    0     0    0     0    0      0    0     0    0     0    0   15   15     0    0     0    0    15   15
         1  607  607    0   15     0    0     1    1     0    0    252  252     0    0   603  603    0   15     0    0     1    1     1   16
         2  354  961    0   15     0    0     1    2     0    0    194  446     0    0   351  954    0   15     0    0     0    1     0   16
 EVAC    3  160 1121    0   15     0    0     3    5     0    0    157  603     0    0   157 1111    0   15     0    0     3    4     3   19
         4                  0   15   135  135     0    5     5    5      0  603     0    0     0 1111    0   15   135  135     0    4   135  154
         5                  0   15    94  229     0    5     9   14      0  603     0    0     0 1111    0   15    94  229     0    4    94  248
         6                  0   15   105  334     0    5     9   23      0  603     0    0     0 1111    0   15   105  334     0    4   105  353
         7                  0   15    64  398     0    5     5   28      0  603     0    0     0 1111    0   15    64  398     0    4    64  417
         8                  0   15    63  461     0    5     0   28      0  603     0    0     0 1111    0   15    63  461     0    4    63  480
         9                  0   15    43  504     0    5     3   31      0  603     0    0     0 1111    0   15    43  504     0    4    43  523
        10                  0   15    50  554     0    5     3   34      0  603     0    0     0 1111    0   15    50  554     0    4    50  573
        11                  0   15    35  589     0    5     2   36      0  603     0    0     0 1111    0   15    35  589     0    4    35  608
        12                  0   15    28  617     0    5     1   37      0  603     0    0     0 1111    0   15    28  617     0    4    28  636
        13                  0   15    37  654     0    5     5   42      0  603     0    0     0 1111    0   15    37  654     0    4    37  673
        14                  0   15    37  691     0    5     2   44      0  603     0    0     0 1111    0   15    37  691     0    4    37  710
        15                  0   15    20  711     0    5     3   47      0  603     0    0     0 1111    0   15    20  711     0    4    20  730
        16                  0   15    27  738     0    5     4   51      0  603     0    0     0 1111    0   15    27  738     0    4    27  757
        17                  0   15    28  766     0    5     1   52      0  603     0    0     0 1111    0   15    28  766     0    4    28  785
        18                  0   15    22  788     0    5     2   54      0  603     0    0     0 1111    0   15    22  788     0    4    22  807
        19                  0   15    23  811     0    5     2   56      0  603     0    0     0 1111    0   15    23  811     0    4    23  830
        20                  0   15    24  835     0    5     0   56      0  603     0    0     0 1111    0   15    24  835     0    4    24  854
        21                  0   15    10  845     0    5     0   56      0  603     0    0     0 1111    0   15    10  845     0    4    10  864
        22                  0   15    20  865     0    5     1   57      0  603     0    0     0 1111    0   15    20  865     0    4    20  884
        23                  0   15    14  879     0    5     1   58      0  603     0    0     0 1111    0   15    14  879     0    4    14  898
        24                  0   15    11  890     0    5     2   60      0  603     0    0     0 1111    0   15    11  890     0    4    11  909
        25                  0   15    11  901     0    5     1   61      0  603     0    0     0 1111    0   15    11  901     0    4    11  920
        26                  0   15    14  915     0    5     2   63      0  603     0    0     0 1111    0   15    14  915     0    4    14  934
        27                  0   15     9  924     0    5     0   63      0  603     0    0     0 1111    0   15     9  924     0    4     9  943
        28                  0   15     5  929     0    5     0   63      0  603     0    0     0 1111    0   15     5  929     0    4     5  948
        29                  0   15    12  941     0    5     2   65      0  603     0    0     0 1111    0   15    12  941     0    4    12  960
        30                  0   15    10  951     0    5     0   65      0  603     0    0     0 1111    0   15    10  951     0    4    10  970
        31                  0   15     9  960     0    5     1   66      0  603     0    0     0 1111    0   15     9  960     0    4     9  979
        32                  0   15     8  968     0    5     1   67      0  603     0    0     0 1111    0   15     8  968     0    4     8  987
        33                  0   15     7  975     0    5     2   69      0  603     0    0     0 1111    0   15     7  975     0    4     7  994
        34                  0   15    10  985     0    5     0   69      0  603     0    0     0 1111    0   15    10  985     0    4    10 1004
        35                  0   15     9  994     0    5     1   70      0  603     0    0     0 1111    0   15     9  994     0    4     9 1013
        36                  0   15     6 1000     0    5     0   70      0  603     0    0     0 1111    0   15     6 1000     0    4     6 1019
        37                  0   15    11 1011     0    5     5   75      0  603     0    0     0 1111    0   15    11 1011     0    4    11 1030
        38                  0   15     9 1020     0    5     2   77      0  603     0    0     0 1111    0   15     9 1020     0    4     9 1039
        39                  0   15     3 1023     0    5     0   77      0  603     0    0     0 1111    0   15     3 1023     0    4     3 1042
        40                  0   15     8 1031     0    5     0   77      0  603     0    0     0 1111    0   15     8 1031     0    4     8 1050
        41                  0   15     8 1039     0    5     2   79      0  603     0    0     0 1111    0   15     8 1039     0    4     8 1058
        42                  0   15     8 1047     0    5     3   82      0  603     0    0     0 1111    0   15     8 1047     0    4     8 1066
        43                  0   15     5 1052     0    5     3   85      0  603     0    0     0 1111    0   15     5 1052     0    4     5 1071
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---       06/17/77      PAGE: 438
                          SUMMARY STATISTICS AFTER END OF COMBAT                 DAY: 30   COMBAT: 15

  44               0   15    7 1059     0     5     1    86     0  603     0     0     0 1111     0    15     7  1059     0      4      7  1073
  45               0   15    4 1063     0     5     0    86     0  603     0     0     0 1111     0    15     4  1063     0      4      4  1082
  46               0   15    4 1067     0     5     0    86     0  603     0     0     0 1111     0    15     4  1067     0      4      4  1086
  47               0   15    8 1075     0     5     3    89     0  603     0     0     0 1111     0    15     8  1075     0      4      8  1094
  48               0   15    6 1081     0     5     1    90     0  603     0     0     0 1111     0    15     6  1081     0      4      6  1100
  49               0   15    2 1083     0     5     1    91     0  603     0     0     0 1111     0    15     2  1083     0      4      2  1102
  50               0   15    6 1089     0     5     2    93     0  603     0     0     0 1111     0    15     6  1089     0      4      6  1108
  51               0   15    3 1092     0     5     1    94     0  603     0     0     0 1111     0    15     3  1092     0      4      3  1111
  52               0   15    6 1098     0     5     2    96     0  603     0     0     0 1111     0    15     6  1098     0      4      6  1117
  53               0   15    8 1106     0     5     1    97     0  603     0     0     0 1111     0    15     8  1106     0      4      8  1125
  54               0   15    7 1113     0     5     1    98     0  603     0     0     0 1111     0    15     7  1113     0      4      7  1132
  55               0   15    4 1117     0     5     0    98     0  603     0     0     0 1111     0    15     4  1117     0      4      4  1136
  56               0   15    3 1120     0     5     0    98     0  603     0     0     0 1111     0    15     3  1120     0      4      3  1139
  57               0   15    5 1125     0     5     0    98     0  603     0     0     0 1111     0    15     5  1125     0      4      5  1144
  58               0   15    4 1129     0     5     0    98     0  603     0     0     0 1111     0    15     4  1129     0      4      4  1148
  59               0   15    4 1133     0     5     0    98     0  603     0     0     0 1111     0    15     4  1133     0      4      4  1152
  60               0   15    1 1134     0     5     0    98     0  603     0     0     0 1111     0    15     1  1134     0      4      1  1153
  61               0   15  207 1341     0     5    57   155     0  603     0     0     0 1111     0    15   206  1340     0      4    206  1359
       --------  -------------------------------------------   -------------------------------   -----------------------------------------------
TOTAL:   1121        15       1341          5        155          603          0        1111         15       1340             4          1359
```

```
        NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---        06/17/77       PAGE: 439
                                  SUMMARY STATISTICS AFTER END OF COMBAT                  DAY: 30    COMBAT: 15

  PATIENT DISPOSITION SUMMARY BY DAYS OF CONVALESCENCE    - LEVEL : HOSP

                          .......S T A B I L I Z A T I O N.......    .C O N V A L E S C E N C E .    .......  E V A C U A T I O N    .......
 DAYS OF     BEDS     NO TREAT      EVAC        BED       REMAIN     ENTERED      CONV.    REMAIN      NO TREAT      EVAC      BED         TOTAL
  CONV.    REQUIRED   ASSIGNED     POLICY    SHORTAGE    IN STBZ      CONV.       ONLY    IN CONV.    ASSIGNED     POLICY  SHORTAGE    EVACUATED
 -------   --------   ---------------------------------------------   ---------------------------    ----------------------------------------------

       0     0     0    0    0    0    0    0    0    0    0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
       1  1155  1155    0    0    0    0   69   69   39   39    63   63    1    1  578  578    0    0    0    0   24   24   24   24
       2  1068  2223    0    0    0    0   53  122   38   77    66  129    0    1  515 1093    0    0    0    0   12   36   12   36
       3   990  3213    0    0    0    0   31  153   15   92    23  152    3    4  449 1542    0    0    0    0   20   56   20   56
       4   947  4160    0    0    0    0  139  292   27  119    80  232    0    4  426 1968    0    0    0    0  102  158  102  158
       5   765  4925    0    0    0    0   84  376   15  134    50  282    0    4  346 2314    0    0    0    0   66  224   66  224
       6   649  5574    0    0    0    0  116  492   20  154    68  350    0    4  296 2610    0    0    0    0   77  301   77  301
       7   504  6078    0    0    0    0   58  550    8  162    39  389    0    4  228 2838    0    0    0    0   40  341   40  341
       8   425  6503    0    0    0    0   71  621   15  177    46  435    0    4  189 3027    0    0    0    0   50  391   50  391
       9   329  6832    0    0    0    0   41  662    6  183    20  455    0    4  143 3170    0    0    0    0   32  423   32  423
      10   277  7109    0    0    0    0   55  717   10  193    32  487    0    4  123 3293    0    0    0    0   41  464   41  464
      11   204  7313    0    0    0    0   33  750    3  196    13  500    0    4   91 3384    0    0    0    0   28  492   28  492
      12   163  7476    0    0    0    0   36  786   12  208    22  522    0    4   78 3462    0    0    0    0   23  515   23  515
      13   118  7594    0    0    0    0   27  813    3  211    19  541    0    4   56 3518    0    0    0    0   22  537   22  537
      14    77  7671    0    0    0    0   33  846    5  216    26  567    0    4   37 3555    0    0    0    0   24  561   24  561
 EVAC 15    27  7698    0    0    0    0   22  868    3  219    11  578    0    4   11 3566    0    0    0    0   16  577   16  577
      16                0    0   37   37    0  868    8  227     0  578    0    4    0 3566    0    0   37   37    0  577   37  614
      17                0    0   39   76    0  868   12  239     0  578    0    4    0 3566    0    0   39   76    0  577   39  653
      18                0    0   30  106    0  868   13  252     0  578    0    4    0 3566    0    0   30  106    0  577   30  683
      19                0    0   30  136    0  868    8  260     0  578    0    4    0 3566    0    0   30  136    0  577   30  713
      20                0    0   40  176    0  868   18  278     0  578    0    4    0 3566    0    0   40  176    0  577   40  753
      21                0    0   14  190    0  868    3  281     0  578    0    4    0 3566    0    0   14  190    0  577   14  767
      22                0    0   34  224    0  868   17  298     0  578    0    4    0 3566    0    0   34  224    0  577   34  801
      23                0    0   22  246    0  868    9  307     0  578    0    4    0 3566    0    0   22  246    0  577   22  823
      24                0    0   26  272    0  868   14  321     0  578    0    4    0 3566    0    0   26  272    0  577   26  849
      25                0    0   22  294    0  868   11  332     0  578    0    4    0 3566    0    0   22  294    0  577   22  871
      26                0    0   25  319    0  868   11  343     0  578    0    4    0 3566    0    0   25  319    0  577   25  896
      27                0    0   13  332    0  868    4  347     0  578    0    4    0 3566    0    0   13  332    0  577   13  909
      28                0    0   15  347    0  868   10  357     0  578    0    4    0 3566    0    0   15  347    0  577   15  924
      29                0    0   19  366    0  868    6  363     0  578    0    4    0 3566    0    0   19  366    0  577   19  943
      30                0    0   21  387    0  868   14  377     0  578    0    4    0 3566    0    0   21  387    0  577   21  964
      31                0    0   15  402    0  868    8  385     0  578    0    4    0 3566    0    0   15  402    0  577   15  979
      32                0    0   26  428    0  868   18  403     0  578    0    4    0 3566    0    0   26  428    0  577   26 1005
      33                0    0   11  439    0  868    4  407     0  578    0    4    0 3566    0    0   11  439    0  577   11 1016
      34                0    0   20  459    0  868   13  420     0  578    0    4    0 3566    0    0   20  459    0  577   20 1036
      35                0    0   19  478    0  868   11  431     0  578    0    4    0 3566    0    0   19  478    0  577   19 1055
      36                0    0   22  500    0  868   17  448     0  578    0    4    0 3566    0    0   22  500    0  577   22 1077
      37                0    0   15  515    0  868    5  453     0  578    0    4    0 3566    0    0   15  515    0  577   15 1092
      38                0    0   19  534    0  868   10  463     0  578    0    4    0 3566    0    0   19  534    0  577   19 1111
      39                0    0    9  543    0  868    7  470     0  578    0    4    0 3566    0    0    9  543    0  577    9 1120
      40                0    0   21  564    0  868   14  484     0  578    0    4    0 3566    0    0   21  564    0  577   21 1141
      41                0    0    9  573    0  868    2  486     0  578    0    4    0 3566    0    0    9  573    0  577    9 1150
      42                0    0   18  591    0  868   11  497     0  578    0    4    0 3566    0    0   18  591    0  577   18 1168
      43                0    0    8  599    0  868    3  500     0  578    0    4    0 3566    0    0    8  599    0  577    8 1176
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      06/17/77      PAGE: 440
                              SUMMARY STATISTICS AFTER END OF COMBAT               DAY: 33    COMBAT: 15

  44              0    0   14  613    0  868    9  504     0  578    0    4     0 3566    0    0   14   613    0   577   14  1190
  45              0    0    9  622    0  868    5  513     0  578    0    4     0 3566    0    0    9   622    0   577    9  1199
  46              0    0   11  633    0  868    6  514     0  578    0    4     0 3566    0    0   11   633    0   577   11  1210
  47              0    0   12  645    0  868    4  528     0  578    0    4     0 3566    0    0   12   645    0   577   12  1222
  48              0    0   18  663    0  868   13  536     0  578    0    4     0 3566    0    0   18   663    0   577   18  1240
  49              0    0    5  668    0  868    3  539     0  578    0    4     0 3566    0    0    5   668    0   577    5  1245
  50              0    0   12  680    0  868    6  545     0  578    0    4     0 3566    0    0   12   680    0   577   12  1257
  51              0    0    3  683    0  868    1  545     0  578    0    4     0 3566    0    0    3   683    0   577    3  1260
  52              0    0   14  697    0  868    7  553     0  578    0    4     0 3566    0    0   14   697    0   577   14  1274
  53              0    0   12  709    0  868    5  558     0  578    0    4     0 3566    0    0   12   709    0   577   12  1286
  54              0    0   14  723    0  868   11  569     0  578    0    4     0 3566    0    0   14   723    0   577   14  1300
  55              0    0    7  730    0  868    3  571     0  578    0    4     0 3566    0    0    7   730    0   577    7  1307
  56              0    0   11  741    0  868   10  581     0  578    0    4     0 3566    0    0   11   741    0   577   11  1318
  57              0    0    9  750    0  868    4  585     0  578    0    4     0 3566    0    0    9   750    0   577    9  1327
  58              0    0   16  766    0  868   13  599     0  578    0    4     0 3566    0    0   16   766    0   577   16  1343
  59              0    0    6  772    0  868    3  601     0  578    0    4     0 3566    0    0    6   772    0   577    6  1349
  60              0    0   10  782    0  868    7  608     0  578    0    4     0 3566    0    0   10   782    0   577   10  1359
  61              0    0  836 1618    0  868  594 1212     0  578    0    4     0 3566    0    0  836  1618    0   577  836  2195
          --------   ----------------------------------   ---------------------------   ---------------------------------------
TOTAL:    7633             0     1618      868     1232        578        4     3566            0      1618        577    2195
```

```
         NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39        ---        06/17/77        PAGE: 441
                                    SUMMARY STATISTICS AFTER END OF COMBAT              DAY: 30    COMBAT: 15

DAILY SUMMARY - STABILIZATION,EVACUATION,CONVALESCENCE AND BED STATISTICS     LEVEL : FEBA

DAYS  F  PATIENT   ...STABILIZATION...      ....EVACUATION.....   .CONVALESCENCE.    ...REMAINING... ....... ..BED STATISTICS.. .......
AFTER A ADMISSION  NO  EVAC  NO              NO  EVAC  NO                CONV          IN   IN           PERCENT OF  CUMULATIVE  ADMISSIONS
D-DAY C DAY CUMUL  TR. PLCY BED   TOTAL      TR. PLCY BED TOTAL   ENTRD ONLY INCR     STBZ CONV TOTAL  REQUIREMENT   OCCUPANCY    CAPACITY
----- - ---------  -------------------      -----------------    ---------------    --------------- -------------------------------------

  1   L 312   312   0    0    0     0        0    0    0   229     0    0    0         0    0   14     0    0.       0    0.       0    0.
  2   L 713  1025   0    0    0     0        0    0    0   542     0    0    0         0    0   20     0    0.       0    0.       0    0.
  3   L 588  1613   0    0    0     0        0    0    0   495     0    0    0         0    0   21     0    0.       0    0.       0    0.
  4   L 293  1906   0    0    0     0        0    0    0   232     0    0    0         0    0   13     0    0.       0    0.       0    0.
  5   L 228  2134   0    0    0     0        0    0    0   157     0    0    0         0    0   10     0    0.       0    0.       0    0.
  6   L 370  2504   0    0    0     0        0    0    0   308     0    0    0         0    0    8     0    0.       0    0.       0    0.
  7   L 290  2794   0    0    0     0        0    0    0   222     0    0    0         0    0   16     0    0.       0    0.       0    0.
  8   L 292  3086   0    0    0     0        0    0    0   210     0    0    0         0    0   17     0    0.       0    0.       0    0.
  9   L 164  3250   0    0    0     0        0    0    0    97     0    0    0         0    0   15     0    0.       0    0.       0    0.
 10   L 337  3587   0    0    0     0        0    0    0   257     0    0    0         0    0   14     0    0.       0    0.       0    0.
 11   L 416  4003   0    0    0     0        0    0    0   353     0    0    0         0    0    9     0    0.       0    0.       0    0.
 12   L 234  4237   0    0    0     0        0    0    0   169     0    0    0         0    0    8     0    0.       0    0.       0    0.
 13   L 122  4359   0    0    0     0        0    0    0    46     0    0    0         0    0    9     0    0.       0    0.       0    0.
 14   L 132  4491   0    0    0     0        0    0    0    61     0    0    0         0    0   10     0    0.       0    0.       0    0.
 15   L 131  4622   0    0    0     0        0    0    0    46     0    0    0         0    0   10     0    0.       0    0.       0    0.
 16   L   0  4622   0    0    0     0        0    0    0     7     0    0    0         0    0    0     0    0.       0    0.       0    0.
 17   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 18   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 19   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 20   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 21   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 22   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 23   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 24   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 25   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 26   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 27   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 28   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 29   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
 30   L   0  4622   0    0    0     0        0    0    0     0     0    0    0         0    0    0     0    0.       0    0.       0    0.
```

```
                NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-34      ---      06/17/77      PAGE: 442
                                  SUMMARY STATISTICS AFTER END OF COMBAT                DAY: 30   COMBAT: 15

 DAILY SUMMARY - STABILIZATION,EVACUATION,CONVALESCENCE AND BED STATISTICS     LEVEL : BAS

DAYS  F  PATIENT   ...STABILIZATION...      ....EVACUATION.....   .CONVALESCENCE.    ...REMAINING... ....... ..BED STATISTICS.. .......
AFTER A ADMISSION  NO  EVAC  NO             NO  EVAC  NO                 CONV          IN   IN          PERCENT OF  CUMULATIVE ADMISSIONS
D-DAY C DAY CUMUL  TR. PLCY BED  TOTAL      TR. PLCY BED TOTAL    ENTRD ONLY INCR    STBZ CONV TOTAL REQUIREMENT  OCCUPANCY   CAPACITY
----- - ---------  --------------------     ------------------    ---------------    --------------- -----------------------------------

  1   L 107   107   10   79    0    89      10   72    0    82      0    0    2       3    0    5      0   0.       0   0.      0   0.
  2   L 331   438   14  262    0   276      14  245    0   259      0    0    5      15    0   25      0   0.       0   0.      0   0.
  3   L 207   645   11  194    0   205      11  201    0   212      0    0   17       8    0   24      0   0.       0   0.      0   0.
  4   L 109   754    9   92    0   101       9   98    0   107      0    0    8       2    0    8      0   0.       0   0.      0   0.
  5   L 102   856   13   61    0    74      13   57    0    70      0    0    7       6    0   12      0   0.       0   0.      0   0.
  6   L 139   995    4  119    0   123       4  120    0   124      0    0    4       7    0   11      0   0.       0   0.      0   0.
  7   L 122  1117   10   94    0   104      10   91    0   101      0    0    6      13    0   16      0   0.       0   0.      0   0.
  8   L 112  1229    8   91    0    99       8   93    0   101      0    0    8       4    0   11      0   0.       0   0.      0   0.
  9   L  74  1303   17   34    0    51      17   39    0    56      0    0    8       1    0    7      0   0.       0   0.      0   0.
 10   L 129  1432   10  103    0   113      10  102    0   112      0    0    9       1    0    7      0   0.       0   0.      0   0.
 11   L 184  1616   15  144    0   159      15  136    0   151      0    0    8      12    0   15      0   0.       0   0.      0   0.
 12   L  92  1708   11   64    0    75      11   75    0    86      0    0    7       1    0    4      0   0.       0   0.      0   0.
 13   L  54  1762    8   19    0    27       8   15    0    23      0    0    2       1    0    8      0   0.       0   0.      0   0.
 14   L  33  1795    6   17    0    23       6   18    0    24      0    0    1       1    0    7      0   0.       0   0.      0   0.
 15   L  49  1844   15   15    0    30      13   20    0    33      0    0    2       1    0    3      0   0.       0   0.      0   0.
 16   L   6  1850    0    6    0     6       1    5    0     6      0    0    6       0    0    3      0   0.       0   0.      0   0.
 17   L   0  1850    0    0    0     0       0    3    0     3      0    0    0       0    0    0      0   0.       0   0.      0   0.
 18   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 19   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 20   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 21   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 22   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 23   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 24   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 25   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 26   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 27   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 28   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 29   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
 30   L   0  1850    0    0    0     0       0    0    0     0      0    0    0       0    0    0      0   0.       0   0.      0   0.
```

```
        NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39      ---      06/17/77       PAGE: 443
                                 SUMMARY STATISTICS AFTER END OF COMBAT              DAY: 30    COMBAT: 15

DAILY SUMMARY - STABILIZATION,EVACUATION,CONVALESCENCE AND BED STATISTICS     LEVEL : CS

DAYS  F  PATIENT    ...STABILIZATION...    ....EVACUATION.....   .CONVALESCENCE.   ...REMAINING... ....... ..BED STATISTICS.. .......
AFTER A ADMISSION   NO   EVAC  NO          NO   EVAC  NO                CONV         IN    IN            PERCENT OF  CUMULATIVE ADMISSIONS
D-DAY C DAY CUMUL   TR.  PLCY  BED  TOTAL  TR.  PLCY  BED  TOTAL  ENTRD ONLY  INCR   STBZ  CONV  TOTAL  REQUIREMENT  OCCUPANCY    CAPACITY
----- - ---------   ---------------------  ---------------------  ---------------   ----------------- ----------------------------------------

   1  L  140   140   2    80    0     82    2    68    0     70     30    0     0     10    30     42    30  21.43   30  21.43  180 128.57
   2  L  362   502   1   233    0    234    1   218    0    219    101    0     2     24   119    146   119  23.71  119  23.71  180  35.86
   3  L  309   811   0   172    0    172    0   180    0    180     97    0     7     15   163    143   163  20.10  163  20.10  180  22.19
   4  L  171   982   0   106    5    111    0   115    4    119     35    0     1      9   113    127   122  12.42  118  12.02  180  18.33
   5  L  121  1103   2    61    0     63    2    63    0     65     22    0     0      6    67     74    70   6.35   67   6.07  180  16.32
   6  L  201  1304   1   121    0    122    1   111    0    112     51    0     4     16    69     85    71   5.44   68   5.21  180  13.80
   7  L  161  1465   2    77    0     79    2    84    0     86     41    0     1     10    75     85    75   5.12   75   5.12  180  12.29
   8  L  162  1627   2    83    0     85    2    84    0     86     44    0     2      9    82     92    82   5.04   82   5.04  180  11.06
   9  L   98  1725   0    39    0     39    0    40    0     40     17    0     3      6    57     55    57   3.30   57   3.30  180  10.43
  10  L  169  1894   0    99    0     99    0    96    0     96     42    0     2     11    65     76    65   3.43   65   3.43  180   9.50
  11  L  226  2120   1   133    0    134    1   124    0    125     59    0     0     20    89    110    89   4.20   89   4.20  180   8.49
  12  L  134  2254   1    69    0     70    1    79    0     80     37    0     2     10    81     91    81   3.59   81   3.59  180   7.99
  13  L   59  2313   1    17    0     18    1    25    0     26      5    0     2      2    46     48    46   1.99   46   1.99  180   7.78
  14  L   62  2375   2    25    0     27    2    21    0     23      7    0     2      5    18     24    18    .76   18    .76  180   7.58
  15  L   64  2439   0    13    0     13    0    20    0     20     11    0     3      3    15     20    15    .62   15    .62  180   7.38
  16  L    6  2445   0     5    0      5    0     8    0      8      1    0     0      0    10     12    10    .41   10    .41  180   7.36
  17  L    3  2448   0     2    0      2    0     3    0      3      1    0     0      0     6      7     6    .25    6    .25  180   7.35
  18  L    0  2448   0     0    0      0    0     1    0      1      0    0     0      0     2      2     2    .08    2    .08  180   7.35
  19  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  20  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  21  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  22  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  23  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  24  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  25  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  26  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  27  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  28  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  29  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
  30  L    0  2448   0     0    0      0    0     0    0      0      0    0     0      0     0      0     0   0.      0   0.     180   7.35
```

BEST AVAILABLE COPY

```
          NAME: II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39       ---        06/17/77       PAGE: 444
                              SUMMARY STATISTICS AFTER END OF COMBAT           DAY: 30   COMBAT: 15

 DAILY SUMMARY - STABILIZATION,EVACUATION,CONVALESCENCE AND BED STATISTICS     LEVEL : HOSP

DAYS  F  PATIENT   ...STABILIZATION...     ....EVACUATION.....  .CONVALESCENCE.   ...REMAINING... ....... ..BED STATISTICS.. .......
AFTER A ADMISSION  NO  EVAC  NO             NO  EVAC  NO                 CONV      IN   IN            PERCENT OF CUMULATIVE ADMISSIONS
D-DAY C DAY CUMUL  TR. PLCY BED   TOTAL     TR. PLCY BED TOTAL   ENTRD ONLY INCR   STBZ CONV TOTAL REQUIREMENT  OCCUPANCY    CAPACITY
----- - ---------  --------------------    ------------------   ---------------   --------------- -----------------------------------

   1  L 234   234    0   97    0     97      0   39    0    39     72    0   40     58   72   134    72  35.29   72  35.29  200  98.04
   2  L 500   734    0  238   82    320      0  156   50   206    132    0   88    169  200   372   279  38.01  200  27.25  200  27.25
   3  L 404  1138    0  210  137    347      0  224   98   322     45    0  101    179  200   382   392  34.45  200  17.57  200  17.57
   4  L 254  1392    0  129  105    234      0  185  105   290     15    0   53    105  200   307   469  33.69  200  14.37  200  14.37
   5  L 154  1546    0   76   55    131      0   97   43   140     24    0   28     67  200   268   488  31.57  200  12.94  200  12.94
   6  L 256  1802    0  146   93    239      0   97   58   155     23    0   52    122  200   322   527  29.25  200  11.10  200  11.10
   7  L 202  2004    0  112   68    180      0  144   36   180     33    0   45     83  200   284   524  26.15  200   9.98  200   9.98
   8  L 187  2191    0   90   76    166      0  101   38   139     34    0   31     76  200   277   519  23.69  200   9.13  200   9.13
   9  L 107  2298    0   46   43     89      0   75   21    96     39    0   15     30  200   231   486  21.15  200   8.70  200   8.70
  10  L 234  2532    0  125   62    187      0   74   40   114     38    0   41     83  200   283   482  19.04  200   7.90  200   7.90
  11  L 300  2832    0  167   80    247      0  131   51   182     35    0   65    117  200   319   507  17.90  200   7.06  200   7.06
  12  L 191  3023    0   94   53    147      0  154   27   181     35    0   31     61  200   264   490  16.21  200   6.62  200   6.62
  13  L  62  3085    0   24   14     38      0   64    4    68     27    0   12     13  200   213   461  14.94  200   6.48  200   6.48
  14  L  77  3162    0   36    0     36      0   25    0    25     15    0   16     24  190   215   413  13.06  190   6.01  200   6.33
  15  L  51  3213    0   24    0     24      0   33    0    33     19    0    9     15  171   185   345  10.74  171   5.32  200   6.22
  16  L   9  3222    0    4    0      4      0   19    0    19      4    0    0      0  135   135   276   8.57  135   4.19  200   6.21
  17  L   3  3225    0    0    0      0      0    0    0     0      3    0    0      0  121   121   230   7.13  121   3.75  200   6.20
  18  L   1  3226    0    0    0      0      0    0    0     0      1    0    0      0  113   113   183   5.67  113   3.19  200   6.20
  19  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   87    87   143   4.43   87   2.70  200   6.20
  20  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   74    74   119   3.69   74   2.29  200   6.20
  21  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   57    57    88   2.73   57   1.77  200   6.20
  22  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   46    46    62   1.92   46   1.43  200   6.20
  23  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   36    36    51   1.58   36   1.12  200   6.20
  24  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   28    28    38   1.18   28    .87  200   6.20
  25  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   20    20    27    .84   20    .62  200   6.20
  26  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0   12    12    13    .40   12    .37  200   6.20
  27  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0    8     8     8    .25    8    .25  200   6.20
  28  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0    5     5     5    .15    5    .15  200   6.20
  29  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0    1     1     1    .03    1    .03  200   6.20
  30  L   0  3226    0    0    0      0      0    0    0     0      0    0    0      0    0     0     0   0.      0   0.    200   6.20


                    BED REQUIREMENTS OUTSIDE THE COMBAT ZONE.
                    -----------------------------------------

  DAYS    BEDS       DAYS    BEDS       DAYS    BEDS       DAYS    BEDS
  AFTER REQUIRED     AFTER REQUIRED     AFTER REQUIRED     AFTER REQUIRED
  D-DAY              D-DAY              D-DAY              D-DAY
  --------------     --------------     --------------     --------------

    1       39        24     1522        47     1369        70      275
    2      245        25     1496        48     1351        71      244
```

BEST AVAILABLE COPY

```
NAME: II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39     ---      10/17/77      PAGE: 445
                  SUMMARY STATISTICS AFTER END OF COMBAT              DAY: 30   COMBAT: 15

  3     566      26     1468      49     1038      72     173
  4     852      27     1449      50     1018      73      94
  5     982      28     1419      51     1009      74      46
  6    1119      29     1395      52      995      75      23
  7    1264      30     1370      53      984      76      10
  8    1365      31     1347      54      975      77       0
  9    1424      32     1323      55      964      78       0
 10    1456      33     1307      56      958      79       0
 11    1635      34     1287      57      942      80       0
 12    1773      35     1268      58      929      81       0
 13    1809      36     1249      59      919      82       0
 14    1799      37     1233      60      906      83       0
 15    1787      38     1214      61      896      84       0
 16    1770      39     1202      62      867      85       0
 17    1732      40     1179      63      731      86       0
 18    1689      41     1162      64      658      87       0
 19    1651      42     1152      65      558      88       0
 20    1631      43     1135      66      498      89       0
 21    1600      44     1114      67      446      90       0
 22    1571      45     1094      68      378      91       0
 23    1543      46     1042      69      317      92       0
```

BEST AVAILABLE COPY

```
          NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-39        ---         06/17/77        PAGE: 446
                          SUMMARY STATISTICS AFTER END OF COMBAT                DAY: 30    COMBAT: 15

DAILY SUMMARY - PATIENT DISPOSITIONS.      LEVEL I FEBA

DAYS  F ADMISSIONS EVACUATED .... RETURNED TO DUTY      ....   .....  DIED  .....    ... EVACUATED   ...    .REMAINING .
AFTER A  AT FAC.    TO FAC.  WITH   NO
D-DAY C  DAY CUMUL DAY CUMUL CONV CONV TOTAL CUMUL PERCENT   DAY CUMUL  PERCENT   DAY CUMUL  PERCENT    DAY  PERCENT
----- - ---------- --------- ---------------------------   ------------------   -----------------    -------------

  1  L  312   312   0     0     0   69    69    69   22.12     0     0    0.      229   229   73.40     14    4.49
  2  L  713  1025   0     0     0   62    62   131    8.70     3     3     .42    642   871   90.04     20    2.81
  3  L  588  1613   0     0     0   69    69   200   11.73    23    26    3.91    495  1366   84.18     21    3.57
  4  L  293  1906   0     0     0   66    66   266   22.53     3    29    1.02    292  1598   79.18     13    4.44
  5  L  228  2134   0     0     0   71    71   337   31.14     3    32    1.32    157  1755   68.86     10    4.39
  6  L  371  2504   0     0     0   63    63   400   17.00     1    33     .27    308  2063   83.24      8    2.16
  7  L  290  2794   0     0     0   58    58   458   20.00     2    35     .69    222  2285   76.55     16    5.52
  8  L  292  3086   0     0     0   78    78   536   26.71     3    38    1.03    210  2495   71.92     17    5.82
  9  L  164  3250   0     0     0   64    64   600   39.02     5    43    3.05     97  2592   59.15     15    9.15
 10  L  337  3587   0     0     0   80    80   680   23.74     1    44     .30    257  2849   76.26     14    4.15
 11  L  416  4003   0     0     0   66    66   746   15.87     2    46     .48    353  3202   84.86      9    2.16
 12  L  234  4237   0     0     0   65    65   811   27.78     1    47     .43    169  3371   72.22      8    3.42
 13  L  122  4359   0     0     0   71    71   882   58.20     4    51    3.28     46  3417   37.70      9    7.38
 14  L  132  4491   0     0     0   64    64   946   48.48     6    57    4.55     61  3478   46.21     10    7.58
 15  L  131  4622   0     0     0   81    81  1027   61.83     4    61    3.05     46  3524   35.11     10    7.63
 16  L    0  4622   0     0     0    0     0  1027    0.       3    64    0.        7  3531    0.        0    0.
 17  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 18  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 19  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 20  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 21  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 22  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 23  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 24  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 25  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 26  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 27  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 28  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 29  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
 30  L    0  4622   0     0     0    0     0  1027    0.       0    64    0.        0  3531    0.        0    0.
```

BEST AVAILABLE COPY

COPY AVAILABLE TO DDC DOES NOT
PERMIT FULLY LEGIBLE PRODUCTION

```
        NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-34      ---      06/17/77      PAGE: ..7
                             SUMMARY STATISTICS AFTER END OF COMBAT                DAY: 30   COMBAT: 15

 DAILY SUMMARY - PATIENT DISPOSITIONS.     LEVEL : BAS

DAYS   F ADMISSIONS EVACUATED .... RETURNED TO DUTY       ....   .....  DIED   .....   ... EVACUATED   ...   .REMAINING .
AFTER  A  AT FAC.     TO FAC.   WITH   NO
D-DAY  C  DAY CUMUL  DAY CUMUL  CONV  CONV  TOTAL CUMUL PERCENT  DAY CUMUL   PERCENT  DAY CUMUL   PERCENT   DAY   PERCENT
-----  -  ---------- --------- --------------------------------  ------------------  ------------------  ------------

   1   L   27    27   80    80     0    17    17    17   15.89     0     0     0.       82    82   76.64      8     7.48
   2   L   39    66  262   342     0    25    25    42    8.31     0     0     0.      259   341   86.05     25     8.31
   3   L   36   102  201   543     0    25    25    67   10.55     1     1      .42    212   553   89.45     24    10.13
   4   L   26   128   83   626     0    17    17    84   15.60     1     2      .92    107   660   98.17      8     7.34
   5   L   39   167   63   689     0    26    26   110   25.49     2     4     1.96     70   730   68.63     12    11.76
   6   L   20   187  119   808     0    16    16   126   11.51     0     4     0.      124   854   89.21     11     7.91
   7   L   26   213   96   904     0    16    16   142   13.11     0     4     0.      101   955   82.79     16    13.11
   8   L   24   237   88   992     0    16    16   158   14.29     0     4     0.      101  1056   90.18     11     9.82
   9   L   39   276   35  1027     0    22    22   180   29.73     0     4     0.       56  1112   75.68      7     9.46
  10   L   25   301  104  1131     0    15    15   195   11.63     2     6     1.55    112  1224   86.82      7     5.43
  11   L   38   339  146  1277     0    23    23   218   12.50     1     7      .54    151  1375   82.07     16     8.70
  12   L   29   368   63  1340     0    18    18   236   19.57     0     7     0.       86  1461   93.48      4     4.35
  13   L   35   403   19  1359     0    27    27   263   50.00     0     7     0.       23  1484   42.59      8    14.81
  14   L   16   419   17  1376     0    10    10   273   30.30     0     7     0.       24  1508   72.73      7    21.21
  15   L   34   453   15  1391     0    19    19   292   38.78     1     8     2.04     33  1541   67.35      3     6.12
  16   L    0   453    6  1397     0     0     0   292    0.       0     8     0.        6  1547  100.00      3    50.00
  17   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        3  1550    0.        0     0.
  18   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  19   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  20   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  21   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  22   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  23   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  24   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  25   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  26   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  27   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  28   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  29   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
  30   L    0   453    0  1397     0     0     0   292    0.       0     8     0.        0  1550    0.        0     0.
```

BEST AVAILABLE COPY

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-34      ---      06/17/77      PAGE: [illegible]
                     SUMMARY STATISTICS AFTER END OF COMBAT                  DAY: 30   COMBAT: 15

DAILY SUMMARY - PATIENT DISPOSITIONS.      LEVEL : CS

DAYS  F ADMISSIONS EVACUATED .... RETURNED TO DUTY         ....   .....  DIED  .....   ... EVACUATED  ...   .REMAINING .
AFTER A  AT FAC.    TO FAC.  WITH   NO
D-DAY C  DAY CUMUL DAY CUMUL CONV CONV TOTAL CUMUL PERCENT  DAY CUMUL  PERCENT   DAY CUMUL  PERCENT   DAY  PERCENT
----- - ---------- --------- --------------------------------  ------------------  ------------------  -------------

  1   L   23    23 117   117    0   28   28    28   20.00      0     0    0.       70    70   50.00     42   30.00
  2   L   21    44 341   458   12   27   39    67   10.77      0     0    0.      219   289   60.60    146   40.33
  3   L   30    74 279   737   53   35   89   156   28.80      3     3     .97    180   469   58.25    183   59.22
  4   L   23    97 148   885   81   27  108   264   63.15      0     3    0.      119   588   59.59    127   74.27
  5   L   29   126  92   977   73   35  109   373   90.08      0     3    0.       65   653   53.72     74   61.16
  6   L   27   153 174  1151   50   28   78   451   38.31      0     3    0.      112   765   55.72     85   42.29
  7   L   36   189 125  1276   34   40   74   525   45.95      0     3    0.       86   851   53.42     86   53.42
  8   L   31   220 131  1407   37   33   70   595   43.21      0     3    0.       86   937   53.09     92   56.79
  9   L   36   256  62  1469   42   43   85   680   60.73      0     3    0.       40   977   40.82     65   66.33
 10   L   26   282 143  1612   34   28   62   742   36.03      0     3    0.       96  1073   56.80     76   44.97
 11   L   24   306 202  1814   35   32   67   809   23.65      0     3    0.      125  1198   55.51    110   48.57
 12   L   24   330 110  1924   45   28   73   882   54.48      0     3    0.       80  1278   59.70     91   67.91
 13   L   31   361  28  1952   41   35   76   958  128.31      0     3    0.       26  1304   44.07     48   81.36
 14   L   29   390  33  1985   35   28   63  1021  101.61      0     3    0.       23  1327   37.10     24   38.71
 15   L   25   415  39  2024   14   34   48  1069   75.00      0     3    0.       20  1347   31.25     20   31.25
 16   L    0   415   6  2030    6    0    6  1075  100.00      0     3    0.        8  1355  133.33     12  200.00
 17   L    0   415   3  2033    5    0    5  1080  166.67      0     3    0.        3  1358  100.00      7  233.33
 18   L    0   415   0  2033    4    0    4  1084    0.        0     3    0.        1  1359    0.         2    0.
 19   L    0   415   0  2033    2    0    2  1086    0.        0     3    0.        0  1359    0.         0    0.
 20   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 21   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 22   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 23   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 24   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 25   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 26   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 27   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 28   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 29   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
 30   L    0   415   0  2033    0    0    0  1086    0.        0     3    0.        0  1359    0.         0    0.
```

BEST AVAILABLE COPY

```
          NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-34     ---       06/17/77        PAGE: 449
                                   SUMMARY STATISTICS AFTER END OF COMBAT               DAY: 30   COMBAT: 15

DAILY SUMMARY - PATIENT DISPOSITIONS.      LEVEL : HOSP

DAYS  F ADMISSIONS EVACUATED .... RETURNED TO DUTY       ....  •.....  DIED   .....   ... EVACUATED   ...   .REMAINING .
AFTER A  AT FAC.     TO FAC.  WITH    NO
D-DAY C  DAY CUMUL DAY CUMUL CONV CONV TOTAL CUMUL PERCENT   DAY CUMUL   PERCENT   DAY CUMUL   PERCENT    DAY  PERCENT
----- - ---------- --------- -------------------------------  ------------------   -------------------   -------------

   1  L   21    21 183   183    0   25   25    25   12.25     6     6     2.94     39    39    19.12    134    65.69
   2  L   14    35 516   699    4   20   24    49    4.53    62    68    11.70    206   245    38.87    372    70.19
   3  L   15    50 389  1088   16   20   36    85    8.91    36   104     8.91    322   567    79.70    382    94.55
   4  L   12    62 242  1330   16   17   33   118   12.99     6   110     2.36    290   857   114.17    307   120.87
   5  L   15    77 139  1469   24   21   45   163   29.22     2   112     1.30    146  1003    94.81    268   174.03
   6  L    8    85 248  1717   29   11   40   203   15.63     7   119     2.73    155  1158    60.55    322   125.78
   7  L   11    96 191  1908   39   17   56   259   27.72     4   123     1.98    180  1338    89.11    284   140.59
   8  L   10   106 177  2085   34   16   50   309   26.74     5   128     2.67    139  1477    74.33    277   148.13
   9  L    9   115  98  2183   39   19   58   367   54.21 .   0   128     0.       96  1573    89.72    230   214.95
  10  L   17   132 217  2400   38   24   62   429   26.50     5   133     2.14    114  1687    48.72    283   120.94
  11  L   24   156 276  2676   36   29   65   494   21.67    17   150     5.67    182  1869    60.67    319   106.33
  12  L   21   177 170  2846   35   28   63   557   32.98     2   152     1.05    181  2050    94.76    264   138.22
  13  L   14   191  48  2894   27   18   45   602   72.58     0   152     0.       68  2118   109.68    213   343.55
  14  L   19   210  58  2952   25   25   50   652   64.94     0   152     0.       25  2143    32.47    215   279.22
  15  L    6   216  45  2997   37    9   46   698   90.20     1   153     1.96     33  2176    64.71    186   364.71
  16  L    0   216   9  3006   40    1   41   739  455.56     0   153     0.       19  2195   211.11    135  1500.00
  17  L    0   216   3  3009   17    0   17   756  566.67     0   153     0.        0  2195     0.      121  4033.33
  18  L    0   216   1  3010   19    0   19   775 1900.00     0   153     0.        0  2195     0.      10310300.00
  19  L    0   216   0  3010   16    0   16   791    0.       0   153     0.        0  2195     0.       87     0.
  20  L    0   216   0  3010   13    0   13   804    0.       0   153     0.        0  2195     0.       74     0.
  21  L    0   216   0  3010   17    0   17   821    0.       0   153     0.        0  2195     0.       57     0.
  22  L    0   216   0  3010   11    0   11   832    0.       0   153     0.        0  2195     0.       46     0.
  23  L    0   216   0  3010   10    0   10   842    0.       0   153     0.        0  2195     0.       36     0.
  24  L    0   216   0  3010    8    0    8   850    0.       0   153     0.        0  2195     0.       28     0.
  25  L    0   216   0  3010    8    0    8   858    0.       0   153     0.        0  2195     0.       20     0.
  26  L    0   216   0  3010    8    0    8   866    0.       0   153     0.        0  2195     0.       12     0.
  27  L    0   216   0  3010    4    0    4   870    0.       0   153     0.        0  2195     0.        8     0.
  28  L    0   216   0  3010    3    0    3   873    0.       0   153     0.        0  2195     0.        5     0.
  29  L    0   216   0  3010    4    0    4   877    0.       0   153     0.        0  2195     0.        1     0.
  30  L    0   215   0  3010    1    0    1   878    0.       0   153     0.        0  2195     0.        0     0.
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-33     ---     06/17/77     PAGE: 450
                  SUMMARY STATISTICS AFTER END OF COMBAT             DAY: 30   COMBAT: 15

PATIENT DISPOSITION SUMMARY BY PATIENT CLASS
--------------------------------------------

 PATIENT          ....I N P A T I E N T S ....      ...O U T P A T I E N T S ...
  CLASS           ADMITTED   RTD   EVAC   DIED      ADMITTED   RTD   EVAC   DIED
 -------          ---------------------------       --------------   ----------

    1                 1        0      0      1           0        0      0      0
    2                 2        1      1      0           0        0      0      0
    3                47        9     26     12           0        0      0      0
    4                19       12      7      0           0        0      0      0
    5                12        1     11      0           0        0      0      0
    6                28       24      4      0           0        0      0      0
    7                10        0     10      0           0        0      0      0
    8                14        5      9      0           0        0      0      0
    9                 0        0      0      0           0        0      0      0
   10                15        0     14      1           0        0      0      0
   11                45       38      5      2           0        0      0      0
   12                47        0     16     31           0        0      0      0
   13               125       37     80      8           0        0      0      0
   14                 5        0      5      0           0        0      0      0
   15                19        9     10      0           0        0      0      0
   16                 8        0      2      6           0        0      0      0
   17                22        9     13      0           0        0      0      0
   18                 7        4      3      0          42       42      0      0
   19                14        3     11      0           0        0      0      0
   20                29        9     20      0          19       19      0      0
   21                10        0     10      0           0        0      0      0
   22                 9        0      2      7           0        0      0      0
   23                13        0      5      8           0        0      0      0
   24                56        6     50      0           0        0      0      0
   25                84        0     78      6           0        0      0      0
   26               362       87    250     25           0        0      0      0
   27                22        0     17      5           0        0      0      0
   28                28        0     23      5           0        0      0      0
   29                18        0     17      1           0        0      0      0
   30                43        9     34      0           0        0      0      0
   31               190        0    187      3           0        0      0      0
   32               196       68    118     10           0        0      0      0
   33               122       31     54     37           0        0      0      0
   34                 3        0      3      0           0        0      0      0
   35                65       10     55      0           0        0      0      0
   36               230        5    197     28           0        0      0      0
   37                21       18      3      0           0        0      0      0
   38                40       13     26      1           0        0      0      0
   39               128       23     97      8           0        0      0      0
   40                 5        3      1      1           0        0      0      0
   41                16        6     10      0           0        0      0      0
   42                13        5      7      1           0        0      0      0
   43                37       13     24      0           0        0      0      0
   44                 0        0      0      0           0        0      0      0
   45                49       17     32      0           2        2      0      0
```

```
NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.     ---SIMULATION: II-39     ---       10/17/77        PAGE: 451
                    SUMMARY STATISTICS AFTER END OF COMBAT                 DAY: 30    COMBAT: 15

 46                  102     64     38      0        564    564      0      0
 47                   21      3     17      0         12     11      0      1
 48                   74     33     41      0          5      5      0      0
 49                   64     16     48      0          0      0      0      0
 50                   16      2     13      1        262    259      0      3
 51                    1      0      1      0          0      0      0      0
 52                   11      5      6      0         42     42      0      0
 53                  127     57     70      0        173    173      0      0
 54                   12      5      7      0         36     36      0      0
 55                   31     11     18      2          5      5      0      0
 56                   52     37     15      0        137    137      0      0
 57                   33     25      8      0        339    339      0      0
 58                    7      4      3      0         92     92      0      0
 59                   15      6      9      0         20     20      0      0
 60                    9      1      8      0          0      0      0      0
 61                   84     69     15      0        136    136      0      0
 62                   12      2     10      0          0      0      0      0
 63                  131     75     56      0         31     31      0      0
 64                    6      1      5      0          0      0      0      0
 65                   13      7      5      1          0      0      0      0
 66                   54     47      5      2          0      0      0      0
 67                    0      0      0      0         40     40      0      0
 68                  109     58     51      0        115    115      0      0
 69                   31      1     29      1          0      0      0      0
 70                  113     19     92      2          0      0      0      0
 71                    4      2      2      0         16     16      0      0
 72                   64     40     21      3         14     13      1      0
 73                    9      3      5      1          0      0      0      0
 74                  125     85     37      3         97     96      0      1
 75                   37     25     12      0          0      0      0      0

      TOTALS:       3595   1178   2194    223       2111   2105      1      5
      NAMES II - COMBAT ZONE SIMULATION SUB-MODEL.      ---SIMULATION: II-5      ---      06/17/77       PAGE: 452
                          SUMMARY STATISTICS AFTER END OF COMBAT            DAY: 30    COMBAT: 15

PATIENT DISPOSITION SUMMARY BY TIME SPENT IN THE SYSTEM
----------------------------------------------------------

   DAYS  IN                        DISPOSITION
    SYSTEM               RTD       DIED      EVAC        TOTAL
   --------              ---       ----      ----        -----

        1               2101        221      1117         3439
        2                304          7      1076         1387
        3                265          0         2          267
        4                183          0         0          183
        5                 70          0         0           70
        6                 56          0         0           56
        7                 58          0         0           58
        8                 48          0         0           48
        9                 52          0         0           52
       10                 21          0         0           21
       11                 25          0         0           25
       12                 20          0         0           20
       13                 17          0         0           17
       14                 23          0         0           23
       15                 26          0         0           26
       16                 13          0         0           13
       17                  1          0         0            1
       18                  0          0         0            0
       19                  0          0         0            0
       20                  0          0         0            0
                        ----      -----     -----        -----
TOTALS                  3283        228      2195         5706
PERCENTAGE             57.54       4.00     38.47


                                      FINAL SUMMARY.
                                      --------------
                         INPATIENTS   OUTPATIENTS   TOTAL   PERCENT
                         ----------   -----------   -----   -------

  TOTAL ADMISSIONS  :       3595          2111       5706

  TOTAL LEFT SYSTEM :       3595          2111       5706    100.00
   .RETURNED TO DUTY:       1178          2105       3283     57.54
   .EVACUATED       :       2194             1       2195     38.47
   .DIED            :        223             5        228      4.00

  TOTAL REMAINING   :          0             0          0      0.
```