

AD-A211 997

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION N/A		1b. RESTRICTIVE MARKINGS N/A	
2a. SECURITY CLASSIFICATION AUTHORITY N/A		3. DISTRIBUTION/AVAILABILITY OF REPORT UNCLASSIFIED/UNLIMITED	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) #68-89		7a. NAME OF MONITORING ORGANIZATION U.S. ARMY-BAYLOR UNIVERSITY GRADUATE PROGRAM IN HEALTH CARE ADMINISTRATION	
6a. NAME OF PERFORMING ORGANIZATION FITZSIMONS ARMY MEDICAL CENTER		7b. ADDRESS (City, State, and ZIP Code) AHS SAN ANTONIO, TEXAS 78234-6100	
6b. OFFICE SYMBOL (If applicable) HSHG-ZX		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		10. SOURCE OF FUNDING NUMBERS	
8b. OFFICE SYMBOL (If applicable)		PROGRAM ELEMENT NO.	PROJECT NO.
8c. ADDRESS (City, State, and ZIP Code)		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) A Study To Develop the Optimal Military Inter-Institutional Patient Referral Systems Model for DOD Military Medical Region III			
12. PERSONAL AUTHOR(S) LOVAAS, PATRICIA KAY			
13a. TYPE OF REPORT FINAL	13b. TIME COVERED FROM 7-86 TO 7-87	14. DATE OF REPORT (Year, Month, Day) 1988, MAY	15. PAGE COUNT 221
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	REGIONALIZATION	
		PATIENT REFERRAL	
		AEROMEDICAL EVACUATION	
19. ABSTRACT (Continue on reverse if necessary and identify by block number)			
The purpose of this study was to identify the sources of problems related to the patient referral system and to develop the optimal military inter-institutional patient referral systems model for DOD Military Medical Region III. A convenience sample of 315 arriving and 343 departing patients at FAMC received a patient satisfaction survey developed by the researcher to identify potential areas of dissatisfaction. Eight of the referring facilities in DOD Region III also completed surveys describing their policies and procedures which were evaluated to determine discrepancies and potential sources for the dissatisfaction. Interviews were conducted with all FAMC personnel involved in either a direct or a support service role with the patient referral system. The researcher completed an air evacuation mission to identify problems impacting on the Armed Services Medical Regulating Office and Patient Airlift Center. The results of this study indicated that the single largest breakdown with the patient referral systems model related to patient preparation at both the sending and			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION N/A	
22a. NAME OF RESPONSIBLE INDIVIDUAL PATRICIA K. LOVAAS		22b. TELEPHONE (Include Area Code) (303) 361-8694	22c. OFFICE SYMBOL

DD Form 1473, 10-85 Previous editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE

DISTRIBUTION STATEMENT A

Approved for public release
Distribution Unlimited

89 9 06 108

19. ABSTRACT (CONT.)

→ receiving hospitals. This factor alone appeared to have the most significance in determining overall satisfaction with the process from the patients' perspective. Other factors which directly affected patient satisfaction included transportation and housing. System constraints impacting on the overall process were lack of advance notification to the receiving service, the 48 hour reporting requirement for patient movement, and the requirement to regulate to the closest medical facility with capability to care for the patient.

*Keywords: Hospital administration;
customer satisfaction; referral system; (K7) --*

A STUDY TO DEVELOP
THE OPTIMAL MILITARY INTER-INSTITUTIONAL
PATIENT REFERRAL SYSTEMS MODEL
FOR DOD MILITARY MEDICAL REGION III

A Graduate Research Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
Master of Health Administration

by
Major Patricia K. Lovaas, AN

~~April~~ May
1988

Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

TABLE OF CONTENTS

	Page
LIST OF ILLUSTRATIONS.....	v
CHAPTER	
I. INTRODUCTION.....	1
Conditions Which Prompted the Study.....	6
Statement of the Problem.....	8
Objectives.....	8
Criteria.....	9
Assumptions.....	10
Limitations.....	10
Research Methodology.....	11
Collection of Data.....	11
Evaluation of Data.....	18
II. LITERATURE REVIEW.....	20
Regionalization of Health Care.....	20
Overview.....	20
Experiences of the Department of Defense.....	24
Current Initiatives.....	28
Patient Referral Process.....	31
Hospital's Role.....	31
Physician's Role.....	34
Patient's Role.....	36
Marketing Implications.....	40
III. PATIENT REFERRAL PROCESS FOR DOD MILITARY MEDICAL REGION III.....	45
Medical Regulating System..	45
Aeromedical Evacuation System.....	50
Description of the Patient Referral Systems Model.....	57
Constraints of the Patient Referral System.....	72
System-Wide Constraints.....	73
FAMC Constraints.....	74

IV. PRESENTATION OF FINDINGS.....	78
ASMRO Patient Demographic Data.....	78
Sample Demographic Data.....	80
Demographic Characteristics for	
Arriving Patients.....	84
Demographic Characteristics for	
Departing Patients.....	85
Comparison of ASMRO Data to Sample Data....	86
Information Received for Arriving	
Patients.....	87
Information Received for Departing	
Patients.....	91
Satisfaction Survey for Arriving	
Patients.....	93
Satisfaction Survey for Departing	
Patients.....	94
Questionnaires from DOD Region III	
Referral Sites.....	95
Interviews with FAMC Aeromedical	
Evacuation Personnel.....	102
Interviews with Patient Airlift	
Center Personnel.....	105
Interview with Chief, FAMC Admission	
and Disposition Office.....	109
Interviews with FAMC Support Services.....	111
Interviews with Housing, Guesthouse,	
and Billeting Personnel.....	111
Interviews Concerning FAMC Post	
Transportation Resources.....	115
Survey Data for Inpatient/Outpatient	
Status Changes.....	117
V. DISCUSSION AND RECOMMENDATIONS.....	120
Areas of Concern Which Prompted	
the Study.....	120
Advance Notification.....	121
Lack of Preparation.....	122
Unexpected Changes in Patient Status....	124
Availability of Sufficient Resources....	126
Unpredictability of Aeromedical	
Evacuation Transportation.....	129
Lack of Medical Documentation.....	130
Patient Referral Systems Model.....	131
Recommendations.....	135

APPENDIX

A.	MAP OF DOD MILITARY MEDICAL REGIONS.....	141
B.	MAP OF DOD MILITARY MEDICAL REGION III.....	143
C.	LETTER TO SCOTT AFB.....	145
D.	LETTER TO ASMRO.....	148
E.	SURVEY QUESTIONNAIRE FOR ARRIVING PATIENTS.....	151
F.	SURVEY QUESTIONNAIRE FOR DEPARTING PATIENTS.....	159
G.	INSTRUCTIONS TO WARD HEAD NURSES ON PATIENT SURVEYS.....	166
H.	QUESTIONNAIRE FOR DOD REGION III REFERRAL SITES.....	168
I.	MAP OF AEROMEDICAL STAGING FACILITIES AND DETACHMENTS.....	171
J.	FAMC GUESTHOUSE ASSIGNMENT POLICY.....	173
K.	COMPARISON OF SURVEY QUESTIONS BY SENDING SITE FOR ARRIVING PATIENTS.....	176
L.	COMPARISON OF SURVEY QUESTIONS BY DESTINATION SITE FOR DEPARTING PATIENTS.....	189
M.	REFERRING SITES' RESPONSES TO ITEMS COVERED IN BRIEFINGS, EITHER VERBALLY AND/OR IN HANDOUTS.....	200
	REFERENCES.....	207

LIST OF ILLUSTRATIONS

Page

FIGURE

1. Patient Referral Systems Model for
DOD Military Medical Region III..... 58

TABLE

1. Comparison of ASMRO and Sample Data
by Military Status and Service
Category for Arriving Patients..... 79
2. Comparison of ASMRO and Sample Data
by Originating Facility for
Arriving Patients..... 81
3. Comparison of ASMRO and Sample Data
by Military Status and Service
Category for Departing Patients..... 82
4. Comparison of ASMRO and Sample Data
by Destination Facility for
Departing Patients..... 83
5. Comparison of Referring Site Responses
to Patient Responses on the Six
Items Queried on the Arriving
Patient Survey..... 99
6. Occupancy Rates for FAMC Guesthouse and
Billeting for Fiscal Year 1987..... 112
7. PASBA Data for Inpatient Transfers to
FAMC Who Were Discharged the Same
Day or Following Day from October
1985 through March 1987..... 118

CHAPTER I

INTRODUCTION

The concept of regionalization in a health care system offers a way of delivering health services by linking tertiary level specialized care to primary and secondary levels of care. As defined by Pearson (1975), regionalization is "the process of bringing consumers and providers of medical care together in a defined area, with discrete facilities separated by space and hierarchical service responsibilities, but functionally linked in a formal, structured, and coordinated manner" (p. 3).

The economic advantages make regionalization an appealing and logical solution to a number of geographically-related health service problems. However, for many years, health facilities did not move in this direction (Sussman & Gonzales, 1983). Policies of Health Systems Agencies and efforts by health care planners were marginally successful as individual hospital aspirations took precedence over consideration of areawide community needs.

More recently, the collective impact of several external pressures has altered this outlook. Hospital decision-makers have been forced to reexamine their

position within the health care system to accommodate increasing emphasis on cost containment, limited resources, and market competition while still meeting responsibilities for providing quality community care. Part of the response has resulted in increased coordination and consolidation through mergers, formation of local health care clusters, and sharing of services among hospitals (McManis, 1986). The effects of increasing competition and declining occupancy rates have prompted hospitals to seek a greater number of referrals. This is particularly critical for many vulnerable tertiary care teaching centers whose hospital activities are strongly challenged by environmental pressures (Fink, 1980).

The regional model provides potential benefits by expanding the service area for inpatient referrals and offering a broader market for specialized services which the community hospital or clinic cannot afford. Correspondingly, the community hospitals have easy referral to specialized care, improved quality and continuity of care, and access to care in physician shortage areas (Sussman & Gonzales, 1983). Referral networks can be established as informal relationships or more formal affiliations.

The concept of regionalization in the military is derived from a much broader basis than the generally localized civilian form. The entire military health care system throughout the country, to include coordination with many parts of the world, must be considered when formulating regional structures. Despite the complexity, similar advantages existing for civilian institutions can also be realized for military facilities.

At the Department of Defense (DOD) level, an integrated, interservice system for medical service regions was established to deliver peacetime health care to service members and other authorized beneficiaries. Developers of the regional planning efforts recognized that it was neither medically nor economically feasible for each military medical department to provide comprehensive health care services to the numerous, widely-dispersed military communities. Thus, a collective organization called the Armed Forces Regional Health Care System with nine DOD Military Medical Regions was designed to increase productivity, to reduce duplication, and to provide a patient referral system that would assure availability of specialized care for all appropriate personnel (see Appendix A). However, spokespersons at the Office of

the Assistant Secretary of Defense for Health Affairs have related that the drafted DOD directive for the regional system was never formalized and implementation of the DOD regional concept varied widely. Presently, interservice regional efforts in some areas are active and ongoing while other regional relationships are limited or nonexistent.

The Army supports the regionalization concept and has taken steps to formalize a regionalization plan within Health Services Command (HSC). In October 1984, the HSC Commanding General directed each medical center commander to assume supervisory responsibility for the delivery of medical care throughout the seven HSC Health Service Regions (Baker, 1984, October 1). Specific regionalization responsibilities were outlined. This initiative was prompted by the need to reduce HSC's broad span of control to a more manageable level. By placing supervisory responsibility within the region, improvements to the health care system were anticipated due to improved communication among regional treatment facilities, optimum standardization in health care delivery, and increased coordination and assistance between regional medical activities (Baker, 1984, November 1; Russell, 1984).

The organizational boundaries of the nine DOD Military Medical Regions and the seven HSC Health Service Regions are separate and distinct, but overlap in many areas. Fitzsimons Army Medical Center (FAMC), Aurora, Colorado, has a dual mission of providing specialized medical care within the two regional frameworks. The 506-bed hospital functions as the major medical center for the geographical area defined as DOD Military Medical Region III. This DOD region encompasses seven states which contain fifteen Army and Air Force community hospitals and clinics. The total number of eligible beneficiaries by location is portrayed in Appendix B. Key staff members from these facilities attend regularly scheduled Regional Review Committee meetings chaired by the Commanding General, FAMC, who is the Region III Commander. The meetings provide an opportunity to discuss mutual problems and concerns and to share advances in health care services.

Similarly, FAMC is the tertiary referral center for the Fitzsimons Army Health Services Region which spans fifteen states. The two roles are mutually supportive since approximately one-half of the eligible beneficiaries residing in the HSC Health Services Region are included in the DOD region.

Regulating requirements for coordinating patient movement within the region are accomplished through the Armed Services Medical Regulating Office (ASMRO). The primary mechanism for transporting patients outside FAMC's local boundaries is through the aeromedical evacuation system. The 57th Aeromedical Evacuation Squadron, Scott Air Force Base (AFB), Illinois, is the organization responsible for patient transportation. The large number of patients processed through FAMC's Aeromedical Evacuation Office represents a significant source of inpatient and outpatient workload for the teaching facility. This group of referral patients accounted for an average of twenty-four percent of all FAMC's admissions during fiscal years 1984 through 1986.

Conditions Which Prompted the Study

The command group at FAMC became increasingly concerned with numerous problems associated with the patient referral process. These problems could be generalized into the following six areas. The first area involved the lack of advance notification to the medical service regarding the patient's arrival. The second area concerned the lack of preparation of the patient on what to anticipate upon arrival at FAMC.

Thirdly, patients could be unexpectedly changed from inpatient to outpatient status once they arrived at FAMC. This resulted in unplanned expenses for meals and lodging. The fourth area involved the availability of sufficient resources for outpatients and non-medical attendants at FAMC. These resources included transportation and lodging. Another concern was the unpredictability of aeromedical evacuation transportation which resulted in lengthy stays and readmissions. The final area involved the lack of medical documentation accompanying the patient back to his/her referring medical treatment facility. This resulted in multiple quality assurance concerns.

Based on these frequently recurring problem areas, the command group at FAMC requested a formal study be conducted to evaluate the patient referral system within DOD Military Medical Region III. The purpose of this study was to identify the sources of problems related to the patient referral system and to recommend possible solutions to improve the overall efficiency and effectiveness of the system.

Statement of the Problem

To develop the optimal military inter-institutional patient referral systems model for DOD Military Medical Region III.

Objectives

The objectives of the research were:

1. To review applicable literature pertaining to regionalization of medical care, inter-institutional patient referral practices, and patient satisfaction with these concepts.
2. To review appropriate regulations, policy statements, and procedures.
3. To develop a preliminary model outlining current patient referral procedures.
4. To establish definitive constraints of the existing patient referral system.
5. To obtain demographic data of patients referred to FAMC through the aeromedical evacuation system.
6. To prepare and administer questionnaires to regionally-transferred patients regarding their perceptions of the referral system.
7. To prepare a questionnaire for each medical treatment facility within DOD Region III to assess

current operating procedures of the patient referral process.

8. To conduct on-site interviews of appropriate staff assigned to the 57th Aeromedical Evacuation Squadron and ASMRO, colocated at Scott AFB, Illinois.
9. To conduct on-site interviews of appropriate staff at FAMC to collect data on factors impacting on transferred patients to include availability of lodging and transportation.
10. To analyze the data obtained from the patient questionnaires, the regional site questionnaires, and the on-site interviews.
11. To develop the optimum model to correct identified deficiencies and to clarify concerns that prompted this study.
12. To prepare recommendations for revisions to the patient referral system to achieve optimal effectiveness.

Criteria

1. The sample population consisted of all regional patients who were aeromedically transferred to and from FAMC from 3 June 1987 through 17 July 1987 (45 days).
2. A five point Likert-type measurement scale was used to evaluate the degree of patient satisfaction

with five being highly satisfied and one being highly dissatisfied.

3. Descriptive statistics were used to evaluate the level of satisfaction for all sampled patients collectively and by referral site. A mean of less than three was used to determine dissatisfaction.

Assumptions

1. Aeromedical evacuation support provided by the 57th Aeromedical Evacuation Squadron and ASMRO would remain essentially unchanged during the study.
2. There would be no major aeromedical evacuation procedural changes effected during the study.
3. There would be no anticipated change in FAMC's patient referral mission.

Limitations

1. The study was restricted to the aeromedical evacuation mode of transportation for referred patients. This restriction eliminated from the study those regional referral sites located near FAMC who utilized ground transportation for referred patients.
2. The study did not evaluate in transit medical care provided by the Air Force nor medical care provided at FAMC.

3. Evaluation of the patient referral process was restricted to routine patients and did not include patients transferred in urgent or priority status.

4. The patient referral process addressed peacetime operations and not contingency procedures.

Research Methodology

Collection of Data

1. All applicable DOD, Departments of the Army and Air Force, HSC, and FAMC regulations and directives were researched to determine how the aeromedical evacuation patient referral system operates.

2. A visit was made to the 57th Aeromedical Evacuation Squadron and ASMRO, colocated at Scott AFB, Illinois, to gain a better understanding of the overall system (see Appendix C). Travel arrangements consisted of flying a day's mission with several en route stops at sites within DOD Region III. Numerous interviews with ASMRO and Patient Airlift Center (PAC) personnel focused on the process for placing a patient into the aeromedical evacuation system to include patient reporting and preparation, mission planning, staging facilities, system capabilities and limitations, and common problems encountered.

3. A preliminary working model was developed from the information gathered through the site visit, observations of patient arrivals and departures at FAMC, interviews with FAMC Aeromedical Evacuation Office personnel, and study of the regulations and directives. This flow model depicts the referral process from the time a decision is made for need of further health care services to the patient's return to the originating referral site.

4. In order to define the aeromedical evacuation population, patient demographic data was obtained from ASMRO for all arriving and departing patients at FAMC who were referred through the aeromedical evacuation system from the nine regional sending sites during Fiscal Year (FY) 1986, the most recent year for which complete data was available. The following information was requested (see Appendix D):

a. Military/Sponsor Classification

- 1) Status (Active Duty, dependent, etc.)
- 2) Grade (requested, but not provided)
- 3) Service

b. Sex

c. Patient Classification

- 1) Litter
- 2) Ambulatory

- 3) Inpatient
- 4) Outpatient
- 5) Non-medical Attendant
- 6) Remain Overnight (RON)

d. Diagnosis (ASMRO Classification)

e. Referring medical treatment facility (arriving patients)

f. Destination medical treatment facility (departing patients)

5. Data was collected on the following underlying factors which impact on patients aeromedically transferred to FAMC:

a. The policies and procedures for obtaining temporary lodging at FAMC were obtained through interviews with the Chief, Housing Division and the managers of the Guesthouse and the Billeting Offices. The occupancy rate was calculated for both guesthouse and billeting quarters for FY 1987 to determine usage and availability.

b. The policies and procedures for providing transportation to patients were obtained through interviews with personnel at the FAMC Motor Pool, Provost Marshal Office, Patient Transport Service, Hospital Information Desk, and Aeromedical Evacuation Office. Personnel at the Transportation Office at

Lowry AFB, Aurora, CO, were also contacted since patients or their non-medical attendants may be temporarily housed at this Air Force facility.

c. Data was requested from the U.S. Army Patient Administration Systems and Biostatistics Activity (PASBA) to determine how frequently inpatients were transferred to FAMC and then discharged the same day or the following day. Data was requested for an 18 month period, from October 1985 through March 1987. The results of a study by ASMRO which examined the number of outpatient transfers via aeromedical evacuation who required admission upon arrival during the month of May 1987 were also obtained.

d. The Chief, Admission and Disposition Branch was interviewed to determine notification procedures between sending and receiving medical treatment facilities and the procedure for notifying inpatient units of incoming patients.

e. Information was collected from observations and interviews with personnel at the FAMC Aeromedical Evacuation Office concerning patient reporting procedures, briefing procedures for arriving and departing patients, and procedures for handling patient records.

6. Questionnaires were used to obtain information from patients regarding their perceptions of the referral system. Two separate questionnaires were prepared and distributed to survey both arriving and departing patients (see Appendices E and F).

a. Developing the Questionnaires. Past surveys conducted by the Directorate of Patient Administration were reviewed to determine trends and problem issues. Input was also obtained from referral patients and FAMC personnel such as the Patient Representative, Quality Assurance Coordinator, and Aeromedical Evacuation Office personnel. Each questionnaire consisted of three parts. Section A was designed to obtain the demographic information outlined in paragraph 4a-f. Section B was designed to acquire information from arriving patients concerning the preparation they received for their trip. For departing patients, it was used to acquire information concerning their stay at FAMC and their preparation for departure. Section C was designed to determine the patients' satisfaction with their experience with the referral process using the aeromedical evacuation system. These questions were based on a five point Likert-type measurement scale with five being highly satisfied and one being highly dissatisfied.

b. Pre-testing the Questionnaires. A pilot test for validating the surveys was performed by administering each questionnaire to three aeromedically-evacuated patients and three colleagues. Changes to the questionnaires were made based on comments provided by the respondents.

c. Administering the Questionnaire to Arriving Patients. The study population consisted of a convenience sample of all referred patients arriving at FAMC during 45 consecutive days, from 3 June 1987 through 17 July 1987. This time frame was selected because there were no anticipated cutbacks in workload and the researcher was available to monitor. The Director of Patient Administration and all Aeromedical Evacuation Office personnel were briefed on the purpose and requirements of the study. The questionnaire was distributed to incoming patients by personnel from the Aeromedical Evacuation Office during the in-briefing process. This procedure was initially observed by the researcher. The respondents were requested to return the questionnaire to the Chief of Staff's Office (location was provided) or to one of the ward nurses (see Appendix G). These two sites were chosen for patient convenience and to allow patients to answer honestly without feeling that their responses would be

reviewed by members of the Aeromedical Evacuation Office. The questionnaires were enclosed in a pre-addressed envelope to further facilitate confidentiality and to maximize the return of those routed through the hospital's distribution system.

d. Administering the Questionnaire to Departing Patients. The study population also consisted of a convenience sample of all referred patients departing FAMC from 3 June 1987 through 17 July 1987. A mail-back questionnaire was distributed to departing patients by personnel from the Aeromedical Evacuation Office during the out-briefing process. A stamped, addressed return envelope was included to facilitate the return rate. Surveys returned after 28 July 1987 were not included in the study.

7. A questionnaire was prepared and sent to all referring medical treatment facilities within DOD Region III (see Appendix H). These sites included: Fort Riley, KS; Fort Leavenworth, KS; Fort Leonard Wood, MO; Ellsworth AFB, SD; Grand Forks AFB, ND; Minot AFB, ND; Hill AFB, UT; Offutt AFB, NE; and McConnell AFB, KS. Fort Leonard Wood, MO, was included as a regional referring site because of the existing service-approved, inter-hospital agreement for regulating their patients to FAMC when the required

capability is available. Under these circumstances, Fort Leonard Wood representatives attend the Region III Review Committee meetings.

The questionnaire was designed to acquire site-specific information concerning the following areas: policies and procedures for patient transfer; patient preparation; and perceived problems or limitations of the referral process. A descriptive type format was used to allow facilities to individually describe their procedures. Each respondent was also requested to furnish applicable aeromedical evacuation Standard Operating Procedures (SOPs), local forms, and available patient handouts. A follow-up call was made to each site two weeks after the questionnaires were mailed.

Evaluation of Data

1. Descriptive statistics were used to evaluate the demographic data in the patient responses to the satisfaction surveys.
2. The representativeness of the sample population was determined by comparing the demographic data of the sample to the FY 1986 demographic data obtained from ASMRO.
3. The results of the patient satisfaction responses were presented for all patients and by each referring site using descriptive statistics. The level of

patient satisfaction was evaluated by the mean scores as stipulated in the study criteria.

4. The narrative information provided by the sending medical treatment facilities was compared to appropriate regulations for discrepancies.

5. The patient survey results were used as a basis for evaluating the effects of potential problems in the patient referral process. The results of the various interviews and the data requested from each referring site were evaluated to determine potential sources for the dissatisfaction.

6. The problem areas identified in the flow model were analyzed in terms of the following deficiencies:

- a. Inappropriate system design of the model
- b. External constraints inhibiting appropriate use of the model
- c. Level of compliance to the model

7. Based on the identified deficiencies, an optimum model was developed to correct specific problem areas. Recommendations for correction of identified concerns were developed in light of external system and site constraints.

CHAPTER TWO

LITERATURE REVIEW

The nature of this study concerned itself with a national regional network and an organized system of referrals that is unique to the military health care system. This literature review focused on two concepts: the regionalization of health care and the patient referral process.

Regionalization of Health Care

Overview

The concept of regionalization of personal health services has been advocated for many years to provide an organizational framework for the delivery of health care. The earliest published proposal for regional health systems, the Dawson Report (1920) in England and the publications of an American proponent, Mountin, in the 1940s, presented a similar basic concept for planning health services. A prototype regional health system was described which contained a network of primary and secondary hospitals that was affiliated with a large teaching hospital with each hospital distinguished by specified different levels of services

and resources (Rice, 1979). However, their proposals did not lead to widespread application of the concept.

Federal legislative attempts through the Hill-Burton Act of 1946, the Regional Medical Program Act of 1965, and the Comprehensive Health Planning Act of 1966 incorporated principles of regional planning and coordination, but this objective did not produce substantial regionalization programs (Shonick, 1976). The ineffectiveness of these programs led to the enactment of the National Health Planning and Resources Development Act of 1974 (PL93-641) which established a framework for developing regionalized systems. It mandated the delineation of health service areas in each state and the creation of a Health System Agency for each area. Health System Agencies were given the responsibility for regional planning, but not the authority. This meant that they could make recommendations in an attempt to influence state health policies, but they had no authority to implement changes (Wennberg & Gittelsohn, 1981).

Despite a long history of legislative efforts, regionalization has been erratic and limited. Proponents of regionalized systems believe that this approach offers the greatest potential for improving the availability, accessibility, quality, and

efficiency of personal health services (Ginzberg, 1977). Once a region is established, hospitals, clinics, physician groups, medical schools, and other health service agencies need to commit themselves to regional goals. These objectives would encompass mutual areas such as capital expenditures, construction, joint purchasing, health education, and manpower training. The distribution of resources, scope of hospital services, and patterns of referral would be determined. Cooperation and coordination among the participants becomes imperative to accomplish such an integrated regional network of health care (Hepner, 1978).

The formation of regional interrelationships becomes especially difficult in a system where health care is provided by multiple providers in a variety of settings and funded by numerous sources. The lack of a national constituency group creates further difficulties as regional planning appears conspicuously absent at a centralized level. The voluntary restructuring required by independent health care organizations is inhibited by the resultant change in relationships, necessary trade-offs, and loss of autonomy (Sussman & Gonzales, 1983).

A case study of the University of Chicago Medical Center's attempts to develop a regional network exemplifies the problems and resistances which impede such a development. Professional and organizational interests prevented the necessary adjustments for integrating the medical center and peripherally located institutions. The authors concluded that regional integration was unlikely to occur until health care organizations experienced a shortage of patients, labor, or other resources, and prompted by such conditions, the organizations reprioritized their objectives in a complementary way (Tarlov, Schwartz, & Greenwald, 1979).

It has only been the last few years that noticeable organizational linkages have developed among health care institutions which have affected regional delivery systems. These market-driven changes have occurred more from private initiatives than regulatory attempts. In McManis' (1986) analysis of health care industry trends forecasted throughout the 1990s, he stresses that health care will be delivered regionally, not nationally. He does not foresee the dominance by mega hospital chains, but notes that even the large hospital systems are building local and regional integrated health care clusters.

Experiences of the Department of Defense

The early efforts of the Department of Defense in developing regionalized medical care networks were strongly influenced by the political and economic environment characterized at the beginning of the 1970s. At that time, the massive federal expenditures for Medicare and Medicaid resulted in a new commitment by the government to better allocate and use health care resources. The "New Federalism" slogan used by the Nixon Administration advocated decentralization of federal service programs. It was felt that organization and service delivery by regional units under the Department of Health, Education, and Welfare would be more efficient than those under state or local governments (Strickland & Miike, 1977).

In July 1972, under congressional pressure, the Department of Defense responded by gaining agreement from the Army, Navy, and Air Force to test a tri-service regionalization concept that would provide more uniform delivery of health care services. A regionalization test plan was tried for a year in four geographical areas: the San Francisco-Oakland Bay area; the Gulf States area, mainly Texas; the Southeast area, centered in Georgia; and the Tidewater area, primarily Virginia. At the completion of the test

phase, Secretary of Defense officials concluded that the study was successful as evidenced by improved efficiency and economy in military medical operations. As a result, the three services were directed to implement the Armed Forces Regional Health Services System on 1 October, 1973 (Clement, 1973). The continental United States was divided into thirteen military medical regions based on military population and location of tertiary treatment facilities. Each of the thirteen regions had a tri-service review committee to monitor health services, capabilities, and operations.

Approximately six months after the Armed Forces Regional Health Services System was formally implemented, a report was made by a special investigating body of the House Armed Service Committee. Although there were a few notable exceptions, essentially nothing had changed as each service continued its own approach to medical care. It further appeared that the Department of Defense succumbed to each individual service's desire to largely ignore the implementation of regionalization policies. For instance, the Department of Defense continued to appropriate hospital construction funds as requested by the three separate services. The

Department of Defense concluded from the regionalization test areas that staffing economies were not feasible under tri-service operation of facilities. According to the review provided by Strickland and Miike (1977), after three years of alleged implementation of the DOD regional health care system, it remained "a conceptual, organizational framework for collectively organizing and managing a system of health care delivery in a specified geographical area, but it was not a working system" (pp. 50-51).

As a result of a recommendation from the Military Health Care Study published in 1975, a DOD Health Council was created in January 1977 to serve as a central, coordinating entity for overseeing the delivery of military health care. Included in its charter was the requirement to evaluate the Armed Forces Regional Health Services System; this objective was interpreted to mean implement an enhanced regionalization system (Rumsfeld, 1976; "DOD Health Council", 1977). In August 1977, the original thirteen Military Medical Regions were reduced to nine to provide a more optimal management structure (Duncan, 1977). The Council prepared a Department of Defense Directive, Number 6010.9, which strengthened the Armed Forces Regional Health Services System by establishing

new goals, broader responsibilities, and a new concept of operation. It recognized the role of the DOD Health Council and specified new functions and responsibilities of the Regional Review Committees (Smith, 1977; DOD Directive No. 6010.9). The proposed DOD Directive was submitted to the Secretary of Defense for review and signature in December 1977, but it was never approved.

Part of the results of the regionalization efforts is related to the central issue of whether there should be one or three military medical systems. This issue has been addressed over the years by a number of administrations. In the late 1940s, unification of the Army, Air Force, and Navy was recommended by the Hoover Commission, but interservice rivalry prevented its occurrence. Subsequently, another review was requested by President Eisenhower. This report recommended that individual service medical departments be maintained, basically because of different wartime requirements for each service's medical support operations (Strickland & Miike, 1977). While the proposed 1977 DOD Directive concerning the Armed Forces Regional Health Services System was generally agreed upon by the services, there was still an expressed concern that it represented an effort to operate a single hospital system in the

Department of Defense. This interpretation was refuted by the Assistant Secretary of Defense for Health Affairs who stressed that the proposal offered a coordinated military hospital system as an alternative to a single system (Smith, 1977).

Current Initiatives

Spurred by the compelling economic and political pressures of the 1980s, the Department of Defense began to take more than marginal steps in reviewing tri-service regionalization policies. Pending long range regionalization efforts, all military medical facilities were instructed to participate in the immediate implementation of quarterly Regional Review Committee meetings with emphasis on documented, tri-service coordination and resolution of mutual health care problems (Mitttemeyer, 1982). The consolidated control of individual service's medical construction programs was elevated to the level of the Assistant Secretary of Defense for Health Affairs. For the first time, in February 1987, a Joint Military Medical Command was established in San Antonio, Texas, uniting the area's five medical facilities of the Army and Air Force. A new multi-service joint command for the delivery of health care in the Delaware River Valley is already in the planning stages with a recommended

implementation date of October 1988 (Harben, 1987).

The Army and Navy Health Clinics at Oakland, California, have consolidated their operations and will serve as a prototype for future tri-military service clinics (Wullenjohn, 1987). Similar redundancies in health care programs and inefficiencies in health service operations have led the Assistant Secretary of Defense for Health Affairs to consider adoption of a Defense Health Agency.

The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) Reform Initiative provides another example of regionalization. Plans are in progress for awarding contracts on a regional basis which will further integrate military and civilian health care systems (Tokarski, 1987). Health Services Command has strongly advocated the use of Army medical centers as Integrating Centers in an effort to enhance regional communication and performance. While this initiative is still in the planning stages, the Commanding General, HSC, has already announced that FAMC will be the prototype for the Integrating Center concept.

At the Office of the Assistant Secretary of Defense for Health Affairs, the Patient Referral Network Initiative is currently under development.

This initiative addresses the potential patient demand and resources available within each DOD military medical region. Patient referral patterns would be established within each region unless there is a lack of required capabilities which would make it necessary to regulate the patient outside of the regional referral network. The DOD regional commander would be totally responsible for monitoring and adjusting resources accordingly within the region. Productivity indicators would be used by the Department of Defense to distribute resources among the regions. Health Affairs spokespersons have asserted that this initiative is beyond the proposal stage and into the planning stage. While they acknowledged the resistance by the individual services, they indicated that these regionalization efforts are the wave of the future.

This review suggests that regionalized military medical care networks are facing new and stronger operational direction than in the past. The political forces affecting military health care policies appear committed to changes affecting regional organizational structures. These observations imply that efforts which seek to improve identified problems of mutual concern within a region will serve to strengthen regional linkages consistent with current trends.

Patient Referral Process

The patient referral process constitutes an important aspect of health care services. The term referral represents "a request for the services of another person, physician or otherwise, and includes a temporary or permanent transfer or sharing of responsibility for part or all of a patient's care to another physician or health care institution" (Brock, 1977, p. 1129; Ludke, 1982, p. 782). In this context, consultation, meaning a request for an opinion or special studies from another health care provider, is included in referral.

The literature cites several reasons for referral. It may be for diagnosis, confirmation of a diagnosis, treatment, or confirmation of the medical management of a patient. The decision to refer may also depend upon the diagnostic and treatment facilities available to the physician, the referring physician's scope of practice, medico-legal reasons, patient requests, time constraints, and other related factors (Ludke, 1982).

Hospital's Role

The hospital serves a critical function in the patient referral process. Invariably, the consulting physician uses hospital resources for the workup and treatment of the patient on either an inpatient or

outpatient basis. The hospital may also function as an intermediary in the referral process. It is not uncommon for a referred patient to be sent directly to the appropriate medical service within the hospital and to be assigned to a consulting staff physician. Similarly, the hospital plays a responsible role in discharging the patient back to the referring physician (Ludke & Levitz, 1983).

The referral process has a strong impact on the continued stability and growth of the hospital. Referrals serve as a vital source of patients which generates additional revenue for the institution. Particularly for the teaching hospital, referrals support the education and research programs by augmenting the necessary number and range of complex cases (Fink, 1980).

There are several variables which determine a hospital's effectiveness as a referral center. A critical factor for the hospital is the establishment of systems to facilitate and coordinate the referral process. Five principles for coordinating care between an urban teaching hospital and the community's general practitioners were discussed by Torrens (1969) and were reviewed by Ludke and Levitz (1983). They recommended that these principles be broadly adopted by referral

centers. The first principle states that there must be a separate and distinct office in the hospital to handle referrals from and relationships with the community physicians. The responsibility for referred patients must be visibly centralized as too many loopholes exist when various wards, sections, and departments assume parts of this responsibility. Second, this office must be supported by the highest medical and administrative levels of the hospital. It must be an integral part of the hospital's function and organization and must be tied in with a mandatory reporting system with all parts of the hospital. Third, arrangements for referrals must start in the referring physician's office before the patient ever starts for the hospital. The patient's arrival should be arranged through the hospital's coordinating office which should be the first place the patient contacts when he comes to the hospital. As a fourth general principle, it is important to realize that there are different kinds of patients referred and that these differences will directly affect the degree and type of coordination service that should be established. Finally, it is important to distinguish between paper coordination, where information about the patient is recorded and sent, and real coordination, where the

referring physician is involved in the care provided by the hospital.

Physician's Role

A critical factor in shaping a successful referral program is understanding the roles and attitudes of the key participants. It has been traditionally acknowledged that the patient plays a relatively minor role in health care decisions and that the physician decides which hospital will be used by the patient (Ambrose & Purdum, 1974; Koger & Perry, 1983; Williams & Woods, 1981). A nationwide study reported by Inguanzo (1986) showed that 47.3 percent of patient consumers relied on their physician to select a hospital for them and another 13.2 percent selected a hospital jointly with their physician. Unquestionably, the patient referral process is strongly affected by the powerful influence of physicians and their role as gatekeepers for access to the hospital.

A review of the literature supports the recognized role of the physician in the patient referral process. While most of the early referral research in the 1960s was related to patient demographic factors such as age, sex, socioeconomics, and personality (Brock, 1977), research has more recently focused on the physician.

Williams and Woods (1981) studied medical and non-medical factors which influenced physician referral patterns and found that the patient feedback factor was the strongest factor affecting physician satisfaction toward the referral center. This refers to the complete and timely return of information concerning the referred patient's treatment and progress. The researchers stressed that this is an important area over which the hospitals can exert some measure of control. By monitoring the prompt return of patient discharge summaries, the hospital's reputation may be enhanced among referring physicians.

Metcalf and Sischy (1974) reported that communication from the consultant was so strongly valued by the referring physicians that its lack might result in the cessation of referrals. Ludke and Levitz (1983) also emphasized the significant impact that the communication process between the referring and consulting physician has on the referral process. They recommended that hospital administrators ensure that appropriate communication mechanisms are implemented within the hospital to facilitate the return of information in a way that best meets the needs of the referring physician.

Fitzgerald (1985) described a program designed to improve communications between a large, tertiary referral center and its referring physicians. A referring physician coordinator from the medical record department serves as a liaison between the medical service departments and referring physicians to ensure timely information is provided on patient location, clinical status, and discharge. A study of their implemented program revealed that 75 percent of its referring physicians used the coordinator service.

Patient's Role

Understandably, much attention has focused on the physician in studies of the referral process. However, understanding the role of the actual health care recipient should not be overlooked or underrated. Patients are acutely sensitive to the way they are handled during the referral process. The referral experience not only reflects the care and concern of the referring physician and consultant, but it also imparts a pointed impression of the referral center (Womack, 1982). The quality and type of interactions encountered by the patient with the ancillary and administrative services within the hospital setting will impact on the patient's referral experience. A hospital which successfully manages these encounters

can enhance its image within the referral community.

In turn, a favorable reputation can lead to increased referrals and a greater patient demand for hospital services (Gregory, 1986). Consequently, there is strong motivation for hospital administrators to structure and manage referral programs in a manner that achieves optimal results.

The selection of a hospital is undoubtedly more complex than what the foregoing discussion implies. A marketing study by Okorafor (1983) found that patients are more influential in hospital selection decisions than what was previously thought. In a study on patient versus physician selection of a hospital by Kurz and Wolinsky (1935), 41 percent of the patient respondents reported that they had selected the hospital. This response was considered to be a conservative indicator of the rise in patient participation. The authors cited the growing consumer advocacy movement as an influential factor affecting hospital selection and recommended that patients be viewed as independent purchasers of health care.

A study by Ludke (1982) was conducted to identify factors that physicians consider when deciding whether or not to refer a patient and where to refer a patient. One of their findings indicated that the patient does

play an important role in the referral process. The patient's expectations of referral, their preferences for certain consultants or referral centers, and their previous use and satisfaction with consultants or referral centers were some of the factors considered by the referring physicians. This implies that consultants and hospital administrators must be aware of the patient's role and the important feedback mechanism they provide, not only to the referring physician, but also to their family and friends. The hospital needs to ensure that services are provided in such a way that every patient is a potential "sales representative" of the referral center (p. 793).

A study was conducted in England to survey both patients and general practitioners regarding the use of nearby hospitals in referral decisions (Odell, 1983). The results of the patient questionnaire suggested that distance and convenience were the most important factors for patients in determining which hospital they preferred. The reasons given for the most preferred hospital were its proximity to the patient's home, convenience for visitors, and its small size and friendliness. The author stated that the most relevant concerns of the patient in selecting a referral hospital appeared to be non-clinical factors. In

contrast, the responses from the general practitioners revealed that a wide range of criteria were important in determining where to refer the patient which included: convenience for the patient, patient preference, bed availability, size of waiting list, perception of a particularly good service being available, quality of the general practitioner's relationship with the consultants, professional association with a hospital, and the patient's previous history of inpatient care. The author concluded that the referring physician selects the hospital that best meets the needs of the patient by exercising clinical judgement, by evaluating professional relationships, and by using the unique knowledge of the patient and the patient's family to ensure that the wishes of the patient are taken into consideration as much as possible. The study also highlighted the point that the administratively-determined, geographical boundaries for regional health care were not observed as cross-over occurred in the referral process. The arbitrary boundaries were not influential in determining the natural patient referral flow which was more oriented in terms of proximity, social, and economic ties to places outside the artificial health care boundary.

Marketing Implications

Despite the limited number of referral studies which specifically focus on the patient, there is much evidence that closer attention is being paid to patient's opinions of hospital care. This attention towards the patient has centered around the concept of patient satisfaction. The sheer volume of articles on this subject reflects the increased interest of hospital administrators in viewing patients as valuable consumers (Carey & Posavac, 1982; Speedling & Rosenberg, 1986). The need for understanding the expectations and preferences of supported patient populations has been stimulated by many forces which include a competitive environment, marketing endeavors, patient participation in health care decisions, quality assurance concerns, and risk management imperatives. The economic well-being of health care institutions depends, in part, on their responsiveness to consumer's needs and a resultant satisfied clientele (Baker & Wimberly, 1984; McBrien, 1986).

In the past, hospital administrators have decided what the people in their service areas should have rather than finding out what those people need, desire, or would be willing to pay for and use. Marketing research can greatly assist hospital administrators by

determining patient demographic profiles; by assessing patient's needs, expectations, and perceptions; and by evaluating potential demand for certain services. It can identify what is important to a consumer target population, what is not important, what areas can be improved, and what areas are satisfying. Marketing research can range from comprehensive regional studies used to track general trends to focused studies evaluating the perceived potential for one specific product. Marketing research provides the hospital a basis for developing internal strategies for the design and operations of its services and facilities. A hospital must provide and emphasize those aspects considered important by the consumers in its own catchment service area, and it must correctly identify hospital features that are within its control to manipulate (Clarke & Shyavitz, 1981; Inguanzo, 1986; and MacStravic, 1984).

The patient satisfaction survey has received substantial recognition as a useful marketing tool for evaluating hospital services. Although patient perceptions and desires are not always practical or real, they are beliefs, nonetheless, and provide useful feedback for system adjustments. Patient satisfaction surveys should focus on specific issues and should be

administered routinely in order to develop stable baseline information on selected services (Heffring, Neilsen, Szklarz, & Dobson, 1986; Speedling, Morrison, Rehr, & Rosenberg, 1983).

The importance of consumer satisfaction information becomes paramount in marketing programs as the marketing process is centered around the concept of an exchange of values. Whether the transaction involves a product or a concept, an exchange occurs as something is transferred away and a price is paid in return. Once the consumer is satisfied, the patient will return to purchase or consume again (Kotler, 1984). MacStravic (1984) defines the marketing of health services as "the engineering of satisfaction" where the key to success is identifying and influencing potential customer's expectations and then fulfilling those expectations. It has been hypothesized that patients will pay an "access premium" or travel farther to use preferred hospitals and physicians (Gregory, 1985).

Patients form judgements of hospital experiences based on those features they feel qualified to evaluate. Since patients often have no way of measuring the quality of medical care, these consumers particularly judge hospital activities by focusing on

non-medical factors. Patients are particularly attuned to the quality of the physical environment, the convenience of services, and the courtesy and personalization of treatment from hospital employees. Thus, in attempting to increase patient satisfaction, hospital administrators may legitimately focus on the amenities factor or the so-called hotel services (Fink, 1980; Heffring et al, 1986; McBrien, 1986; Muller, 1984; and Riffer, 1984).

Based on the findings of consumer satisfaction surveys and the resultant program designs, communications becomes a key element in highlighting hospital services and guiding patient expectations. Personal communications, written handouts, videotapes, or slide presentations can be used to prepare patients on what to expect in a particular health care experience (MacStravic, 1985). Moreover, information that is received in advance of the hospital admission can increase the patient's coping abilities by minimizing the unpredictability of the hospital environment. The hospital can explicitly communicate the ways in which it is accountable to the patient by emphasizing what the patient can normally expect and whom to contact for what problems (Speedling & Rosenberg, 1986). Ideally, communications should

contain favorable expectations, reinforce patient satisfaction when those expectations have been met, and convey a general message of caring and concern.

Given the implications of referral decisions and the impact of the patient's consumer role, a greater understanding is needed of the factors that referred patients consider important in the referral process. Information should be collected on the types of patients referred, the particular needs of those patients, their expectations, and their level of satisfaction with the referral process and the services provided (Brock, 1977; Ludke & Levitz, 1983). The insights gained from this particular market segment can help serve as a basis for what modifications should be made in order to strengthen the hospital's referral program.

CHAPTER III
PATIENT REFERRAL PROCESS FOR
DOD MILITARY MEDICAL REGION III

Military medical treatment facilities vary in size and capability which accounts for the need to transfer patients. This chapter describes the process used for patient referrals within a peacetime domestic setting based on its two components: patient regulation and patient movement. An understanding of these two components is important in appreciating the complexity of patient transfers.

Following an overview of these activities, a description of the patient referral systems model is presented. The discussion of operational procedures for patient referrals is based on military guidance and regulations. Specific emphasis is placed on the responsibilities of originating and destination medical facilities. Certain constraints impacting on the patient referral system are also identified.

Medical Regulating System

When comprehensive medical care cannot be provided, it is essential that a patient be referred to a hospital where appropriate medical care is

available. The selection of the appropriate medical treatment facility is known as medical regulating and is the sole responsibility of the Armed Services Medical Regulating Office (ASMRO).

The mission of ASMRO is to operate a patient regulating system that supports the movement of patients returning to and traveling within the continental United States (CONUS). Objectives of the medical regulating system are twofold: (1) to direct patients to a proper source of care, and (2) to promote the optimal utilization of medical resources, including transportation assets ("Medical Regulating", 1987).

ASMRO is a joint agency of the Army, Navy, and Air Force and serves under the operational control of the Office of the Joint Chiefs of Staff. In order to enhance regulating functions, ASMRO was directed to relocate from the Pentagon in 1982 to its present location adjacent to the Patient Airlift Center (PAC) at Scott AFB, Illinois. Since regulating decisions drive the entire aeromedical evacuation system, the consolidation of ASMRO and PAC has improved communication and coordination, and has provided a more efficient means to regulate and move the patient (Lee, 1986).

Concurrent with the relocation policy decision, an automated data processing system was developed to support ASMRO functions by linking military medical facilities and the Patient Airlift Center with ASMRO. The resultant system, known as the Defense Medical Regulating Information System (DMRIS), has been installed in most of the medical facilities in the continental United States (Lee, 1986). This has permitted one-step patient reporting of routine patients for both regulating and movement to ASMRO.

With the advent of automated patient reporting, the accuracy of information entered into DMRIS has become essential. The evacuation clerk is now responsible for submitting information consistent with the system's requirements based on complete information received from the referring physician. Prior to DMRIS, the evacuation clerk telephonically reported a patient to ASMRO which allowed the regulators to act as a prompt to obtain the proper information. This human interaction no longer occurs with routine reporting. Submission of incomplete information results in a breakdown in the process since the automated system has become not only a vehicle for sending and receiving patient information, but has also resulted in the

majority of regulating decisions being made by computer programs.

The Department of Defense policy for medical regulating stipulates that patients shall be transferred to the closest military medical treatment facility with the capability of providing the required medical care (DOD Directive No. 5154.6, 1985). Regulating decisions are made without regard to the service affiliation of the patient or medical facility, the aeromedical evacuation routes, or the type of transportation used to effect the transfers. Medical regulating is not regionally oriented; therefore, individual Health Service Regions and DOD Military Medical Regions are not planning factors for determining referral locations.

Consistent with the regulating policy, ASMRO maintains a listing of current medical capabilities by specialty of all CONUS military medical facilities. This information is submitted semi-annually by each service through the Uniformed Services Medical Capabilities Report (DOD Directive No. 5154.6, 1985). Interim changes are reported to ASMRO as they occur whereupon the DMRIS database is immediately updated.

Reasons why patients are not transferred to the closest medical facility do exist. Patients who are

not expected to return to duty are normally moved to the hospital closest to their place of residence. Other regulating policy exceptions may include reasons for continuity of treatment, board actions, humanitarian purposes, administrative requirements, or medical conditions which have merit as teaching cases. There are also a limited number of service-approved, inter-hospital agreements. For example, one allows all patients originating at Leonard Wood Army Community Hospital to automatically be transferred to FAMC, assuming the required medical specialty is available ("DMRIS User's Manual", 1987). Since 1 September 1986, the authority for approving exceptions to policy lies with ASMRO and is no longer a service responsibility. However, if clinical assistance is desired, ASMRO personnel will confer with the appropriate military service consultant.

Outpatients are not regulated by ASMRO, but their movement requirements are reported under the one-step reporting process by the transferring hospital in a similar fashion as inpatients. ASMRO accepts the information and passes the patient requirement for movement by the aeromedical evacuation system to the Patient Airlift Center.

The basic regulating policy of utilizing the closest facility with capability does not consider the travel time for patients. The actual travel time is based on the established aeromedical evacuation routes between points. For example, the distance from Fort Riley, KS to Shepard AFB, TX is 418 miles; it is 467 miles from Fort Riley to FAMC (AR 55-60, 1979). Patients originating at Fort Riley, destined for Shepard AFB, must stay overnight at Scott AFB, and are usually transported the next day to Shepard AFB. The overnight stop is avoided when patients are referred to FAMC because the flying route between Fort Riley and FAMC is accomplished the same day. However, this extended travel time does not justify an exception to regulating policy unless there is an extenuating medical reason.

Aeromedical Evacuation System

Whereas medical regulating is concerned with "where" a patient should go to receive more definitive treatment, aeromedical evacuation is concerned with "how" a patient should be transported. By DOD definition, aeromedical evacuation is "the movement of patients under medical supervision to and between medical treatment facilities by air transportation"

(AFR 164-5, 1975, p. 1). Although the primary mission of aeromedical evacuation is to provide expeditious transportation for sick, injured, or wounded active duty members, all other eligible beneficiaries are permitted to use the system provided that the primary mission is not compromised (DOD 4515.13-R, 1980). As such, aeromedical evacuation plays an integral role within the DOD military health care system.

The preferred method for movement of domestic patients is by the aeromedical evacuation system. Consistent with DOD definition, this system provides for the control of patient movement by air transport; furnishes specialized medical attendants and equipment for in-flight patient care; provides facilities for limited medical care of patients entering, in transit, or leaving the system; and communicates with originating and destination medical facilities concerning patient requirements (AFR 164-5, 1975).

The aeromedical evacuation mission has been delegated to the Military Airlift Command (MAC). At the operational level, the 375th Aeromedical Airlift Wing (AAW), located at Scott AFB, IL, has the overall worldwide responsibility for the system. The 57th Aeromedical Evacuation Squadron (Scott AFB, IL) is responsible for the day-to-day aeromedical evacuation

operations within the continental United States and near offshore areas (AFP 164-4, 1986).

The Patient Airlift Center (PAC) at the 57th Aeromedical Evacuation Squadron is the administrative core of the domestic aeromedical evacuation system. It is manned twenty-four hours per day, seven days per week to support airlift operations by coordinating patient evacuation requirements with airlift capability and monitoring all patient movement activities.

The C-9A Nightingale aircraft has been specifically designed and dedicated exclusively for the aeromedical evacuation mission. It can carry up to 40 patients in mixed litter and ambulatory configurations.

Flight Clinical Coordinators are flight nurses assigned to PAC who screen all clinical data and patient requirements. Approximately 300 patient reports are reviewed each day (375 AAWP 164-3, 1986). The heightened emphasis on quality assurance issues has prompted close monitoring of patient care activities through this screening process.

An aeromedical evacuation mission refers to the complete routing of an aircraft from the originating to the destination facility including en route stops or legs. Daily missions are planned with consideration of patient requirements, geographical areas, availability

of aircraft, maintenance, time factors, and weather (AFP 164-2, 1983). Several aeromedical evacuation missions are flown each day of the week. Although the routes generally follow a repetitious pattern, originating and destination hospitals can never be certain that a routine flight will be scheduled until actually notified by PAC. Even then, there is always the possibility of cancellation due to weather conditions, maintenance requirements, or the need to divert the aircraft for urgent or priority patient cases. Essentially, the aircraft flies set territories or geographical regions, but not necessarily set routes.

Currently, missions are planned one day in advance using a manual system for patient and aircraft scheduling. By 1400, a tentative plan for the next day's missions is formulated, but this is not confirmed until approximately 2300. Thus, the actual flight itinerary and patient manifest are not known until the night before the mission's execution even though routine patients must normally be reported at least 48 hours prior to the desired transfer day (375 AAWP 164-3, 1986).

It is projected that many manual functions of the medical mission planner will be automated with the

implementation of the Automated Patient Evacuation System (APES), a computer project under development. This computer project will facilitate the generation of optimal mission plans and the assignment of patients to the appropriate mission. Changes in reporting requirements by originating facilities are not anticipated, but more timely communication of planned patient transfers is predicted.

Current policy requires that routine patients be picked up within 72 hours of the time the originating medical facility states the patient is ready for transfer (375 AAP 164-3, 1986). Although patients may arrive at their destination hospital the same day they departed the originating facility, it is very possible that patients may be required to remain overnight (RON) at an aeromedical staging facility. Forty percent of all airlifted patients require at least one layover, a strong indicator of the system's inability to directly transfer patients (Lee, 1986).

Policy states that patients should be delivered to their destination medical facility within 72 hours after pickup at the originating facility and that 48 hours is considered maximum for patients in RON status except under unusual circumstances (AFR 164-5, 1975). More recent references on this issue acknowledge that

patients may be required to remain in the aeromedical evacuation system for up to five days (375 AAWP 164-3, 1986; AFP 164-4, 1986).

Although efforts are made by the aeromedical evacuation system to plan routes that accommodate the demands of patient flow, the system is constrained by the number of stops and flying hours each day. For safety reasons, only a maximum number of eight stops may be planned for each mission, or actually seven en route stops for onloading and offloading patients (Lee, 1986).

Patients who are required to remain overnight are normally placed in an aeromedical staging facility (ASF). It is the Air Force's responsibility to provide these medical facilities near air bases to support in transit patients with administrative processing, ground transportation, meals, and limited medical care (AFR 164-5, 1975). However, the ASFs belong to the medical installations at the designated interim stops and are not owned or operated by the aeromedical evacuation system (AFP 164-2, 1983).

The aeromedical staging facilities also provide accommodations for medical and non-medical attendants of patients. Passengers who travel in space-available status on aeromedical evacuation flights are not

entitled to stay in ASFs. These passengers also do not receive in-flight medical care or free meals, and travel at the risk of being bumped by a manifested patient.

There are six CONUS medical facilities with designated ASFs to include FAMC (375 AAWR 164-1, 1980). These facilities are located at strategic points for major aeromedical evacuation routes and basically form six geographical areas or regions for mission planning purposes. These regions are shown in Appendix I with the ASFs located on or near the detachments. The planning for aeromedical evacuation routes is generally centered around the ASF areas to accommodate patients who must be housed overnight. Coincidentally, the FAMC ASF area three is identical to DOD Military Medical Region III. Thus, when patients are referred from sites within DOD Region III and FAMC is their destination, it is most probable that the travel time will be accomplished in one day.

The concern for diminishing domestic aeromedical evacuation capabilities in relation to the demand for airlift services is a subject addressed by Lieutenant Colonel Lee (1986). He attributes the near saturation of the system to the following policy changes: (1) redesignation of two C-9As to Europe; (2) total number

of domestic en route stops for a mission reduced from 10 to 7; (3) outpatients allowed transportation on aeromedical evacuation aircraft; and (4) maximum use of military medical treatment facilities to recapture CHAMPUS workload. The number of patients transferred via the aeromedical evacuation system has increased 50 percent since 1978 with no accompanying increase in resources (p. 50). Lee considers it essential that policies affecting the use of the aeromedical evacuation system be consistent and fully integrated with military medical health care policies.

Description of the Patient Referral Systems Model

The flow model portrayed in Figure 1 depicts the patient referral process from the time a decision is made to refer a patient for further health care services to the patient's return to the originating medical facility. Although the model is generic for patient referrals, specific references are made to FAMC as the receiving facility in the narrative description.

When a medical treatment facility is unable to provide comprehensive medical care for a patient and alternatives through CHAMPUS or supplemental care funds are not selected, the originating physician determines whether aeromedical evacuation is required to attain

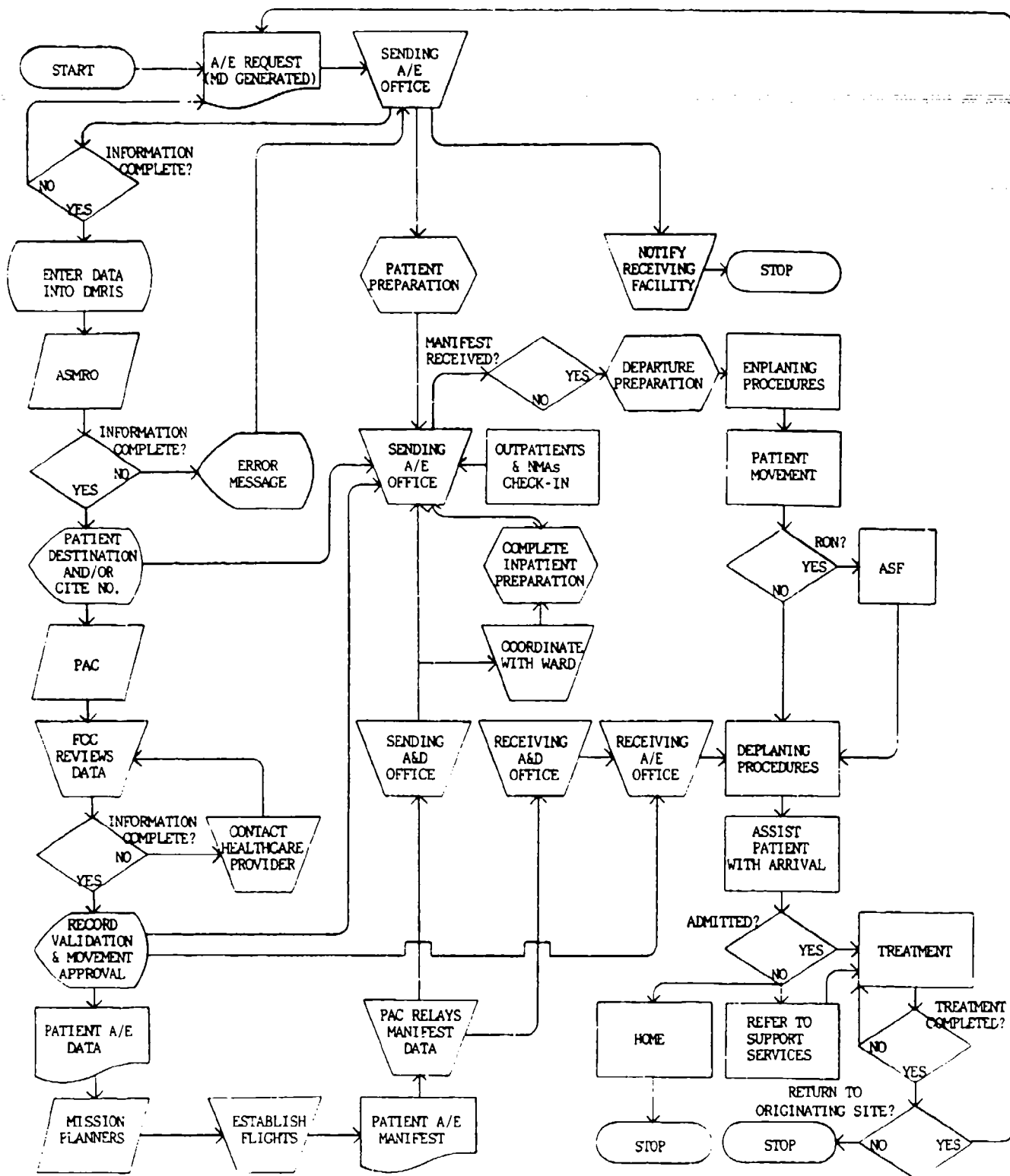


Figure 1. Patient Referral Systems Model for DOD Military Medical Region III

more definitive treatment. Preparing a patient for aeromedical evacuation is a joint responsibility of the originating physician, nursing staff, and administrative staff. However, it is the originating physician who remains fundamentally and professionally responsible for the evacuated patient; his responsibility does not end until the patient is under the direct care of the receiving physician at the destination medical facility (AFP 164-4, 1986).

When a patient is selected for aeromedical evacuation, the originating physician prepares a request for patient transfer which contains specific patient information. The patient classification identifies the patient as psychiatric or non-psychiatric and whether the patient must travel on a litter or in ambulatory status. Determination is made whether the patient is an outpatient or inpatient transfer. The physician may deem it necessary to have a non-medical attendant(s) accompany the patient. This is usually a family member whose presence is considered necessary for the patient's health or welfare. The physician must also provide accurate clinical information, special requirements or equipment needs, and a brief medical history (AFP 164-2, 1983; AFP 164-4, 1986).

The patient transfer information is submitted to the registrar at the originating facility where the evacuation clerk reports the patient to ASMRO by entering the data into the DMRIS system. Patients may be reported to ASMRO at any time. However, only those patients that are reported during ASMRO's normal duty day, 0600-1800 Central Time, Monday through Friday, will be regulated that day. Since outpatients are not regulated, ASMRO only accepts the patient information, assigns a control circle number to the record, and then passes this information through DMRIS to the Patient Airlift Center.

When a regulating request is made and an error in the submitted information is detected by ASMRO regulators, an "error" or "incomplete" message is noted on the patient's record by ASMRO. The evacuation clerk is responsible for checking the patient's record for these messages. The error must be corrected prior to the end of ASMRO's duty day or the record will be cancelled. A new regulating request must then be submitted if the corrections are not made by the end of the day ("Regulating Update", 1987).

When sufficient patient data has been correctly submitted, ASMRO regulates the inpatient through the DMRIS system by selecting an appropriate referral

hospital according to reported medical capabilities and DOD policy. Once a regulating decision is made, an ASMRO control cite number is assigned to the patient's record. The referring hospital learns of the patient's destination only by accessing the DMRIS computer system and acknowledging the regulating decision. The evacuation clerk cannot assume the patient's destination, but must verify the regulating information.

After the cite number is issued, the patient's record is released to the Patient Airlift Center through the DMRIS system. A flight clinical coordinator reviews the clinical information to determine the appropriateness of patient movement from a clinical perspective. The patient's diagnosis, classification, age, and other factors are considered in the record review (375 AAWP 164-3, 1986). When insufficient patient information is provided by the originating facility, the flight clinical coordinator telephonically contacts an attending health care provider at the originating facility to specifically determine the patient's condition and special requirements. The patient will not be considered for movement until adequate medical information is obtained. Once the patient report has been approved,

the flight clinical coordinator indicates the patient's acceptance for movement by validating the DMRIS record with his/her initials. Again, the evacuation clerk must access the patient's computer record to verify acceptance of the patient by the Patient Airlift Center.

Within the Patient Airlift Center, the patient information is released from the flight clinical coordinator to the mission planners. Their job is to consolidate and process all requests and coordinate the timely movement of patients. Based on each patient's originating and destination medical facilities, the patient's medical condition, and available aircraft and aircrew, flight itineraries are established with the patient assigned accordingly.

It is the responsibility of the originating medical treatment facility to notify the receiving facility of the contemplated transfer and to furnish patient information necessary to ensure advanced planning (AR 40-350, 1975). This does not necessarily mean the originating physician should contact the referral physician. However, when the transferring facility reports outpatients for movement, the name of the accepting physician at the destination hospital is required unless the referral clinic has a resident

program and the name of the accepting physician is not available ("Patient Reporting", 1986).

Adequate patient preparation must begin prior to the actual departure. At the originating medical facility, patients and non-medical attendants must be thoroughly briefed by an individual familiar with the aeromedical evacuation system (AFR 164-5, 1975). This is usually the evacuation clerk's responsibility. According to AFR 164-5 (1975), the briefing may be verbal or written and should include:

- (1) The manner in which the aeromedical evacuation system operates.
- (2) The necessity for RON and regrouping of patients.
- (3) Specific routing when known; otherwise, approximate routing.
- (4) Estimated time en route.
- (5) Baggage limitation.
- (6) The need for personal funds, appropriate dress, U.S. Department of Agriculture and Customs inspections.
- (7) The availability of in-flight insurance.
- (8) The destination hospital and how it was selected.

(9) The facilities available and rules governing stay of patients and their families at aeromedical staging facilities.

(10) The requirement for attendants to pay for meals aboard the aircraft.

(11) Any other information that will be helpful to the patient (p. 5).

It is recommended that supplemental information include the possibility of patients remaining in the aeromedical evacuation system for up to five days; the lack of access to stowed baggage; the need for a carry-on bag to accommodate en route stops; differences in climate from the originating to destination facility; the no smoking policy on the aircraft; funds needed en route; and the responsibilities and expenses for outpatients and non-medical attendants (375 AAWP 164-3, 1986; AFP 164-2, 1983). The originating facility should also provide patients with a copy of the brochure entitled, " Patient Transfer Information and Reaction Survey", MAC Form 206, Jul 86 (375 AAWP 164-3, 1986; AFR 164-5, 1975). This brochure contains guidance for flight preparation and provides an opportunity for patients to evaluate services received in the aeromedical evacuation system.

The originating medical facility must prepare travel orders for all patients and attendants. All pertinent medical records to include the inpatient treatment record, outpatient treatment record, narrative summary for inpatient transfers, and appropriate x-rays must be prepared and available for transport with the patient. The registrar at the originating hospital is administratively responsible for collecting the completed medical records (AFR 164-5, 1975). Patients may hand-carry their records en route to the destination facility if deemed appropriate by the originating hospital (375 AAWP 164-3, 1986). Otherwise, they are the evacuation clerk's responsibility until they are delivered to the flight nurse at the time the patient is enplaned.

The Patient Evacuation Tag, DD Form 602, is a legal document which becomes a permanent part of the patient's medical record (AFR 164-3, 1972). This document specifies en route treatment and medications to promote continuity of care between the originating and destination facilities and is used by the flight nurses for charting. The form is prepared by the evacuation clerk who provides patient administrative information, signed by the attending physician who completes medical instructions, and reviewed by the

ward nurse to ensure accuracy and completeness. This form is not to be carried en route by the patient, but is given to the flight nurse by the evacuation clerk. A copy of the inpatient narrative summary should be attached to the DD Form 602 for reference during the flight (375 AAWP 164-3, 1986; AFP 164-2, 1983).

The originating medical facility is also responsible for the patient's physical preparation. This includes provision of appropriate equipment, supplies, and special diets required for patients in flight. A three-day supply of medications should accompany the patient. Medications may be carried by the patient and self-administered provided this is noted on the DD Form 602 (375 AAWP 164-3, 1986). Litter patients must be clothed in hospital pajamas. Ambulatory military patients must be dressed in the appropriate service uniform (AFR 164-5, 1975).

Between the hours of 2300 and 0100 the night before the mission, both the transferring and destination medical treatment facilities receive the scheduled flight and patient transfer information on the Patient Evacuation Manifest. Personnel at the Patient Airlift Center relay the information either telephonically or by Omnifax machine. PAC personnel are responsible for keeping the flight detachments

informed about the aircraft's estimated time of arrival. In turn, the flight detachments notify the evacuation clerks at collocated in transit and destination medical facilities of the aircraft's pending arrival.

Patients must be listed on the manifest in order to be aeromedically transported. When the evacuation clerk reviews the manifest and notes that a patient who was accepted for movement is not listed, he/she must call the Patient Airlift Center immediately. It is possible that the patient was inadvertently dropped from the manifest and this may be resolved. It is also possible that a patient was not manifested on the expected mission because that particular flight was full. If the originating facility needs to cancel a patient's movement, this should also be done prior to the start of the mission.

As an exception, a request may be submitted to add-on a patient the morning of the mission. These requests should be based on a medical need of the patient and not for administrative convenience. Late patient reporting still requires processing through ASMRO and record screening by the flight clinical coordinator. The patient add-on request requires extra coordination and communication between the transferring

hospital and the Patient Airlift Center. The patient may or may not be accepted for movement that day by the Patient Airlift Center (Jernigan, 1987).

On the day of departure, outpatients and non-medical attendants check in at the predesignated time and place based on the estimated time of arrival of the aircraft. Coordination is made between the aeromedical evacuation office and nursing wards to complete preparation for the movement of ambulatory and litter inpatients.

The originating medical facility is responsible for ensuring that a Patient Baggage Tag, DD Form 600, is properly completed and attached to each item of baggage (AFR 164-3, 1972; AFR 164-5, 1975). Once the baggage is stowed on the aircraft, patients do not normally have access to it until they reach their destination.

The originating medical facility must provide ground transportation for patients and their baggage to the airfield and ensure that sufficient personnel are available to assist in enplaning the patients (AFP 164-2, 1983; AFR 164-5, 1975). All patients, attendants, and their baggage are to be searched for firearms or weapons prior to enplaning. The originating medical facility must provide a search certificate stating that

this inspection was done (375 AAWP 164-3, 1986).

Aboard the aircraft, the evacuation clerk hands over all Patient Evacuation Tags, available medical records, and x-rays to the flight nurse. A medical technician or nurse should be available to brief the flight nurse on the patients being enplaned (375 AAWP 164-3, 1986). The flight nurse briefs the enplaned patients on the travel time en route, en route stops, approximate ground time, safety features, weather, meals to be served, and other aspects of the flight (AFP 164-2, 1983). Patients are not allowed to leave the aircraft during interim stops before reaching the destination medical facility.

During the flight, the flight nurse completes the Aeromedical Patient Record Data Form (MAC Form 832) which specifies the date, mission number, patient's name, grade, and onload and offload station. A check is placed by each of the patient's records received: Inpatient Treatment Record, Outpatient Treatment Record, narrative summary, x-rays, and other miscellaneous records. At the destination facility, the form is signed by the person receiving the medical records. The form is later filed with the mission package to provide a record audit trail for the Patient Airlift Center.

At the receiving hospital, the evacuation clerk coordinates the transportation for the arriving patients based on the aircraft's time of arrival. The destination medical facility is responsible for providing personnel to assist with the offloading of patients (AFR 164-5, 1975).

During all enplaning, deplaning, and refueling operations, an ambulance, ambulance bus, truck or some vehicle must remain stationed near the aircraft. If an emergency should arise, this rescue vehicle must be available to evacuate patients and crew away from the flightline (AFP 164-2, 1983).

As the representative of the receiving facility, the evacuation clerk receives and signs for all DD Forms 602, medical records, and x-rays. A verbal report is given by the flight nurse to the evacuation clerk regarding any pertinent information about each deplaned patient. Once the patient's records are transferred to the evacuation clerk and the patient is deplaned from the aircraft, the patient becomes the responsibility of the receiving facility (AFP 164-2, 1983).

When the destination hospital is specifically FAMC, the patients arrive at either Buckley Air National Guard Base or Stapleton International Airport

(Jet Aviation Gate). Prior to the flight's arrival, FAMC personnel from the Admission and Disposition Office prepare the patient's admission packet. This is accomplished by querying the Automated Quality of Care Evaluation Support System (AQCESS) and the Decentralized Hospital Computer Program (DHCP) to obtain demographic information for those patients who have previously been admitted to FAMC. If there is no existing record, the data is obtained by calling the referring facility. To expedite administrative processing, admission personnel try to be present at the flightline with the admission packets when large incoming patient loads are anticipated.

The incoming patients are briefed by the evacuation clerk prior to the bus's departure from the airfield or during the fifteen minute ride to FAMC. At this time, two handouts are distributed: the "Fact Sheet for Aeromedical Evacuation Patients" (PT HO-18, Apr 82), and a FAMC installation map.

Upon arrival at FAMC, ambulatory inpatients who have already received their admission packet at the flightline may proceed directly to the admitting ward after retrieving their baggage. Similarly, litter patients may be transported directly to the wards by nursing attendants if the admission packet has been

received. Otherwise, patients are directed to the Admission and Disposition Office.

Outpatients and non-medical attendants are responsible for making lodging arrangements if prior reservations were not made. They are eligible to receive a meal pass to eat in the FAMC dining facility. Transportation may or may not be available to transport outpatients, non-medical attendants, and their baggage to on-post temporary lodging.

When further medical care is no longer required at FAMC, the process for returning inpatients, outpatients, and non-medical attendants to their originating medical treatment facility is similar to the process for arriving at FAMC. In essence, FAMC becomes the originating hospital and must follow the requirements of an originating medical treatment facility.

Constraints of the Patient Referral System

The process for patient referrals operates under certain constraints which have been alluded to in the preceeding discussion. These are now identified in terms of general, system-wide constraints and those that relate specifically to FAMC.

System-Wide Constraints

(1) The DOD policy for regulating dictates that patients be referred to the closest medical treatment facility with capability. Because of the aeromedical evacuation routes, the shortest distance does not necessarily mean the shortest traveling time. Therefore, patients may have to spend a longer time than desired in the aeromedical evacuation system.

(2) Originating medical facilities may report patients via DMRIS at any time. However, patients are regulated and their records are reviewed by the flight clinical coordinators between 0600-1800, Central Time, Monday through Friday. Evacuation clerks must report patients early enough in the day to allow for processing, validation, and resolution of any problems.

(3) Current Air Force policy stipulates that only those routine patients who are reported at least two days before the desired transfer day will normally be considered in mission planning for that day. This 48 hour reporting requirement enables the flight clinical coordinators to obtain sufficient medical information to provide an adequate clinical preflight evaluation (375 AAWP 164-3, 1986).

(4) Missions are planned by the Patient Airlift Center personnel the day before actual movement. Thus,

there is less than twenty-four hour notice to the originating and receiving medical treatment facilities of the scheduled flights and patient load.

(5) The overall aeromedical evacuation system is limited by the number of available aircraft, crew flying time, and en route stops for each mission. Therefore, patients may not be transported in one day to their destination medical facility, but may be required to remain overnight at an Aeromedical Staging Facility.

(6) Planned routine missions or legs of missions may be delayed or cancelled due to unforeseen weather conditions, mechanical problems, or the need to divert aircraft for urgent or priority patients.

FAMC Constraints

(1) The evacuation clerks coordinate transportation requirements to and from the airfield with the Patient Transport Service, Department of Primary Care and Community Medicine. Their vehicle assets consist of 2 ambulance buses and 2 vans. When an ambulance bus or van is dispatched to the airfield for an incoming flight, it also serves as the required flightline rescue vehicle. Frequently, the aircraft requires refueling during its Denver stop. This results in a lengthy waiting time for both departing

and arriving patients as the bus must be at the airfield prior to the aircraft's arrival and remain until the aircraft departs or shuts down. Adequate waiting room facilities are available at Buckley Air National Guard Base, but the waiting area at Stapleton International Airport cannot accommodate a large patient load. Litter patients remain with nursing attendants in the bus.

(2) FAMC is the one Army facility that has been designated as an Aeromedical Staging Facility. However, there are no resources allocated for this mission in terms of funding or manpower requirements. Patients who remain overnight are assigned to a nursing ward where a bed, meals, and limited medical care are provided. Non-medical attendants are responsible for obtaining lodging accommodations. Administrative support is accomplished by the appropriate organizational element within the medical center. FAMC receives no workload credit for patients remaining overnight.

(3) Temporary, on-post housing accommodations are limited at FAMC. The guesthouse has 40 rooms (16 single and 24 double) and operates under a prioritization assignment policy established by the installation commander (see Appendix J). The policy

gives very favorable consideration to aeromedical evacuation attendants. Reservations are made on a first-come basis and prioritized according to the date and time the request is received (AR 210-11, 1983).

The combination of visiting officer quarters (VOQ) and visiting enlisted quarters (VEQ) totals 164 rooms. The priority for personnel who may occupy and reserve space is restricted by AR 210.11 (1983). Outpatients who are active duty personnel on medical orders receive the highest priority, but non-active duty outpatients and non-medical attendants are granted rooms on a space-available basis. All temporary housing is located approximately 500 yards from the hospital.

(4) There is no on-post transportation service available for outpatients, attendants, or other eligible personnel. The greatest concern are for those personnel needing transportation between the guesthouse and the main hospital. A formal study on the feasibility of establishing a transportation service was completed in February 1986 by the FAMC Transportation Officer. A need for this service was documented and an on-post taxi service was recommended (Thomson, 1986). However, it was concluded that required funds and personnel assets were not available to implement such a program.

As a result, the alternative has been to use existing resources. This informal policy consists of possible transportation arrangements through the Motor Pool during normal duty hours. As a back-up, the Provost Marshal Office may provide transportation subject to mission constraints. As a last resort, the duty driver for the Administrative Officer of the Day (AOD) may be called upon after normal duty hours subject to mission requirements and the AOD's discretion. City buses and taxi service are available for off-post travel.

CHAPTER IV

PRESENTATION OF FINDINGS

Data included in this study were obtained from demographic data requested from ASMRO, from patient satisfaction surveys administered to both arriving and departing patients, from questionnaires from the DOD Region III referral sites, from interviews with aeromedical evacuation personnel at FAMC and the Patient Airlift Center, from interviews with personnel assigned to the FAMC Admission and Disposition Office, from interviews with personnel assigned to support services at FAMC, and from PASBA and ASMRO survey data for inpatient/outpatient changes. Findings will be presented in relation to each of these data sources.

ASMRO Patient Demographic Data

ASMRO data on patients arriving from the nine regional sending sites for FY 1986 indicated that the military status of the aeromedically evacuated population was predominately active duty, dependents of active duty and retired (see Table 1). The sponsor's service category was predominately Army or Air Force. Of the 4357 patients who were aeromedically evacuated to Fitzsimons during FY 1986, 78 percent of the patient

Table 1

Comparison of ASMRO and Sample Data by Military Status
and Service Category for Arriving Patients

Military Status/ Service Category	<u>ASMRO (n=3386)</u>		<u>Sample (n=107)</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Military Status</u>				
Active Duty	1376	41	30	28
Dependent AD	663	20	23	21
Dependent Deceased AD	30	1	-	-
Retired	751	22	29	27
Dependent Retired	514	15	20	19
Dependent Deceased Ret	45	1	5	5
Other	7	*	-	-
<u>Service Category</u>				
Army	1657	49	58	55
Air Force	1537	45	40	38
Navy	139	4	4	4
Marine	34	1	2	2
Coast Guard	12	*	1	1
Other	7	*	-	-

* < 0.5%

population originated from within the region.

Distribution of patients by sending facility is shown in Table 2. The patients' status during transfer was 67 percent inpatients and 33 percent outpatients (n = 3386). The distribution of patients by sex was 61 percent male and 39 percent female.

ASMRO data for departing patients for FY 1986 indicated similar findings (see Tables 3 and 4). Of the 3749 patients who were evacuated from Fitzsimons during FY 1986, 82 percent of the patient population returned to sites within the region. The distribution of patients by sex remained the same as those arriving. The only significant variation between arriving and departing data was the patient category during transfer. Seventy-nine percent of the patients were listed as inpatients with only 21 percent of the patients returned as outpatients (n = 3074).

Sample Demographic Data

Data collected on the patient satisfaction surveys were obtained from a convenience sample. A total of 713 patients were aeromedically evacuated to Fitzsimons during the survey period. Of this population, only 315 patients received surveys. Thirty-four percent of the surveys (n = 107) were returned completed.

Table 2

Comparison of ASMRO and Sample Data by Originating
Facility for Arriving Patients

Originating Facility	<u>ASMRO (n=4357)</u>		<u>Sample (n=107)</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Fort Leonard Wood, MO	753	17	24	21
Fort Riley, KS	620	14	17	16
Ellsworth AFB, SD	492	11	8	7
Fort Leavenworth, KS	417	10	17	16
Grand Forks AFB, ND	337	8	5	5
Minot AFB, ND	282	7	7	7
Hill AFB, UT	251	6	6	6
Offutt AFB, NE	130	3	2	2
McConnell AFB, KS	104	2	1	1
Outside Region	971	22	20	19

Table 3

Comparison of ASMRO and Sample Data by Military Status
and Service Category for Departing Patients

Military Status/ Service Category	<u>ASMRO (n=3074)</u>		<u>Sample (n=73)</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Military Status</u>				
Active Duty	1172	38	14	19
Dependent AD	620	20	17	24
Dependent Deceased AD	85	3	1	1
Retired	713	23	23	32
Dependent Retired	478	16	15	21
Dependent Deceased Ret	2	*	2	3
Other	4	*	-	-
<u>Service Category</u>				
Army	1487	48	34	47
Air Force	1406	46	27	38
Navy	131	4	5	7
Marine	32	1	3	4
Coast Guard	14	*	3	4
Other	4	*	-	-

* < 0.5%

Table 4

Comparison of ASMRO and Sample Data by Destination
Facility for Departing Patients

Destination Facility	<u>ASMRO (n=3749)</u>		<u>Sample (n=73)</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Fort Leonard Wood, MO	709	19	22	30
Fort Riley, KS	544	15	6	8
Ellsworth AFB, SD	412	11	4	5
Fort Leavenworth, KS	369	10	15	21
Grand Forks AFB, ND	333	9	1	1
Minot AFB, ND	281	7	3	4
Hill AFB, UT	230	6	7	10
Offutt AFB, NE	114	3	2	3
McConnell AFB, KS	82	2	-	-
Outside Region	675	18	13	18

A total of 585 patients were aeromedically evacuated out of Fitzsimons during the survey period. Of this population, only 343 patients received surveys. Twenty-one percent of these surveys ($n = 73$) were returned completed. This response was consistent with using a mail questionnaire where returns of less than 40 percent are common and higher percentages are rare (Kerlinger, 1973).

The low number of patients surveyed was due to two factors. During peak periods, the aeromedical evacuation staff inadvertently forgot to distribute the surveys to all patients or were too busy to distribute the surveys. Numerous personnel events occurred during the survey period (i.e., leaves, illnesses, new personnel) which affected the consistency in which the surveys were distributed. These factors make it difficult to totally evaluate the overall response rate of these surveys.

Demographic Characteristics for Arriving Patients

The demographic data for the arriving survey sample indicated that the military status of arriving patients was equally distributed between active duty and their dependents and retired and their dependents (see Table 1). The sponsor's service was predominately either Army or Air Force. The distribution of patients

by sex was 52 percent male and 48 percent female. Forty-nine percent of the patients were transferred as inpatients with 80 percent of the patients in ambulatory status during transport. Five patients (5%) reported that they were not sure if they were categorized as an inpatient or outpatient during transfer. Seventy percent of the patients traveled alone without a non-medical attendant. The majority of the patients (57%) had used the aeromedical evacuation system for referral to Fitzsimons previously.

Demographic Characteristics for Departing Patients

The demographic data for the departing survey sample indicated that the military status of departing patients was predominately retired and their dependents (53%) with active duty personnel and their dependents representing the second largest group (43%) (see Table 3). The sponsor's service was predominately either Army or Air Force. The distribution of patients by sex was equally distributed between males and females. The majority of patients were transferred as outpatients (53%) with 88 percent of the patients in ambulatory status during transport. Three patients (4%) reported that they were not sure if they were categorized as an inpatient or outpatient during transfer. Sixty-two percent of the patients traveled alone without a non-

medical attendant. The majority of the patients (61%) had used the aeromedical evacuation system for referral to Fitzsimons previously.

Comparison of ASMRO Data to Sample Data

The distribution of patients in the sample population surveyed in this study was similar to the distribution seen in the ASMRO data for referring facilities (see Table 2) and for destination facilities (see Table 4). The sponsor's service was predominately Army or Air Force in both data sources. The sample population did show a more equal distribution between male and female patients than the ASMRO population which had a higher percentage of male patients (61% for both arriving and departing patients). The most significant variation seen between the two populations was inpatient status during transport. The ASMRO data indicated that 67 percent of the arriving patients and 79 percent of the departing patients were categorized as inpatients. In the sample population, this percentage was significantly lower, 49 percent for arriving patients and 43 percent for departing patients.

In order to evaluate the significance of this finding, the actual number of inpatients who arrived

and departed during the data collection period for this study was calculated from statistics provided by the FAMC Aeromedical Evacuation Office. Of the 713 patients who were aeromedically evacuated into Fitzsimons during the survey period, 78 percent were categorized as inpatients. Of the 585 patients who were aeromedically evacuated out of Fitzsimons, 81 percent were categorized as inpatients. This analysis indicated that, for the inpatient status variable, the percentages for the respondents included in this study were not representative of the total population aeromedically evacuated into and out of FAMC during the survey period.

Information Received for Arriving Patients

The majority of the patients (55%) indicated that they had received a briefing at the sending hospital. Responses indicated that there were marked differences in the information provided in this briefing. Few of the patients who received a briefing received any information concerning the limited post transportation available at Fitzsimons (36%) or the requirement for appropriate clothing (39%). The majority of those patients who did receive a briefing were briefed two or more days prior to departure with 39 percent of the

patients being briefed on the day of departure. Only 38 percent of the patients received any handouts on aeromedical evacuation procedures with even less (16%) receiving a handout on Fitzsimons. The majority of the patients (69%) were not advised that their patient status could change from inpatient to outpatient and vice versa upon arrival at Fitzsimons. Fifty-nine percent of the outpatients reported that their sending facility had made prearrangements for the patient to be seen in the appropriate Fitzsimons clinic. Seventy-three percent of the outpatients, though, did arrive at Fitzsimons with appointment times and dates. The majority of the patients (53%) were advised by the sending facility to make lodging reservations for themselves or their non-medical attendant, if required. Seventy-four percent of the patients were advised to hand-carry their medical records, but only 42 percent were given instructions on where to return the records.

The majority of the patients (79%) experienced no delays en route to Fitzsimons. Seventy-seven percent of those who did received an explanation for the delay. Ninety-eight percent of the patients received all their luggage upon arriving at Fitzsimons.

Eighty-six percent of the patients received an orientation briefing from the aeromedical evacuation

personnel upon arrival at Fitzsimons. The patients surveyed reported marked differences in what information they received in this briefing with the following items briefed to the arriving patients: instructions on notifying appropriate outpatient clinic (56%), information concerning post transportation (53%), procedure for obtaining meal passes (48%), and directions to restroom facilities (40%). Eighty-seven percent of the patients received directions to the admission office, and 82 percent of the patients were given instructions on obtaining lodging and receiving their luggage. Sixty-nine percent of the patients reported that they did not receive any handouts for aeromedical evacuation patients after arriving at Fitzsimons.

The majority of the patients (52%) were processed through admissions in less than thirty minutes with only 17 percent reporting that they had to wait an hour or more. Ninety-two percent of the patients received directions to their admitting ward. Thirty percent of the patients being admitted reported that they required assistance in getting to their admitting ward, but of these, only 43 percent reported that they received this assistance. Only nine percent of the patients who traveled as inpatients were changed to outpatient

status upon arrival at Fitzsimons.

Fifty-five percent of the patients reported that either they or their non-medical attendant required lodging upon arrival at Fitzsimons. Forty-seven percent of the patients reported that they required assistance in making lodging arrangements with 66 percent of these patients reporting that they received the required assistance with housing arrangements. The actual distribution of type of housing arrangement made was as follows: 59 percent used temporary lodging at Fitzsimons, 23 percent used temporary lodging at Lowry Air Force Base, 11 percent stayed with family/friends, and 7 percent stayed at local civilian hotel/motel. Of those that used military lodging, 51 percent had reservations prior to arriving.

Transportation to their lodging facility was required by 59 percent of the patients or their non-medical attendant. Thirty-two percent of the patients reported that no transportation was available so they had to walk. Of those that did have transportation, 25 percent used military transportation provided by Fitzsimons, 18 percent used the Lowry Air Force Base shuttle bus, 14 percent used a commercial taxi or bus, and 11 percent were transported by family or friends.

Information Received for Departing Patients

Sixty percent of the departing patients stated that either they or their non-medical attendant required lodging while at Fitzsimons. Of these, 76 percent used lodging at Fitzsimons, 18 percent used lodging at Lowry Air Force Base, 4 percent stayed in a civilian hotel/motel, and 2 percent stayed with family or friends. Of the patients who obtained lodging at Fitzsimons, 51 percent were on a daily "space available" basis. The majority of the patients (78%), though, reported that they did not have to change lodging during their stay at Fitzsimons.

Forty-four percent of the patients reported that either they or their non-medical attendant required transportation from their lodging to the hospital during their stay. Of these, 44 percent reported that no transportation was available so they walked. Twenty-two percent of the patients or non-medical attendants requiring transportation used military transportation provided by Fitzsimons during their stay with 16 percent using the Lowry Air Force shuttle bus, 16 percent using commercial taxi/bus, and 2 percent being transported by family/friends. Forty-three percent of the patients reported that either they or their non-medical attendant required transportation

from their lodging to the hospital on the day of departure. Forty-three percent of the patients again stated that no transportation was available so they walked.

Sixty-five percent of the patients stated that they had been advised prior to arriving at Fitzsimons to bring sufficient funds for lodging, meals and transportation. A smaller percentage (52%) were briefed on the actual cost of lodging and meals. Sixty-eight percent of the patients reported that either they or their non-medical attendant received meal passes to the dining facility. Only thirty percent of the patients reported that check cashing facilities were required during their stay.

Eighty-seven percent of the patients treated as outpatients reported that they had a prearranged appointment date and time with 85 percent of these stating that they were seen at their scheduled time. Fourteen percent of the patients reported that they were changed from inpatient to outpatient status during their stay at Fitzsimons. All of these patients reported that they had adequate clothes with them for their changed status.

Eighty-eight percent of the patients reported that they were briefed upon arrival at Fitzsimons that the

paperwork requesting their return flight must be submitted to the aeromedical evacuation office two working days prior to the planned departure date. Items in briefings provided by the aeromedical evacuation office concerning their departure again showed marked differences between patients. The items with the lowest percentages included: possibility of last minute cancellation (56%), possibility of delayed flight which might require an overnight stop (53%), and the requirement for appropriate clothing (40%). Eighty-six percent of the patients reported that they left on the flight for which they were originally scheduled with only 33 percent of the patients experiencing any delays en route to their home destination. Of those who did experience a delay, 72 percent received an explanation for the delay. Ninety-four percent of the departing patients received their luggage upon arrival at their home station. Seventy-nine percent of the patients were instructed to hand-carry their records or x-rays, but only 59 percent of the patients were given instructions on where to return them.

Satisfaction Survey for Arriving Patients

Of the twenty-five items surveyed, only three

items showed a mean score of less than 3.0 for respondents from all sites. These items included: "I was fully briefed by the sending hospital on what to expect at Fitzsimons" ($M = 2.94$, $SD = 1.33$); "The handouts I received from the sending hospital were very helpful" ($M = 2.82$, $SD = 1.33$); "Transportation to my lodging was readily available" ($M = 2.76$, $SD = 1.45$). Overall, the sample was satisfied with their transfer to Fitzsimons ($M = 4.08$, $SD = 0.86$).

Individual variations were seen in patient responses from different sites (see Appendix K). Patients originating at Fort Leavenworth expressed dissatisfaction with six of the twenty-five items surveyed. They were the only group of patients who showed dissatisfaction with the overall management of their trip by the sending hospital ($M = 2.5$, $SD = 1.46$). Scores of less than 3.0 found in sites with less than five patients were not analyzed due to the insufficient sample size.

Satisfaction Survey for Departing Patients

Of the twenty items surveyed, only one item showed a mean score of less than 3.0 for respondents from all sites. Patients showed dissatisfaction with the statement "Transportation was readily available during

my stay at Fitzsimons" ($M = 2.85$, $SD = 1.49$). Patients were satisfied overall with Fitzsimons' management of their return trip ($M = 3.93$, $SD = 1.17$).

Patient responses by destination facility did not differ significantly except for patients from Fort Leavenworth (see Appendix L). Fort Leavenworth's patients expressed dissatisfaction with the statement "Adequate lodging was readily available during my stay at Fitzsimons" ($M = 2.13$, $SD = 1.36$). Scores of less than 3.0 found in sites with less than five patients were not analyzed for site-unique factors due to the small number of respondents.

Questionnaires from DOD Region III Referral Sites

Eight of the nine referral sites returned completed surveys for a response rate of 89 percent. All of the respondents included a description of the procedures for their site. Six of the eight respondents provided a copy of their Aeromedical Evacuation SOP and five of the sites included the actual forms used in the aeromedical evacuation process.

The narrative information provided by each respondent was compared to appropriate regulations and policies to identify discrepancies in their procedures.

The only discrepancies noted were at Fort Riley and Offutt AFB. These sites stated that their last reportable time frame to ASMRO was 24 hours prior to the anticipated flight rather than the required 48 hours.

At six of the eight sites, the physician has the primary responsibility for coordinating the clinic appointment for outpatients. At the other two sites, the aeromedical evacuation clerk has this responsibility. Physician designated responsibility does not indicate direct physician to physician contact, however. Many appointments are scheduled through FAMC's Central Appointment System.

None of the eight sites send patients on a space-available basis. Six of the sites, though, indicated that inpatients were coded as outpatients in order to ensure that the destination facility was FAMC. This practice was often initiated at the request of a FAMC physician or clinical service in order to ensure follow-up care at FAMC. The responses given to the frequency of this practice included: one out of every seven or eight transfers; in a few instances after coordinating with FAMC and the patient was then regulated elsewhere by ASMRO; only when the patient was returning for follow-up care at FAMC; four to five

times per year; one time in the last year; and very frequently.

All of the respondents stated that a verbal briefing is given to all patients and non-medical attendants by the aeromedical evacuation clerk. All of the sites except Fort Riley and Fort Leonard Wood use both a verbal and written briefing. Three sites require a patient's signature following the briefing. Fort Leonard Wood provides the briefing as a group just prior to departing. The other seven sites brief on a one-to-one basis at least 24 hours prior to the anticipated departure. The most commonly cited time for conducting the briefing was at the time the paperwork was initiated at the aeromedical evacuation office.

Seven of the sites responding to the survey indicated that handouts were given to patients with only Fort Riley indicating that handouts were not used. The types of handouts provided included: six sites used locally developed handouts; four sites provided MAC Form 206; and two sites distributed the FAMC Patient Information Guide if the destination facility was FAMC. All of the sites indicated that the handouts were given to the patients at the time of the verbal briefing.

Information provided in either the verbal briefing or the handouts varied greatly by site. Table 5 shows a comparison of the sites' responses and the patients' responses for the six questions included on the arriving patients' survey. A total of sixty-four items were identified by the sites as topics which were covered in their briefings and/or their handouts (see Appendix M).

Reasons for the marked variations in patient information provided at each site may be directly related to the sites' responses to information received on support services available at FAMC. Only four sites indicated that they had received any information. Of the sites that had received information, one site stated that they had received the FAMC Patient Information Guide and hospital newsletter in the past, but had not received either in recent months. Another site stated that they had received the FAMC Patient Information Guide and FAMC Telephone Directory at least two years ago with no updated information received in the interim. Another site indicated that they had received 50 copies of the Information Guide in March 1987. The last site indicated that they had received information concerning housing and transportation in October 1986.

TABLE 5

Comparison of Referring Site Responses to Patient Responses on the Six Items Queried on the Arriving Patient Survey

Briefing Item	<u>Site Responses</u>		<u>Patient Responses</u>	
	(n = 8)		(n = 59)	
	n	%	n	%
1. Responsibility of outpatients and non-medical attendants to arrange for lodging.	7	88	44	75
2. The need for outpatients and non-medical attendants to have sufficient funds for lodging and meal expenses.	6	75	40	68
3. Availability of guest housing at Fitzsimons.	3	38	32	54
4. Limited post transportation at Fitzsimons.	2	25	21	36
5. Requirement for appropriate clothing.	8	100	23	39
6. Possibility of delayed flight which may require stopping overnight en route to Fitzsimons.	8	100	37	63

The standard procedure for handling medical records and x-rays at six of the sites is for ambulatory patients to hand-carry them with the exception of mental health records and alcohol rehabilitation records. Litter patients' records and x-rays are routinely given to the flight nurse. At two of the sites, all medical records and x-rays are given to the flight nurse.

The standard procedure for handling records for outpatients who are returning to their originating facility varied by site. Three sites stated the x-rays are returned to the radiology department and medical records are given to the referring physician for follow-up. At one site, the evacuation clerk reviews the records and disposition is made to the referring physician if further follow-up care is indicated; otherwise, they are filed. Two sites stated that returned records are filed appropriately. The evacuation clerk at one site logs the records in prior to returning them to the files. The last site indicated that attempts are made to acquire records upon the patient's return, but they are often in the patient's baggage and the patient fails to return them to hospital personnel.

Problems or limitations with the patient referral process identified by the eight sites included:

- (1) Changing inpatients to outpatients in order to ensure that the destination facility is FAMC.
- (2) Long waiting times for appointments at FAMC.
- (3) Narrative summary not being sent from FAMC.
- (4) Records and x-rays not being returned with the patient.
- (5) Inconsistent policies for obtaining appointments at FAMC specialty clinics.
- (6) Lengthy "downtime" at FAMC for outpatients waiting to return after completing an outpatient appointment due to the routes for routine flights and the 48 hour notification requirement to PAC. This results in a costly expense for active duty TDY patients and outpatients.
- (7) Uncertainty of the aircraft's route.
- (8) Giving records to patients at FAMC which makes it difficult for the destination facility to retrieve them.
- (9) Acceptance of a patient by a FAMC physician who knows a bed is available, but the system does not reflect it.
- (10) Untimely coordination made by a FAMC clinic or physician who requests that a patient return to

FAMC. The 48 hour notification to PAC cannot be observed and there is insufficient time to prepare the paperwork for aeromedical evacuation.

Interviews with FAMC Aeromedical Evacuation Personnel

Multiple interviews were conducted with personnel assigned to FAMC's Aeromedical Evacuation Office throughout the course of this study. Clarification of information acquired through the interview process was obtained through frequent direct observations of the operations of this office by the researcher.

A review of the operations of the FAMC Aeromedical Evacuation Office in relation to current policies and procedures indicated several discrepancies. Local policy requires that all arriving and departing patients receive a briefing and the handout entitled "Fact Sheet For Aeromedical Evacuation Patients". The majority of patients did receive a briefing, but only 31 percent of the patients indicated that they had received the handout upon arrival.

Patients may be instructed to travel in spare available status to facilitate their return to home which is inappropriate and contrary to Air Force policy.

Guidance given to Fort Leavenworth patients arriving on the Tuesday flight that they could not be returned on the Thursday flight due to the 48 hour reporting requirement is inconsistent with the add-on policy that is recognized by PAC for this unusual situation.

Patients are encouraged to hand-carry medical records and x-rays which is contrary to local policy which specifically prohibits patients from hand-carrying these records. Seventy-nine percent of the departing patients reported that they were asked to hand-carry medical records or x-rays with almost half of them receiving no instruction on what to do with the records.

Statements are being signed by aeromedical evacuation personnel without doing a weapons search as required by regulation. The patient's baggage is never searched. Patients are inconsistently searched for weapons depending on their departure site. Patients departing from Buckley Air National Guard Base may be searched because transfrisker equipment is available at this site to conduct the search. Those patients who depart from the Jet Aviation Gate at Stapleton International Airport are not searched since there is no equipment at this site. The aeromedical evacuation

office has no equipment to conduct this search and is dependent on airport equipment to comply with this requirement.

Policies at Buckley Air National Guard Base do not require that the patient bus serve as the flightline rescue vehicle since a fire truck is always on the flightline. However, the patient transport vehicles are kept waiting until the aircraft has refueled, shut down, or departed which further delays the patients' arrival.

The Aeromedical Evacuation Office is staffed with one Non-Commissioned Officer (NCO) and two enlisted clerks. These personnel are required to provide twenty-four hour coverage of the office. After normal duty hours, personnel rotate call to cover late arriving flights, Saturday flights, and unscheduled emergency or priority flights. Hours of operation for the office vary depending on the anticipated workload. The office is normally operational from 0730 to 1600, Monday through Friday, but may be closed for extended periods due to work requirements associated with incoming or departing flights. There are an average of 12 to 14 routine arriving or departing flights each week which require a minimum of one aeromedical evacuation clerk to be gone from the office for two and

one-half to three and one-half hours per flight. Flights with more than 20 patients and/or three litter patients require two or more personnel. In addition, personnel assigned to the office who are required to work after normal duty hours receive compensatory "time-off". This is normally during the following work week which further curtails the number of available personnel for coverage of the office. These absences are in addition to routine absences for illness, leave, and military commitments. During periods when the office must be closed due to staffing and/or work requirements associated with incoming or departing flights, the office is locked with no cross coverage provided within the facility to handle aeromedical evacuation questions or requests. No sign is posted on the office door to indicate when the personnel anticipate returning.

Interviews with Patient Airlift Center Personnel

Interviews with personnel assigned to the Patient Airlift Center were conducted by the researcher during the site visit to Scott Air Force Base with follow-up phone conversations conducted after the visit to clarify specific points of information. Information received related to the overall aeromedical evacuation

system and was not broken down to region specific problems.

Of the 300 records the flight clinical coordinators review per day, an average of 50 to 100 records require follow-up telephone conversations with the requesting facility, usually due to inadequate clinical information. The flight coordinator will attempt to contact the patient's physician or ward at least once prior to the end of each work day to obtain the required information. If this attempt is not successful, then the patient's record will not be validated and the patient will not be manifested until the information is received.

Current regulations permit medical records and x-rays to be hand-carried by the patient if the sending facility deems it appropriate. Flight nurses encourage this practice. If the records have been signed over to the flight nurses, they are retained by the flight nurses until the flight arrives at the destination facility and the records are formally signed over to the aeromedical evacuation personnel at that facility.

Flight nurses consistently use the Aeromedical Patient Record Data Form (MAC Form 832) to document the patients' records they receive. It is the responsibility of the aeromedical evacuation clerk at

the receiving facility to carefully check each record received against the records listed on this form before signing it. This practice is not always done according to the flight nurses and the researcher's observations while flying two aeromedical evacuation missions. There are occasions where the flight nurse forgets to give the clerk all of the records listed.

Once the patient is on the flightline, emphasis is placed on patient movement regardless of the inadequacy of the paperwork. Patients are not refused transfer by the flight nurse because there is no accompanying Patient Evacuation Tag (DD Form 602) or narrative summary. Missing paperwork does not become an issue during transport unless the patient develops a medical problem during the flight. If the paperwork needed to effectively manage the patient is not available, a quality control issue is initiated and referred back to the sending facility.

The flight clinical coordinator acknowledged during the interview that FAMC is the only CONUS medical treatment facility with a flight normally scheduled from Fort Leavenworth on Tuesday and a returning flight scheduled on Thursday. This flight schedule makes it impossible to meet the 48 hour patient reporting requirement. Under this

circumstance, the flight clinical coordinator indicated that FAMC would not be held to the established time constraints, but should report the patient to ASMRO as soon as possible. In order to speed processing for this group of patients, the patient's medical history needs only to be updated for reporting purposes to indicate any significant findings that may have been identified with this visit. If for any reason the patient will not be returning to Fort Leavenworth on the date requested, the request for movement should be cancelled.

Additional problems identified by the flight clinical coordinators included:

(1) Patients frequently carry an inadequate supply of medications with them on the flight. Very often this is because the patient packed the medication in his luggage which is not accessible during transport. This problem is compounded when the medications are not noted on the Patient Evacuation Tag.

(2) Patients with inpatient arm bands and carrying medical records have been found traveling in space-available status. Space-available travel is not intended nor medically appropriate for patients as space-available passengers must be totally self-

sufficient and physically capable of caring for themselves. These patients have been instructed by the sending facility to travel in space-available status to expedite their return home. These patients have not been adequately briefed and often expect free inflight meals.

(3) An unusually high number of patient add-on requests on the morning of the desired mission for patient movement were noted to occur at FAMC. Late patient reporting requires extra coordination and communication to attempt to successfully move the patient that day.

Interview with Chief, FAMC Admission
and Disposition Office

An interview was conducted with the Chief, Admission and Disposition Branch to determine the notification procedures between sending and receiving medical treatment facilities and to clarify the procedure for notifying inpatient nursing units of incoming patients. As a receiving facility, the FAMC Admission and Disposition Office relies solely on the patient manifest for information on arriving patients. It is a rare occurrence that this office will receive a call from the sending facility regarding a patient

transfer. As a sending facility, the FAMC Admission and Disposition Office does not notify other medical treatment facilities of returning patients, but instead relies on information transmitted through the aeromedical evacuation system to provide this notification.

This office consistently notifies the inpatient nursing units of incoming patients by preparing the "Admission Worksheet for Incoming Air Evacuation Patients" (FAMC Form 1545) following receipt of the patient manifest data via the Omnifax at approximately 2400 each night. Information is transmitted via the Omnifax to each ward, the Department of Nursing, and the Directorate of Nutrition Care between 0500 and 0700. Information transmitted includes: the patient's name, originating facility, age, sex, diagnosis, clinical service, and admitting ward. Personnel assigned to this office are aware that a printout can be obtained through the DMRIS system which contains more detailed clinical and administrative information on each incoming patient. This aspect of the DMRIS system was specifically designed to provide more comprehensive data to receiving medical treatment facilities to assist with the advanced preparation for

incoming patients. This feature has not been utilized at FAMC.

Interviews with FAMC Support Services

Interviews with Housing, Guesthouse, and Billeting Personnel

Interviews were conducted by the researcher with the Chief, Housing Division, the manager of the Guesthouse, and the manager of the Billeting Office. Data used to calculate occupancy rates for the Guesthouse and VOQ/VEQ rooms for FY 1987 was obtained from the Chief, Housing Division.

Occupancy rates for the Guesthouse for FY 1987 ranged from 81 percent to 99 percent with a monthly average of 94 percent. Occupancy rates for VOQ/VEQ rooms ranged from 17 percent to 67 percent with a monthly average of 51 percent (see Table 6). Calculation of these statistics was based on the number of unit days occupied divided by the total unit days available in the month. This type of calculation does not allow for day of week utilization review. The primary utilization of the VOQ/VEQ rooms is for active duty personnel visiting FAMC on official business which predominately encompasses weekdays. The monthly occupancy rates for these rooms incorporate the

TABLE 6

Occupancy Rates for FAMC Guesthouse and Billeting for Fiscal
Year 1987

<u>Month</u>	<u>Guesthouse</u>	<u>Billeting</u>
October	96%	41%
November	95%	35%
December	88%	17%
January	81%	57%
February	99%	46%
March	99%	67%
April	94%	41%
May	95%	48%
June	94%	62%
July	97%	64%
August	96%	67%
September	96%	63%

normally low occupancy rates found on weekends. Day of week utilization of these rooms was not available and could not be evaluated within the scope of this study.

Reservation policies for the Guesthouse are restricted to three reservations per day for categories one through five on the Guest House Assignment Policy (see Appendix J) and are granted on a first-come, first-serve basis. All other requests are routinely placed on a stand-by list with notations indicating the requestor's priority and date of the request. This reservation system is done manually with no projections made for the number of available rooms anticipated on a given day.

Requestors may indicate a late arrival time (after 1800) at the time the reservation is made to hold the room. If this is not indicated, the room will only be held until 1800 and then will be assigned to a person on the stand-by list according to priority and date of request. The Guesthouse staff is not required to contact the aeromedical evacuation office to determine if an incoming flight has been delayed.

Depending on the priority of personnel occupying the Guesthouse, persons with a lower priority may be restricted to shorter lengths of stay than the policy

defines. This practice occurs frequently to provide for more flexibility in room assignments.

Current policies do not require the Guesthouse personnel to refer persons to the Billeting Office in the event that no rooms are available in the Guesthouse. Guesthouse personnel may or may not refer persons. Army Regulation 210-11 (1983) does allow non-active duty outpatients and non-medical attendants to occupy VOQ/VEQ rooms on a space-available basis, but it does preclude them from making reservations. Personnel assigned to the Billeting Office stated that they can usually accommodate the Guesthouse's needs on a day-to-day basis, but could not support extended stay policies. Peak occupancy for the VOQ/VEQ rooms normally occurs when large conferences are held at FAMC and when Reserve Component personnel are assigned to FAMC for annual training.

The Billeting Office is operational from 0730-1930 on weekdays and 0930-1630 on weekends. At the close of the operational day, the billeting personnel turn over all keys for any reservation that has not arrived to the Guesthouse Office which is operational 24 hours a day, seven days a week. The billeting personnel may also relinquish keys to empty rooms for Guesthouse use, but this practice is not consistently followed.

Interviews Concerning FAMC Post Transportation
Resources

Interviews were conducted by the researcher with the Chief, Motor Pool; the Provost Marshal; the Secretary of the General Staff (SGS); the NCOIC, Patient Transport Service; the NCOIC, Aeromedical Evacuation Office; and the Dispatcher, Lowry AFB Transportation Office. The focus of these interviews was to determine what resources were available to transport patients and to determine how frequently these available resources were utilized.

The FAMC handout, "Fact Sheet For Aeromedical Evacuation Patients", discusses the limited availability of transportation at FAMC. It advises patients to call the Motor Pool during normal duty hours to see if transportation can be arranged to the post Guesthouse. Motor Pool personnel revealed that they receive only a minimum number of requests. Requests that are received usually originate from either the Guesthouse or the Hospital Information Desk calling on behalf of the patient. The policy at the Motor Pool is that they will support all valid patient requests for transportation during normal duty hours if resources (driver and vehicle) are available. A sedan is usually available, but a driver may not be.

After normal duty hours, patients are advised on the fact sheet to go to the Hospital Information Desk and have the personnel on duty contact the Duty Driver, who may be able to transport them to the Guesthouse. Use of this resource is locally discouraged unless it is a last resource.

Provost Marshal personnel will transport patients when the capability and conditions permit. This practice is used infrequently, since the Provost Marshal does not desire to have this service advertised.

Personnel assigned to the Patient Transport Service are infrequently asked by the aeromedical evacuation office to provide post transportation for patients. They will assist if possible, but do not volunteer their services.

The Aeromedical Evacuation Office at FAMC has a nine passenger van available for transporting patients' baggage and medical documents to the flightline and back. The van is not intended for patient transport, and personnel assigned to this office do not offer this resource to assist patients to and from the Guesthouse.

Outpatients and non-medical attendants who are lodged at Lowry AFB have access to a Lowry shuttle bus which departs FAMC four times a day during normal duty

hours, Monday through Friday. It is also on-call to

transport patients after duty hours and on weekends.

Coordination is normally provided for patients by the

Aeromedical Evacuation Office or the Hospital

Information Desk. Although use of the Lowry shuttle

service is a valuable resource for patients, this

information is not included on the patient handout.

Survey Data for Inpatient/Outpatient Status Changes

In order to address a major concern that prompted this study, data was requested from the U.S. Army Patient Administration Systems and Biostatistics Activity (PASBA) to determine how frequently inpatients were transferred to FAMC and then discharged the same day or the following day. For an 18 month period, October 1985 through March 1987, 1.8 percent of the total inpatients transferred to FAMC were discharged on the day of arrival or the following day, (see Table 7). This data indicates that patients are not unexpectedly changed from inpatient to outpatient status upon arrival at FAMC.

Referring hospitals may avoid the regulating steps required for aeromedical evacuation patients and the restriction of regulating to the closest facility with the required medical capability by reporting inpatients

TABLE 7

PASBA Data for Inpatient Transfers to FAMC Who Were Discharged
the Same Day or Following Day from October 1985 through March
1987

Month	Number of Inpatient Transfers to FAMC	Number of Inpatient Transfers Admitted and Discharged the Same Day	Number of Inpatient Transfers Admitted and Discharged the Following Day
1985			
October	211	-	6
November	228	-	5
December	210	-	2
1986			
January	241	-	4
February	250	1	4
March	282	1	5
April	285	-	2
May	238	1	4
June	147	-	1
July	262	1	5
August	275	1	4
September	232	-	5
October	256	-	3
November	193	2	1
December	200	-	7
1987			
January	203	-	2
February	217	-	4
March	259	-	4
TOTAL	4,189	7 (0.2%)	68 (1.6%)

in outpatient status. In order to monitor this potential system abuse, ASMRO conducted a survey of outpatient transfers via aeromedical evacuation at selected facilities during the month of May 1987. Patients were identified who either required admission upon arrival or who were specifically transferred with a note indicated in the record to admit upon arrival. Based on the results of this survey, FAMC ranked sixth of the 17 DOD medical treatment facilities participating in the survey in the percentage of outpatients admitted.

Of the 165 outpatients received at FAMC during the survey period, 34 percent ($n = 56$) were admitted upon arrival. The 56 patients originated from 15 different referral sites. However, 59 percent ($n = 33$) of those admitted originated from Fort Riley, KS. This practice is frequently done at Fort Riley to avoid the regulating process that requires patients to be regulated to the closest medical treatment facility with capability regardless of the actual travel time. Patients originating at Fort Riley may be regulated to Air Force facilities that require overnight stays en route to the destination instead of being regulated directly to FAMC with a one-day travel time.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

The discussion of the findings for this study will be presented in relation to the six areas of concern that prompted this study and in relation to deficiencies with the optimal military inter-institutional patient referral systems model developed for this study. This study will conclude with recommendations directed at resolving identified problems or breakdowns in the model.

Areas of Concern Which Prompted the Study

This study was prompted by six major areas of concern with the patient referral process which were identified by the command group at FAMC. Findings will be addressed separately for each of the following areas of concern:

- (1) Lack of advance notification to the medical service of the patient's arrival.
- (2) Lack of preparation of the patient on what to anticipate upon arrival at FAMC.
- (3) Unexpectedly changing a patient's status from inpatient to outpatient upon arriving at FAMC resulting in unplanned expenses for meals and lodging.

(4) The availability of sufficient resources for outpatients and non-medical attendants at FAMC.

(5) The unpredictability of aeromedical evacuation transportation resulting in increased length-of-stays and readmissions.

(6) Lack of medical documentation accompanying the patient to his/her referring medical treatment facility resulting in multiple quality assurance concerns.

Advance Notification

Although a tri-service regulation requires that the sending facility notify the receiving facility of a contemplated transfer, this requirement is rarely done. There is virtually no notification between registrars. The only information provided to the receiving facility is the information on the patient manifest and the administrative and clinical patient information provided through DMRIS. The reporting time frames established by the aeromedical evacuation system preclude advance notification to the receiving medical service. The patient manifest is normally received by 2400 hours the night before the patient's scheduled arrival. The DMRIS patient information is available prior to this time, but confirmation of the patient's movement occurs when the patient manifest is received.

Current procedures require the FAMC Admission and Disposition Office to receive the patient manifest data and to transmit it to the nursing units between 0500-0700. The medical staff assigned to a service receive the information from the Omnifax on their nursing units. The more detailed clinical information provided from DMRIS is not transmitted to the nursing units nor is it transmitted to the appropriate medical service for review. This data includes the patient's medical history and the name and telephone number of the referring physician. A hard copy of the DMRIS patient data could be forwarded to the receiving nursing unit and to the appropriate medical service to provide more comprehensive information on each patient. This would improve the communication with the receiving medical service and would also improve the preparation which could be done prior to the patient's arrival.

Lack of Preparation

Multiple inconsistencies were noted in the findings regarding patient preparation. The referring sites indicated that all patients received a briefing on aeromedical evacuation procedures, but only 55 percent of the arriving patients reported that they had received this briefing. The information provided in this briefing varied markedly between sites as reported

by both the referring facilities and the patients. Seven of the eight referring sites indicated that handouts were given to patients at the time of the briefing, but only 38 percent of the arriving patients reported that they received a handout on aeromedical evacuation procedures. Sixteen percent of the arriving patients received a handout containing information about FAMC. Results of the patient satisfaction surveys for arriving patients indicated that patients were dissatisfied with both the briefing and the handouts they received at the sending facility. This may be directly related to the lack of current information available to aeromedical evacuation personnel at sending facilities. More concrete guidance needs to be provided to referring facilities concerning information which should be included in the briefing to facilitate patient preparation.

Eighty-six percent of arriving patients reported that they had received a briefing upon arrival at FAMC, although only 31 percent of these patients reported that they had received the "Fact Sheet For Aeromedical Evacuation Patients". Patients did express satisfaction with this briefing although they reported marked differences in the items of information received. Departing patients also expressed

satisfaction with briefings provided for their return trip, but again, items covered in briefings showed marked differences between patients. Inconsistencies noted by the researcher in the information provided in this briefing were not evident in patient satisfaction responses. Patient satisfaction with the information provided in these briefings might be improved if more concrete guidelines were established to more clearly define the information which should be included in the arriving and departing briefings.

Training could also be provided to aeromedical evacuation personnel at all regional referring and receiving facilities in order to enhance their knowledge of the aeromedical evacuation process. This training might include requesting Invited Medical Personnel (IMP) status for travel on actual missions and attending the three-day DMRIS training program offered by ASMRO and the Patient Airlift Center.

Unexpected Changes in Patient Status

Although only 31 percent of arriving patients reported that they had been advised that their patient status could change from inpatient to outpatient or vice versa upon arrival at FAMC, only nine percent of arriving patients reported that this had occurred. Fourteen percent of departing patients reported that

their status had changed during their stay at Fitzsimons. The wording of the question for departing patients did not indicate if the change occurred at the time of arrival. Departing patients did indicate that they were prepared for the personal expenses incurred during their stay at FAMC.

Findings identified in the PASBA data relating to patient status indicated that only a small number of patients were actually changed from inpatient to outpatient status upon arriving at FAMC. These findings indicate that changing patient status is not a major concern for patients arriving at FAMC.

Practices related to changing patient status appear to be dependent on system constraints affecting specific referral sites. Fort Riley frequently categorizes inpatients as outpatients to avoid the medical regulating process. Patients at this site may be regulated outside the Army medical system to Air Force facilities that require overnight stays en route to the destination which results in an added inconvenience to the patient and inhibits direct coordination between the community hospital and their regional teaching facility. This practice does not support the regionalization model which has identified this direct coordination as an essential element in

providing continuity of care and providing the necessary patient population to support teaching requirements. An analysis of system constraints adversely affecting the referral process between specific Army medical facilities within a region should be done to establish the need for more service-approved, inter-hospital agreements.

Availability of Sufficient Resources

Although the policies and procedures for obtaining temporary lodging at FAMC for outpatients and non-medical attendants appeared extremely restrictive, this did not result in a significant concern for arriving and departing patients as evidenced by their satisfaction responses. Approximately half of the arriving patients reported that they required lodging upon arrival for either themselves or their non-medical attendant. Of the patients that required lodging, 51 percent arrived with reservations. Only 59 percent of those patients who required temporary lodging were housed at FAMC. Sixty percent of the departing patients reported that they or their non-medical attendant required lodging during their stay. Of those who required lodging, 76 percent were housed at FAMC. Seventy-eight percent did not have to change lodging during their stay at FAMC in spite of the fact that 51

percent were on a day-to-day basis. Overall responses to questions related to the availability and ease of obtaining temporary lodging indicated satisfaction for both arriving and departing patients.

Interpretation of data related to housing must be made in relation to the average patient profile. Fifty-seven percent of arriving patients and 61 percent of departing patients had been referred to FAMC previously. The majority of arriving (70%) and departing (62%) traveled alone. This high proportion of patients who were familiar with resources available at FAMC may have influenced the degree of satisfaction reported on the survey. Patients who were being referred for the first time expressed more dissatisfaction with housing as evidenced by written-in comments on the survey. These comments indicated that initial housing information was a major source of concern and dissatisfaction. There appeared to be misinterpretation between having a reservation and actually being standby, and frustration at the inability to make a reservation three to four weeks in advance, but being able to obtain a room upon arrival at FAMC. This may relate to the way information is initially presented to patients through telephone conversations and upon arrival. An examination of how

this information is presented may need to be done to ensure that patients understand that the guesthouse and billeting staff work within their constraints to ensure that accommodations are provided, if available, even though a patient may be on a day-to-day basis.

Several written-in comments also indicated that patients were bumped when the new intern staff arrived. Current guesthouse assignment policies should be enforced to ensure that the prioritization system is followed. More reciprocal arrangements between the guesthouse and billeting offices should be examined to maximize available resources.

A major source of dissatisfaction for both arriving and departing patients was transportation. Only 36 percent of arriving patients had received any information concerning the limited post transportation available at FAMC. Fifty-nine percent of the arriving patients reported that they required transportation to their lodging upon arriving at FAMC, with 32 percent reporting that no transportation was available so they had to walk. Forty-four percent of departing patients reported that they required transportation from their lodging to the hospital during their stay and on the day of their departure with an equal percentage

reporting that no transportation was available so they had to walk.

Since an indepth study has already been done and concluded that required resources for establishing an on-post taxi system are not available, a closer examination of existing alternate resources that could be utilized should be done to minimize this source of dissatisfaction for referred patients. A more formal policy than what currently exists needs to be established for personnel at FAMC with specific guidelines delineating the resources that are available and when they can be utilized to assist the patient.

Unpredictability of Aeromedical Evacuation

Transportation

The findings of this study indicated that the majority of arriving and departing patients did not experience any delays en route to FAMC or their destination facility. If a patient did experience a delay, the majority of patients received an explanation for why the flight was delayed. Eighty-six percent of departing patients reported that they left on the flight for which they were originally scheduled. These findings indicated that the majority of both arriving and departing patients were provided predictable

aeromedical evacuation transportation. This concern was not supported by the findings of this study.

Lack of Medical Documentation

Policies related to records management were not well defined for aeromedical evacuation personnel. While FAMC policies clearly indicate that patients will not hand-carry medical records or x-rays, patients were encouraged to hand-carry medical records. Seventy-four percent of arriving and 79 percent of departing patients hand-carried their records. Local policies require record checks of only those records that are turned over to the aeromedical evacuation office. There are no requirements to check records that are hand-carried by patients. Half of the patients who hand-carried their records were not given any instructions concerning what to do with their records. This often resulted in patients packing records in checked luggage which made them unavailable, if required, during transport. More definitive policies need to be written to ensure that all records are checked prior to departure and that adequate instructions are given to patients who hand-carry their records. FAMC policy concerning the hand-carrying of medical records needs to be changed to allow patients

to hand-carry records if adequate procedures for checking records are established.

Patient Referral Systems Model

The findings of this study indicated that the original flow model designed for this study was valid with one exception. The requirement for the sending facility to notify the receiving facility of a patient's transfer was not enforced. The information flow through the model provided adequate advance information to the receiving site if the information was correctly utilized and distributed to the receiving medical service and/or nursing unit. The established time frames for reporting the patient's scheduled movement does not allow a great deal of advance notification. Complying with the requirement that the sending facility notify the receiving facility would not improve the direct coordination between sending and receiving medical services. There are no requirements for direct physician-to-physician communication prior to transfer. This type of coordination may be impractical since the physician who will actually admit the patient may not be available to do such coordination.

External constraints impacting on the flow model for this study are twofold. First, the 48 hour reporting requirement for patient movement to PAC may result in extended patient stays or excessive use of the "add-on" procedure. For patients arriving from Fort Leavenworth on Tuesday, this constraint is particularly inhibiting. If it is not possible for these patients to be immediately manifested for the return flight on Thursday, these patients face a minimum of a one week stay regardless of the shorter length of stay required for their medical condition. This 48 hour reporting requirement is compounded due to the established flight routes for aeromedical evacuation missions. With few exceptions, the length of stay and discharge date for aeromedical evacuation patients is dictated by the schedule for returning flights. This is a major constraint of the aeromedical evacuation system which may affect patient satisfaction, but for which there is no optimal resolution. At best, patients must be informed of this situation, and a clearer understanding must be made between FAMC and the Patient Airlift Center as to the necessity and use of the add-on procedure.

The second external constraint which directly affects both the flow model and patient satisfaction

with the entire process is the policy which requires that patients be regulated to the closest facility with the medical capability to care for the patient. This distance is measured according to actual miles. Actual travel time for the patient or established mission routes are not considered. This requirement is contrary to the overall concept of regionalization which recognizes the physician as a key player in the referral process. Taking the physician out of the decision-making process inhibits not only physician-to-physician collaboration, but also affects the follow-up care for the patient. Neither the physician nor the patient normally has any control over where the patient will be sent for care. This is further compounded by the fact that the confirmation of the patient's movement to the final destination is not known until less than 24 hours prior to departure. In order to support the regionalization relationship established between Army facilities within the FAMC region, the use of service-approved, inter-hospital agreements for referring facilities directly affected by this constraint may need to be examined. Use of such an agreement might directly affect patients' overall satisfaction with the system and could improve

collaboration between physicians at community hospitals and their regional headquarters.

The final deficiency to be discussed in relation to the flow model is the level of compliance with the model. Multiple examples of noncompliance were identified throughout this study. The largest single breakdown in the model related to patient preparation at both the sending and receiving hospitals. This factor alone appeared to have the most significance in determining overall satisfaction with the process. There was no consistency found in the information provided in either briefings or handouts. The lack of information resulted in confusion for the patients and often resulted in patients accidentally packing required records or medications which directly affects the care they receive in transit. Patient surveys indicated a great deal of frustration with the process directly related to either misinformation or the lack of information on which to make decisions. These are controllable factors which could be alleviated with more established briefing guidelines at both the sending and receiving facilities. Personnel could also be instructed to take the extra time necessary to ensure that patients are directed to appropriate resources to resolve some of the problem areas,

whenever possible. Policies related to support services, i.e., transportation and housing, should be readily available to aeromedical evacuation personnel to ensure that correct guidance is given to patients. In order to provide a more indepth knowledge of the aeromedical evacuation process, it may be indicated for personnel assigned to the aeromedical evacuation office to be scheduled to accompany an aeromedical evacuation mission as part of their initial orientation. This experience proved invaluable for the researcher in understanding the complexity of the overall process and understanding the patient complaints that may arise as a result.

Recommendations

Based on the findings and discussion presented in this study, the following recommendations are submitted:

1. Establish a policy which requires the FAMC Admission and Disposition Office to forward both the patient manifest data and the DMRIS patient record to the appropriate nursing unit. The hard-copy of the patient record should be given to the receiving physician by the nursing staff.

2. Prepare and distribute a Letter of Instruction (LOI) to each of the referring facilities within the region defining information that should be included in briefings to patients being aeromedically evacuated to FAMC. Appendices to this LOI should include: a current "Fact Sheet For Aeromedical Evacuation Patients", a "Patient Information Guide", a FAMC telephone directory, guesthouse/billeting fact sheets, and current clinic procedures/scheduling practices.
3. Prepare and distribute quarterly newsletters to each of the referring facilities to provide updated information for aeromedical evacuation patients at FAMC. A copy of a current "Fact Sheet For Aeromedical Evacuation Patients" should be included in each mailing with instructions to locally reproduce and provide to each patient.
4. Provide training to aeromedical evacuation personnel at all regional referring and receiving facilities. This training should include the experience of traveling on a mission through the Invited Medical Personnel program and attendance at the three-day DMRIS training program offered by ASMRO and the Patient Airlift Center.
5. Develop a written procedure for the FAMC Aeromedical Evacuation Office personnel which defines

what information should be covered in briefings to both arriving and departing patients. The individual conducting the briefing should be required to complete a briefing checklist indicating what topics were covered and what handouts were provided to the patients. This checklist should be signed by the individual providing the briefing and retained in the aeromedical evacuation office to be evaluated as part of the internal control review procedures for the activity.

6. Review the scheduling practices for personnel assigned to the FAMC Aeromedical Evacuation Office to ensure personnel utilization is maximized. Staggered shift times would permit coverage for longer periods of time. When workload and staffing constraints require the absence of all personnel from the office, the Admission and Disposition Office should provide coverage of this activity. Admission and Disposition Office personnel should be cross-trained to handle routine aeromedical evacuation requests and questions. A sign should be posted on the door of the Aeromedical Evacuation Office which directs patients to the Admission and Disposition Office during appropriate times. Phones should be forwarded to ensure uninterrupted service.

7. Establish procedures for complying with search requirements for aeromedical evacuation patients. Transfrisker equipment should be ordered to support this requirement.
8. Review and revise the airfield rescue vehicle mission as current procedures result in extended patient waiting time at the flightline upon arrival, and extended absences of personnel from the FAMC Aeromedical Evacuation Office. Coordinate changes with the Detachment Commander at Buckley Air National Guard Base.
9. Require patients at all regional sites to complete a checklist prior to departure which specifically addresses record handling, medications, tagged baggage, carry-on baggage, and funds required en route to their destination.
10. Conduct an analysis of system constraints adversely affecting the referral process between specific Army medical facilities within the region to establish the need for more inter-service, inter-hospital agreements, if justified.
11. Conduct a study of current policies/procedures for the Guesthouse and Billeting Offices to identify changes which could be made to improve coordination and to maximize occupancy rates for both facilities.

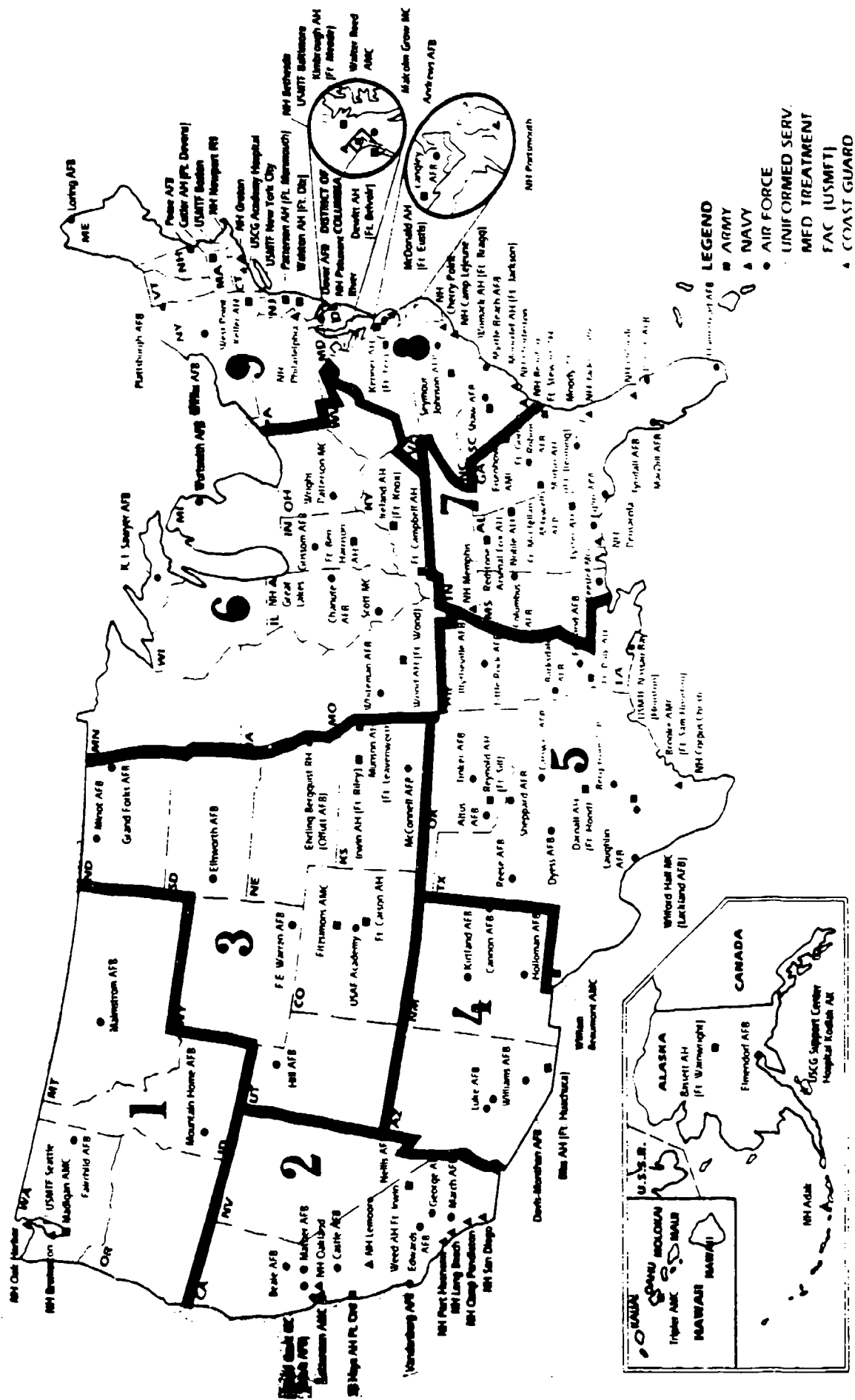
12. Develop a FAMC patient transportation policy for aeromedical evacuation patients which lists and prioritizes available resources, and circumstances under which these resources may be requested.
13. Revise the FAMC Aeromedical Evacuation SOP to allow patients to hand-carry their records during the aeromedical evacuation process only if procedures are followed for checking all records prior to departure, and instructions are given to the patient concerning the disposition of these records.
14. Ensure that patients departing Fort Leavenworth and leaving FAMC for return to Fort Leavenworth are fully briefed on the effects the established flight schedule will have on their aeromedical evacuation processing. This briefing should include an explanation of the add-on procedure.
15. Direct FAMC aeromedical evacuation personnel to screen all arriving Fort Leavenworth patients on the Tuesday flight to identify those patients who might be eligible to return on the Thursday flight. Criteria should be developed for this screening process. Once identified, aeromedical evacuation personnel should update medical information as soon as possible and enter the record into DMRIS.

16. Establish a Memorandum of Understanding (MOU) between FAMC and the Patient Airlift Center to clarify the use of the add-on procedure for those sites whose returning flight departs less than 48 hours after the arriving flight.

Appendix A

Map of DOD Military Medical Regions

MAP OF DOD MILITARY MEDICAL REGIONS

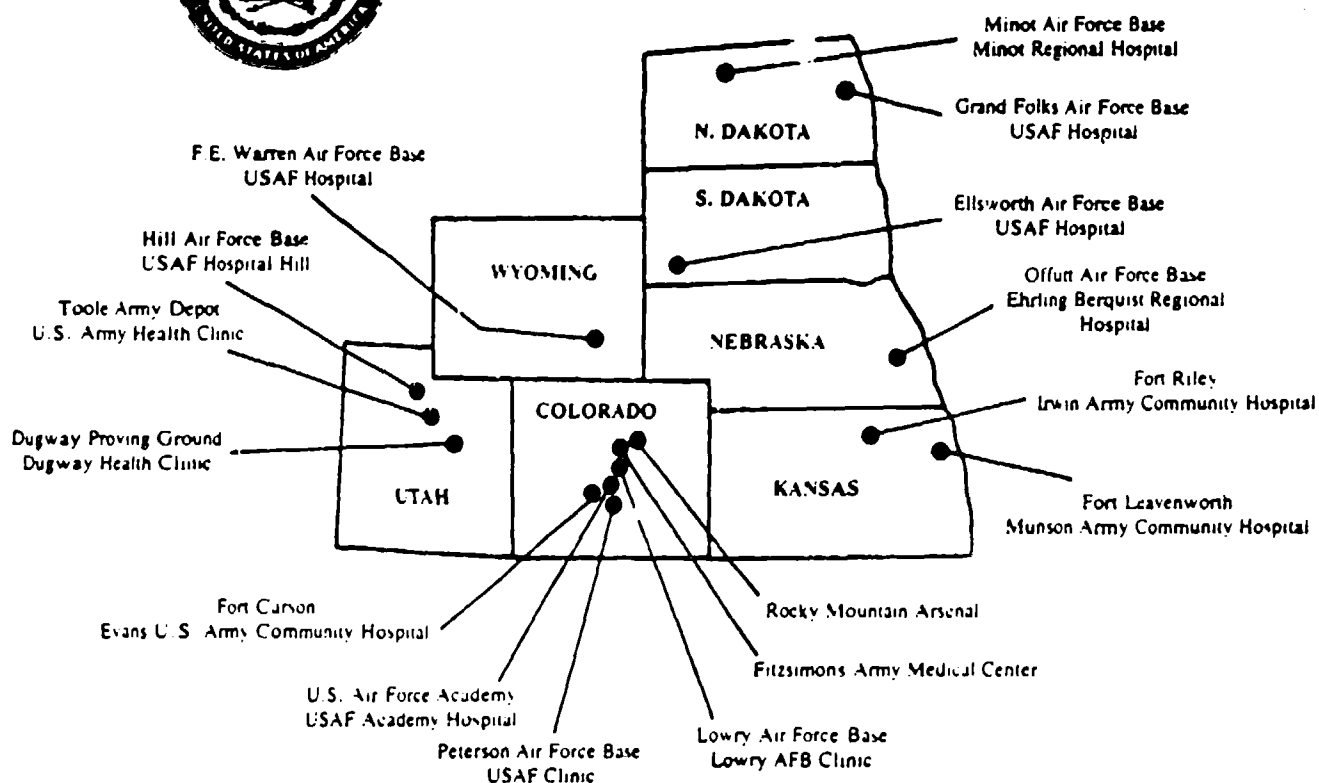


Appendix B

Map of DOD Military Medical Region III



DoD Military Medical Region III



The DoD Military Medical Region III encompasses a seven state area as illustrated in the map above. The figures represented below reflect the number of beds and eligible beneficiaries by category and state where they reside within the FMC seven state Health Services Region and is based on data received from the DEERS Support Office, Office of the Secretary of Defense. The data is based on enrolled beneficiaries as of Dec. 31, 1984.

NAME	NUMBER OF BEDS	STATE & TOTAL POPULATION ELIGIBLE FOR SERVICE	
USAF Hospital	40	Wyoming	16,693
USAF Hospital Hill	35		
USA Health Clinic	11 (temp)	Utah	37,327
Dugway Health Clinic	0		
Evans USA Community Hospital	180		
USAF Academy Hospital	85		
USAF Clinic	0	Colorado	177,884
Lowry AFB Clinic	0		
Fitzsimons Army Medical Center	500		
Munson Army Community Hospital	70	Kansas	95,152
Irwin Army Community Hospital	120	Nebraska	57,216
Ehring Berquist Regional Hospital	90	South Dakota	33,418
USAF Hospital	35		
USAF Hospital	35		
Minot Regional Hospital	40	North Dakota	34,424

Appendix C

Letter to Scott AFB

JUL 07 '87 10:41 FAMC-AURORA

P.02

336/195 - 663/198

UNCLASSIFIED

01 01 001004 JUL 07 RR

UNCL

ASHG-ZX 001004

NO

CDR, FAMC, AURORA, CO// HSHG-ZX//

57TH AES SCOTT AFB IL//

UNCLAS

1. REQUEST APPROVAL TO PERMIT MAJOR PATRICIA K. LOVAAS, AN, HEALTH CARE ADMINISTRATION RESIDENT, FAMC, TO TRAVEL TO AND FROM SCOTT AFB AS INVITED MEDICAL PERSONNEL STATUS.
2. MAJOR LOVAAS IS CONDUCTING AN APPROVED GRADUATE RESEARCH STUDY OF THE AIR EVACUATION PATIENT REFERRAL PROCESS FOR DOD MILITARY MEDICAL REGION III. IN ORDER FOR HER TO GAIN A BETTER UNDERSTANDING OF THE OVERALL SYSTEM, REQUEST A TWO DAY VISIT BE SCHEDULED WITH ASMRO AND PAC, 15 - 16 JULY 1987.
3. REQUEST TRAVEL ARRANGEMENTS BE MADE FOR MAJOR LOVAAS TO DEPART FAMC, 14 JULY 1987, ON THE ORIGINATING 336 FLIGHT AND TRAVEL TO ALL DESIGNATED SITES ENROUTE TO SCOTT AFB. REQUEST RETURN FLIGHT TO FAMC ON 17 JULY 1987 ON THE 443 FLIGHT.

PATRICIA K. LOVAAS, MAJ, AN
ADMIN RESIDENT, HSHG-ZX
AV 943-8313

29/ 21
200 91

DAVID E. LYNN, LTC, MS, HSHG-ZX
DEPUTY CHIEF OF STAFF, AV 943-8313

David E. Lynn

UNCLASSIFIED



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 375TH AEROMEDICAL AIRLIFT WING (MAC)

SCOTT AIR FORCE BASE, ILLINOIS 62225

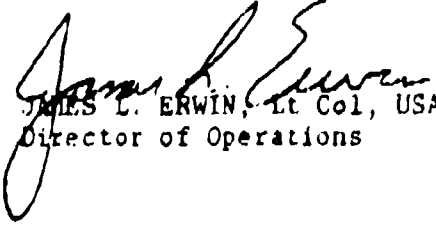
REPLY TO
ATTN: 57 AES/SGOA

SUBJECT: Invited Medical Personnel (IMP) Status Approval

Maj Patricia Lovass

1. In accordance with MACR 164-1, IMP status is authorized and approved for you on MAC Aeromedical Evacuation mission FLF033600195, from Fitzsimons AMC CO to Scott AFB IL, 14 Jul 1987 and mission FLF066300198, from Scott AFB IL to Fitzsimons AMC CO, 17 Jul 1987.
2. The purpose of your IMP status is orientation and indoctrination to the MAC Aeromedical Evacuation System and observation of its inflight medical care delivery capabilities.
3. You must be in an official TDY/TAD status. You may not be on leave. Please present a copy of this authorization letter and a copy of your travel orders to the Medical Crew director upon boarding the aircraft. When your orders are processed they should include variations in itinerary authorized. Appropriate seasonal uniforms should be worn but fatigues and utility uniforms are not authorized.
4. Please telephone us at (commercial) 618-256-4938 or (autovon) 576-4938, during normal duty hours, Monday - Friday, with 24 hours of the mission (Friday for Sunday and Monday missions) to confirm your status and receive reporting instructions. If you are traveling on a two or three day mission to Scott AFB IL, billeting arrangements will be made for you. Please remember, a seat is being reserved for you. If you must cancel, please inform us.
5. Please submit a trip report within one week after completion of the mission. Address any observations made during the mission concerning overall patient management, inflight medical care, and ground support. There is a form for this purpose provided in your IMP packet, which should be provided by the Medical Crew Director. If you don't receive one please ask. Upon completion, return it to the MCD or mail it to: 57 AES/SGOE, Scott AFB, IL 62225-5436.

FOR THE COMMANDER


JAMES L. ERWIN, Lt Col, USAF, MSC
Director of Operations

Appendix D

Letter to ASMRO



DEPARTMENT OF THE ARMY

FITZSIMONS ARMY MEDICAL CENTER
AURORA, COLORADO 80045-5000

REPLY TO
ATTENTION OF

HSHG-ZX (640b)

23 June 1987

MEMORANDUM FOR: ASMRO, ATTN: Diane Mooney, Scott AFB, IL
62225-5000

SUBJECT: Demographic Data for FAMC Referral Patients

1. As part of my graduate program in health care administration, I am conducting a study of the patient referral process for DOD Military Medical Region III.

2. Your assistance is requested to provide demographic data for patients referred through the aeromedical evacuation system at Fitzsimons Army Medical Center (FAMC).

3. For each of the following sites, please determine the total number of inpatients, outpatients, litter, ambulatory, non-medical attendants (NMAs) and patients remaining overnight (RONs) who arrived and departed FAMC during fiscal year 1986.

- a. Minot Air Force Base, ND
- b. Grand Forks Air Force Base, ND
- c. Ellsworth Air Force Base, SD
- d. Offutt Air Force Base, NE
- e. McConnell Air Force Base, KS
- f. Fort Riley, KS
- g. Fort Leavenworth, KS
- h. Fort Leonard Wood, MO
- i. Hill Air Force Base, UT

4. Of the total number of patients (do not include NMAs or RONs) from the listed sites collectively, please provide the following information for both arriving and departing patients during fiscal year 1986.

- a. Number of males and number of females.
- b. Patient/sponsor's service category (Army, Air Force, Public Health Service, etc.).

SHHG-ZX

SUBJECT: Demographic Data for FAMC Referral Patients

c. Patient/sponsor's military status (Active duty, dependent of active duty, etc.).

d. Patient/sponsor's rank.

e. ASMRO diagnosis classification.

5. Any questions concerning this request may be directed to Major Lovaas, AVN 943-8313. Your help is most appreciated.



Patricia K. Lovaas

Major, AN

Health Care Administration Resident

Appendix E

Survey Questionnaire For Arriving Patients



DEPARTMENT OF THE ARMY

FITZSIMONS ARMY MEDICAL CENTER
AURORA, COLORADO 80045-5001

June 1, 1987

REPLY TO
ATTENTION OF

Office of the
Chief of Staff

Dear Arriving Patient,

In an effort to improve the support services to our regionally-referred patients, we are conducting a study at Fitzsimons Army Medical Center. The attached survey is designed to acquire information concerning the preparation you received for your trip and your reception at Fitzsimons. Please take a few minutes to fill out the survey so we can identify problem areas. We need your honest opinions in order to make the regional patient referral process better.

Please complete only one survey per patient. If you are accompanied by a non-medical attendant, please fill out one form together. Your participation is totally voluntary and confidentiality will be guaranteed.

We realize you have just completed a long trip. If possible, we would appreciate your prompt response once you are settled at Fitzsimons. Please return the survey in the original envelope to the Chief of Staff's Office, first floor center, main hospital. If it is more convenient, you may give the envelope to one of the nurses on the ward. Your help is most appreciated.

Sincerely,

David E. Lynn
Lieutenant Colonel, U.S. Army
Deputy Chief of Staff

SURVEY QUESTIONNAIRE FOR ARRIVING PATIENTS

SECTION A

Please provide the following patient demographic information by placing a check by the appropriate response or by writing your response in the space provided. If the patient is a child, would the parent please provide the information for the child.

1. What is your military status?

☐ Active Duty	☐ Retired
☐ Dependent of Active Duty	☐ Dependent of Retired
☐ Dependent of Deceased Active Duty	☐ Dependent of Deceased Retired
☐ Other (Please specify: _____)	

2. What is your/sponsor's rank? _____

3. What is your/sponsor's service category?

☐ Army	☐ Marine
☐ Air Force	☐ Coast Guard
☐ Navy	☐ Other (Please specify: _____)

4. What is your age? _____

5. Are you male or female? ☐ Male ☐ Female

6. What is the name of your home station? _____

7. Were you transferred to Fitzsimons as an inpatient or an outpatient?

☐ Inpatient ☐ Outpatient ☐ Not Sure

8. Were you transferred on a litter or ambulatory? ☐ Litter ☐ Ambulatory

9. Please write your diagnosis or medical condition for which you will be treated.

(Write "unsure" if you do not know.) _____

10. Please write the clinical service which will be treating you. (Write

"unsure" if you do not know.) _____

11. Were you accompanied to Fitzsimons by a non-medical attendant (authorized family or non-family member)? ☐ Yes ☐ No

12. Is this the first time you were medically referred to Fitzsimons through the air evacuation system? ☐ Yes ☐ No

SECTION B

The following questions are designed to acquire information concerning the preparation you received for your trip and your arrival at Fitzsimons. Please answer the questions by placing a check by the appropriate response. If the question is not applicable to your situation, place a check by N/A.

1. Did you receive a briefing at the sending hospital concerning your trip to Fitzsimons? ☐ Yes ☐ No
2. If yes, please check the following items covered in the briefing:
☐ a. Responsibility of outpatients and non-medical attendants to arrange for lodging
☐ b. The need for outpatients and non-medical attendants to have sufficient funds for lodging and meal expenses
☐ c. Availability of guest housing at Fitzsimons
☐ d. Limited post transportation at Fitzsimons
☐ e. Requirement for appropriate clothing
☐ f. Possibility of delayed flight which may require stopping overnight enroute to Fitzsimons
3. When did you receive the briefing?
☐ a. Two or more days prior to departure
☐ b. One day prior to departure
☐ c. Day of departure
☐ d. N/A; did not receive briefing
4. Prior to your departure, did you receive a handout containing information on aeromedical evacuation procedures? ☐ Yes ☐ No
5. Prior to your departure, did you receive a handout containing information about Fitzsimons? ☐ Yes ☐ No
6. Prior to your departure, were you advised that your inpatient or outpatient status could change upon arrival at Fitzsimons? ☐ Yes ☐ No
7. If you were a litter patient, were you advised to bring appropriate clothing in the event you were changed to an ambulatory patient status?
☐ Yes ☐ No ☐ N/A
8. If you were an outpatient, were prearrangements made by the sending hospital for you to be seen in the appropriate Fitzsimons clinic?
☐ Yes ☐ No ☐ Not Sure ☐ N/A
9. If you or your non-medical attendant required lodging at Fitzsimons, were you advised to make reservations prior to departure? ☐ Yes ☐ No ☐ N/A
10. Were you asked to hand carry your medical records or x-rays enroute to Fitzsimons? ☐ Yes ☐ No

11. If yes, to whom were you instructed to return your medical records or x-rays?
☐ a. Admission office at Fitzsimons
☐ b. Air evacuation personnel at Fitzsimons
☐ c. Doctor at Fitzsimons
☐ d. No instructions were given
12. Was your flight delayed enroute to Fitzsimons? ☐ Yes ☐ No
13. Did you receive an explanation for why the flight was delayed?
☐ Yes ☐ No ☐ N/A
14. When you arrived at Fitzsimons, did you receive an orientation briefing by the air evacuation personnel? ☐ Yes ☐ No
15. If yes, please check the following items covered in the briefing:
☐ a. Directions to the admission office
☐ b. Instructions on obtaining lodging for yourself or non-medical attendant
☐ c. Instructions on notifying appropriate outpatient clinic
☐ d. Instructions on receiving baggage
☐ e. Information concerning post transportation
☐ f. Procedure for obtaining meal passes
☐ g. Directions to restroom facilities
16. When you arrived at Fitzsimons, did you receive a handout concerning information for air evacuation patients? ☐ Yes ☐ No
17. How long did you wait in the admission office to be admitted to Fitzsimons?
☐ a. N/A
☐ b. Less than 30 minutes
☐ c. 30 - 60 minutes
☐ d. More than 60 minutes
18. If you traveled as an inpatient, were you changed to outpatient status upon arrival at Fitzsimons? ☐ Yes ☐ No ☐ N/A
19. Did you receive directions to your admitting ward? ☐ Yes ☐ No ☐ N/A
20. Did you require assistance to your admitting ward? ☐ Yes ☐ No ☐ N/A
21. Did you receive assistance to your admitting ward? ☐ Yes ☐ No ☐ N/A
22. If you were an outpatient, did you have an appointment date and time with the clinic or physician? ☐ Yes ☐ No ☐ Not Sure ☐ N/A
23. Did you receive all your baggage upon arrival at Fitzsimons? ☐ Yes ☐ No
24. Did either you or your non-medical attendant require lodging upon arrival at Fitzsimons? ☐ Yes ☐ No
25. Did you require assistance in making lodging arrangements?
☐ Yes ☐ No ☐ N/A

	STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE	N/A
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	_____	_____	_____	_____	_____	_____
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	_____	_____	_____	_____	_____	_____
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	_____	_____	_____	_____	_____	_____
7. The handouts I received from the sending hospital were very helpful.	_____	_____	_____	_____	_____	_____
8. Overall, I am satisfied with the sending hospital's management of my trip.	_____	_____	_____	_____	_____	_____
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	_____	_____	_____	_____	_____	_____
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	_____	_____	_____	_____	_____	_____
11. I was fully briefed by the Fitzsimons air evacuation personnel on what to do upon arrival at Fitzsimons.	_____	_____	_____	_____	_____	_____
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	_____	_____	_____	_____	_____	_____
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	_____	_____	_____	_____	_____	_____
14. The handouts I received upon arrival at Fitzsimons were very helpful.	_____	_____	_____	_____	_____	_____

	STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE	N/A
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	_____	_____	_____	_____	_____	_____
16. I was admitted to Fitzsimons within a reasonable time.	_____	_____	_____	_____	_____	_____
17. The admission procedure was without complications.	_____	_____	_____	_____	_____	_____
18. The admitting personnel were courteous and helpful.	_____	_____	_____	_____	_____	_____
19. My transfer to the nursing ward proceeded smoothly.	_____	_____	_____	_____	_____	_____
20. I had no difficulty obtaining my baggage.	_____	_____	_____	_____	_____	_____
21. Lodging was easily obtained for myself or non-medical attendant.	_____	_____	_____	_____	_____	_____
22. The housing personnel at Fitzsimons were courteous and helpful.	_____	_____	_____	_____	_____	_____
23. Transportation to my lodging was readily available.	_____	_____	_____	_____	_____	_____
24. The procedure for obtaining meal passes was fully explained.	_____	_____	_____	_____	_____	_____
25. Overall, I am satisfied with my transfer to Fitzsimons.	_____	_____	_____	_____	_____	_____

Thank you for filling out this survey. Please return the questionnaire in the original envelope to the Chief of Staff's Office, first floor center, main hospital. If it is more convenient, you may give the envelope to one of the nurses on the ward.

Appendix F

Survey Questionnaire For Departing Patients



DEPARTMENT OF THE ARMY

FITZSIMONS ARMY MEDICAL CENTER
AURORA, COLORADO 80045-5001

June 1, 1987

REPLY TO
ATTENTION OF

Office of the
Chief of Staff

Dear Departing Patient,

In an effort to improve the support services to our regionally-referred patients, we are conducting a study at Fitzsimons Army Medical Center. The attached survey is designed to acquire information concerning your stay at Fitzsimons and the preparation you received for your return trip. Please take a few minutes to fill out the survey so we can identify problem areas. If you also participated in the first survey concerning your arrival at Fitzsimons, we appreciate your response. We need your honest opinions in order to make the regional patient referral process better.

Please complete only one survey per patient. If you are accompanied by a non-medical attendant, please fill out one form together. Your participation is totally voluntary and confidentiality will be guaranteed.

We realize you are starting a long trip. If possible, we would appreciate your prompt response once you have arrived at your home station. Please return the survey in the enclosed postage paid envelope. It may be mailed at any civilian or military post office. Your help is most appreciated.

Sincerely,

David E. Lynn
Lieutenant Colonel, U.S. Army
Deputy Chief of Staff

SURVEY QUESTIONNAIRE FOR DEPARTING PATIENTS

SECTION A

Please provide the following patient demographic information by placing a check by the appropriate response or by writing your response in the space provided. If the patient is a child, would the parent please provide the information for the child.

1. What is your military status?

☐ Active Duty	☐ Retired
☐ Dependent of Active Duty	☐ Dependent of Retired
☐ Dependent of Deceased Active Duty	☐ Dependent of Deceased Retired
☐ Other (Please specify: _____)	

2. What is your/sponsor's rank? _____

3. What is your/sponsor's service category?

☐ Army	☐ Marine
☐ Air Force	☐ Coast Guard
☐ Navy	☐ Other (Please specify: _____)

4. What is your age? _____

5. Are you male or female? ☐ Male ☐ Female

6. What is the name of the home station where you are returning?

7. Are you returning from Fitzsimons as an inpatient or an outpatient?

☐ Inpatient ☐ Outpatient ☐ Not Sure

8. Are you returning on a litter or ambulatory? ☐ Litter ☐ Ambulatory

9. Please write your diagnosis or medical condition for which you were treated.

(Write "unsure" if you do not know.) _____

10. Please write the clinical service which treated you. (Write "unsure" if

you do not know.) _____

11. Are you returning from Fitzsimons with a non-medical attendant (authorized family or non-family member)? ☐ Yes ☐ No

12. Was this the first time you were medically referred to Fitzsimons through the air evacuation system? ☐ Yes ☐ No

SECTION B

The following questions are designed to acquire information concerning your stay at Fitzsimons and the preparation you received for your return trip. Please answer the questions by placing a check by the appropriate response. If the question is not applicable to your situation, place a check by N/A.

1. Did either you or your non-medical attendant require lodging while at Fitzsimons? ☐ Yes ☐ No
2. If lodging was required, what facilities did you obtain?
☐ a. Temporary lodging at Fitzsimons
☐ b. Temporary lodging at Lowry Air Force Base
☐ c. Stayed with friends/family in the area
☐ d. Stayed at local civilian hotel/motel
3. If lodging was obtained at Fitzsimons, were you on a daily "space available" basis? ☐ Yes ☐ No ☐ N/A
4. Were you required to change lodging accommodations, including rooms, during your stay at Fitzsimons? ☐ Yes ☐ No ☐ N/A
5. Did you or your non-medical attendant require transportation from your lodging to the hospital/clinic during your stay at Fitzsimons? ☐ Yes ☐ No ☐ N/A
6. If yes, what type of transportation did you use?
☐ a. None was available; I walked.
☐ b. Military transportation provided by Fitzsimons
☐ c. Lowry Air Force shuttle bus
☐ d. Commercial taxi or bus
☐ e. Transportation by friends/family
7. On the day of departure, did you or your non-medical attendant require transportation from your lodging to the hospital? ☐ Yes ☐ No ☐ N/A
8. If yes, what type of transportation did you use?
☐ a. None was available; I walked.
☐ b. Military transportation provided by Fitzsimons
☐ c. Lowry Air Force shuttle bus
☐ d. Commercial taxi or bus
☐ e. Transportation by friends/family
9. Did you or your non-medical attendant obtain meal passes to the dining facility during your stay at Fitzsimons? ☐ Yes ☐ No ☐ N/A
10. Prior to your arrival at Fitzsimons, were you advised to bring sufficient funds for lodging, meals, and transportation? ☐ Yes ☐ No ☐ N/A
11. Prior to your arrival, were you aware of the actual costs for lodging and meals at Fitzsimons? ☐ Yes ☐ No ☐ N/A

12. Did you or your non-medical attendant require check cashing facilities during your stay at Fitzsimons? ☐ Yes ☐ No
13. If you were an outpatient, did you have a prearranged appointment date and time with the clinic or physician? ☐ Yes ☐ No ☐ Not Sure ☐ N/A
14. If yes, were you seen at the scheduled time? ☐ Yes ☐ No ☐ N/A
15. During your stay at Fitzsimons, were you changed from inpatient to outpatient status? ☐ Yes ☐ No ☐ Not Sure ☐ N/A
16. If yes, did you have adequate clothing with you? ☐ Yes ☐ No ☐ N/A
17. When you first arrived at Fitzsimons, were you informed that the paperwork requesting your return flight must be submitted to the air evacuation office two working days prior to the planned departure date? ☐ Yes ☐ No
18. Please check which of the following items were explained to you by the air evacuation personnel at Fitzsimons concerning your departure.
- ☐ a. Actual date and time of your scheduled flight
 - ☐ b. Possibility of last-minute cancellation
 - ☐ c. Requirement for your doctor to complete medical record
 - ☐ d. Requirement for appropriate clothing
 - ☐ e. Baggage instructions
 - ☐ f. Date, time, and place to check-in for departure
 - ☐ g. Possibility of delayed flight which may require stopping overnight enroute to home destination
19. Did you actually leave on the flight for which you were originally scheduled?
☐ Yes ☐ No
20. Were you asked to hand carry your medical records or x-rays enroute to your home destination? ☐ Yes ☐ No
21. If yes, to whom were you instructed to return your medical records or x-rays?
- ☐ a. Records room (patient administration) at home hospital
 - ☐ b. Air evacuation personnel at home hospital
 - ☐ c. Doctor at home hospital
 - ☐ d. No instructions were given
22. Was your flight delayed enroute to your home destination? ☐ Yes ☐ No
23. Did you receive an explanation for why the flight was delayed?
☐ Yes ☐ No ☐ N/A
24. Did you receive all your baggage upon arrival at your home station?
☐ Yes ☐ No

SECTION C

The following questions are designed to indicate how you feel about your experience with the patient referral process using the air evacuation system. For each statement below, check one box which most closely indicates your satisfaction or dissatisfaction with your stay at Fitzsimons and your preparation for departure. Please answer every question. If the question is not applicable to your situation, place a check by N/A.

	STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE	N/A
1. Adequate lodging was readily available during my stay at Fitzsimons.	_____	_____	_____	_____	_____	_____
2. Transportation was readily available during my stay at Fitzsimons.	_____	_____	_____	_____	_____	_____
3. Meal passes were readily available during my stay at Fitzsimons.	_____	_____	_____	_____	_____	_____
4. I was prepared for the personal expenses incurred during my stay at Fitzsimons.	_____	_____	_____	_____	_____	_____
5. Cashing a check at Fitzsimons was convenient.	_____	_____	_____	_____	_____	_____
6. My medical records and x-rays were available to the doctor treating me at Fitzsimons.	_____	_____	_____	_____	_____	_____
7. I received a thorough explanation from my doctor at Fitzsimons about the follow-up care I needed upon return to my home hospital.	_____	_____	_____	_____	_____	_____
8. When I no longer required medical care at Fitzsimons, processing began immediately for my return trip.	_____	_____	_____	_____	_____	_____
9. I was fully briefed on the procedure for arranging my return trip.	_____	_____	_____	_____	_____	_____
10. I was kept fully informed about my return trip.	_____	_____	_____	_____	_____	_____

	STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE	N/A
11. The air evacuation personnel at Fitzsimons handled my return trip in a well-organized and efficient manner.	_____	_____	_____	_____	_____	_____
12. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	_____	_____	_____	_____	_____	_____
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	_____	_____	_____	_____	_____	_____
14. The "check-in" process at the air evacuation office on the day of departure proceeded smoothly.	_____	_____	_____	_____	_____	_____
15. There were adequate waiting room accommodations for the air evacuation patients awaiting to depart Fitzsimons.	_____	_____	_____	_____	_____	_____
16. The bus accommodations for my transport to the airfield were adequate.	_____	_____	_____	_____	_____	_____
17. Overall, I am satisfied with Fitzsimons' management of my return trip.	_____	_____	_____	_____	_____	_____
18. I was greeted with a friendly, caring manner upon arrival at my home station.	_____	_____	_____	_____	_____	_____
19. The air evacuation personnel at my home station handled my arrival in a well-organized and efficient manner.	_____	_____	_____	_____	_____	_____
20. I had no difficulty obtaining my baggage.	_____	_____	_____	_____	_____	_____

Thank you for filling out this survey. Please return the questionnaire in the enclosed postage paid envelope. It may be mailed at any civilian or military post office.

Appendix G

Instructions to Ward Head Nurses on Patient Surveys

DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL

HSNG-ZX

SUBJECT

Surveys for Arriving Patients

TO Ward Head Nurses

FROM Admin Resident

DATE 1 June 87

CMT 1

MAJ Lovaas/pl/8313

1. In conjunction with my Baylor University graduate requirements, I am conducting a research study on the patient referral process within DOD Military Medical Region III. All patients arriving through the air evacuation system during the month of June will receive a survey.

2. The patients are requested to return the surveys in the original envelope to the Chief of Staff's Office. However, if they give the surveys to a ward nurse, would you please put them in distribution. The envelope is already labeled. Please inform your staff about the study. Your cooperation is much appreciated.



Patricia K. Lovaas

MAJ, AN

Health Care Administration Resident

Appendix H

Questionnaire For DOD Region III Referral Sites



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

FITZSIMONS ARMY MEDICAL CENTER
AURORA COLORADO 80045-5001



S: 15 July 1987

HSHG-ZX

26 June 1987

MEMORANDUM FOR: (Addressed to the Deputy Commander for Administration at Army facilities and the Administrator at Air Force facilities)

SUBJECT: Questionnaire for DOD Region III Referral Sites

1. In an effort to improve the support services to our regionally-referred patients, the Administrative Resident at Fitzsimons Army Medical Center (FAMC), Major Patricia K. Lovass, is conducting a study of the air evacuation patient referral process.
2. The attached questionnaire is designed to acquire information concerning air evacuation procedures, preparation of patients, and perceived problems of the referral process. The information will be used to gain an overall picture of the patient referral system for DOD Military Medical Region III.
3. Please have your Patient Administration Office prepare specific replies to this questionnaire and return them to Major Lovass by 15 July. Any questions concerning this request may be directed to her at AVN 943-8313.
4. Your input is highly desired in order for us to identify areas of concern and to successfully support our patients' needs. Thank you for your assistance in this project.

Encl


DAVID E. LYNN
Lieutenant Colonel, MS
Deputy Chief of Staff

QUESTIONNAIRE FOR DOD REGION III REFERRAL SITES

Please provide a point of contact and telephone number at your facility for any questions arising from the completed questionnaire.

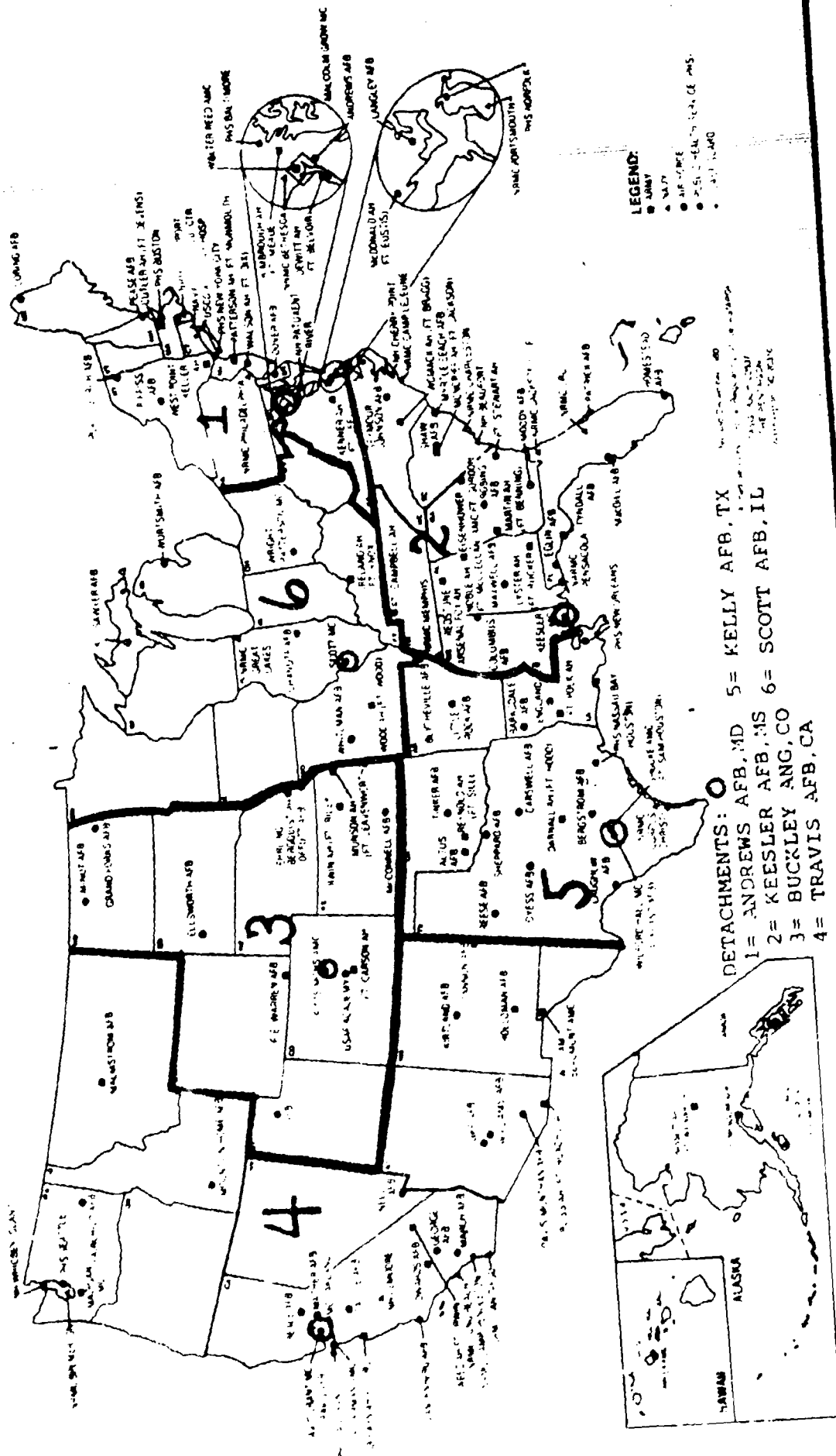
It is requested that you send a copy of your Air Evacuation SOP, local forms and any patient handouts, if applicable.

1. Describe the procedure for initiating an air evacuation flight request for inpatients, outpatients, and non-medical attendants. Please include forms used, time frames, personnel involved, and patient notification procedure.
2. Who is responsible for coordinating with the FAMC physician or clinic when reporting outpatients to ASMRO?
3. Do you sometimes find it necessary to send patients on a space-available basis or to convert inpatients to outpatient status in order for them to travel to FAMC? If yes, how frequently does this occur?
4. Is a briefing given to inpatients, outpatients, and non-medical attendants prior to their departure? Please specify whether briefing is verbal or written and whether it is given to a group or on a one-to-one basis.
5. When is the briefing given and by whom?
6. Please specify all items of information covered in the briefing.
7. If patient handout(s) are used, when are they distributed to patients?
8. Have you ever received any information concerning support services at FAMC which would assist you with patient briefings?
9. If yes, what type of information was received and when did you receive it?
10. To whom are patient medical records/x-rays given for transport enroute to FAMC?
11. When an outpatient returns to you from FAMC, describe what happens to the medical records/x-rays.
12. Please describe noted problems or limitations of the patient referral process, regulating system, air evacuation transport system, or coordination with FAMC.

Appendix I

Map of Aeromedical Staging Facilities and Detachments

MAP OF AEROMEDICAL STAGING FACILITIES AND DETACHMENTS



Appendix J

FAMC Guesthouse Assignment Policy

GUEST HOUSE ASSIGNMENT POLICY

NOV 3 1986

Priority for assignment to Guest House accommodations:

1. Immediate family members attending to seriously ill (SI) or very seriously ill (VSI) patients.
2. Air evacuated attendants to patients.
3. Attendants to patients other than air evacuated.
4. Military personnel arriving or departing FAMC, PCS.
5. Outpatients (active duty personnel on TDY orders may make reservations at the VOQ/VEQ).
6. Guests of military personnel.
7. Military personnel on leave or pass.
8. Retired military in a transient status.
9. Others in transient that are entitled to benefits.

Reservations:

Confirmed reservations will be granted to persons in priority one thru five. Reservations will be held until 1800 hours on the date requested. The Guest House manager must approve all exceptions. Other persons requesting rooms will be placed on a stand-by list. Rooms not in use at 1800 hours will be assigned to persons on the stand-by list.

Prior to relinquishing rooms the Guest House will make every effort to insure that the needs of all SI, VSI and air evac attendants are satisfied.

Duration of Occupancy:

- | | | | |
|----------|---|------------------------------|-----|
| Priority | 1 | Twenty (20) consecutive days | (1) |
| | 2 | Twenty (20) consecutive days | (1) |

3 Twenty (20) consecutive days (1)

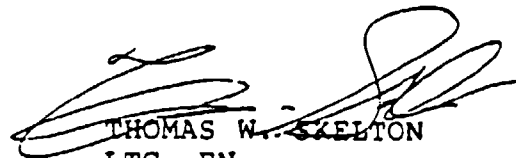
4 Thirty (30) days arriving PCS, seven (7) days
departing PCS (2)

All others seven (7) consecutive days maximum. Reservations and demand by higher priority may dictate shorter stays.

(1) The Guest House manager may grant extensions based on hardship.

(2) Requests for extensions must be in writing and approved by the installation commander.

FOR THE COMMANDER:



THOMAS W. SKELTON

LTC, EN

Director, Engineering & Housing

MFR: The priorities contained in this Policy were reviewed by Col Meiers and were concurred with on 3 Nov 86



Appendix K

Comparison of Survey Questions By Sending Site
For Arriving Patients

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>All Sites</u>		<u>Fort Leonard Wood</u>	
	<u>(n = 107)</u>		<u>(n = 24)</u>	
	M	SD	M	SD
1. I received a thorough explanation from my doctor at the sending hospital as to why I was being transferred to Fitzsimons.	4.15	1.09	4.04	1.30
2. I was fully briefed by the sending hospital on what to expect at Fitzsimons.	2.94	1.33	3.45	1.18
3. I was fully informed on air evacuation procedures by the sending hospital.	3.17	1.39	3.78	1.00
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	4.12	1.06	4.58	0.93
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	4.37	0.76	4.63	0.77
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	3.43	1.34	3.91	1.08
7. The handouts I received from the sending hospital were very helpful.	2.82	1.33	3.13	1.25
8. Overall, I am satisfied with the sending hospital's management of my trip.	3.67	1.14	4.17	0.76
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	4.22	0.90	4.42	0.88
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	4.15	1.01	4.46	0.88
11. I was fully briefed by the Fitzsimons air evacuation personnel as to what to do upon arrival at Fitzsimons.	4.02	1.07	4.54	0.51

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>All Sites</u>		<u>Fort Leonard Wood</u>	
	<u>(n = 107)</u>		<u>(n = 24)</u>	
	M	SD	M	SD
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	4.21	0.93	4.67	0.48
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.28	0.94	4.70	0.47
14. The handouts I received upon arrival at Fitzsimons were very helpful.	3.52	1.38	3.87	1.06
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.45	0.67	4.74	0.45
16. I was admitted to Fitzsimons within a reasonable time.	4.10	1.05	4.45	0.96
17. The admission procedure was without complications.	4.16	1.04	4.32	1.09
18. The admitting personnel were courteous and helpful.	4.42	0.79	4.50	0.96
19. My transfer to the nursing ward proceeded smoothly.	4.45	0.72	4.48	0.75
20. I had no difficulty obtaining my luggage.	4.45	0.79	4.46	0.72
21. Lodging was easily obtained for myself or non-medical attendant.	3.42	1.51	3.27	1.85
22. The housing personnel at Fitzsimons were courteous and helpful.	3.93	1.17	3.71	1.11
23. Transportation to my lodging was readily available.	2.76	1.45	2.13	1.25
24. The procedure for obtaining meal passes was fully explained.	3.28	1.49	4.00	1.13
25. Overall, I am satisfied with my transfer to Fitzsimons.	4.08	0.86	4.52	0.59

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Fort</u>		<u>Fort</u>	
	<u>Leavenworth</u>		<u>Riley</u>	
	<u>(n = 17)</u>		<u>(n = 17)</u>	
	M	SD	M	SD
1. I received a thorough explanation from my doctor at the sending hospital as to why I was being transferred to Fitzsimons.	4.69	0.48	3.88	1.26
2. I was fully briefed by the sending hospital on what to expect at Fitzsimons.	2.00	1.21	3.31	1.30
3. I was fully informed on air evacuation procedures by the sending hospital.	1.88	1.26	3.31	1.45
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	3.44	1.26	4.47	0.51
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	3.81	0.91	4.53	0.51
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	2.53	1.30	3.19	1.52
7. The handouts I received from the sending hospital were very helpful.	1.56	0.73	1.90	1.20
8. Overall, I am satisfied with the sending hospital's management of my trip.	2.50	1.46	3.88	0.93
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	4.25	0.77	4.18	1.01
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	3.56	1.36	4.24	0.75
11. I was fully briefed by the Fitzsimons air evacuation personnel on what to do upon arrival at Fitzsimons.	3.81	1.17	4.06	1.09

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Fort</u>		<u>Fort</u>	
	<u>Leavenworth</u>		<u>Riley</u>	
	(n = 17)		(n = 17)	
	M	SD	M	SD
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	4.19	0.91	4.12	0.86
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.13	1.15	4.35	0.61
14. The handouts I received upon arrival at Fitzsimons were very helpful.	3.27	1.74	3.50	1.43
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.38	0.81	4.35	0.79
16. I was admitted to Fitzsimons within a reasonable time.	4.00	1.08	4.00	1.13
17. The admission procedure was without complications.	4.07	1.07	4.07	1.21
18. The admitting personnel were courteous and helpful.	4.43	0.65	4.13	0.99
19. My transfer to the nursing ward proceeded smoothly.	4.54	0.66	4.43	0.51
20. I had no difficulty obtaining my luggage.	4.47	0.83	4.59	0.51
21. Lodging was easily obtained for myself or non-medical attendant.	3.27	1.56	3.38	1.51
22. The housing personnel at Fitzsimons were courteous and helpful.	3.89	1.69	3.88	1.36
23. Transportation to my lodging was readily available.	2.75	1.58	2.14	1.35
24. The procedure for obtaining meal passes was fully explained.	3.09	1.76	3.63	1.41
25. Overall, I am satisfied with my transfer to Fitzsimons.	3.71	1.14	4.24	0.75

Comparison of Survey Questions by Sending Site for Arriving Patients

Survey Question	Ellsworth		Minot	
	AFB		AFB	
	(n = 8)		(n = 7)	
	M	SD	M	SD
1. I received a thorough explanation from my doctor at the sending hospital as to why I was being transferred to Fitzsimons.	4.38	0.52	4.67	*
2. I was fully briefed by the sending hospital on what to expect at Fitzsimons.	3.25	1.16	2.80	1.64
3. I was fully informed on air evacuation procedures by the sending hospital.	3.63	1.06	3.00	1.41
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	3.75	1.16	3.83	0.98
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	4.50	0.53	4.50	0.55
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	4.13	0.35	4.40	0.55
7. The handouts I received from the sending hospital were very helpful.	3.14	1.21	4.00	*
8. Overall, I am satisfied with the sending hospital's management of my trip.	3.75	0.71	3.83	1.17
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	4.25	0.46	3.80	1.10
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	3.88	1.25	4.00	0.41
11. I was fully briefed by the Fitzsimons air evacuation personnel on what to do upon arrival at Fitzsimons.	3.50	1.07	4.17	1.17

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Sending Site for Arriving Patients

Survey Question	Ellsworth		Minot	
	AFB		AFB	
	(n = 8)		(n = 7)	
	M	SD	M	SD
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	3.75	0.87	4.33	1.21
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	3.75	1.28	4.50	0.84
14. The handouts I received upon arrival at Fitzsimons were very helpful.	3.00	1.26	3.00	*
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.38	0.52	4.33	0.82
16. I was admitted to Fitzsimons within a reasonable time.	4.17	0.75	3.67	*
17. The admission procedure was without complications.	4.17	0.75	4.00	*
18. The admitting personnel were courteous and helpful.	4.40	0.55	4.67	*
19. My transfer to the nursing ward proceeded smoothly.	4.40	0.55	4.67	*
20. I had no difficulty obtaining my luggage.	4.50	0.53	4.67	0.52
21. Lodging was easily obtained for myself or non-medical attendant.	2.33	*	3.50	*
22. The housing personnel at Fitzsimons were courteous and helpful.	3.00	*	4.00	*
23. Transportation to my lodging was readily available.	3.00	*	3.50	*
24. The procedure for obtaining meal passes was fully explained.	2.60	1.67	3.25	*
25. Overall, I am satisfied with my transfer to Fitzsimons.	3.75	1.04	3.83	1.17

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Hill</u>		<u>Grand Forks</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 6)</u>		<u>(n = 5)</u>	
	M	SD	M	SD
1. I received a thorough explanation from my doctor at the sending hospital as to why I was being transferred to Fitzsimons.	4.20	1.30	4.40	0.55
2. I was fully briefed by the sending hospital on what to expect at Fitzsimons.	3.60	0.89	2.40	1.14
3. I was fully informed on air evacuation procedures by the sending hospital.	4.20	0.45	3.00	1.58
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	4.60	0.55	3.40	1.82
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	4.60	0.55	4.40	0.55
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	4.20	0.84	3.00	1.41
7. The handouts I received from the sending hospital were very helpful.	3.40	0.55	2.33	*
8. Overall, I am satisfied with the sending hospital's management of my trip.	4.20	0.45	3.20	0.84
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	3.80	1.10	3.80	1.10
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	4.60	0.55	3.60	1.52
11. I was fully briefed by the Fitzsimons air evacuation personnel on what to do upon arrival at Fitzsimons.	3.60	1.34	3.20	1.79

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Hill</u>		<u>Grand Forks</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 6)</u>		<u>(n = 5)</u>	
	M	SD	M	SD
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	3.60	1.52	3.40	1.82
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	3.40	1.34	4.00	1.22
14. The handouts I received upon arrival at Fitzsimons were very helpful.	2.00	*	4.00	*
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.00	1.22	4.40	0.55
16. I was admitted to Fitzsimons within a reasonable time.	3.50	*	4.33	*
17. The admission procedure was without complications.	4.75	*	4.33	*
18. The admitting personnel were courteous and helpful.	4.25	*	4.33	*
19. My transfer to the nursing ward proceeded smoothly.	4.50	*	5.00	*
20. I had no difficulty obtaining my luggage.	4.00	1.73	4.50	*
21. Lodging was easily obtained for myself or non-medical attendant.	4.25	*	2.00	*
22. The housing personnel at Fitzsimons were courteous and helpful.	4.00	*	3.00	*
23. Transportation to my lodging was readily available.	4.00	*	—	—
24. The procedure for obtaining meal passes was fully explained.	3.25	*	3.00	*
25. Overall, I am satisfied with my transfer to Fitzsimons.	3.25	*	3.60	0.55

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Offutt</u>		<u>McConnell</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 2)</u>		<u>(n = 1)</u>	
	M	SD	M	SD
1. I received a thorough explanation from my doctor at the sending hospital as to why I was being transferred to Fitzsimons.	3.00	*	2.00	*
2. I was fully briefed by the sending hospital on what to expect at Fitzsimons.	2.50	*	2.00	*
3. I was fully informed on air evacuation procedures by the sending hospital.	3.50	*	2.00	*
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	4.00	*	2.00	*
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	4.00	*	4.00	*
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	3.00	*	4.00	*
7. The handouts I received from the sending hospital were very helpful.	2.50	*	2.00	*
8. Overall, I am satisfied with the sending hospital's management of my trip.	3.00	*	4.00	*
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	4.00	*	4.00	*
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	4.00	*	5.00	*
11. I was fully briefed by the Fitzsimons air evacuation personnel on what to do upon arrival at Fitzsimons.	4.00	*	5.00	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Sending Site for
Arriving Patients

<u>Survey Question</u>	<u>Offutt</u>		<u>McConnell</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 2)</u>		<u>(n = 1)</u>	
	M	SD	M	SD
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	4.00	*	5.00	*
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.00	*	5.00	*
14. The handouts I received upon arrival at Fitzsimons were very helpful.	4.00	*	-	-
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.00	*	4.00	*
16. I was admitted to Fitzsimons within a reasonable time.	3.50	*	-	-
17. The admission procedure was without complications.	3.00	*	-	-
18. The admitting personnel were courteous and helpful.	4.00	*	-	-
19. My transfer to the nursing ward proceeded smoothly.	4.00	*	-	-
20. I had no difficulty obtaining my luggage.	4.00	*	5.00	*
21. Lodging was easily obtained for myself or non-medical attendant.	-	-	5.00	*
22. The housing personnel at Fitzsimons were courteous and helpful.	-	-	-	-
23. Transportation to my lodging was readily available.	-	-	4.00	*
24. The procedure for obtaining meal passes was fully explained.	-	-	-	-
25. Overall, I am satisfied with my transfer to Fitzsimons.	4.00	*	4.00	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Sites Outside</u>	
	<u>Region</u>	
	<u>(n = 20)</u>	
	<u>M</u>	<u>SD</u>
1. I received a thorough explanation from my doctor at the sending hospital as to why I was being transferred to Fitzsimons.	4.13	1.15
2. I was fully briefed by the sending hospital on what to expect at Fitzsimons.	2.71	1.49
3. I was fully informed on air evacuation procedures by the sending hospital.	3.06	1.51
4. The air evacuation personnel at the sending hospital handled my transfer in a well-organized and efficient manner.	4.20	0.89
5. I was treated courteously and professionally by the air evacuation personnel at the sending hospital.	4.25	0.91
6. I was fully informed about my inpatient or outpatient status by the sending hospital.	3.16	1.57
7. The handouts I received from the sending hospital were very helpful.	3.62	1.50
8. Overall, I am satisfied with the sending hospital's management of my trip.	3.79	1.18
9. I was greeted with a friendly, caring manner upon arrival at Fitzsimons.	4.30	0.98
10. The bus accommodations for my transport from the airfield to the hospital were adequate.	4.30	0.92
11. I was fully briefed by the Fitzsimons air evacuation personnel on what to do upon arrival at Fitzsimons.	3.95	1.08

Comparison of Survey Questions by Sending Site for Arriving Patients

<u>Survey Question</u>	<u>Sites Outside</u>	
	<u>Region</u>	
	<u>(n = 20)</u>	
	<u>M</u>	<u>SD</u>
12. The air evacuation personnel at Fitzsimons handled my arrival in a well-organized and efficient manner.	4.25	0.79
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.30	0.98
14. The handouts I received upon arrival at Fitzsimons were very helpful.	4.08	1.16
15. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.50	0.51
16. I was admitted to Fitzsimons within a reasonable time.	4.00	1.07
17. The admission procedure was without complications.	4.07	1.07
18. The admitting personnel were courteous and helpful.	4.64	0.50
19. My transfer to the nursing ward proceeded smoothly.	4.23	1.09
20. I had no difficulty obtaining my luggage.	4.35	1.00
21. Lodging was easily obtained for myself or non-medical attendant.	3.78	1.39
22. The housing personnel at Fitzsimons were courteous and helpful.	4.38	0.74
23. Transportation to my lodging was readily available.	2.60	1.82
24. The procedure for obtaining meal passes was fully explained.	2.78	1.48
25. Overall, I am satisfied with my transfer to Fitzsimons.	4.24	0.66

Appendix L

Comparison of Survey Questions By Destination Site
For Departing Patients

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>All</u>		<u>Fort</u>	
	<u>Sites</u>		<u>Leonard Wood</u>	
	<u>(n = 73)</u>		<u>(n = 22)</u>	
	M	SD	M	SD
1. Adequate lodging was readily available during my stay at Fitzsimons.	3.40	1.42	3.47	1.60
2. Transportation was readily available during my stay at Fitzsimons.	2.85	1.49	2.94	1.57
3. Meal passes were readily available during my stay at Fitzsimons.	4.33	0.86	4.53	0.64
4. I was prepared for the personal expenses incurred during my stay at Fitzsimons.	3.93	1.02	3.94	1.24
5. Cashing a check at Fitzsimons was convenient.	3.55	1.29	3.55	1.37
6. My medical records and x-rays were available to the doctor treating me at Fitzsimons.	4.37	0.81	4.30	1.08
7. I received a thorough explanation from my doctor at Fitzsimons about the follow-up care I needed upon return to my home hospital.	4.24	1.11	4.65	0.75
8. When I no longer required medical care at Fitzsimons, processing began immediately for my return trip.	4.01	1.22	4.38	1.02
9. I was fully briefed on the procedure for arranging my return trip.	4.04	1.19	4.32	1.04
10. I was kept fully informed about my return trip.	3.58	1.36	3.82	1.26

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>All</u>		<u>Fort</u>	
	<u>Sites</u>		<u>Leonard Wood</u>	
	<u>(n = 73)</u>		<u>(n = 22)</u>	
	M	SD	M	SD
11. The air evacuation personnel at Fitzsimons handled my return trip in a well-organized and efficient manner.	3.76	1.28	3.81	1.36
12. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.07	1.15	4.19	1.08
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.17	1.02	4.24	1.00
14. The "check-in" process at the air evacuation office on the day of departure proceeded smoothly.	3.86	1.25	3.76	1.37
15. There were adequate waiting room accommodations for the air evacuation patients awaiting to depart Fitzsimons.	3.39	1.39	3.10	1.58
16. The bus accommodations for my transport to the airfield were adequate.	3.96	1.08	3.67	1.28
17. Overall, I am satisfied with Fitzsimons' management of my return trip.	3.93	1.17	3.85	1.31
18. I was greeted with a friendly, caring manner upon arrival at my home station.	4.10	0.95	4.24	0.94
19. The air evacuation personnel at my home station handled my arrival in a well-organized and efficient manner.	4.08	0.93	4.30	0.92
20. I had no difficulty obtaining my baggage.	4.21	0.91	4.50	0.51

Comparison of Survey Questions by Destination Site for Departing Patients

<u>Survey Question</u>	<u>Fort</u>		<u>Fort</u>	
	<u>Leavenworth</u>		<u>Riley</u>	
	(n = 15)		(n = 6)	
	M	SD	M	SD
1. Adequate lodging was readily available during my stay at Fitzsimons.	2.13	1.36	4.25	*
2. Transportation was readily available during my stay at Fitzsimons.	2.00	1.41	3.33	*
3. Meal passes were readily available during my stay at Fitzsimons.	4.17	1.60	4.25	*
4. I was prepared for the personal expenses incurred during my stay at Fitzsimons.	3.82	1.08	3.00	1.41
5. Cashing a check at Fitzsimons was convenient.	4.00	1.00	4.00	*
6. My medical records and x-rays were available to the doctor treating me at Fitzsimons.	4.20	0.94	4.33	0.52
7. I received a thorough explanation from my doctor at Fitzsimons about the follow-up care I needed upon return to my home hospital.	4.07	1.33	4.00	1.55
8. When I no longer required medical care at Fitzsimons, processing began immediately for my return trip.	4.08	1.04	3.67	2.07
9. I was fully briefed on the procedure for arranging my return trip.	4.29	0.83	3.33	1.86
10. I was kept fully informed about my return trip.	3.43	1.50	3.50	1.64

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>Fort</u>		<u>Fort</u>	
	<u>Leavenworth</u>		<u>Riley</u>	
	<u>(n = 15)</u>		<u>(n = 6)</u>	
	M	SD	M	SD
11. The air evacuation personnel at Fitzsimons handled my return trip in a well-organized and efficient manner.	4.0	1.18	3.17	1.72
12. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.13	1.19	3.83	1.47
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.07	1.38	4.50	0.55
14. The "check-in" process at the air evacuation office on the day of departure proceeded smoothly.	3.93	1.38	3.50	1.64
15. There were adequate waiting room accommodations for the air evacuation patients awaiting to depart Fitzsimons.	3.21	1.63	3.50	1.22
16. The bus accommodations for my transport to the airfield were adequate.	4.29	0.83	4.00	0.00
17. Overall, I am satisfied with Fitzsimons' management of my return trip.	3.93	1.22	3.60	1.52
18. I was greeted with a friendly, caring manner upon arrival at my home station.	4.07	1.21	4.20	0.45
19. The air evacuation personnel at my home station handled my arrival in a well-organized and efficient manner.	3.92	1.19	4.40	0.55
20. I had no difficulty obtaining my baggage.	4.00	1.36	4.25	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>Elisworth</u>		<u>Minot</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 4)</u>		<u>(n = 3)</u>	
	M	SD	M	SD
1. Adequate lodging was readily available during my stay at Fitzsimons.	3.67	*	3.33	*
2. Transportation was readily available during my stay at Fitzsimons.	4.00	*	2.67	*
3. Meal passes were readily available during my stay at Fitzsimons.	4.25	*	3.50	*
4. I was prepared for the personal expenses incurred during my stay at Fitzsimons.	4.25	*	4.00	*
5. Cashing a check at Fitzsimons was convenient.	4.00	*	3.00	*
6. My medical records and x-rays were available to the doctor treating me at Fitzsimons.	4.33	*	4.50	*
7. I received a thorough explanation from my doctor at Fitzsimons about the follow-up care I needed upon return to my home hospital.	3.67	*	3.00	*
8. When I no longer required medical care at Fitzsimons, processing began immediately for my return trip.	3.67	*	4.00	*
9. I was fully briefed on the procedure for arranging my return trip.	3.50	*	3.00	*
10. I was kept fully informed about my return trip.	4.00	*	4.00	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>Ellsworth</u>		<u>Minot</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 4)</u>		<u>(n = 3)</u>	
	M	SD	M	SD
11. The air evacuation personnel at Fitzsimons handled my return trip in a well-organized and efficient manner.	3.75	*	4.00	*
12. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.50	*	3.33	*
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.50	*	4.00	*
14. The "check-in" process at the air evacuation office on the day of departure proceeded smoothly.	4.25	*	4.00	*
15. There were adequate waiting room accommodations for the air evacuation patients awaiting to depart Fitzsimons.	4.00	*	2.33	*
16. The bus accommodations for my transport to the airfield were adequate.	4.00	*	4.00	*
17. Overall, I am satisfied with Fitzsimons' management of my return trip.	4.25	*	4.00	*
18. I was greeted with a friendly, caring manner upon arrival at my home station.	4.50	*	3.67	*
19. The air evacuation personnel at my home station handled my arrival in a well-organized and efficient manner.	4.33	*	4.00	*
20. I had no difficulty obtaining my baggage.	4.50	*	4.00	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>Hill</u>		<u>Grand Forks</u>	
	<u>AFB</u>		<u>AFB</u>	
	<u>(n = 7)</u>		<u>(n = 1)</u>	
	M	SD	M	SD
1. Adequate lodging was readily available during my stay at Fitzsimons.	4.00	1.22	2.00	*
2. Transportation was readily available during my stay at Fitzsimons.	3.60	1.14	1.00	*
3. Meal passes were readily available during my stay at Fitzsimons.	4.40	0.89	-	-
4. I was prepared for the personal expenses incurred during my stay at Fitzsimons.	4.00	*	4.00	*
5. Cashing a check at Fitzsimons was convenient.	4.00	*	3.00	*
6. My medical records and x-rays were available to the doctor treating me at Fitzsimons.	4.67	0.52	4.00	*
7. I received a thorough explanation from my doctor at Fitzsimons about the follow-up care I needed upon return to my home hospital.	4.67	0.52	5.00	*
8. When I no longer required medical care at Fitzsimons, processing began immediately for my return trip.	4.00	1.26	2.00	*
9. I was fully briefed on the procedure for arranging my return trip.	4.50	0.55	1.00	*
10. I was kept fully informed about my return trip.	3.67	1.51	1.00	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

Survey Question	Hill		Grand Forks	
	AFB		AFB	
	(n = 7)		(n = 1)	
	M	SD	M	SD
11. The air evacuation personnel at Fitzsimons handled my return trip in a well-organized and efficient manner.	4.33	0.82	2.00	*
12. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	4.67	0.52	3.00	*
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.50	0.84	3.00	*
14. The "check-in" process at the air evacuation office on the day of departure proceeded smoothly.	4.50	0.55	2.00	*
15. There were adequate waiting room accommodations for the air evacuation patients awaiting to depart Fitzsimons.	4.17	1.17	2.00	*
16. The bus accommodations for my transport to the airfield were adequate.	4.43	1.13	1.00	*
17. Overall, I am satisfied with Fitzsimons' management of my return trip.	4.71	0.49	2.00	*
18. I was greeted with a friendly, caring manner upon arrival at my home station.	4.33	0.82	4.00	*
19. The air evacuation personnel at my home station handled my arrival in a well-organized and efficient manner.	4.33	0.82	3.00	*
20. I had no difficulty obtaining my baggage.	4.00	1.55	3.00	*

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>Offutt</u>		<u>Sites Outside</u>	
	<u>AFB</u>		<u>Region</u>	
	<u>(n = 2)</u>		<u>(n = 13)</u>	
	M	SD	M	SD
1. Adequate lodging was readily available during my stay at Fitzsimons.	4.00	*	3.55	1.51
2. Transportation was readily available during my stay at Fitzsimons.	2.00	*	3.00	1.55
3. Meal passes were readily available during my stay at Fitzsimons.	3.50	*	4.50	0.53
4. I was prepared for the personal expenses incurred during my stay at Fitzsimons.	4.00	*	4.27	0.79
5. Cashing a check at Fitzsimons was convenient.	2.00	*	3.33	1.86
6. My medical records and x-rays were available to the doctor treating me at Fitzsimons.	4.00	*	4.62	0.51
7. I received a thorough explanation from my doctor at Fitzsimons about the follow-up care I needed upon return to my home hospital.	4.00	*	4.00	1.29
8. When I no longer required medical care at Fitzsimons, processing began immediately for my return trip.	3.00	*	3.92	1.38
9. I was fully briefed on the procedure for arranging my return trip.	3.00	*	4.23	1.09
10. I was kept fully informed about my return trip.	3.00	*	3.38	1.56

* Standard deviations were not calculated for questions with less than 5 respondents

Comparison of Survey Questions by Destination Site for
Departing Patients

<u>Survey Question</u>	<u>Offutt</u>		<u>Sites Outside</u>	
	<u>AFB</u>		<u>Region</u>	
	(n = 2)		(n = 13)	
	M	SD	M	SD
11. The air evacuation personnel at Fitzsimons handled my return trip in a well-organized and efficient manner.	3.50	*	3.54	1.56
12. I was treated courteously and professionally by the air evacuation personnel at Fitzsimons.	3.00	*	3.92	1.38
13. The air evacuation personnel at Fitzsimons were responsive to all my questions.	4.00	*	3.92	1.19
14. The "check-in" process at the air evacuation office on the day of departure proceeded smoothly.	3.00	*	3.92	1.19
15. There were adequate waiting room accommodations for the air evacuation patients awaiting to depart Fitzsimons.	3.00	*	3.85	0.90
16. The bus accommodations for my transport to the airfield were adequate.	4.00	*	4.00	1.00
17. Overall, I am satisfied with Fitzsimons' management of my return trip.	4.00	*	3.77	1.30
18. I was greeted with a friendly, caring manner upon arrival at my home station.	3.00	*	3.92	1.00
19. The air evacuation personnel at my home station handled my arrival in a well-organized and efficient manner.	3.00	*	3.85	0.90
20. I had no difficulty obtaining my baggage.	4.00	*	4.15	0.80

* Standard deviations were not calculated for questions with less than 5 respondents

Appendix M

Referring Sites' Responses to Items Covered in
Briefings, Either Verbally and/or in Handouts

Referring Sites' Responses to Items Covered in Briefings, Either
Verbally and/or In Handouts

Briefing Item	Presented	Covered In
	Verbally	Handout(s)
1. Type of aircraft	2	6
2. Available medical crew on aircraft	1	6
3. Luggage/carry-on authorizations and weight restrictions	6	9
4. Luggage not accessible during overnight stops	3	8
5. Accepting physician's name, time, and date of appointment	1	1
6. Hand-carrying medical records and x-rays	1	1
7. Requirement to turn in medical records and x-rays upon return	-	2
8. Departure procedures	4	5
9. Transportation to and from flightline at originating site	2	3
10. Requirement for three day supply of medications	4	7
11. Flammable/explosive materiel restrictions	2	7
12. Anti-hijacking instructions	2	-

Briefing Item	Presented Verbally	Covered In Handout(s)
13. Requirement for baggage and personnel search	3	7
14. Inflight meals	2	8
15. No smoking on aircraft	3	6
16. Use of electronic equipment on aircraft	1	5
17. Motion sickness	1	4
18. Flight insurance	1	5
19. Requirement for special supplies/ equipment	1	2
20. Reporting requirements to ASMRO	1	1
21. Selection of destination hospital	1	4
22. Aircraft schedules not confirmed until actual day of flight	1	3
23. Approximate route and duration of flight	1	-
24. Cancellation of travel arrangements by patient	-	1
25. Possible delays/cancellation of flight	3	7
26. Travel as ambulatory or litter patient	1	4
27. Inpatient or outpatient status	1	1

Briefing Item	Presented Verbally	Covered In Handout(s)
28. Uniform requirements and appropriate clothing	4	5
29. Specific recommendation for litter patients to bring appropriate clothing if changed to ambulatory status	-	1
30. Need to report significant secondary diagnoses which may affect inflight care	-	1
31. Authorization for non-medical attendants	2	1
32. Requirement for non-medical attendant to accompany patient to destination facility	1	5
33. Requirement for non-medical attendant to provide telephone number to evacuation clerk	-	1
34. Responsibility of outpatients and non-medical attendants for lodging arrangements	4	5
35. Responsibility of outpatients and non-medical attendants to have sufficient funds	1	6

Briefing Item	Presented Verbally	Covered In Handout(s)
36. Recommended amount of cash for inpatients	1	2
37. Patient valuables	1	4
38. Traveling with children and infants	1	4
39. Consent form for minors	1	5
40. Travel orders	1	4
41. TDY orders for active duty personnel	3	5
42. Nonavailability statements for active duty personnel	-	2
43. Reimbursement not authorized for commercial flights	1	2
44. Reimbursement not authorized for POV expenses	-	1
45. Convalescent leave	-	1
46. Sending aeromedical evacuation office telephone numbers	-	5
47. Options to seek care in local area (CHAMPUS)	1	1
48. Meal charges at destination facility	-	1
49. Return flight arrangements require 48 hour notice	-	2

Briefing Item	Presented Verbally	Covered In Handout(s)
50. Reporting procedures for active duty personnel at Wilford Hall USAF Medical Center	-	1
51. Available booklets about Wilford Hall	1	1
52. Billeting procedures at Wilford Hall	-	1
53. Billeting telephone number at David Grant USAF Medical Center, CA	-	1
54. AF Liaison Office available at FAMC	2	1
55. Telephone number for FAMC AF Liaison Office	-	1
56. Telephone number for FAMC Guesthouse	-	3
57. Specific information about FAMC Guesthouse (location, cost, reservations, waiting list, type of payment)	-	1
58. Telephone number for FAMC Billeting Office	-	2
59. Telephone numbers for FAMC companies (to obtain lodging)	-	1
60. Telephone numbers for FAMC Information Desk	-	1
61. Available booklets about FAMC	2	1

Briefing Item	Presented	Covered In
	Verbally	Handout(s)
62. Arrival procedures at FAMC	1	1
63. Limited post transportation at FAMC	1	1
64. Procedure to obtain meal pass at FAMC	-	1

References

- 375 AAWP 164-3. (1986, August). A quick reference guide for CONUS aeromedical evacuation.
- 375 AAWR 164-1. (1980, January 1). Worldwide aeromedical evacuation procedures.
- AFP 164-2. (1983, January 15). Aeromedical evacuation nursing.
- AFP 164-4, TB MED 289, NAVMED P5115, COMDTINST M6320.20. (1986, September 19). Aeromedical evacuation: A guide for health care providers.
- AFR 164-3, AR 40-40, BUMEDINST 4650.2A. (1972, May 15). Documentation accompanying patients aboard military common carriers.
- AFR 164-5, AR 40-535, OPNAVINST 4630.9C, MCO P4630.9A (with Change 1, 1979, May 10). (1975, December 1). Worldwide aeromedical evacuation.
- Ambrose, D.M., & Purdum, J.J. (1974). Physicians rank hospital characteristics. Hospitals, 48(12), 95-100.
- AR 210-11. (1983, July 15). Billeting operations.
- AR 40-350, BUMEDINST 6320.1D, AFR 168-11, (PHS) BMS CIR NO. 75-15, CG COMDT INST 6320.8A. (1975, April 24). Medical regulating to and within the continental United States.

- AR 55-60, NAVSO P-2471, AFR 177-135. (1979, December 1). Official table of distances.
- Baker, B.L., & Wimberly, R.J. (1984). The use of stratified sampling and discriminant analysis in patient perception surveying: Results of a study at an Army community hospital. Military Medicine, 149(8), 446-451.
- Baker, F.W. (1984, November 1). Policy and implementing instructions reference: Regionalization of the supervision of the delivery of and quality of medical care in HSC [Letter]. Fort Sam Houston, TX: Headquarters, United States Army Health Services Command.
- Baker, F.W. (1984, October 1). Regionalization [Letter]. Fort Sam Houston, TX: Headquarters, United States Army Health Services Command.
- Brock, C. (1977). Consultation and referral patterns of family physicians. The Journal of Family Practice, 4(6), 1129-1134.
- Carey, R.G., & Posavac, E.J. (1982). Using patient information to identify areas for service improvement. Health Care Management Review, 7(2), 43-48.

Clarke, R.N., & Shyavitz, L. (1981). Marketing information and market research - valuable tools for managers. Health Care Management Review, 6(1), 73-77.

Clement, W.P. (1973, September 5). Regionalization of peacetime military health services support [Memorandum for the Secretaries of the Military Departments]. Washington, DC: The Deputy Secretary of Defense.

Defense medical regulating information system users manual for peacetime operations (DM-68385-04-100). (1987, March). Department of Defense Medical Systems Support Center.

Department of Defense Directive, Number 5154.6. (1985, December 23). Armed services medical regulating office.

Department of Defense Directive, Number 6010.9.

The armed forces regional health services system. DOD health council established [News release]. (1977, January 3). Washington, DC: Office of Assistant Secretary of Defense, Public Affairs.

DOD 4515.13-R. (1980, January). Air transportation eligibility.

- Duncan, C.W. (1977, August 24). Modification of CONUS military medical region boundaries [Memorandum for the Secretaries of the Military Departments]. Washington, DC: The Deputy Secretary of Defense.
- Fink, D.J. (1980). Developing marketing strategies for university teaching hospitals. Journal of Medical Education, 55(7), 574-579.
- Fitzgerald, E.C. (1985). Evaluation of a referring physician coordinator program. Journal of American Medical Record Association, 56(4), 28-31.
- Ginzberg, E. (Ed.). (1977). Regionalization and health policy. Washington, DC: U.S. Department of Health, Education, and Welfare.
- Gregory, D.D. (1986). Building on your hospital's competitive image. Trustee, 39(3), 16-19.
- Harben, J. (1987, October). HSC plans for new joint command. HSC Mercury, p.1.
- Heffring, M.P., Neilsen, E.J., Szklarz, M.J., & Dobson, G.S. (1986). High tech, high touch: Common denominators in patient satisfaction. Hospital & Health Services Administration, 31(2), 81-93.
- Hepner, J.O. (Ed.). (1978). Health planning for emerging multihospital systems. Saint Louis, MO: The C.V. Mosby Company.

- Inguanzo, J.M. (1986). Targeting consumer needs through marketing research. Trustee, 39(11), 17-20.
- Jernigan, J.G. (1987, June 8). Late reporting of patients for movement [Letter]. Scott Air Force Base, IL: Headquarters 375th Aeromedical Airlift Wing (MAC).
- Kerlinger, F.N. (1973). Foundations of behavioral research (2nd ed.). New York: Holt, Rinehart and Winston, Inc.
- Koger, D.A., & Perry, F.L. (1983). Physician-centered marketing: A practical step to hospital survival. Hospital & Health Services Administration, 28(3), 43-53.
- Kotler, P. (1984). Marketing management (5th ed.). Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Kurz, R.S., & Wolinsky, F.D. (1985). Who picks the hospital: Practitioner or patient? Hospital & Health Services Administration, 30(2), 95-106.
- Lee, J.N. (1986, July). Toward a healthier aeromedical operation: Integrating medical policies and airlift concepts. Unpublished manuscript, Airpower Research Institute, Air University Center for Aerospace Doctrine, Research, and Education, Maxwell Air Force Base, AL.

- Ludke, R.L. (1982). An examination of the factors that influence patient referral decisions. Medical Care, 20(8), 782-796.
- Ludke, R.L., & Levitz, G.S. (1983). Referring physicians: The forgotten market. Health Care Management Review, 8(4), 13-22.
- MacStravic, R.S. (1984). Marketing health services: The engineering of satisfaction. Health Progress, 65(11), 35-37, 52.
- MacStravic, R.S. (1985). Promises, promises... Hospitals can boost patient satisfaction by making clear commitments and keeping them. Hospital Forum, 28(2), 31-32.
- McBrien, M. (1986). Marketing your hospital. Nursing Success Today, 3(2), 17-19.
- McManis, G.L. (1986). The next generation in healthcare management. Healthcare Executive, 1(7), 46-48.
- Medical regulating [Information Paper]. (1987, February 1). Scott Air Force Base, IL: Armed Services Medical Regulating Office.
- Metcalf, D.H., & Sischy, D. (1974). Patterns of referral from family practice. Journal of Family Practice, 1(2), 34-38.

- Mitttemeyer, B.T. (1982, October 5). Tri-service medical regionalization of health care services [Letter]. Washington, DC: Office of the Surgeon General.
- Muller, A. (1984). Consumer research and strategic planning for hospitals: A second opinion. Hospitals & Health Services Administration, 29(4), 21-29.
- Odell, A. (1983). A study of patient referrals. Public Health, 97(2), 109-114.
- Okorafor, H. (1983). Hospital characteristics attractive to physicians and the consumers: Implications for public general hospitals. Hospital & Health Services Administration, 28(2), 50-65.
- Patient reporting [Message]. (1986, March 12). Scott Air Force Base, IL: 57th Aeromedical Evacuation Squadron.
- Pearson, D.A. (1975). The concept of regionalized personal health services in the United States. In E.W. Seward (Ed.), The regionalization of personal health services (pp. 3-60). New York: Prodist.
- Regulating update [Letter]. (1987, June 5). Scott Air Force Base, IL: Armed Services Medical Regulating Office.

Rice, J.A. (1979). The evolution of regional medical education systems and their relationship to regional health services systems. In A.R. Tarlov & J.A. Rice (Eds.), University/regional partnerships for medical education and health care (pp. 3-14). Chicago: The Ovid Bell Press, Inc.

Riffer, J. (1984). The patient as guest: A competitive strategy. Hospitals, 58(12), 48, 51, 55.

Rumsfeld, D. (1976, December 28). DOD health council (DHC) [Memorandum for the Secretaries of the Military Departments; Chairman, Joint Chiefs of Staff; Assistant Secretary of Defense for Health Affairs; and President, Uniformed Services University of the Health Sciences]. Washington, DC: The Secretary of Defense.

Russell, P.K. (1984, November 13). Regionalization plan. Aurora, CO: Fitzsimons Army Medical Center.

Shonick, W. (1976). Elements of planning for area-wide personal health services. Saint Louis, MO: The C.V. Mosby Company.

Smith, R.N. (1977, December 1). Proposed DODD concerning the armed forces regional health services system [Action Memorandum for the Secretary of Defense]. Washington, DC: Assistant Secretary of Defense.

Speedling, E.J., Morrison, B., Rehr, H., & Rosenberg, G. (1983). Patient satisfaction surveys. Quality Review Bulletin, 9(8), 224-228.

Speedling, E.J., & Rosenberg, G. (1986). Patient well-being: A responsibility for hospital managers. Health Care Management Review, 11(3), 9-19.

Strickland, S.P., & Milke, L.H. (1977). Closed systems: Department of Defense and Veterans Administration medical care program. In E. Ginzberg (Ed.), Regionalization and health policy (pp. 48-59). Washington, DC: U.S. Department of Health, Education, and Welfare.

Sussman, G.E., & Gonzales, C. (1983). Healthcare marketing and the regional model. Hospital & Health Services Administration, 28(3), 62-84.

Tarlov, A.R., Schwartz, B., & Greenwald, H.P. (1979). University center and community hospital: Problems in integration. Journal of Medical Education, 54(5), 370-378.

- Thomson, R.J. (1986, February 14). On-post transportation services for FAMC outpatients and other qualified personnel [Discussion paper].
- Tokarski, C. (1987, April 20). DOD: 'Industry's turn' to respond to CHAMPUS plan. AHA News, 23(15), pp. 1, 5.
- Torrens, P.R. (1969). A pilot program in coordination of care between an urban teaching hospital and the community's general practitioners. American Journal of Public Health, 59(1), 60-64.
- Wennberg, J.E., & Gittelsohn, A.W. (1981). Health planning and regulation. Washington, DC: U.S. Department of Health and Human Services.
- Williams, J.G., & Woods, J.R. (1981). Factors influencing physician referral and satisfaction. Journal of Health Care Marketing, 1(3), 8-19.
- Womack, G.R. (1982). The six commandments of referrals. Medical Economics, 59(18), 105-112.
- Wullenjohn, C. (1987, November). Army, Navy to operate joint clinic. HSC Mercury, p. 5.