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TO DETERMINE THE BEST MEANS OF PROVIDING
PRIMARY CARE FOR TWO COMBAT DIVISIONS AT
FORT HOOD, TEXAS

A Problem Solving Project
Submitted to the Faculty of
Baylor University
in Partial Fulfillment of the
Requirements for the Degree
of
Master of Health Administration

by

Captain Henry A. Sebastian, MSC

April 1981

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ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to Colonel James H. Hayes for his guidance and help and Mrs. Carol Cassens for her patience and outstanding job of typing.

I. INTRODUCTION

General

Throughout history primary health care or "sick call" has been conducted in everything from foxholes to hotels and rendered to literally millions of soldiers. At Fort Hood and every Army post the sick call mission still exists with the ultimate goal to provide optimum quality care and services for soldiers.

Sick call is one of the soldiers' main queues for entrance into the medical care arena. It is at this juncture that the medical care team becomes involved with the new patient. It is here where the attitude of the patient and the attitude of the practitioner hopefully begin conditioning toward a satisfactory outcome.

Brief History of Fort Hood, Texas

Fort Hood is named for Confederate General John Bell Hood, an outstanding leader who gained recognition during the Civil War as the commander of "Hood's Texans".

The site for the post was selected in 1941, with actual construction beginning in 1942. Camp Hood, as it was then called, served as the Army's Tank Destroyer

Center throughout World War II. The post became a permanent installation in 1950, gradually acquiring additional land to the north, south and west over the years to achieve its present 339 square-mile size.

That size has earned Fort Hood its reputation as the Free World's largest armored post and provides an ideal location for the post's numerous tactical units.

Fort Hood is the home of III Corps, 1st Cavalry Division, 2d Armored Division, 6th Cavalry Brigade (Air Combat), 13th Support Command (Corps), 3d Signal Brigade, TRADOC Combined Arms Testing Activity (TCATA) and Medical Department Activity (MEDDAC). Many other small units add to the importance of this 339-square mile installation in training and maintaining vital defense forces.

Brief History of Darnall Army Community Hospital

The construction of Darnall Army Community Hospital was completed in July 1965, at a cost of \$6,151,000. The hospital was built with a design that reflected the trend toward outpatient care for a calculated service area population of 50,000, including the 15,000 soldiers on post. It housed 285 inpatient beds, 16 outpatient clinics and a 14-chair dental clinic within 220,475 square feet.

Over the years the number of eligible beneficiaries who are in the catchment area of the hospital has grown

to 152,000 with an "on post" troop population of 45,000. The total supported population of 152,000 equates to a city the size of Amarillo, Texas, which has three fully staffed community hospitals and many more physicians. Originally, Darnall Army Community Hospital was built to support a troop strength of 15,000 and with a troop strength of 42,000 it became apparent that the existing facility was inadequate to handle the increased workload. Therefore, authorization was obtained to modernize and enlarge the hospital. Currently, the main hospital facility is undergoing a \$47.7 million addition and alteration project. It will add an additional 242,985 square feet to the facility and upgrade over 221,000 square feet of existing space. Upon completion in 1983, this project will greatly enhance the hospital's clinical capabilities by tripling the amount of space for the outpatient clinic and ancillary areas. The number of operating rooms will increase from five to six and two delivery rooms will be added to make a total of four. A day surgery capability will also be added, utilizing two new operating rooms in the surgical clinic.

Additionally, Darnall Army Community Hospital has the operating responsibility for 14 troop medical clinics in support of two divisions, a corps support command, an air cavalry combat brigade and other non-divisional units

(Appendix A).

Conditions Which Prompted the Study

The long-range goal of the hospital is not only maximum expansion of the main hospital complex, but maximum utilization of troop medical clinics and hospital personnel in order to provide quality medical care. The question of how to provide the best of medical care and properly utilize medical personnel in the outlying troop medical clinics is one that is in need of some close scrutiny. The present system is definitely not ideal. Patients often complain about long waiting periods; commanders often complain about extensive lost duty time; and practitioners complain about a lack of immediate availability of diagnostic modus.

Because the present system has numerous difficulties associated with it, other methods of providing this service to the soldiers of the 1st Cavalry Division and the 2d Armored Division were investigated.

Factors Bearing on the Study

The following factors had a bearing on the problem:

1. The hospital's staff physicians, nurses, and ancillary personnel, involved in delivery of primary care, including the hospital Commander, felt that an analysis of alternatives of how "sick call" is delivered was needed.

2. The new Army Regulation 415-15 (draft) changes the service area population requirements for the support of Troop Medical Clinics.

3. Another factor bearing on the study was how to limit the investigation to an identifiable service area population. In order to simplify the study, it was decided to use only the two divisions on post and not any of the tenant units. This was because both divisions' sick call is currently arranged in the same manner.

4. Literature on studies of how sick call should be delivered is not readily abundant; however, literature on how to deliver sick call is abundant through the Health Services Command Ambulatory Patient Care Program.

Statement of the Problem

The problem is to determine the best means of providing troop medical or "sick call" care to the 1st Cavalry Division and the 2d Armored Division at Fort Hood, Texas. The remaining units at Fort Hood, Texas were not analyzed due to the specialized mission of the units. An example of both a specialized mission and geographical location is the two aviation units located at the two airfields on post. These units currently are located approximately 20 miles from each other, one at West Fort Hood and one at East Fort Hood. The units have physicians

who specialize in aviation medicine and are not co-located with any other units. The remaining unit is again not located near any of the other units on post. The 1st Cavalry Division and the 2d Armored Division are, however, co-located on the post and analysis of optimum sick call can occur without the drawbacks of excessive distance or specialized missions.

Objectives of the Study

The two objectives of the study were: (1) to identify and gather relevant data on the optimal feasible method to deliver sick call services for two divisions at Fort Hood and (2) to assimilate the data into a means to deliver the optimal feasible method to deliver sick call services.

Criteria

(1) The acceptable alternative should be that which provides the 1st Cavalry Division, the 2d Armored Division and Darnall Army Community Hospital with the optimal sick call system.

(2) It should be convenient and acceptable to the patient and medical staff. What is meant by convenience is that the method of sick call delivery ultimately accepted should be located geographically near the soldiers' barracks; it should take a minimum of the soldiers' duty time to be seen and it should avoid the unneeded delays

of having to refer the patient to the main hospital for medicine and diagnostic tests that could easily be done at the troop medical clinics.

(3) Acceptability to the patient and medical staff involves assuring that the practitioner has a well equipped, staffed modern clinic to deliver health care in and the patient is placed in a health care delivery system that is acceptable from both a nice physical plant standpoint and a satisfaction with care received standpoint.

Assumptions

The following assumption was made: The supported troop strength of the two combat divisions would remain constant at Fort Hood, Texas.

Research Methodology

In order to analyze the alternatives, statistical data was gathered on troop medical clinics in the 1st Cavalry Division and 2d Armored Division (Appendices B and C). Information was obtained from the Health Facility Planning Agency, Washington, D. C., and Ambulatory Patient Care Program documents and information from Health Services Command were also obtained.

A comparison was then made to determine if the data collected from the clinics was within the guidelines of the Health Facility Planning Agency, Health Services Command and Ambulatory Patient Care Program. Once analysis was computed, an alternative was selected and the services that would be provided by each clinic were determined. A mix of services was determined last in order to alleviate some of the load at the main hospital on clinics as physical therapy, radiology and mental hygiene.

Review of the Literature

Although most primary care in the civilian sector is delivered in the offices of private physicians, there is a trend toward institutionalizing primary care.¹ There seem to be three major reasons for this development. First, the rising cost of inpatient care has placed an increased emphasis on seeking less costly alternatives. Second, many hospitals have recognized the need for defining the patient populations to be served and third, physicians are seeking and accepting group practice arrangements.

Another reason for the commitment to the development of on-site or satellite primary care units

affiliated with hospitals is a result of hospitals being faced with obvious deficiencies in their present outpatient departments and with throngs of physician-less patients bearing down on the emergency departments and outpatient clinics which results in overcrowding and long waiting periods prior to being seen.² The end result is that now the social contract has prescribed that something has to be done. The public's desire constitutes a genuine health care need that society expects to be solved. The answer to this is to develop hospital sponsored primary care group practices.³

These hospital sponsored primary care group practices are normally neighborhood health clinics located in certain regions of large cities. The Sisters of Mercy Health Corporation⁴ recently received two grants to establish five neighborhood health clinics near hospitals in inner city Detroit. This is one of twelve primary care programs nationwide to be implemented within the next two years. Each program will consist of a central administration office and five neighborhood health clinics, each staffed by five physicians, one dentist, one dental hygienist, three allied health professionals, one clinical manager

and appropriate clerical personnel. Each center will provide a range of comprehensive services to approximately 11,000 persons in their adjacent areas.

Mercy Hospital and Medical Center, San Diego, prior to 1975 had to send physicians, nurses, social workers, dietitians, psychologists, pharmacists and laboratory technicians into the community in an uncoordinated, ineffective manner. Realizing this, Mercy Hospital made it a goal to strengthen existing primary health care services through development of primary care clinics. In 1979, there were 18 community clinics in the San Diego area offering health care services to anyone who requests assistance. These services range from treating the common cold to performing minor surgery.

Downham⁶ in 1978 addressed the problem in England of how to provide medical care to the inner city. He stated that the city general practitioner, "unlike his rural or small town counterpart, cannot identify with a community, live in it and learn its ways, see it as a responsibility." To solve this problem he suggested a "geographical patch" for which

a group of doctors is clearly responsible, in terms of prevention as well as the provision of a 24-hour emergency service, readily available and not solely dependent on telephone contact; a truly integrated primary care team, with medical, social, educational, housing, religious and voluntary agencies working as equal partners in a single building.

Hays and Leaman⁷ report on the Henry Ford Hospital which decided to deliver primary care through the use of neighborhood health clinics. The reasons the hospital did this were:

1. Certain areas of metropolitan Detroit lacked essential medical services.

2. The size and patient flow at the present facility were intimidating and frustrating to patients.

3. Further centralized growth was inhibited by space constraints.

4. Small autonomous institutions were not able to respond to the needs of the community with complete and comprehensive health services and still maintain financial stability.

Further, the hospital corporation found that there were numerous advantages to the concept as:

1. With broadened services and facilities, the neighborhood health clinic could adapt to meet the needs of the individual community.

2. The establishment of a regional referral system for patients with more complex problems.

3. Greater operating efficiencies through economics of scale and shared service programs.

4. Improved capital resources that protect the solvency of each unit.

5. Better career opportunities and greater geographic mobility for various classes of personnel through personnel transfer agreements within the larger corporate structure.

6. Comprehensive and attractive employee fringe benefit packages made possible by corporate size.

7. In-service education programs from all departments of the organization.

This approach has proven itself to be a coordinated, efficient health care delivery system.

Army Regulation 40-4⁸ prescribes the implementation of troop medical clinics. Specifically, a troop medical clinic is:

A medical treatment activity which performs

sick call, provides limited treatment within the capability of the activity and refers patients to a health clinic, hospital or dental clinic when needed.

Provides limited treatment, immunization services, medical examination, physical profiling and limited pharmacy dispensing services.

The troop medical clinic is the soldiers neighborhood health center. It is where he receives his primary care and, if needed, possible referral to a main hospital.

FOOTNOTES

¹James R. Redmond, "Ambulatory Care: Current Problems Center Around Organization and Management", Hospitals, Vol. 52, 1 April 1978, pp. 58.

²Ibid., pp. 59.

³_____, "The Hospital Experience with Primary Care Groups", Hospitals, Vol. 51, 1 June 1977, pp. 85.

⁴_____, "Primary Care Centers Serve Inner-City Residents", Hospital Progress, May 1980, pp. 40.

⁵James L. Ray and Veronical J. Hogue, "Referral-Outreach Program Links Community Clinics and Hospitals", Hospitals, 16 January 1979, pp. 117.

⁶Michael Downham, "Medical Care in The Inner Cities", British Medical Journal, 19 August 1978, pp. 545.

⁷Patrick G. Hayes and Lawrence O. Leaman, "Delivery of Health Care by Satellite -- Hospital Based Primary Care", Ambulatory Care, Summer 1976, pp. 43-44.

⁸Department of the Army Regulation 40-4, dated 1 January 1980.

II. DISCUSSION

Selection of Alternatives

In order to determine the best means of providing "Sick call" services to the 2d Armored Division and the 1st Cavalry Division, three alternatives were selected for evaluation. They were:

1. Do nothing and continue with the present system.
2. Consolidate all the troop medical clinics and construct one troop medical clinic per division.
3. Construct one large troop medical clinic for both divisions.

Discussion of Department of the Army and Health Services Command Guidelines

The recent letter, Appendix D, from Health Services Command states that paragraph 3-11, draft AR 415-15 precludes the "programming of a TMC in support of less than 6,000 personnel. A TMC of smaller size does not fully support a pharmacy, laboratory and X-ray". Currently, the 1st Cavalry Division has four clinics. One of those clinics is the Division Optometry Clinic and the remaining three clinics are general medical "sick call" clinics

supporting the units in the division. Staffing, workload and capabilities are shown in Appendix B. A preliminary review of Appendix B shows that none of the three "sick call" clinics has a patient population near the 6,000 or greater figure. Currently the 2d Armored Division has four clinics. Again, one of these clinics is the Division Optometry Clinic and the other three are general medical, "sick call" clinics supporting the units in the division. Staffing, workload and capabilities are shown in Appendix C. A preliminary review of Appendix C shows that only one of the clinics has more than 6,000 in its service area population.

Health Services Command Ambulatory Patient Care (APC) Program, Facility Design and Utilization Chapter states:

Facilities used for outpatient care, to include troop medical clinics, shall be structurally constituted and maintained in a manner conducive to effective patient care. The environment created by combining the facility with its furnishings and its staff should be functional, safe, clean in order to foster a feeling of well being in the patient population.

Environment factors, physical and otherwise, create the climate within which patient care takes place. Worn furnishings, rooms requiring paint or other repairs, cramped or nonexistent waiting areas are not conducive to the perception of high quality health care services.

The eight clinics located in the 1st Cavalry Division and

2d Armored Division areas are from 10 to 39 years old and do not meet Occupational Safety and Health Act Standards for medical treatment facilities or the spirit of the hospital sponsored ambulatory care policies of the Joint Commission on Accreditation of Hospitals. The clinics, although clean, neat and orderly, are not physically built to the "State of the Art standards" in medicine.

Health Services Command, Ambulatory Patient Care Program Model #22, Appendix E, "Troop Medical Clinic Scheduling" states that "a sick call system should get patients back to duty faster, increase patient satisfaction, guard against placing unnecessary barriers between patients and proper medical care and reduce the number of sick call abusers." The current system at Fort Hood violates all of these principles. This is due to the following:

1. Any laboratory procedure more complicated than the basic CBC, UA, Gram Stains, or KOH preps requires the patient to go to the main hospital to have the laboratory test performed. Quite often however, the laboratory at the troop medical clinic is not functional due to the shortage of laboratory technicians. Attempts

to augment clinics with laboratory personnel from the hospital have not been effected due to a chronic shortage of laboratory personnel in the hospital laboratory. This situation will not improve until laboratory personnel are assigned to the units supporting the clinics.

2. All of the sick call TMC's (6) are staffed by physicians assistants and any medical problem outside the privileges or expertise of the physicians assistants has to be referred to the main hospital. Current reports from the Department of Primary Care and Community Medicine show that approximately 6 percent or more than 900 patients per month have to be referred to the main hospital for treatment.

3. Currently, TMC's quite often are overcrowded and a long waiting time before being seen is common. Health Services Command APC Model 22 (Appendix E) states that any waiting time should not be excessive, and patients should be seen in an expeditious manner. Based on a review of "sick call in/out logs" a waiting time of two hours is not uncommon. Two hours is excessive and decreases patient and commander satisfaction and increases patient frustration and excessive lost duty time.

4. Radiographic support is non-existent in four of the six sick call TMC's. The two TMC's that have X-ray capability can only do the most basic diagnostic procedures.

5. Any narcotics prescribed to patients have to be dispensed at the main hospital. The reason for this is that troop medical clinics do not have a pharmacist assigned to dispense the narcotics nor a high security vault to properly secure the drugs. With a vault, a physician can dispense narcotics, however, this would take valuable time away from seeing patients.

Analysis of Alternatives

In order to evaluate the three alternatives, a comparison of the new requirements of AR 415-15, the current number of patients seen daily at each of the six troop medical clinics and the staffing at each of the clinics was conducted. This is discussed in the discussion of the three alternatives.

Alternative One

To change nothing and continue with the present system. Currently the need is being met with three separate troop medical clinics dispersed throughout each of the two division areas. The existing facilities

are inadequate in size, however, if this alternative is chosen, there would be no further cost to the government.

Additionally, the movement of patients between the medical services in order to obtain X-rays, laboratory work and prescriptions filled causes great inconvenience and anxiety to the patients, increases the probability of worsening some patients' conditions, introduces the possibility of inadvertant diagnostic error and inappropriate treatment, misuses and overburdens efforts, impedes records maintenance and causes loss of valuable training time for military personnel.

Army Regulation 415-15 (draft) and directives from Health Services Command (Appendix D) preclude the support of less than 6,000 personnel by one troop medical clinic. A TMC of smaller size will not fully support a pharmacy, laboratory and X-ray. Of the six clinics in the two divisions, none of them has a service area population above 6,000. It could be concluded from this that the duplication involved in each division sick call system is wasteful from a cost-effectiveness standpoint.

All clinics are located in the division areas with easy access through the utilization of the post bus line.

Alternative Two

To consolidate all troop medical clinics in each division and have one troop medical clinic per division. The troop medical clinic would conduct all sick call for the division it supports. There would be approximately 14,000 soldiers in the service area population. Projected costs of this type of facility, as per US Army Health Facility Planning Agency, is six million dollars. Staffing could consist of two physicians, general medical officers; seven physicians assistants; a physical therapist; a pharmacist; and ancillary personnel to support X-ray, laboratory, physical therapy and the pharmacy. The clinic would be centrally located in the division area with easy access through the utilization of the post bus line. Analysis of current data shows that each of these clinics would see 300-350 patients on morning sick call. This is in consonance with the requirements of Army Regulation 415-15.

Alternative Three

To have one large troop medical clinic for both divisions. This clinic would support approximately 28,000 soldiers in its service area population. Projected costs of this type of facility would be \$13 million.

Four physicians, general medical officers; fourteen physicians assistants; two physical therapists; two pharmacists and ancillary personnel would be required to support X-ray, laboratory, physical therapy and the pharmacy. This clinic would be centrally located between the two divisions. Access would be through utilization of the post bus system. Distances, however, from the outlying tactical units, even utilizing the bus system, would be restrictive. Analysis of current data indicates that 600 to 700 patients would be seen daily. Although this alternative is in consonance with Army Regulation 415-15, the physical size needed to support the patient load is restrictive; the introduction of 600 to 700 patients per sick call day is unrealistic and this system would increase frustrations, waiting times and decrease the quality of care provided.

III. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The best means of providing troop sick call services for the two divisions at Fort Hood, Texas, is alternative two, to provide one large centralized clinic per division.

Recommendations

The following recommendations are made:

1. Clinics should be constructed at a central location in each division area; Appendix F shows recommended areas.

2. The facility should be functionally arranged to provide primary care support to approximately 13,000 personnel in a single facility. The clinic will provide X-ray, pharmacy, laboratory, physical therapy and mental health services, all of which are normally only available in the main hospital. Additional space should be provided for the drawing of blood in support of the Blood Donor Facility. Guidelines for design of these services are contained in US Army Health Facility Planning Agency "Guidelines for Facilities Programming of Health Clinics," Appendix G, and Health Services Command "Considerations in Design of New Troop Medical Clinics", Appendix H. Utilization of these

two documents, the Directorate of Facilities Engineering, at Fort Hood and data from both Fort Sam Houston and Fort Ord's consolidated clinics should be utilized in the design of the clinics. Of particular value should be the data from existing clinics in order to avoid "design busts", non-functional areas, additions and deletions to the basic clinic.

3. In conclusion a manpower survey should be produced to assure that the proper personnel needed to operate the clinic are available.

APPENDIX A

Troop Medical Clinics

(Source: MEDDAC Regulation 10-1)

APPENDIX A

TROOP MEDICAL CLINICS

1st Cavalry Division and 2d Armored Division

Fort Hood, Texas 76544

2d Armored Division

TMC #1
TMC #2
TMC #3 (Optometry)
TMC #9

1st Cavalry Division

TMC #5
TMC #7
TMC #8
TMC #11 (Optometry)

APPENDIX B

1st Cavalry Division Troop Medical Clinics

(Source: Department of Primary Care and
Community Medicine Report for April 1981,
Darnall Army Community Hospital)

APPENDIX B

APPENDIX B
TROOP MEDICAL CLINICS IN 1st CAVALRY DIVISION

TMC #	No. of Troops Supported	No. of PA's	No. of M.D.'s	X-Ray	Lab*	Pharmacy**	Optometry
5	4601	2	0	No	Yes	Yes	No
7	4333	2	0	No	Yes	Yes	No
8	3847	2	0	Yes	Yes	Yes	No
11	12781	0	0	No	No	No	Yes

*Laboratory only performs CBC, UA, Gram Stains and KOH Preps

**Pharmacy dispenses no narcotics

APPENDIX C

2d Armored Division Troop Medical Clinics

(Source: Department of Primary Care and
Community Medicine Report for April, 1981,
Darnall Army Community Hospital)

APPENDIX C

APPENDIX C
TROOP MEDICAL CLINICS IN 2d ARMORED DIVISION

TMC #	No. of Troops Supported	No. of PA's	No. of M.D.'s	X-Ray	Lab*	Pharmacy**	Optometry
1	4659	2	0	Yes	Yes	Yes	No
2	6365	2	0	0	Yes	Yes	No
9	1745	1	0	0	Yes	Yes	No
3		2	0	0	No	No	Yes

* Laboratory only performs CBC, UA, Gram Stains and KOH Preps

** Pharmacy dispenses no narcotics

TMC WORKLOAD
2d ARMORED DIVISION

<u>TMC'S</u>	<u>POPULATION SUPPORTED</u>	<u>FEB-JUL AVERAGE PATIENT VISITS PER MONTH</u>
TMC #1 (2AD)	4,659	1,634 (82/Day)
TMC #2 (2AD)	6,365	2,814 (140/Day)
TMC #9 (2AD)	1,745	504 (25/Day)

APPENDIX D

Health Services Command Letter Regarding Feasibility

(Source: Health Services Command)

APPENDIX D

HSLO-FP (1 Oct 80) 1st Ind
SUBJECT: Feasibility for Consolidated Troop Medical Clinic Facilities at
Fort Hood

DA, HQ, US Army Health Services Command, Fort Sam Houston, Texas 78234

15 OCT 1980

TO: Commander, US Army Medical Department Activity, Fort Hood,
ATTN: AFZF-DMA-CO

1. Use of consolidated Troop Medical Clinics (TMC) at Fort Hood in providing primary care to division and non division units is a concept deserving further development. An immediate visit by a representative from Facilities Division, this headquarters, may, however, be premature as preliminary planning of this nature is well within MEDDAC prerogatives. Following is additional guidance appropriate to the described situation.

a. Paragraph 3-11, draft AR 415-15, 17 Dec 79, precludes programing a TMC in support of less than 6000 personnel. A TMC of smaller size does not fully support a pharmacy, lab and x-ray.

b. Inclosures 2 and 3 provide data on functional and sizing requirements. Your supporting engineer can assist in providing technical data such as costs, siting and construction criteria.

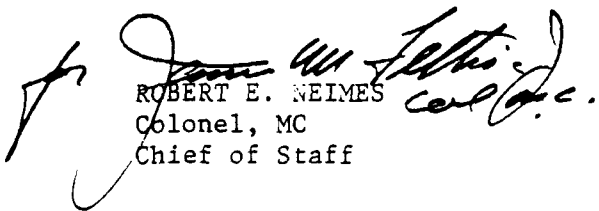
c. Letter, HSLO-F, HSC, 18 Apr 80, subject: FY 83-87 and Long Range Medical MCA Guidance, provides administrative instructions covering MCA project submission.

2. Upon receipt of appropriate project documentation, the US Army Health Services Command Construction Review Board will perform its review and recommend a priority. Predicting insertion at an early year is not possible as fiscal years 82 through 84 are already relatively fixed and filled with high priority needs. In this regard, project justification is of the utmost importance and must focus not only on improved health care delivery but also healing areas of "hurt" identified by the Army Medical Department.

3. POC, this headquarters, is Mr. Frischmuth, Architect, Facilities Division, ODCSLOG, AUTOVON 471-2077/2078.

FOR THE COMMANDER:

3 Incl
Added 2 incl
2. Planning Guidelines
3. TMC Design


ROBERT E. NEIMES
Colonel, MC
Chief of Staff

APPENDIX E

Troop Medical Clinic Scheduling

(Source: Health Services Command
Ambulatory Patient care Program)

APPENDIX E

TROOP MEDICAL CLINIC SCHEDULING

AN AID FOR INNOVATION

Prepared as a requirement for the
United States Army Health Services Command
Ambulatory Patient Care (APC) Program

APC Model #22

HSC-PA-A

July 1974

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Adopted from
Academy of Health Sciences, US Army, Health Care Studies Division,
Report No. 10, "A Comparative Study of Patient Scheduling Systems
for Army Sick Call"

SECTION I.

GENERAL

1. Purpose. This model provides reasonable choices in method for evaluating and establishing patient scheduling procedures in troop medical clinics. The objective is to enhance the delivery of health care to active duty soldiers by improving the scheduling of patient arrivals for routine health care.

2. Scope: The model may be used at any medical treatment facility (MTF). It is not readily adaptable to basic training units. Each MTF should evaluate the present method using the listed criteria, (See paragraph 6, below). From this evaluation, determine if the present method is the best or if another method may be better.

3. Definitions.

a. Sick Call: The daily assembly of the sick and injured military duty personnel for examination to provide routine medical care.

b. Morning Block System: Sick call held at 0630-0830 (or 0700-0900) with most patients expected to arrive at the beginning of the block, and each remaining until he is seen.

c. Unit Block System: Patients from different units appear for sick call at different times (staggered intervals) to give a smoother work flow.

d. Afternoon Block System: Sick call held early in the afternoon, with most patients expected to arrive at 1230. Acutely ill personnel who appear during the morning will be referred to the hospital emergency room.

e. Evening Block System: Sick call held early in the evening, with most patients expected to arrive as soon after duty hours as possible. Acutely ill personnel who appear during the day will be referred to the hospital emergency room.

f. Appointment System: Each patient makes an individual appointment in advance of being seen. Two or three patients appointed for one time is an alternative to the traditional individualized appointment.

g. All-Day, No-Appointment System: Patients permitted to arrive anytime during duty day--the "come when sick" concept.

h. Unit Corpsmen Screening System: An appointment system with prior screening by corpsmen in unit barracks - a study of this system was planned by the Health Care Studies Division, Academy of Health Sciences, US Army (AHS), but was abandoned when insufficient corpsmen could be found at the study post to perform this screening function. In some settings this may be a viable alternative.

SECTION II

DISCUSSION

4. The Traditional (Morning Block) System of scheduling (see paragraph 3b, above), commonly called "sick call" gives an assembly-line approach. This "bunching" of patients causes a number of undersirable side effects: a very short physician service time per patient, a long waiting time for patients, and an excessive loss of duty time. Some observers are convinced that the system attracts many persons who feign illness to avoid duty.

5. The limited advantage to the Traditional (Morning Block) System is that the system enhances early identification of those individuals who are not fit for duty that day, or who may require hospitalization.

6. A sick call system should:

- a. Get patients back to duty faster.
- b. Reduce any doctor idle time during sick call hours.
- c. Make more comprehensive care possible by giving patients more time with a doctor, if indicated.
- d. Increase patient satisfaction.
- e. Make troop clinic duty more satisfying to doctors.
- f. Guard against placing unnecessary barriers between patients medical care.
- g. Reduce the number of sick call abusers.

7. The advantages and disadvantages to be expected of the different systems (and as actually observed in the study by the Health Care Studies Division, AHS) are summarized below:

a. Unit Block System vs Morning Block System:

(1) Advantages: A decrease in patient workload, no statistical difference in patient attitude, considerably less time spent per patient visit in clinic, slight decrease in number of emergency room visits, and facilitation of unit administration by enabling personnel to return at the same time to their units.

(2) Disadvantages: Physician must remain somewhat longer to perform sick call.

b. Afternoon Block System vs Morning Block System:

(1) Advantages: Decrease in patient workload, time of day does not create any disadvantages to patient (determined by questionnaire), increase in time spent with patient (as perceived by patients) and no significant administrative problems created for unit staffs.

(2) Disadvantages: No difference in time per visit in clinic, daytime emergency room visits remain the same with increase in morning visits, and physicians do not like the system.

c. Evening Block System vs Morning Block System:

(1) Advantages: Dramatic workload decrease (at least 50 percent), sick call abusers are reduced, unit staffs prefer this system, marked reduction (at least 48 percent) in time per visit in clinic, smaller proportion of non-urgent patients seen in emergency room, and total emergency room visits decrease. Physician can spend more time with patient, if desired.

(2) Disadvantages: Some patients complain they cannot present their medical problems to a physician in a reasonable length of time, some patients (12 percent) feel that the time of day creates problems (although minor), emergency room physicians see more non-urgent cases during the morning, specialty clinics are closed in the evening (if referrals are required), and most physicians do not like working in the evenings.

d. Appointment System vs Morning Block System:

(1) Advantages: Greater patient satisfaction in availability of care and less waiting time, unit staff have no complaints with the system (do not usually have urgent need to identify those unfit for duty early), less time lost from duty (median time spent in clinic is at least 50 percent less), emergency room visits remain the same, and appointments can be made for over 70 percent of the visits.

(2) Disadvantages: Same patient workload, more emergency room visits after 1600 hours, physicians do not like being confined to the MTF with appointments (although most time appointments are made for the morning), and no-show rate may be a problem.

e. All-Day, No-Appointment System vs Morning Block System:

(1) Advantages: Same number of visits, transportation problems the same, no problem with time of day, and emergency room visits are lower.

(2) Disadvantages: Patient satisfaction does not increase, there is not real increase in service time, more negative patient comments, units feel there is an increase in patient visits and "sick call abusers," physicians do not like duty in MTF entire day.

SECTION III

RECOMMENDATION

8. Compare the advantages and disadvantages of each system as implemented at your MTF. The following criteria should be considered:

a. Which of the scheduling systems are sufficiently efficient and satisfying to patients, physicians, and unit staffs to warrant implementation or further testing?

b. What are the differences between the various scheduling systems in terms of time spent in the MTF?

c. How are emergency room visits by active duty patients affected by each system?

d. Is there any change in the number of patient complaints with any of the systems tested?

e. How do the medical staff members involved, the commanders and first sergeants of units served, and the patients feel about the various systems?

f. How does each system affect transportation to the MTF?

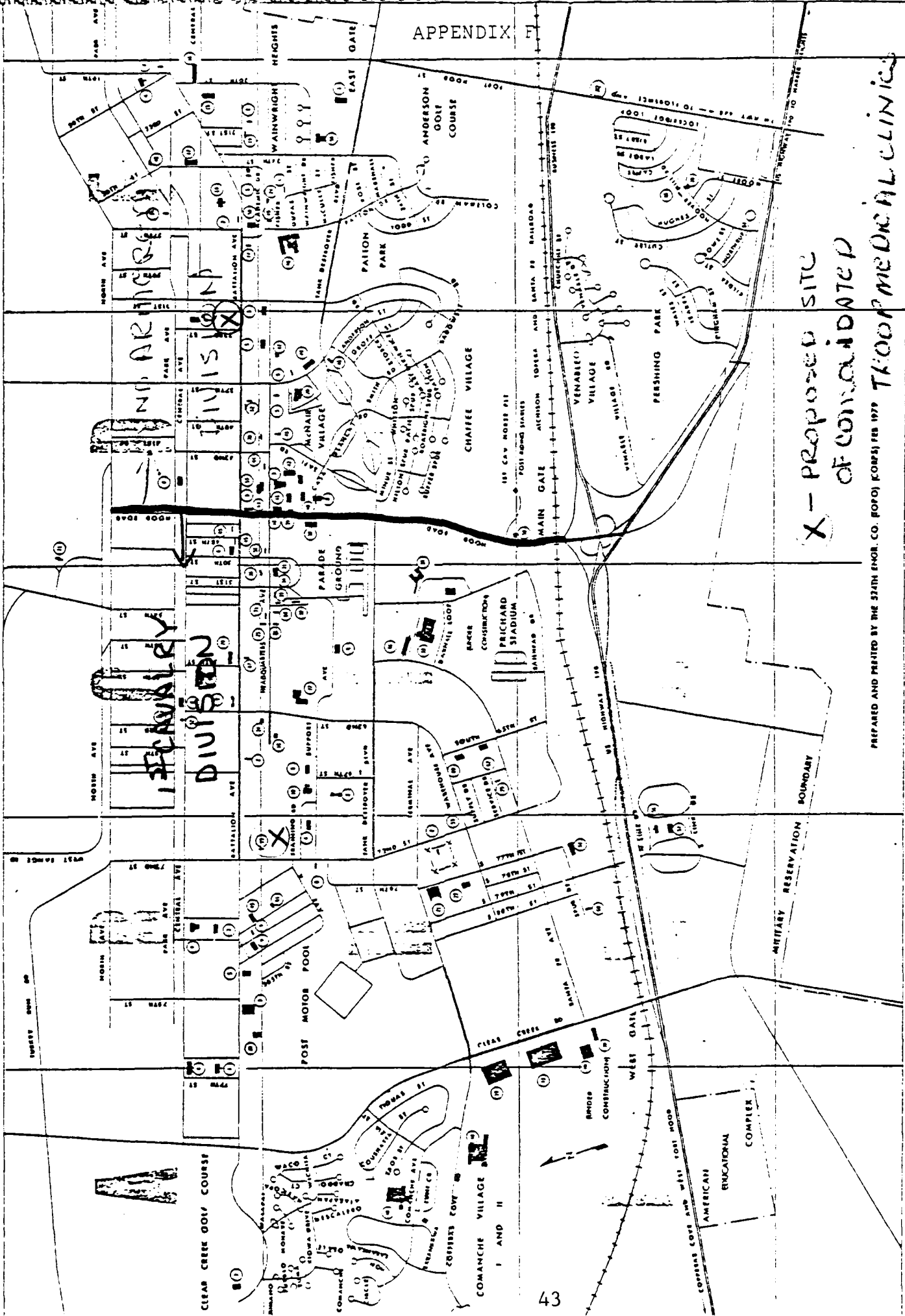
g. How do the various systems affect the number of unnecessary visits to MTFs?

9. There are other criteria, not addressed in Paragraph 7, which also should be considered.
- a. Will health records be readily available at the emergency room?
 - b. Will health records be controlled to insure return of records and to prevent the patient from removing data?
 - c. Will patient care services (pharmacy, laboratory, etc.) and referral clinics be required to change operating hours?
10. Various combinations of scheduling systems can be considered if the previously described systems do **not** appear feasible by themselves. Possibilities include clinic hours twice a day in various combinations, such as several hours in the morning and several in the afternoon, in the afternoon and in the evening, or in the morning and in the evening. These hours could be either a block system (a number of patients reporting at one time) or on an individual time appointment system.
11. The term "sick call," implying a once-a-day assembly of sick and injured troops, should be abandoned where the appointment system is used. Phrases such as "troop clinic hours" or "the troop clinic is open from _____ to _____" can be substituted.

Users are invited to send comments and suggested improvements to
CDR, HSC, ATTN: HSC-PA-A, Fort Sam Houston, TX 78234

APPENDIX F
MAP OF PROPOSED SITES OF CONSOLIDATED TMC'S

APPENDIX F



1st Cavalry Division

X - Proposed Site of Comanched Troop Medical Clinic

PREPARED AND PUBLISHED BY THE 324TH ENGR. CO. (FOF) COMBAT FORCES FEB 1979

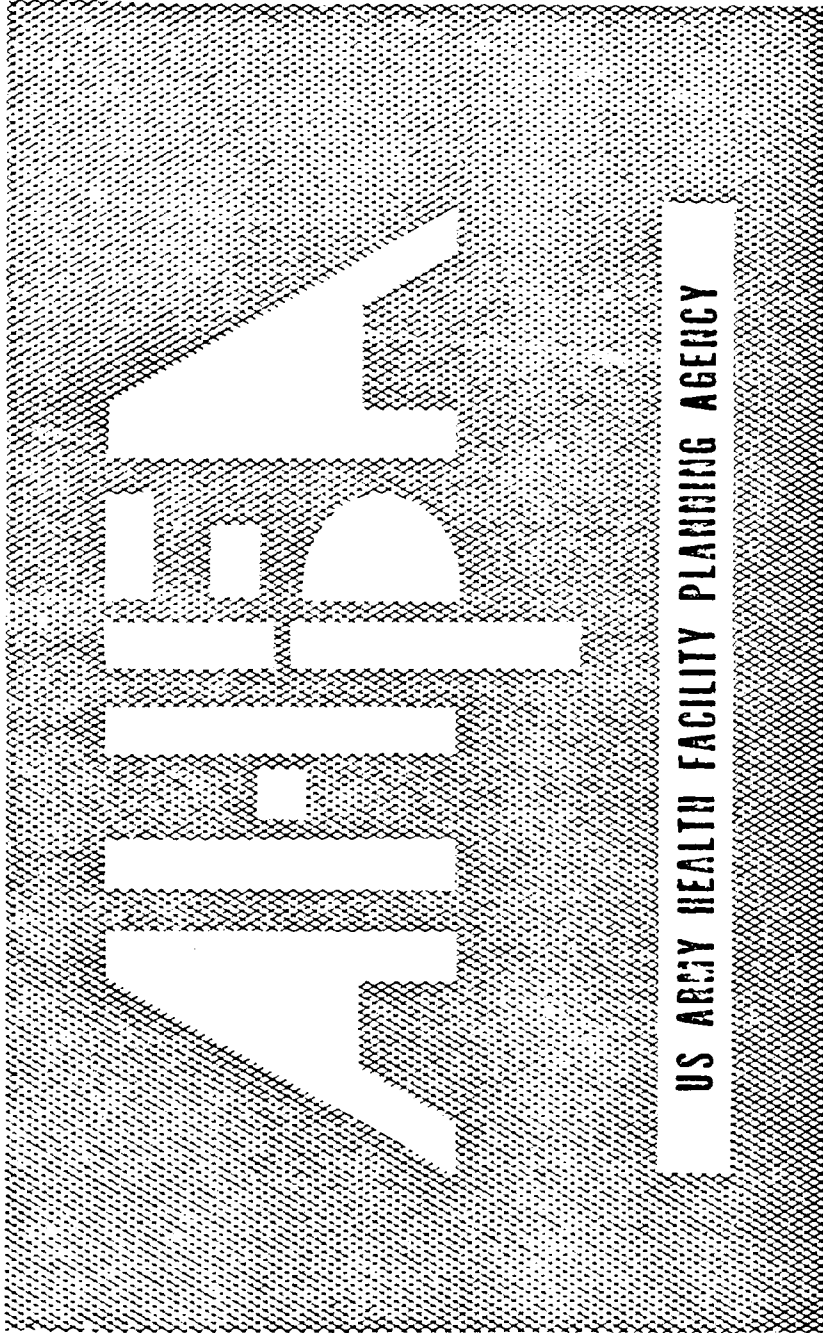
APPENDIX G

Guidelines for Facilities Programming of Health Clinics

(Source: Health Facilities Planning Agency, Office of
The Surgeon General of the United States Army,
Washington, D. C.)

16 MAY 1979

APPENDIX G



US ARMY HEALTH FACILITY PLANNING AGENCY

OFFICE OF THE SURGEON GENERAL



16 MAY 1979

US ARMY HEALTH FACILITY PLANNING AGENCY
SPACE PLANNING GUIDELINES FOR FACILITIES PROGRAMMING
OF HEALTH CLINICS

THIS SPACE PLANNING GUIDELINE PROVIDES THE USER WITH A REFERENCE DOCUMENT WITH WHICH TO BEGIN THE SPACE PLANNING PROCESS FOR A US ARMY HEALTH CLINIC. IT SHOULD BE NOTED THAT THE SPACES CONTAINED HEREIN AS WELL AS THE CRITERION FOR DETERMINING THE NUMBER OF SPACES AND SIZE OF THE SPACES WAS EXTRACTED FROM OFFICE OF MANAGEMENT AND BUDGET (FORMERLY BUREAU OF THE BUDGET) CIRCULAR A-57 (WITH INCLOSURES), EXCEPT WHERE THE SPACES, TYPES OR SIZES OF SPACES WERE NOT SPECIFICALLY ADDRESSED.

THIS SPACE PLANNING GUIDELINE DOES NOT ADDRESS ANY DENTAL AREAS. THE OMB CIRCULAR A-57 SHOULD BE CONSULTED FOR DENTAL CLINIC PROJECTS.

RECOMMENDATIONS FOR CHANGES TO THIS DOCUMENT SHOULD BE ADDRESSED IN WRITING TO: DIRECTOR, USAHPPA, (SCFPP-ZA), PENTAGON, WASHINGTON, DC 20310 (AUTOVON: 22-70935).

US ARMY HEALTH FACILITY PLANNING AGENCY
SPACE PLANNING GUIDELINES FOR FACILITIES PROGRAMMING
OF HEALTH CLINICS

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US ARMY HEALTH FACILITY PLANNING AGENCY
SPACE PLANNING GUIDELINES FOR FACILITIES PROGRAMMING
OF HEALTH CLINICS

SECTION A - ADMINISTRATIVE FUNCTIONS

THIS SECTION DELINEATES THOSE TYPICAL AREAS WHICH WOULD NORMALLY BE PROVIDED TO SUPPORT THE ADMINISTRATIVE FUNCTIONS OF THE HEALTH CLINIC.

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OF HEALTH CLINICS

Function	Basis For Planning	Planning Range In Square Feet	Remarks
<u>ADMINISTRATION FUNCTIONS</u>			
Commander's Office	1 per clinic	120 NSF minimum and 140 NSF maximum	Office size depends on facility size and authorized grade of commander.
Head Nurse's Office	1 pr clinic when nurse is programmed	100 NSF minimum	
Administrative Officer	1 per administrative officer	100 NSF minimum	
NCOIC's Office	1 per NCOIC	100 NSF minimum	
Secretary's Office and waiting	1 per secretary	120 NSF minimum	
Administrative Area	Individual Study	130 NSF minimum (includes 30 NSF files) plus 85 NSF for each additional administrative employee over one.	Includes orderly room function.
Admin Storage	1 per clinic	80 NSF	
Reproduction Area	Individual Study	60 NSF minimum	
Conference Room	1 per clinic	6 NSF per employee 120 NSF minimum.	

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OF HEALTH CLINICS

SECTION B - HEALTH CLINIC TREATMENT AREA

THIS SECTION DELINEATES THE TYPICAL SPACE PLANNING REQUIREMENTS PURSUANT TO THE EFFICIENT, EFFECTIVE DELIVERY OF PRIMARY HEALTH CARE TO AUTHORIZED BENEFICIARIES.

Function	Basis For Planning	Planning Range In Square Feet	Remarks
B. HEALTH CLINIC TREATMENT AREA			
Lobby Area	1 per clinic	150 NSF	
Reception Area	1 per clinic	100 NSF minimum.	
Medical Record Area	Projected numbers of records of patient population	NSF = $\frac{\text{PROJ. RCDS} \times 1.20 \times .65}{70 \text{ Record/Linear foot}}$	
Medical Records Clerk	80 NSF per clerk programmed	Minimum of 80 NSF	
Record Transcribing	1 station for each clerk programmed	60 NSF per clerk minimum of 60 NSF	
Patient waiting	1 patient waiting area (main waiting) per health clinic	(2.6 spaces) X [(Number of exam & treatment rooms) + (12 spaces per immunization station)] equals number of spaces Plan for 10% of the spaces for the handi-capped at 25 NSF each and 90% of the spaces for regular seats at 14 NSF each.	

Function	Basis For Planning	Planning Range In Square Feet	Remarks
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HEALTH CLINIC TREATMENT AREA Cont'd

Patient Toilets

The number of fixtures to be provided will be based on the total number of patients during the peak period as indicated by the number of seats in the waiting room. The following guidelines should be followed:

1. for up to 15 females:

1 lav 1 wc at 25 NSF each	Individual study for additional handicapped facilities
---------------------------	--

2. For each 15 women or fraction thereof over the 1st 15 add:

1 lav 1 wc at 15 NSF each	
---------------------------	--

3. for up to 20 men:

1 lav 1 wc at 25 NSF each	Individual study for additional handicapped facilities
and 1 urinal at 15 NSF	

4. for each 20 men or fraction thereof over the 1st 20, add:

1 lav 1 wc urinal at 15 NSF each	
----------------------------------	--

Nurse's Office

1 per nurse programmed

100 NSF minimum

Nurse Station
Screener

Individual study
1 per screener programmed

100 NSF minimum
120 minimum

Function	Basis For Planning	Planning Range In Square Feet	Remarks
B. HEALTH CLINIC TREATMENT AREA Cont'd			
Physician Assistant Office	1 per physician assistant programmed	100 NSF minimum	
Physician Assistant Examination Room	2 per physician assistant programmed	100 NSF minimum each room	
Physician Office	1 per physician programmed	100 NSF minimum	
Physician Examination	2 per physician programmed	100 NSF minimum each room	
Nurse Clinician Office	1 per nurse clinician programmed	100 NSF minimum	
Nurse Clinician Examination Room	2 per nurse clinician office programmed	100 NSF minimum each room	
Social Worker Office	1 per social worker programmed	140 NSF minimum	
Dietitian's Office	1 per dietitian programmed	100 NSF minimum	

Function	Basis For Planning	Planning Range In Square Feet	Remarks
HEALTH CLINIC TREATMENT AREA Cont'd			
Treatment Room	1 per 6 work stations* or fraction thereof *(1 work station = (1 office, 2 exam rooms)	150-180 NSF 150 NSF minimum	Also to be used as cast room
Special Procedures Room (Trauma Room)	1 per clinic	180 NSF minimum 200 NSF minimum if used for emergency deliveries. (More than 12 emergency deliveries projected per year.)	
Audiobooth Room	$\frac{\text{ENT visits/week} \times .5}{3 \text{ visits/hour/room} \times 35}$ Minimum of 1 per clinic	90 NSF per booth minimum	
Electrocardiograph Room (EKG/ECG)	# Rooms = $\frac{\text{EKG test/week}}{3 \text{ test/hour/station} \times 35}$ hours/week	100 NSF per room	
Dressing cubicle	1 per EKG	20 NSF each	
Immunization Room	# of stations = $\frac{\text{Injections/week}}{(20 \text{ inj/hr/sta}) \times (35 \text{ hrs/wk})}$	120 NSF per Station	
Physical Therapy			
Treatment Cubicle	Individual study	120 NSF minimum	
Exercise Cubicle	Individual study	60 NSF minimum	
Extremity Whirlpool	Individual study	80 NSF	
Office	Individual study	100 NSF minimum	

US ARMY HEALTH FACILITY PLANNING AGENCY
SPACE PLANNING GUIDELINES FOR FACILITIES PROGRAMMING
OF HEALTH CLINICS

SECTION C - HEALTH CLINIC SUPPORT FUNCTIONS

THIS SECTION DELINEATES THE TYPICAL SPACE PLANNING REQUIREMENTS PURSUANT TO THE PROVISION OF SUPPORT (BOTH STAFF SUPPORT AND OPERATIONAL SUPPORT) TO THE HEALTH CARE TREATMENT AREA.

Function _____ Basis For Planning _____ Planning Range _____
 In Square Feet _____ Remarks _____

C. SUPPORT FUNCTIONS

Linen Alcove	1 per clinic	50 NSF	
Utility Room	1 per clinic	100 NSF	
Soiled Collection	1 per clinic	50 NSF	
Central Sterilizer Area	Individual study	Individual study	
Ambulance Dispatch	1 per clinic (includes limited ambulance eqpt storage space).	140 NSF when drivers are assigned to and/or located at health clinic	
Central Supply Rm	1 per clinic	200 NSF minimum $(10) \times \frac{(\text{Tot visits}/100)}{4} = \text{cu ft}$ annual visits	(Visits = total annual visits)
On Call Sleeping Room	Individual study	$\frac{\text{cu ft}}{8} = \text{NSF}$	56
Toilet/Shower	1 per 2 sleep room minimum of 1 room when on call sleeproom is programmed.	80-100 NSF per person 1 lav, 1 wc, 1 shower at 15 NSF each	

Function	Basis For Planning	Planning Range In Square Feet	Remarks
C. SUPPORT FUNCTIONS - Cont'd			
ADP Terminal Area	<p>CONUS: (1 per 220 visits/day or major fraction (110 visits/day required to justify individual terminal site)) OVERSEAS: individual study</p>	20 NSF per area/ Individual study	
Litter and wheelchair storage	1 per clinic	40-80 NSF	
Staff lounge	1 per clinic	150-200 NSF. 150 NSF minimum. Add 10 NSF per person programmed over 10. Not to exceed 200 NSF.	
Staff Lockers			
male	1 per clinic	6.5 NSF per person programmed not having office space.	
female	1 per clinic	6.5 NSF per person programmed not having office space.	
Staff Toilet			
male	1 per clinic	65 NSF minimum 1 lav, 1 wc, 1 urinal at 15 NSF each plus 20 NSF for shower. Individual study for handicapped facilities.	

Function	Basis For Planning	Planning Range In Square Feet	Remarks
C. SUPPORT FUNCTIONS - Cont'd			
Staff Toilet - cont'd			
female	1 per clinic	50 NSF minimum 1 lav, 1 wc at 15 NSF each plus 20 NSF for shower. Individual study for handicapped facilities.	
Retiring Lounge	1 room for 1-100 female employees	60 NSF	Combine with female staff toilet.
Janitor Closet	Individual study (minimum 2 per clinic).	40 NSF	
Local National Lounge	OSEAS Areas where required	120 NSF minimum	

US ARMY HEALTH FACILITY PLANNING AGENCY
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OF HEALTH CLINICS

SECTION D - LABORATORY

THIS SECTION DELINEATES THE TYPICAL SPACE PLANNING REQUIREMENTS FOR A LABORATORY FUNCTION WHICH PROVIDES SUPPORT TO A HEALTH CLINIC.

Function	Basis For Planning	Planning Range In Square Feet	Remarks
D. LABORATORY			
Control/clerical area	1 per laboratory	60 NSF	
Specimen Receiving	1 per laboratory	30 NSF	
Patient Waiting	Number of venipunctures/day + Number of urinalysis/day = # of 6 spaces	14 NSF per space	
Specimen Toilet	1-2 per clinic	45 NSF per toilet	Each toilet will have a minimum of 1 lav, 1 wc and specimen contained dispenser at 15 NSF each.
Venipuncture Area	1 space (at 25 NSF ea) per technician authorized.	25 NSF minimum	
Lab Module	1 per lab minimum at 160 NSF; individual study for more than 1 lab module.	160 NSF minimum	
Lab NCOIC/OFF Office	1 per lab per programmed position	100 NSF minimum	
General Storage	1 per lab	80 NSF	
Decontamination	1 per lab.	120 NSF minimum	Plus 15 NSF if this room serves entire clinic as a CMS function.
Utility Room	1 per lab.	80 NSF	

US ARMY HEALTH FACILITY PLANNING AGENCY
SPACE PLANNING GUIDELINES FOR FACILITIES PROGRAMMING
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SECTION E - RADIOLOGY SERVICE

THIS SECTION DELINEATES THE TYPICAL SPACE PLANNING REQUIREMENTS FOR A RADIOLOGY SECTION WHICH PROVIDES SUPPORT TO A HEALTH CLINIC.

Function	Basis For Planning	Planning Range In Square Feet	Remarks
RADIOLOGY			
Control Area	1 per X-Ray section programmed.	60 NSF	
Waiting Area	5.2 spaces per radiographic room at 14 NSF per space.	75 NSF minimum	
Patient Toilet	1 per radiographic room	50 NSF per toilet	1 lav 1 wc at NSF each for the handicapped
Dressing cubicles	3 per radiographic room	20 NSF each	
General radiographic room	#Films exposed* X 16 X .8 260 X 7 X 60 = number of rooms.	270 NSF per room general diagnostic	*number of annual x-ray films (less chest films).
Chest X-Ray Rooms	Individual study	200 NSF is minimum	
Films Processing Room	1 per clinic when general radiographic room is programmed.	90 NSF	
Film viewing/storage	110 NSF for viewing area plus NSF as computed by: (annual films exposed) X (years storage) X (.8) = NSF (600)	110+ NSF computed in basis for planning.	
Utility room	1 per x-ray section	50 NSF	
Radiology OFF/NCOIC	1 per lab area for radiology officer/NCOIC programmed.	100 NSF is minimum	

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SPACE PLANNING GUIDELINES FOR FACILITIES PROGRAMMING
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SECTION F - PHARMACY

THIS SECTION DELINEATES THE TYPICAL SPACE PLANNING REQUIREMENTS FOR A PHARMACY SERVICE WHICH PROVIDES SUPPORT TO A HEALTH CLINIC.

Function	Basis For Planning	Planning Range In Square Feet	Remarks
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3. PHARMACY

Waiting Space	1 per pharmacy	(300) x (prescriptions) (per session) = NSF of waiting 200	
Dispensing	1 per pharmacy	200 NSF	
Drug Storage	1 per pharmacy	100 NSF	
Secure Drug Storage	1 per pharmacy	25 NSF	
Bulk Storage	Individual study	Individual Study	
Office Space	1 per pharmacist authorized	85 NSF per office	
Admir Area	1 per pharmacy	85 NSF each	

APPENDIX H

Considerations in Design of New Troop Medical Clinics

(Source: Health Facilities Planning Agency, Office of
The Surgeon General of the United States Army,
Washington, D. C.)

APPENDIX H

CONSIDERATIONS IN DESIGN OF NEW TROOP MEDICAL CLINICS

1. ENTRANCES. There should be three outside doorways, i.e.,

a. Main entrance. The entrance should be wide enough to accommodate a wheelchair. Access to entrance should include permanent ramp. There should be a vestibule between inner and outer doors.

b. Treatment room. Entrance should be wide enough to accommodate a litter. Outside access to entrance should be ramped or otherwise constructed for ease in on- and off-loading ambulances. There should be inner and outer doors, separated by a vestibule or hallway.

c. Emergency exit. The exit could double in usage as supply entrance. The entrance should be large enough to accommodate supply dollies. It should be located near the general supply storage area.

2. CONTROL.

a. The main entrance should be visible to the receptionist.

b. The NCOIC should be in a private office separate from, but proximate to the main waiting area. The NCOIC should be able to view the waiting area, and persons waiting should be conscious of the presence of the NCOIC.

3. HEALTH RECORDS.

a. The records area should be large enough to accommodate 9,000 records with ample room for record maintenance activities. Ample experience indicates that record areas tend to become crowded very quickly and record maintenance personnel are then forced to function in congested work areas.

b. Space should be provided for addition of temporary shelving for short-term contingencies.

c. The health records area should be close to reception, but not be visible to the waiting area or main entrance. This arrangement is necessary to help clarify to the public that the records area is not a control or information center.

4. WAITING AREAS.

a. Main waiting area. The key to a cost effective main waiting area is implementation of staggered sick call. Under the traditional sick call concept, sufficient waiting area would need to be built to accommodate all personnel reporting on or about 0700 hours. After two to three hours each morning there would be under-utilization of the facility. There should be an expansion capability. Expansion area could be in conjunction with

adjacent conference room space. Expansion area would be used during ARD (MRI) season and during the summer, when there would be an influx of Reserve and National Guard personnel who might not be infiltrated into a staggered sick call system.

b. Sub-waiting areas. Separate waiting areas (not hallways) are needed. There should be one combined waiting area for laboratory and x-ray, and another for pharmacy.

5. SCREENING.

a. Pre-screening. There should be a separate room for the pre-screening (temperature, pulse, respiration and blood pressure) process, with sufficient cubicles to provide privacy to each pre-screener.

b. Screening. A separate room is required for every provider in the screening process. Rooms should be configured, plumbed and electrically wired in the same manner as physician and PA offices. This would allow for ease of conversion of screener space into physician/PA space, when needed.

6. PHYSICIAN/PA OFFICES.

a. Rooms should be separable by ceiling-hung cubicle curtains, dividing each room into examination and consultation areas.

b. Medical sink should be located outside the examination area when the cubicle curtain is closed.

c. X-ray view box, sphygmomanometer, oto/ophthalmoscope and examination lights should be built-in.

7. PHARMACY.

a. Security design should strictly conform to all applicable Army and HSC regulations.

b. Security alarm should be installed and have an alternate source of power which will automatically come on-line if regular AC power source is interrupted.

c. The pharmacy should not be combined with any other functional area.

d. Proper controlled item storage is needed, in addition to an exclusive pharmacy bulk storage area. Bulk area requires a floor drain.

e. Separate prescription receiving and dispensing windows are required.

f. Use of automatic counting devices, such as Bakor Cells should be anticipated.

h. Depending upon configuration of the pharmacy, consider installation of a conveyor belt processing line from receiving window to dispensing window.

i. There should be a means of limiting and controlling access to working and storage areas.

j. Temperature control, monitored by a warning system, should be used to ensure that shelf environment of pharmaceuticals is maintained within acceptable tolerances. It is particularly important to preclude heat in excess of tolerances for non-refrigerated items.

8. LABORATORY.

a. As a minimum, the laboratory should have the capability of performing the following tests:

(1) Urinalysis

(2) CCC

(3) Culture identification

(4) Monospot

(5) Selected chemistries (BUN, glucose, uric acid, Ca++, Creatinine, K+, Ma+, Cl-, LFT (Bilirubin, Alkaline Phophatase, SGOT)).

b. There should be separate male and female latrines with specimen pass-through to laboratory work area. If a pass-through carrousel is used, it should be of a self-braking type to preclude spin and spill.

c. Blood drawing areas should be visually separated from waiting patients.

d. Large sinks and drain boards are essential.

e. There should be a small, adequately ventilated or exhausted area for an autoclave.

f. Sufficient storage area should be available for prescribed levels of backup supplies.

g. A deluge (safety) shower and an eye (safety) washer should be provided.

h. Ensure that air conditioning/separate venting or exhaust system will dissipate heat generated by equipment. User must fully identify to the architect/engineer all government provided heat producing equipment.

9. TREATMENT ROOM.

a. Facilities should accommodate both septic and aseptic minor surgical cases. Separate scrub sinks and treatment tables for each should be anticipated.

- b. Space should be provided for a contaminated waste bin in septic area.
 - c. Treatment tables should be separated by ceiling-hung curtains to provide patient privacy.
 - d. Surgical lights for treatment tables should be ceiling mounted.
 - e. There should be an adjoining, but separate cast room for application of routine casts, i.e., short leg walkers, short arm casts and posterior splints. In addition to an entrance from the treatment room, there should be an entrance from a corridor to preclude the necessity of traffic being routed through the treatment room.
 - f. An acute emergency area is needed to care for problems such as acute episodal asthmatics, severely hyperventilating patients and patients with suspect chest pains. This area should be equipped with an ECG capability, crash cart, portable oxygen, emergency drug cabinet and wall mounted oto/ophthalmoscope and sphymomonometer.
 - g. A small autoclave is needed to support the emergency room, unless suture sets, I & D sets and suture removal sets, etc., can easily be provided by the hospital CMS.
 - h. A small cubicle with desk and x-ray view box is needed as an area to evaluate test results and to complete medical charts.
 - i. Walls and floors should be ceramic tiled for ease of cleaning.
 - j. ECG room should adjoin the treatment room but have an additional entrance, so that routine testing can be accomplished without traffic being routed through the treatment room (similar to cast room).
 - k. A visually separate Sitz bath area should be a part of the treatment area, but it need not be a separate room.
10. GENERAL SUPPLY ROOM. This area should have:
- a. Adequate space for floor supported shelving.
 - b. Adequate ceiling and wall lighting.
 - c. Space for large and small oxygen cradles.
 - d. Easy access to loading dock.
11. CONFERENCE ROOM. The conference room should adjoin the main waiting area and be separated by an accordian partition. There should be an installed blackboard, projection screen, corkboard, videotape player and elevated podium.
12. LINEN ROOM & CMS. A linen room is required. If the hsopital CMS cannot properly support the clinic, the clinic must have an independent CMS adjoining the linen room.

13. JANITORIAL AREA. This room should be well ventilated and have a large slop sink. Each functional area should have a small janitorial closet with small sink.

14. X-RAY.

a. X-ray equipment should be installed, rather than portable. Doorways to x-ray area should be large enough to allow passage of a litter, thus precluding a requirement for portable x-ray equipment.

b. The film reading area (with mounted view boxes) and film storage area could be combined into one room.

c. There should be at least one sink in the x-ray area.

d. Dressing rooms should be built which will accommodate only one person, eliminating a requirement for separate male and female facilities.

15. LATRINES.

a. Male and female latrines should be placed off the main waiting area. They should not be placed in a location which would require utilization of corridor-ways to gain access. This is in consonance with an objective of restricting corridor traffic to a minimum.

b. Latrine sizing should be adequate for the maximum number of troops likely to be waiting at peak workload times.

c. There should be both commode and urinal facilities for the handicapped.

d. Male and female staff latrines, with showers, lockers and dressing rooms should adjoin the staff lounge area.

e. As additional criteria, all latrines should:

(1) Have non-skid floors.

(2) Be well ventilated (possibly with independent exhaust blowers in vents).

(3) Have floor drains.

16. STAFF LOUNGE. In addition to latrine facilities addressed above, the staff lounge should have a vending area. This should be the only vending area in the building.

17. COMMUNICATIONS.

a. Incoming phone calls should be on a rotary system.

b. Phone system should include full INTERCOM capability.

c. There should be a phone jack in every room, to provide maximum flexibility. The actual number and location of phones installed should be a local determination.

d. A central paging capability is needed, with access controls at both reception and pharmacy. Speakers should be in waiting areas and all corridors, but not in offices. In addition, there should be an optional use speaker on outside front of the building to page person waiting outside.

18. PHYSICAL THERAPY. A physical therapy area should be considered. Proximity to the hospital, anticipated nature of the workload and sophistication of procedures should dictate its size and equipment requirements.

19. SOCIAL WORK. A social work area should be considered. If such an area is deemed necessary, caution is indicated to ensure that space allowed is not larger than needed. Acoustical and visual privacy, rather than abundant space, is essential for this area.

20. FIRE SAFETY. Fire alarm and sprinkler systems should be planned so as to comply with up-to-date regulatory requirements.

21. SPECIAL CASES. The laboratory should be equipped for butane. A built-in oxygen system is neither necessary nor desirable.

22. PLUMBING.

a. Water fountains. There should be at least three fountains in public areas, one of which should be in the main waiting area. If fountains are placed in corridors, they should be recessed into the wall.

b. Sinks. Medical sinks with wrist, elbow or knee trim should be installed in all patient care areas.

c. Floor drains. Adequate floor drains are essential. They should be used in areas specified in this paper.

d. Outside water faucets. Outside faucets should be of a number and spacing that the entire area of grounds maintenance responsibility can be accommodated with no greater than a single length of 50 foot hose.

e. Planning for an ample hot water supply is essential.

23. HEATING AND COOLING. There should be assured zone/building climate control throughout the facility.

24. INTERIOR DESIGN.

a. Acoustical ceilings with recessed lighting are recommended.

b. Walls should be durable and washable. Corner guards should be installed on the wall at each outside corner.

- c. Pull-drapes should be used exclusively. Venetian blinds are difficult to clean and should be avoided for any area.
- d. Non-opening windows should be used to maximum extent possible.
- e. Floors should be covered with indoor/outdoor carpeting in waiting areas, hallways and offices. Other floor areas should be of a good grade of vinyl asbestos.
- f. Fire extinguishers and trash containers should be recessed into the walls.
- g. A permanent room directory should be placed conspicuously inside the entrance.

25. ELECTRICAL.

- a. 220-240 volt outlets should be placed:
 - (1) Two each in laboratory and x-ray. These outlets should be in addition to known installed equipment requirements.
 - (2) One in CMS, in addition to known installed equipment requirement.
 - (3) One in the treatment room.
- b. 110-120 volt outlets should be placed:
 - (1) In every room, at least one on each wall.
 - (2) Every three feet in the laboratory.
 - (3) Every six feet in the treatment room.
 - (4) Every twenty feet in hallways.
- c. Heavy load areas for either level of voltage should have separate circuits.
- d. There should be emergency (battery) power for egress lighting from the building and in the treatment room. Treatment room needs battery lighting to finish certain procedures, should power fail.
- e. High, special clock outlets should be placed in all rooms, except latrines and storage area.

26. PARKING.

a. Vehicle space should be provided for 75% of the TMC staff and 1% of the population served. Vehicle slots should be lined.

b. There should be a designated handicapped parking area close to the building.

c. Bicycle racks and a motorcycle parking area should be provided.

27. KEY CONTROL. The central key box should be recessed into a wall in the office of the NCOIC.

28. TRASH DISPOSAL. A concrete pad should be provided for a dumpster. The pad should have a drain and built-in water source. A contaminated trash incinerator, or close access thereto, will also be needed.

29. SECURITY. The security provisions of applicable Army and HSC regulations must be considered in design of the following areas:

a. Medical supply storage area.

b. Regular and standby utility facilities.

c. Health records storage area.

d. Blood and blood products storage area.

e. Laboratories.

f. Oxygen storage areas.

g. Storage areas for staff's personal property.

30. OVERALL DESIGN.

a. Administration should be located in front-center.

b. Recommend that rooms be arranged so that patient flow is in shortest distance sequence as follows: pre-screening, screening, laboratory, x-ray, PA/physician offices.

c. The basic design of the building should allow for modular expansion.

d. A permanent covered walk-way from the street to the entrance should be considered.

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