A STUDY TO DEVELOP A COMPREHENSIVE EMERGENCY MEDICAL SERVICES SYSTEM FOR FORT BENNING, GEORGIA

A Problem Solving Thesis

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Hospital Administration

By

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August 1976

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ABSTRACT

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The purpose of this study was to develop a comprehensive and coordinated emergency medical services (EMS) system for the Fort Benning, Georgia community. Research investigation consisted of analyzing the installation and the medical resources available through the unstructured interview. Review of the literature was conducted in order to obtain a basis for determining the basic elements of an EMS system and how these elements should be combined into a cohesive whole to form the system. An analysis of workload data was not possible due to the absence of a data base. In view of the facts presented, it was determined that three resources should be joined together to form a comprehensive EMS system: (1) Martin Army Hospital, (2) the 498th Medical Company, and (3) the Fort Benning Fire Department. Further, the installation EMS system should be hospital based.

It was recommended that: (1) All ambulances be upgraded to meet the Department of Transportation ambulance design criteria, (2) all EMS personnel be trained and certified as emergency medical technicians, (3) all resources be under the direction of a central EMS dispatcher, and (4) all EMS resources be under the overall control and supervision of the Chief, Emergency Treatment Service, Martin Army Hospital.

ACKNOWLEDGMENT

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CHAPTER I

INTRODUCTION

General

For years, the problem of deaths and permanent impairments resulting from accidents was treated by the American public with an apathy and insensitivity that was inconceivable considering the magnitude of the carnage occurring daily throughout the country. Accidental injury was the leading cause of death among all persons between the ages of 1 and 37, and the fourth leading cause of death among people of all ages. From 1903 to 1965, 6,500,000 deaths had occurred in the country from accidents alone. In 1965, disabling injuries numbered just over 10,000,000, including 400,000 that resulted in some degree of permanent impairment. In 1965, accident costs totaled 18 billion dollars.[1] Yet, despite the sobering statistics, little attention had been given to the problem by the medical profession.

Finally, in 1966, a report was published by the National Academy of Sciences-National Research Council, following a three year study of emergency medical services in the United States. The report was entitled Accidental Death and Disability: The Neglected Disease of Modern Society.[2] The report

described the enormity of the problem and the generally poor quality of emergency medical services in existence throughout the country. It noted that military experience in Korea and Vietnam had proven that reduction of the time lag from receipt of injury to initiation of medical care was a significant factor in the prevention of death and disability.[3] The report urged national adoption of its recommendations, covering such areas as ambulances, first-aid training, communications, and the categorization of emergency departments, as a signigicant step in alleviating the urgent problem of accidental death and disability.

During the period from 1966 to 1969, numerous professional and governmental bodies, spurred by the 1966 report of the National Research Council, began studying methods of improving emergency medical services. It was determined that 20 per cent of the annual accidental deaths could be prevented with prompt and proper care at the accident scene, and with efficient transport to a suitable medical facility.[4] Studies also demonstrated that the first thirty minutes following an injury or heart attack generally determined whether the victim would live or die.[5]

A second significant publication resulted from the proceedings of the Airlie Conference on emergency medical services which was held in May, 1969.[6] The conference, sponsored by the Committee on Trauma, American College of Surgeons, and

the Committee on Injuries, American College of Orthopedic Surgeons, brought together representatives of all groups who were then involved in improving emergency medical services. Some of the more pertinent recommendations of the conference were, first, that paramedical individuals involved in providing emergency medical services should be qualified through proper training and receive standard certification as Emergency Medical Technicians (EMT). Second, EMT's should be based at a hospital, whenever possible, so that they would be accorded maximum opportunity for special training and continuing education. Finally, it was recommended that vehicles used to transport non-emergency patients should not be termed ambulances unless they were fully equipped and provided space to cope with all types of emergencies.

The latest step in the development of more effective emergency medical services occurred in November, 1973, when the President signed into law the Emergency Medical Services Systems Act of 1973. The act made available 185 million dollars over a three year period to states, counties, cities, and nonprofit associations to develop or expand comprehensive emergency medical services.

As a result, civilian communities are making significant improvements in the provision of emergency medical services and are progressing toward the reduction of the toll of accidental death and disability. Unfortunately, despite the

rapid advancements being made in the civilian sector of the country, the military services are still providing, by present standards, archaic emergency medical services.

It should be mentioned that this problem has not gone unnoticed by the Army. The United States Army Health Services Command has issued guidance to its medical treatment facilities on specific methods to improve the provision of emergency medical services. This guidance, which emcompasses the innovations that have taken place in the civilian sector, was issued as part of the Command's Ambulatory Patient Care Program.[7]

Background Information

Fort Benning is a Class I Army installation located just outside Columbus, Georgia, at the western boundary of the state. The installation comprises a geographical area of 181,835 acres or 285 square-miles, and consists of portions of Muscogee and Chattahoochee Counties in Georgia and Russell County in Alabama (see Appendix A). The Chattahoochee River, which serves as a state boundary, passes through the reservation.[8]

The post had its beginning as a small tent encampment in October, 1918, when it was founded to meet the needs of General Pershing's expeditionary forces. On 19 October 1918, a ceremony was held officially designating the Army post as Camp Benning, named after an outstanding lawyer-turned-soldier

from Columbus, Confederate General Henry Lewis Benning.[9]

The first medical facility on the post consisted of a dispensary tent. Construction of a permanent hospital was began in December, 1923, and was completed in 1924. It had a capacity of 100 beds. This facility was gradually expanded to meet the needs of a growing post population. The climax of the constant development and expansion came in July, 1955, when ground was broken for the new Martin Army Hospital--a 500-bed, multistory structure. Construction was completed in April, 1958, and the hospital began full operation in July, 1958.[10]

Presently, the hospital is operating at a capacity of 340 beds and has a total assigned strength of 1087 personnel, of which 511 are officer and enlisted personnel and 576 are civilians.[11]

Fort Benning has two major missions, the first of which is to prepare infantry troops for combat. Approximately 46 per cent of the post's population is engaged in this activity. Second, Fort Benning trains combat leaders, both officer and enlisted, at the Infantry School. The Infantry School conducts not only career courses for these individuals, but also conducts Airborne and Ranger training courses. This second major mission involves the other 54 per cent of the post's population.[12] In addition to the training function of Fort Benning, the installation is the home of the 197th Infantry Brigade, and

numerous other major units and tenant activities.

Fort Benning's facilities and population are distributed throughout four main areas of the post (see Appendix B). The Main Post, consisting of 5,800 acres, is the nucleus of all activities and the oldest of the four areas. It includes the U.S. Army Infantry Center, Lawson Army Airfield, and all family housing units. Kelley Hill is a 500 acre permanent contonment area located approximately three miles east of the Main Post. It includes housing and support facilities for the 197th Infantry Brigade. Harmony Church, located approximately five miles east of the Main Post, is a 3,000 acre area where a variety of units are located. Finally, Sand Hill, comprised of 1,000 acres, is located four miles northeast of the Main Post. Originally constructed in 1941 to accomodate an armored division, Sand Hill is presently vacant.[13]

The active duty military population of Fort Benning is presently 17,835 (see Appendix C).[14] However, this will be increased by approximately 86 per cent for a total of 33,250 military personnel by 1978 under the provisions of Project CONCISE.[15] This project is part of the Army's one-station training plan. Under the plan, an enlistee does his basic combat training (BCT) on the same post where he receives his advanced individual training (AIT). There are several other Army posts involved with the basic plan. For example, all infantry training will ultimately be restricted to Fort Benning,

all armor training to Fort Knox, Kentucky, and all artillery training to Fort Sill, Oklahoma.[16]

The influx of personnel at Fort Benning will occur in two phases. The first phase will commence on 1 April 1976, when the AIT portion of the one-station training concept begins operation. There will be a total of 24 AIT companies organized, consisting of 5,280 trainees and 1,797 cadre and support personnel.[17] The Harmony Church area is being renovated to accomodate the first phase. Activities presently located at Harmony Church will be moved to Kelley Hill and Main Post.[18]

During the second phase of Project CONCISE, 27 BCT companies will be added. The second phase is scheduled for initiation by 1 July 1978, and will bring the total personnel influx to 51 BCT/AIT companies consisting of 11,220 trainees and 4,200 cadre and support personnel.[19] At that time, the AIT/BCT complement will be relocated to Sand Hill where a permanent complex is being constructed to accomodate the new training mission. The Sand Hill complex is scheduled for completion by mid-1981.[20]

Conditions Which Prompted the Study

While Fort Benning is a large installation with over 36,000 personnel working or residing on post (see Appendix C), there are numerous medical resources which should be capable of providing adequate emergency medical service for the installation. Unfortunately, this has not been the case. The hospital

has received frequent complaints of lengthy ambulance response times. Due to a lack of centralized control over the disparate medical resources, occasions have occurred when more than one resource responded to an emergency transportation request. Much uncertainty has existed among the public as to the exact method of requesting an ambulance. There also exists a near total lack of communications capability within the medical resources. Equipment and training have been completely inadequate to meet the Department of Transportation's standards for an emergency medical service system.

For these reasons the hospital submitted a request for an in-depth study and evaluation of emergency medical services at Fort Benning, which subsequently prompted this research investigation.

Statement of the Problem

The problem was to develop a comprehensive emergency medical services system for the Fort Benning, Georgia community.

Objectives

The objectives of this study were to:

1. Define the present method of providing emergency medical services (EMS).

2. Analyze the various installation resources available with regard to their emergency medical services capabilities and their adaptability to a comprehensive EMS system.

3. Make recommendations for the development of an EMS system which would integrate the installation's medical resources into a coordinated effort to provide emergency medical service in the most effective manner.

Criteria

An effective emergency medical services system would result in the following:

1. Improved emergency medical service for the patient.

2. Reduced time required for emergency medical resources to respond to an emergency situation.

3. A method of entry into the emergency response system which was easily attainable and well-understood by the public.

4. Centralized control of all EMS resources by a single individual or agency to ensure maximum effectiveness of the system.

5. An EMS staff which consisted of trained and certified emergency medical technicians.

6. Ambulances which met the Department of Transportation's ambulance design criteria and which carried the essential items of equipment recommended by the American College of Surgeons.

7. A communications network with a 24-hour central dispatcher which not only linked all installation EMS resources, but also provided a method of interface with the Columbus

Rescue Squad and the Columbus Regional Medical Center.

Limitations

The following limitations affected the conduct of the study:

1. The study was limited to Fort Benning proper and did not include the installation's Ranger training operations at Dahlanega, Georgia, and Eglin Air Force Base, Florida.

2. No statistical validation of the need for a responsive EMS system was possible due to the absence of an adequate data base.

Factor Bearing on the Problem

Ambulances which, without modification, would meet the Department of Transportation's ambulance design criteria were not available in the Army's equipment inventory.

Assumptions

For the purpose of the study, it was assumed that:

1. The present distribution of built-up areas at Fort Benning would remain essentially unchanged in the future.

2. There would be no delay in Congressional approval of necessary funds, and no labor, contractual, material, or weather difficulties which would significantly alter the mid-1981 completion date for the AIT/BCT complex planned for under Project CONCISE.

3. All medical resources of the installation which

could be utilized in an EMS system would remain stabilized barring a general mobilization of the Armed Forces.

4. Funds would be available to implement the recommendations presented in the study.

Research Methodology

The primary investigative tool used in this study was the informal and unstructured interview. Interviews were conducted with numerous hospital personnel including individuals in the Department of Clinics and Community Health Care Services, Supply and Services Division, Personnel Division, Management Services Division, Plans, Operations and Training Division and the Emergency Treatment Service. To obtain information pertaining to the installation's other medical and emergency resources, interviews were conducted with personnel of the 34th Medical Battalion, 690th Medical Company, 498th Medical Company, the Fire Department, and the Military Police. To obtain insight into the unique characteristics and problems of the installation which would affect the study, interviews were conducted with numerous individuals in the Directorate of Plans and Training, Directorate of Industrial Operations, and the Training Activities Coordinating Center. Finally, the communications aspect of the problem was reviewed through an interview with the Chief, Communications System Division, U.S. Army Communications Command Agency.

Research of the literature was performed in order to

gain essential background information and related data necessary for the proper analysis and evaluation of emergency medical services.

Review of the Literature

A vast amount has been written on emergency medical services since the concept gained national prominence in 1966. During the past nine years, the requirements for an effective EMS system have been extensively documented through studies of successful systems such as those in Jacksonville, Florida, Houston, Texas, and San Francisco, California. Further documentation has been provided through numerous research projects by individuals and professional organizations.

An EMS system consists of four essential elements: (1) ambulances and related equipment, (2) ambulance personnel, (3) communications, and (4) hospital emergency facilities.

The Department of Transportation has established ambulance design criteria which a patient transportation vehicle must meet in order to be termed an ambulance.[21] It must have a driver compartment, and a patient compartment which can accomodate two emergency medical technicians and two litter patients so positioned that at least one patient can be given intensive life-support during transit. It must also carry equipment and supplies to facilitate: (1) optimal emergency care at the scene as well as during transport, (2) two-way radio communications, (3) safeguarding of personnel and patients under hazardous

conditions, and (4) light rescue procedures. National recommendations for ambulance design and equipment also emphasize patient care capability over swift transportation.[22]

The Committee on Trauma of the American College of Surgeons compiled a list of equipment which it considered essential that an ambulance attendant have available in order to provide adequate care for the critically ill and injured at the emergency scene and during transport to a medical facility. The list of equipment, which appeared in the May, 1970 issue of the Bulletin, American College of Surgeons, was adopted by the Department of Transportation. According to the present Department of Transportation policy, a vehicle must have the 24 essential items of equipment recommended by the American College of Surgeons in order to be considered satisfactorily equipped (see Appendix D).[23] Additionally, unless a rescue vehicle equipped with the proper extrication equipment accompanies an ambulance on every call, minimal rescue equipment such as a crow bar, bolt cutter, and other small tools should also be carried by the ambulance.[24]

Realizing the need for trained medical personnel to operate ambulances, the Department of Transportation hired a consultant firm, Dunlap and Associates, Inc., to develop a curriculum for training emergency medical technicians.[25] The firm developed an 81-hour course which has been adopted by most states as their basic EMT training program. The course consists of

25 lesson units which make up a total of 71 hours of didactic training. This is followed by ten hours of in-hospital observation and training in the emergency, surgical, intensive care, obstetric, and psychiatric areas of the hospital.[26] Advanced training programs have been established in some areas of the country to supplement the basic 81-hour course. These may require up to 480 hours of classroom lecture and an additional 500 hours of clinical practice and observation.[27] A program of national certification of emergency medical technicians was established in 1970. Known as the Registry of Emergency Medical Technicians, the national accreditation organization conducts examinations to ensure uniform qualifications and training of all applicants.[28]

Another important element of an EMS system is communications. The American Hospital Association has stated that communications is the backbone of an EMS system. It provides the necessary cement that binds the other elements into a cohesive whole.[29] There are several essential components in an EMS communications system. First, there must be a method of entry into the emergency response system. According to Reid, this is the weakest link in the chain of emergency medical communications.[30] Telephone companies, with the approval of the Federal Communications Commission, have designated the three-digit telephone number, 911, as the nationwide emergency telephone number. This number is gaining rapid national acceptance as the primary

means of reporting an emergency medical situation remote from the hospital.[31]

A communications system must also provide a means of central dispatch of ambulance resources. The dispatch center is the heart of the communications system. The center, with continuous knowledge of the ambulance resources available, dispatches, by two-way radio, the most appropriate vehicle.[32] Each ambulance must also be equipped with two-way radios to facilitate communication with the dispatch center and the hospital emergency room. The latter capability enables the emergency medical technicians in the ambulance at the accident site to confer with a physician in the emergency room on the patient's condition and appropriate treatment.[33]

A portable radio should also be available in each ambulance to facilitate out-of-ambulance communications between the ambulance attendant and the hospital emergency room physician, as well as with the EMS central dispatcher. The need for such a capability is readily apparent in those cases where the patient is trapped in a vehicle or is located in an upper floor of an apartment building. The portable radio permits the attendant to communicate directly from the location of the patient.[34]

A communications system should also provide for inter-hospital communications. This enables hospitals in a community to exchange information pertaining to patient load, inventory of supplies, and available medical personnel. The importance

of this communications component, particularly in a disaster situation, is well-documented in an article by Allenbaugh concerning the 1971 Los Angeles earthquake.[35]

The final element of an EMS system, as detailed in the literature, was the hospital emergency facility. In order to ensure optimal emergency care, several principles are considered essential. The first of these concerns categorization of hospital emergency capabilities. According to the American Medical Association, the basic purpose of categorization is to identify the readiness and capabilities of the hospital and its entire staff to receive and treat, correctly and expeditiously, emergent patients. Based on the evaluation of such factors as staffing, support services, intensive care units, and scope of capabilities, a hospital is placed in one of the following categories of emergency capability: (1) Category I: Comprehensive emergency service, (2) Category II: Major emergency service, (3) Category III: General emergency service, and (4) Category IV: Basic emergency service.[36]

Another important principle cited in the literature was that a department of emergency medicine should be established in the hospital with the responsibility of operating a primary emergency service. The department should have equal standing to other departments with the same responsibilities and control.[37] Two additional concepts stressed were, first, that emergency service should be under the direction of a full-time physician

who should have the responsibility for the control, supervision, and training of all emergency room personnel.[38] Second, the assignment of all members of the emergency room staff should be stabilized whenever possible.[39]

As a final note, there is one central and overriding principle that must be inherent in any EMS system. The principle is that of centralized control and direction of the disparate elements which comprise the system. Without the centralization of control, the system immediately becomes fragmented and no longer functions as a single entity, thus, defeating the purpose of the EMS system.[40]

Footnotes

[1]National Academy of Sciences, Accidental Death and Disability: The Neglected Disease of Modern Society (Washington, D.C.: National Academy of Sciences, 1970), p. 8.

[2]Ibid.

[3]Ibid., p. 12.

[4]Executive Office of the President, Office of Telecommunications Policy, Communications in Support of Emergency Medical Services (Washington, D.C.: Government Printing Office, 1973), p. 4.

[5]Ibid., p. 5.

[6]American College of Surgeons, Emergency Medical Services. Recommendations for an Approach to an Urgent National Problem (Chicago: American College of Surgeons, 1969).

[7]Headquarters, U.S. Army Health Services Command, Ambulatory Patient Care Model #16 (Fort Sam Houston, Texas: August, 1974); Headquarters, U.S. Army Health Services Command, Ambulatory Patient Care Model # 17 (Fort Sam Houston, Texas: July, 1974).

[8]Roberts and Company Associates, Fort Benning Master Development Plan (Atlanta: Roberts and Company Associates, 1975).

[9]Marion Jones, "Post Notes 51st Year," Bayonet (Fort Benning, Georgia), 3 October 1969, p. 1.

[10]Doris Powell, "Fifty Years of Progress Built Martin Army Hospital," Bayonet (Fort Benning, Georgia), 4 October 1968, p. 48.

[11]Private interview with Major Thomas E. Keller, Personnel Officer, Martin Army Hospital, Fort Benning, Georgia, 4 March 1975.

[12]Roberts, Fort Benning Master Development Plan, p. 12.

[13]Ibid., p. 2.

[14]Comptroller, U.S. Army Infantry Center, Fort Benning, Georgia, ATCOM 105 Report, 31 January 1975.

[15]Private interview with Major K.C. Whaley, Chief, Force Development Division, Directorate of Plans and Training, U.S. Army Infantry Center, Fort Benning, Georgia, 6 March 1975.

[16]Private interview with Lieutenant Colonel Dudley Fry, Chief, Training Activities Coordinating Center, U.S. Army Infantry Center, Fort Benning, Georgia, 6 March 1975.

[17]Private interview with Major K.C. Whaley, Chief, Force Development Division, Directorate of Plans and Training, U.S. Army Infantry Center, Fort Benning, Georgia, 6 March 1975.

[18]Private interview with Mr. Henry Zeranski, Facilities Management Officer, Directorate of Industrial Operations, U.S. Army Infantry Center, Fort Benning, Georgia, 6 March 1975.

[19]Private interview with Major K.C. Whaley, Chief, Force Development Division, Directorate of Plans and Training, U.S. Army Infantry Center, Fort Benning, Georgia, 6 March 1975.

[20]Private interview with Mr. Henry Zeranski, Facilities Management Officer, Directorate of Industrial Operations, U.S. Army Infantry Center, Fort Benning, Georgia, 6 March 1975.

[21]U.S. Department of Transportation, National Highway Traffic Safety Administration, Ambulance Design Criteria (Washington, D.C.: Government Printing Office, 1973).

[22]Peter Safar, Don M. Benson, and Gerald Esposito, "Design and Equipment of Ambulances. Essentials of Life Support," Emergency Medicine Today, I, No. 7 (1972), 2.

[23]U.S. Department of Transportation, National Highway Traffic Safety Administration, Highway Safety Program Manual No. 11: Emergency Medical Services (Washington, D.C.: Government Printing Office, 1974), p. IV-20.

[24]Ibid., p. IV-19.

[25]Leslie R. Smith, "From Ambulance Driver to EMT," Hospitals, XLVII, No. 10 (1973), 106.

[26]U.S. Department of Health, Education, and Welfare, Public Health Service, Health Services and Mental Health Administration, Division of Emergency Health Services, Training of Ambulance Personnel and Others Responsible for Emergency Care of the Sick and Injured at the Scene and During Transport

(Washington, D.C.: Government Printing Office, 1970).

[27]Smith, "From Ambulance Driver to EMT," 108.

[28]J.D. Farrington, "The Registry of Ambulance Attendants," Emergency Medicine Today, I, No. 1 (1972), 3.

[29]American Hospital Association, A Guide for Hospital Participation in an Emergency Medical Communications System (Chicago: American Hospital Association, 1973), p. 10.

[30]Hamilton V. Reid, "Communications Improve Care," Hospitals, XLVII, No. 10 (1973), 98.

[31]Executive Office of the President, Office of Telecommunications Policy, Communications in Support of Emergency Medical Services (Washington, D.C.: Government Printing Office, 1973), p. 9.

[32]American Hospital Association, A Guide for Hospital Participation, p. 14.

[33]Gerald E. Gustafson, "Radio, Training Spur Improvement," Hospitals, XLVII, No. 10 (1973), 132.

[34]Executive Office of the President, Communications in Support of Emergency Medical Services, p. 8.

[35]Gerald E. Allenbaugh, "Emergency Radios Restore Order to Chaos," Hospitals, XLVI, No. 2 (1972), 61-65.

[36]American Medical Association, Recommendations of the Conference on the Guidelines for the Categorization of Hospital Emergency Capabilities (Chicago: American Medical Association, 1971).

[37]David W. Anderson, "A Survey of Emergency Rooms in Washington State," Emergency Medicine Today, II, No. 8 (1972),4.

[38]Leon J. Taubenhaus, "Emergency Services," Hospitals, XLVI, No. 7 (1972), 82.

[39]R.R. Hannas, Jr., "Staffing the Emergency Department," Hospitals, XLVII, No. 10 (1973), 83-86.

[40]U.S. Department of Transportation, Highway Safety Program Manual No. 11, p. IV-1.

CHAPTER II

DISCUSSION

Analysis of the Present System

The existing system of providing emergency medical services at Fort Benning was fragmented and decentralized with little or no coordination among the various elements that comprised the system. There were four basic resources on-post which became involved, at least occasionally, in responding to emergency medical situations. Each of these resources have been analyzed in greater detail in subsequent discussion, but a brief description was necessary, at this point, to elucidate the existing situation.

The four primary resources were Martin Army Hospital, the 34th Medical Battalion, the 498th Medical Company, and the Fort Benning Fire Department.

Martin Army Hospital maintained an ambulance section which was based with the emergency room, and consisted of four vehicles. Two of the vehicles were used to respond to emergency requests, both on and off-post; one vehicle was used for inter-hospital transfer of patients; and, one vehicle was used for administrative runs.

The 34th Medical Battalion had the mission of providing field medical support to the U.S. Army Infantry Center and

Fort Benning. Field ambulances and aidmen were stationed, through pre-arranged support requests, to provide on-site coverage of the firing ranges, airborne drop-zones, parades and similar activities.

The 498th Medical Company was located at Lawson Army Airfield and had thirteen aircraft. The unit had two missions. Its primary mission was to provide aeromedical evacuation support to Fort Benning. Its secondary mission was to provide emergency aeromedical evacuation support for the local civilian community under the Military Assistance to Safety and Traffic (MAST) program.

The final resource, the fire department, had a well-equipped rescue vehicle which provided extrication of trapped occupants in automobile accidents and other incidents requiring such a capability.

The method of public entry into the emergency response system was confusing, at best. There existed an emergency telephone number which was designed to ensure the proper agencies were notified so that medical care, evacuation, and other needs could be provided expeditiously. The emergency number, 112, was created by U.S. Army Infantry Center Regulation 40-9, dated 10 March 1969.[1] According to the regulation, all emergencies, other than fires, were to be reported by dialing 112 from any military telephone on-post. These emergencies would include: (1) serious accidents wherein persons were injured and required

medical treatment or hospitalization, and (2) serious illnesses, such as heart attacks, appendicitis, sunstroke, or others wherein immediate medical attention appeared necessary.

A person dialing the number would reach the post operator. The operator would question the caller to insure that a genuine emergency situation existed. Once satisfied of this, she would ring the parties who were tied into the closed-circuit conference line. Red telephones, of in-dial only configuration, would ring simultaneously and until answered at the following locations: (1) Martin Army Hospital emergency room, (2) Military Police Desk Sergeant, (3) 197th Aviation Company, and (4) Lawson Army Airfield Operations Center. The military police desk sergeant was designated as the "emergency controller." He would insure that all listeners received the necessary details and then he would coordinate the dispatch of helicopter, ambulance, or other emergency equipment as required.

Unfortunately, the emergency call system rarely functioned as intended. Apparently, the number did not receive the widespread publicity necessary to make such a system functional. Consequently, the number received infrequent use. Although daily communication checks of the line were made by the operator, every party did not always answer the phone when it rang for an actual emergency.[2] The military police claimed that they had so many red phones in close proximity to each other, that it was often difficult to tell which was actually ringing.[3]

Since the system's inception in 1969, the function of the system and the parties tied into the system had changed, even though the founding regulation remained in effect. The current post telephone directory listed the number 112, on the inside cover, as EMERGENCY RESCUE AND EVACUATION. The front cover of the directory listed the Martin Army Hospital emergency room number as EMERGENCY AMBULANCE.

The majority of the individuals interviewed at the time of the study thought that the sole purpose of the 112 number was to obtain a medical evacuation helicopter from the 498th Medical Company. Further, an interview with the chief of the post communications system revealed that the following parties were currently tied into the line: (1) Martin Army Hospital emergency room, (2) Military Police Desk Sergeant, (3) 498th Medical Company, (4) Lawson Army Airfield Operations Center, and (5) Range Control.[4]

It was not surprising, then, that the public was faced with a somewhat confusing situation when attempting to summon emergency medical assistance. The individual soldier in the field had to decide whether to utilize the on-site ambulance of the 34th Medical Battalion, if one was present, or place a call for medical assistance through use of one of the mag-drop telephone lines that were installed in field locations throughout the post. The line would connect him with the operator who could, in turn, connect him into the 112 emergency net or the emergency

room of Martin Army Hospital. He may even have chosen to contact the 498th Medical Company directly by radio to request a helicopter.

The individual who needed assistance in his quarters or at the office had to decide which of the two emergency medical numbers listed in the telephone directory he should use. In short, the citizen's mode of entry into the emergency medical response system was haphazard and confusing.

The method of responding to a request for emergency medical assistance could best be illustrated at this point by presenting a hypothetical situation. A traffic accident has occurred at some location on the installation resulting in several injuries and the entrapment of the occupants inside a vehicle. A passer-by happens upon the accident site and calls the military police. Observing that the occupants of the vehicle are injured, he also calls Martin Army Hospital and requests an ambulance.

When the military police arrive, they note that the occupants must be extricated from the wreckage and therefore call the fire department and request the dispatch of the rescue vehicle. The military police, unaware that an ambulance has been requested from the hospital, determine that a helicopter would be the fastest available medical resource, and, consequently, request an aircraft from the 498th Medical Company by two-way radio.

Presently, the ambulance from Martin Army Hospital arrives at the accident site, but the attendants are unable to render aid since the occupants are still trapped inside the vehicle. Eventually, both the rescue vehicle from the fire department and the helicopter from the 498th Medical Company arrive. While the fire department personnel are freeing the injured from the wreckage, the crews of the helicopter and the ambulance decide to evacuate the patients by helicopter to reduce the transportation time.

The patients are loaded aboard the aircraft and it takes off for the hospital. However, the aircraft has no means of radio communication with the hospital to notify them of the number of patients, their condition, and the expected time of arrival. Therefore, the pilot contacts his operations center and instructs them to relay the information by telephone. Since the helicopter pad at Martin Army Hospital is located approximately 200 yards from the hospital and is not within sight of the emergency room, the aircraft must sit on the helipad and wait until, first, the hospital becomes aware of their presence, and second, sends an ambulance to the helipad to pick up the patients.

It is apparent from the foregoing hypothetical situation that the system of providing emergency medical service at Fort Benning was fraught with problems, the above situation serving to illustrate only a few.

There was virtually no coordination among the various

providers of emergency services, and certainly no method of centralized control. Most of the personnel involved in providing the emergency services were not certified or trained emergency medical technicians. None of the vehicles used for the transportation of patients met the Department of Transportation's ambulance design criteria. There was a lack of essential equipment for both ambulances and aircraft.

One of the most critical problems that plagued the present system was the near total lack of radio communications. Only the 498th Medical Company and the fire department possessed the equipment necessary to provide a minimal means of internal radio communication. The hospital had an FM radio located in the emergency room for the purpose of communicating with incoming aircraft, but it was never used. Several reasons were offered by the emergency room staff for not using the radio. These included: (1) no one knew how to operate it, (2) it made too much noise to leave it on, and (3) the antenna was not mounted high enough to facilitate adequate communication with the aircraft.[5]

A second radio was located behind the information desk. It had two channels, one of which was for the physician-paging system and the other for communication with the hospital's ambulances. It was originally located in the emergency room but was moved to the information desk when it was realized that the emergency room staff was too busy to operate a doctor-paging

system. Consequently, although the ambulances had receiver-transmitters by which to communicate with the hospital, the radio was seldom used for this purpose because of the inconvenience to emergency room personnel who had to walk to the information desk in order to talk to the ambulances.

Analysis of Resources

Before presenting a detailed discussion of the four primary resources that were most adaptable to an emergency medical services system, it should be noted that there were two other units located on the installation which had organic medical resources. The 197th Infantry Brigade had a medical company which provided medical support for the Brigade's training and operations. The company's evacuation vehicles were M-792 one and one-quarter ton ambulances, commonly known as "gamma goats." The maneuver battalions of the Brigade also had a small number of medical personnel and front-line ambulances.

A second major unit located on the installation which had organic medical support was the 36th Engineer Group. The evacuation vehicles of this unit were front-line ambulances. The medical resources of both the 197th Infantry Brigade and the 36th Engineer Group were not considered to be resources which could be integrated into an EMS system, since their medical evacuation vehicles were totally unsuited for any evacuation use other than under the most severe field conditions.

Martin Army Hospital

Martin Army Hospital had a Category II emergency service as defined by the booklet entitled Categorization of Hospital Emergency Capabilities, published by the American Medical Association. Briefly, the classification meant that the hospital was capable of handling most types of emergencies and was staffed by a physician 24 hours each day.[6]

A physician was assigned full-time duty as the Chief, Emergency Treatment Service. Organizationally, the Emergency Treatment Service was a separate service under the Department of Clinics and Community Health Care Services (see Appendix E). While the literature pointed out the desirability of the chief of emergency services having full control of the ambulances and medical attendants operating in conjunction with the emergency room, this was not the case at Martin Army Hospital. The latest organization and functions manual, published by the hospital in January, 1975, stated that the Chief, Supply and Services Division was responsible for the ambulances and ambulance equipment.[7] Further, the responsibility for the staff medical attendants was a function of the Chief, Department of Nursing. This triple fragmentation of control was totally opposed to the desired principle of centralization of control of emergency resources, and inevitably led to many problems. The ambulance attendants, under the control of the Department of Nursing, were sometimes not entirely responsive to the needs of the emergency

room.

In the past, conflicts had arisen between the Department of Nursing and the Department of Clinics and Community Health Care Services on the issue of EMT civilian training programs for the ambulance attendants. The Department of Nursing wanted them trained in Alabama, which ran an 81 hour program. The Department of Clinics wanted them trained in Georgia's 125 hour program. After some of the attendants received their EMT training in Alabama, it was discovered that they could not be certified in Georgia until they went through the Georgia program. Eventually, these attendants were retrained in Georgia.[8]

There were complaints that ambulances were being utilized for strictly administrative runs such as the transportation of laboratory specimens, blood, and medical personnel. Consequently, ambulances were sometimes not available for actual emergencies. It is important to note that centralized control of both the ambulances and the attendants by the Chief, Emergency Treatment Service could have eliminated many of these and similar problems.

Martin Army Hospital had four vehicles that, in the past, would have been termed ambulances by most observers. However, according to the Department of Transportation, only those vehicles which meet the ambulance design criteria are qualified for the ambulance terminology. While Martin Army Hospital had recognized this fact in their directive on ambulance service,

dated 12 November 1974,[9] they had, nevertheless, erroneously designated two of their Dodge conversion vans as ambulances. These two vehicles had received some basic modifications from their original condition, such as white paint with Omaha-orange stripes, flashing lights, sirens, and two-way radios. A third Dodge van remained unmodified and was used for administrative runs. A final vehicle of the station-wagon or hearse-type was available for use in inter-hospital patient transfers. This vehicle had also been painted white with Omaha-orange stripes but was not termed an ambulance.

Despite the modifications that had been made on the hospital's vehicles, they still did not meet the criteria established by the Department of Transportation for ambulances. One serious deficiency in vehicle design that had not been corrected concerned the placement of the spare tire. It was mounted inside the vehicle in front of the side door. In this manner, the tire effectively blocked the side vehicle exit and limited access to the patient compartment to the rear door. If the ambulance was hit from the rear in an accident, it would be virtually impossible to remove the patient from the ambulance.

The ambulances also had inadequate storage space for the essential equipment which should be carried with the vehicle on each emergency call. This deficiency could be resolved through the installation of some storage cabinets mounted under the patient litters. Although sirens had been installed on

three of the hospital-based ambulances, none of these were operational. It was imperative that the ambulances have functional sirens, especially from a traffic safety point of view. An interview with the military police revealed that there was no prohibition against the ambulances exceeding the posted speed limits when the patient's condition warranted.[10] However, passing through a busy intersection was extremely dangerous without adequate warning devices.

The ambulance section had attempted to obtain the essential ambulance equipment recommended by the American College of Surgeons. Nevertheless, they had not obtained enough to equip all the ambulances, and several items of equipment had not been obtained (see Appendix F).

The hospital had five troop medical clinics (TMC) located around the installation to provide first line medical care to the supported troop population. All of the troop medical clinics except TMC #10, which was located at the post stockade, had a van-type ambulance available during duty hours at the clinic. These ambulances were used to transport patients from the clinics to the hospital for more definitive care or appointments. The ambulances were picked up each morning from the post Transportation Motor Pool and returned in the afternoon. They were unmodified standard Army vehicles, and, quite naturally, did not meet the Department of Transportation ambulance design criteria. Nevertheless, with the completion of the required

modifications, these vehicles would be a natural choice for ambulances to use in the EMS system.

The hospital had plans for the construction of additional facilities to support the influx of personnel into the Harmony Church and Sand Hill areas in conjunction with Project CONCISE. Two TMC/aid stations would be opened in the Harmony Church area, to supplement the existing facility, TMC #6. Further, a consolidated TMC was planned for Harmony Church with the additional capabilities of STAT laboratory, x-ray, and a pharmacy. Construction plans for the Sand Hill area called for two TMC's. However, a consolidated TMC with the additional capabilities could be substituted.[11]

Martin Army Hospital considered its area of responsibility for emergency medical evacuation to be within a thirty mile radius of the installation. However, when an emergency request was received from an off-post location, the caller was told to first request an ambulance from the Columbus Rescue Squad or a commercial ambulance company. If the caller was unable to secure an ambulance from one of these sources, then Martin Army Hospital would respond. Usually, one of the off-post resources was able to respond more quickly to an off-post emergency than an ambulance located on-post.

Although off-post civilian resources would not be integrated into an on-post EMS system, a brief discussion of these off-post resources was pertinent to the analysis of Martin Army Hospital's capabilities and therefore has been included here.

An analysis of off-post ambulance resources revealed that adequate service was available to support the main population centers of both Columbus, Georgia, and Phenix City, Alabama. Columbus had a fire department based rescue squad which provided EMS coverage for Muscogee and Harris counties in Georgia. The rescue squad had six ambulances operating out of three stations within the city (see Appendix G). Five of the ambulances were used to respond to calls within the city and one was for out-of-town calls. All of the ambulances met the Department of Transportation ambulance design criteria, and were staffed by EMT trained personnel. The technicians were well-trained in all phases of emergency medical care and regularly used cardiac defibrillators and administered intravenous solutions aboard the ambulances. Two of the ambulances were equipped with medical telemetry equipment and there were plans to install telemetry equipment in two additional ambulances within sixty days. The patient was charged 25 dollars for an ambulance run, and the rescue squad averaged about five runs to Martin Army Hospital during each 24-hour period.[12]

Phenix City, Alabama, did not have a rescue squad but did have three commercial ambulance companies which were staffed by EMT trained personnel. Since off-post ambulance coverage was more than adequate, a Fort Benning EMS system should restrict itself as much as possible to the installation's boundaries. This would prevent the needless overlapping of geographic areas

of responsibility and the overextension of the installation's limited resources. The installation's ambulances should only respond to off-post calls when they could reach the patient more quickly than could off-post resources.

34th Medical Battalion

The 34th Medical Battalion was a table of organization and equipment (TOE) unit with fourteen subordinate elements, consisting of both medical units and aviation units (see Appendix H). As previously stated, its primary mission was to provide field medical support to the U.S. Army Infantry Center and Fort Benning. While the 498th Medical Company was a subordinate unit of the 34th Medical Battalion, it has been discussed separately due to its unique capabilities.

The ambulance resources of the 34th Medical Battalion were organic to the 690th Medical Company. The company had 33 M-725 one and one-quarter ton field ambulances. Each ambulance carried an aidbag and a few other minimal items of medical equipment. None of the ambulances were equipped with flashing lights, sirens, or communications equipment. Since they were tactical vehicles, the ambulances were prohibited from exceeding the speed limit and their ride was extremely rough. It would have been virtually impossible to modify these vehicles to meet the ambulance design criteria.[13]

Aidmen for the ambulances were provided by the 546th Medical Company. A few of these aidmen were enrolled in the

EMT training program in Columbus. However, since the program was conducted at night over a four and one-half month period, individuals were often interrupted during the course of their training because of field exercises and night ambulance coverage.[14]

The requirement for the 34th Medical Battalion to provede field medical support and emergency evacuation for the installation was outlined in U.S. Army Infantry Center Regulation 40-2, dated 4 February 1974.[15] The regulation divided field medical support into two functional levels. The first of these, on-site medical service, provided for locating medical personnel at the actual location supported. The second level was termed area medical service and was provided by ambulances or aircraft on stand-by awaiting an emergency request. On-site medical support was provided solely by the ground ambulances and aidmen of the 34th Medical Battalion. Area medical service was provided primarily by the 498th Medical Company.

The regulation further stated that the primary means of evacuating patients was the helicopter. According to the regulation, if an aidman was on-site when an injury occurred, he should provide immediate resuscitative and life-saving measures, but the patient should not be evacuated by the on-site field ambulance. Instead, a helicopter should be requested from the 498th Medical Company. If the helicopter was unable to respond, then an ambulance should be requested from the hospital. The field ambulance should be used to evacuate emergency patients

only as a last resort.

The 34th Medical Battalion did not maintain workload data pertaining to actual treatment and evacuation of emergency patients. The only data available pertained to the number of ambulances and aidmen used to support various activities by pre-arranged requests. The Commander of the 690th Medical Company stated that he knew of only three occasions during the past year when his unit had been called upon to respond to an emergency situation, such as a traffic accident, that was not a previously arranged commitment for coverage.[16]

While the 34th Medical Battalion's ambulances were ideally suited for responding to rough terrain areas, unit personnel interviewed did not believe that there were any training sites or ranges on the installation that would be inaccessible to either the hospital's ambulances or the helicopters of the 498th Medical Company.[17]

A final consideration regarding the 34th Medical Battalion was that its subordinate units were required by their missions to maintain a constant state of unit readiness in the event of a need for deployment to an overseas location. For this reason, U.S. Army Infantry Center Regulation 40-2 stated that at no time would TOE medical units be committed to a degree impairing unit readiness. Further, members of the battalion interviewed stated that they were officially encouraged to keep the mileage of their vehicles to a minimum to ensure a high

state of vehicle maintainability.[18]

Due to the limitations discussed above, the 34th Medical Battalion was not considered to be adaptable to an installation EMS system. The resources of the battalion would be better utilized in the performance of their present mission of providing on-site medical support to the U.S. Army Infantry Center.

498th Medical Company

The 498th Medical Company was a subordinate unit of the 34th Medical Battalion. The company had four platoons, only two of which were located at Fort Benning. Of the remaining two platoons, one was located at Fort Stewart, Georgia, and the other at Fort Jackson, South Carolina. The Fort Benning contingent of the 498th Medical Company had a total of thirteen helicopters. There were also thirteen aidmen assigned. Two of the aidmen were EMT trained and three others were enrolled in the EMT program in Columbus.

In addition to its primary mission of providing medical evacuation support to Fort Benning, the unit was involved in providing support to the local civilian community under the MAST program. MAST missions were of two types: (1) emergencies, and (2) interhospital transfers. It should be emphasized, however, that MAST was a secondary mission. If the unit's aircraft were already committed in supporting the military, or if the unit had reached its monthly flying hours requirement, MAST

missions would be turned down. As an illustration of the unit's workload, there were 565 patients, both military and civilian, transported in 1973 and 583 in 1974.[19] Unit personnel interviewed during the study expressed an eagerness to expand their workload and maintained that they could handle the additional influx of personnel occasioned by Project CONCISE with no decrease in responsiveness.[20]

The unit operated within a 100 mile radius of Fort Benning. There were two crews and two aircraft available to respond 24 hours per day. If both aircraft were committed, a third aircraft and crew were readied to respond to emergencies. The unit was capable of responding to any location on the installation within a very short period of time. During good weather, an aircraft could reach the scene of an accident within five to ten minutes of notification. The response time was lengthened by approximately three minutes during bad weather because the unit had to obtain flight approval from Columbus Approach Control.

Of the four primary resources available for an installation EMS system, the 498th Medical Company had the most sophisticated communications capability. The unit had a 24-hour dispatcher to monitor incoming evacuation requests. Approximately half of the requests were received telephonically on the 112 emergency line. The other half were received by FM radio. Each aircraft was equipped with FM, VHF, and UHF radios. There

was an additional radio in each aircraft, provided by the local MAST committee, to enable the aircraft to communicate with the civilian hospitals. However, unit personnel interviewed complained that their aircraft were never able to communicate by radio with Martin Army Hospital, although the hospital had an FM radio to facilitate such communication. As previously mentioned, in order to inform the hospital that an aircraft was bringing in a patient, the aircraft had to radio the dispatcher at the 498th Medical Company who in turn had to call the hospital emergency room by telephone to relay the message.

The unit also expressed the desire to be able to communicate with the emergency room physician while the patient was being flown in. The personnel of the 498th Medical Company were under the technical control of the Commander, Martin Army Hospital. He placed limitations on what medical procedures the aidmen aboard the aircraft were permitted to perform. The emergency room physician could advise the medical aidman on the performance of certain procedures which would be otherwise restricted if it were necessary to maintain the condition of the patient. The advisability and importance of a communication link between the ambulance and the emergency room physician is well-documented in the literature, and should apply not only to the aircraft of the 498th Medical Company but to all ambulance resources involved in the EMS system.

The organization medical equipment possessed by the

498th Medical Company was limited to such basic items as blanket sets, litters, resuscitators, and similar items. For this reason, the unit had been forced to supplement its basic equipment with those items necessary for the provision of adequate emergency care. A list of medical equipment carried aboard each aircraft is attached as Appendix I. In addition to the items on the basic list, the unit also had available IV sets, a cardiac monitor, and a cardiac defibrillator. However, these items were not routinely carried aboard the aircraft because the aidmen were not authorized by the hospital commander to use them.

In summary, the 498th Medical Company was capable of performing a vital function within an installation EMS system. Adequate personnel and aircraft were available to handle both the present workload and the increased workload concomitant with the inception of Project CONCISE.

Fire Department

The final emergency resource on the installation was the Fort Benning Fire Department which had one rescue vehicle. A former post commander had observed the Columbus Rescue Squad system and was sufficiently impressed that he directed the Fort Benning Fire Department to examine the possibility of establishing a similar capability on the installation. As a result, the fire department obtained a "carry-all" type vehicle from the Transportation Motor Pool, painted it red, and equipped

it with a vast array of extrication equipment (see Appendix J). Since the vehicle was not authorized, the fire department had no additional individuals assigned for the sole purpose of operating it. Instead, one fireman during each shift was assigned the additional duty of responding to requests for the rescue vehicle.[22] While a first-aid kit was carried on the vehicle, for all practical purposes, the fire department had no medical treatment capability. Additionally, the rescue vehicle could not be used to transport a patient since the extrication equipment occupied all usable space within the vehicle.

Approximately 80 per cent of all requests for the vehicle originated from the military police. The other 20 per cent were usually initiated by individuals at the accident site, who may or may not have known of the existence of the rescue vehicle, but who called the fire department for assistance.

The fire department had three stations located at different sites to allow the optimal response time when called to any location (see Appendix G). Fire Station #1 was located at the Main Post, Fire Station #4 at Lawson Army Airfield, and Fire Station #5 at Harmony Church. One additional fire station was planned for construction at Sand Hill to cover the influx of personnel who would be occupying that area by 1978. The new fire station would also be responsible for providing

coverage to the family housing areas, Kelley Hill, and Martin Army Hospital.

The fire department had a total of 56 firemen. At the time of the study, seventeen of the firemen were enrolled in a local community college pursuing an associate degree program in fire science. Some of the firemen had been through the Georgia EMT training course, but no records were available to indicate the exact number who had completed the program. The associate degree program included some training in basic first-aid, but certainly did not equate with the requirements of the EMT program. It was interesting to note, however, that the job description of a fireman included administering first-aid and emergency resuscitation as a part of his major duties.

The fire department had its own emergency telephone number, 117, for public entry into the response system. The emergency number rang into the dispatch center at Fire Station #1 which was operational on a 24-hour basis. The dispatch center also had two-way radio communications equipment which enabled the center to communicate with each fire vehicle. Additionally, an intercom system connected Fire Station #1 with the other two stations to facilitate dispatch of the appropriate vehicle to respond to the request for assistance.

The fire department was very adaptable to an installation EMS system from two standpoints. First, it possessed a well-equipped rescue vehicle which provided an extrication

capability that was essential to the effectiveness of an EMS system. Second, the three fire stations were ideally located for the satelliting of EMS ambulances in order to reduce response times. The construction of a fourth fire station at Sand Hill would provide an ideal satellite location for EMS ambulances to support the new Sand Hill AIT/BCT complex in 1978.

Design of the EMS System

From the preceding analysis of resources, it can be seen that there were three elements which should be tied together to provide a comprehensive and coordinated EMS system for the installation. These elements were the 498th Medical Company, the Fort Benning Fire Department, and Martin Army Hospital. The basic design of an EMS system has been well established in the literature and in government publications. The primary variable in an EMS system is the choice of the base of operations. There are many excellent examples across the country of EMS systems that are based in hospitals. Similar examples can be found of fire department based systems, and systems which are operated out of the community's police department. Naturally, there are almost endless variations of these alternative designs.

Before presenting the alternative methods of basing the system at Fort Benning, a discussion of the basic design of an installation EMS system will be outlined.

There were adequate vehicles on the installation which could be modified to meet the ambulance design criteria and serve as the basic ambulance capability of the EMS system. In addition to the three van-type ambulances based at the hospital, there were four other vehicles of the same design located at the troop medical clinics. These seven ambulances, when coupled with the aircraft of the 498th Medical Company would serve to adequately cover the installation's 285 square miles, and still allow for several vehicles being inoperational for maintenance reasons. While the installation could probably be supported by fewer than seven ambulances initially, the 86 per cent increase in the post population by 1981 would necessitate the use of the maximum number of ambulances available.

In order to minimize the response time to an emergency request from any location, the ambulances should be satellited at various locations on the installation. In addition to the hospital emergency room, either the fire stations or the troop medical clinics would serve as excellent ambulance locations. However, since the EMS system must function on a 24-hour basis, the fire stations would be the more ideal choice due to their continuous operation. At least one ambulance with driver and attendant should be located at the hospital, at each of the three fire stations, and at the Sand Hill fire station when it is constructed. This method would place an ambulance in close proximity to each of the major population areas and significantly

reduce response time.

Personnel to staff the EMS system should, of course, be trained emergency medical technicians certified by the State of Georgia. This requirement should apply not only to the drivers and attendants of the ground ambulances, but also to the medical aidmen of the 498th Medical Company. The present staff of the ambulance section of Martin Army Hospital could be expanded to encompass the number of personnel required to staff a 24-hour EMS system. This would entail modifying the existing table of distribution and allowances (TDA) to account for the recognized requirements.

At the same time, consideration should be given to the civilianization of the EMS personnel spaces. Presently, by the time the military individual has become EMT qualified, and has functioned for a period of time on the job, he is due for rotation to another assignment or is leaving the service. For an EMS system to be optimally effective, the personnel who staff the system must be intimately familiar with the road network and how it is affected by weather conditions. Their basic EMT training is also enhanced by the invaluable experience they gain through the handling of actual emergencies. It can easily be seen that stabilization of the EMS personnel is essential to the effectiveness of the system. For these reasons, permanent civilian staff would be preferable to a highly unstable military staff. It should be emphasized at this point that civilization

of personnel spaces refers only to those for ambulance drivers and attendants at Martin Army Hospital and does not include the 498th Medical Company.

Provision must be made within the EMS system for adequate communications. The public must have a readily identifiable method of entry into the emergency response system and communications must be available within the system to effect the necessary control and coordination of resources.

An interview was conducted with the chief of the installation's communications system to determine if it would be feasible to implement the nationally recognized 911 telephone number as a means of public entry into the response system. Fort Benning's telephone exchange operated on a centrex system which was tied into the local Bell Telephone system. The centrex system was so designed that anytime the number 9 was the first digit dialed on a military telephone, the caller was automatically tied into the commercial net through one of the 118 connecting trunks. In order to utilize the 911 number, the entire Fort Benning telephone system would have to be rewired.[23] This, of course, made the 911 number infeasible. However, the previously discussed 112 emergency telephone number could be configured to serve the same purpose. It would merely be necessary to change the 112 line from a conference call setup to one in which the caller would be tied directly into an EMS dispatcher at the control center. The 112 number was already

recognized by a portion of the installation population as a means of obtaining emergency medical assistance. The three-digit configuration makes it easy to remember and, when given wide-spread publicity, it should provide the solution to the present public confusion.

All other EMS communications should be designed to fulfill two basic requirements: (1) management of EMS resources, namely personnel, equipment, and transportation vehicles; and (2) medical management of patients.[24] Included in the first requirement is the capability to coordinate with other hospitals as well as other major emergency resources such as fire and police departments. The medical management of patients involves two-way voice communications between ambulance personnel and physicians.

The hub of both of these basic communications requirements is the central dispatcher. All calls for emergency medical assistance should be directed to this individual. At Fort Benning, as previously mentioned, the 112 emergency telephone number should be configured to connect the caller directly to the EMS central dispatcher. The EMS dispatcher should be an individual who has been trained in the Georgia EMT-Dispatcher course. He must be given the responsibility for directing and coordinating the emergency medical resources which comprise the EMS system. In order to accomplish this, the dispatcher should have sufficient two-way radio channels to accomplish the

following:

1. Dispatch ground ambulances and aircraft.
2. Dispatch the fire department rescue vehicle.
3. Coordinate with the military police.
4. Communicate with the emergency room of Martin Army Hospital.

The central dispatcher's communications console should also be equipped to record all telephonic and radio communications to ensure that vital information is not lost. These recordings could also serve as a communications training device for the dispatcher and the emergency medical technicians.

Each ambulance should be able to communicate with both the central dispatcher and the military police. The latter capability is necessary for traffic assistance. Finally, the hospital emergency room needs to be able to communicate with the central dispatcher, the ambulance and aircraft attendants, inbound ambulances belonging to the Columbus Rescue Squad or Phenix City commercial ambulance companies, and the Columbus Medical Center which was the regional medical center for the area.

While a direct line to the Columbus Medical Center was available in the emergency room of Martin Army Hospital, this line would most likely not have been functional in a disaster situation. The Columbus Medical Center was the base station for the Columbus area under Georgia's regional hospital radio

network and was therefore capable of communicating with all local hospitals except Martin Army Hospital. The desirability of effecting a radio interface with the Columbus Medical Center could be easily seen.

Centralized control of the EMS resources was previously mentioned but is worth repeating at this point since it is a vital factor in the design of an EMS system. The central dispatcher exercises a degree of control over the resources in that an ambulance is only dispatched at his direction. Yet, there should be a higher level of control over the entire spectrum of an EMS system. This would involve control over the staffing of the system, availability of the required vehicles and equipment, initial EMT training and continuing education, as well as making the daily decisions which could affect the lives and well-being of the patient public. Such control should only be vested in one who is capable, by virtue of position and training, to bear the great responsibility inherent in the control function. For these reasons, the Chief, Emergency Treatment Service, Martin Army Hospital, should be assigned overall responsibility for the EMS system.

A final element in the design of the system is a method of evaluation and review. It was impossible, at the time of the study, to identify any special needs which might be peculiar to the installation because there was no historical data available. Information regarding each ambulance dispatch was recorded on

forms maintained by the hospital's ambulance section. However, the forms were kept for only thirty days and then destroyed. The forms still on file were, for the most part, only partially completed and would be totally useless for evaluation.

Two excellent models of ambulance report forms, which should be adopted by the Fort Benning EMS system, can be found in Annex C to APC Model #16, published by the U.S. Army Health Services Command.[25] These reports should be filled out for every ambulance dispatch and should be kept on file for a minimum period of one year. The forms would serve not only as a statistical data base for future evaluation, but would also constitute the earliest observations of the patients's condition and response to treatment and, therefore, should serve as a valuable base of reference during succeeding hospital care.

Alternative Bases for the EMS System

In deciding on a base for the EMS system, the primary considerations were that the facility be operational on a 24-hour basis, that there be adequate room for the necessary communications equipment, and that the location be relatively permanent to avoid having to relocate at a future date.

Initially, four locations were considered: (1) the military police station, (2) 498th Medical Company, (3) fire department, and (4) Martin Army Hospital. Upon closer examination, the first two locations were ruled out. The military police station was considered to be too crowded and noisy

already, without aggravating both situations with the presence of an EMS central dispatcher. The location of the 498th Medical Company was considered by the unit to be impermanent. They had moved several times during the previous year and the stability of their present location was uncertain. The choice of location, then, was narrowed to selecting between the fire department or Martin Army Hospital.

Fire Department Based System

Fire Station #1 was located on the Main Post and was the headquarters of the fire department, and the location of the fire department's dispatcher. The building which housed the dispatcher was large enough to facilitate an EMS dispatcher and the required communications equipment. The primary advantages of this location would be two-fold. First, the EMS dispatcher would benefit from the communications expertise that was present among the fire department personnel. This would be very beneficial during the early stages of the system's development. Second, the fire department personnel were intimately familiar with the installation and its road networks and would be able to assist the EMS dispatcher in selecting the quickest routes and pinpointing locations of emergencies.

There were four main disadvantages to this location. First, much of the literature pertaining to EMS recommended that the system be based in a hospital whenever possible in order to maximize the training opportunities available in an

emergency room setting. A fire department based system is counter to this recommendation.[26] Second, there would be no physicians or nurses available to assist the dispatcher in making decisions as to the existence of an actual medical emergency. Third, since the EMS dispatcher is the most critical element in the system, close supervision of this element is necessary to ensure the effectiveness of the system. A fire department based system would place the dispatcher in the fire station, away from the observation and control of the Chief, Emergency Treatment Service who must exercise overall control of the system. Finally, a fire department based system would require an expensive duplication of communications equipment. Both the EMS dispatcher and the hospital emergency room need to be able to communicate with the ambulances and aircraft, the regional medical center, and the off-post rescue squad and ambulance companies. If the dispatcher was located with the fire department, he would be unable to share his communications equipment with the emergency room.

Hospital Based System

The emergency room appeared to have adequate space to accomodate an EMS dispatcher and a communications console. There were several advantages to basing the EMS system in the hospital. A hospital based system would be in accordance with the recommendations of the professional literature. Medical decision makers would be available to assist the dispatcher in handling

difficult calls and this would probably improve the effectiveness of the system. The Chief, Emergency Treatment Service, would be able to closely monitor the functioning of the system and would be more aware of its strengths and weaknesses than if it were based in the fire department. Finally, the emergency room and the EMS dispatcher could share the communications equipment and thereby eliminate the expense of duplicating such equipment.

There were two disadvantages to a hospital based system. First, there would be no one available during the early stages of the system's implementation who was highly knowledgeable in the layout of the installation. Second, there would be no one available with extensive experience in operating communications equipment. Both of these disadvantages, however, would be negated after the first year of the system's operation.

Summary

The problem in this study was to develop a comprehensive emergency medical services system for the Fort Benning Georgia community. The objectives were: (1) to define the present method of providing emergency medical services, (2) to analyze the various installation medical resources available with regard to their emergency medical services capabilities and their adaptability to a comprehensive EMS system, and (3) to make recommendations for the development of an EMS system which would integrate the installation's medical resources into a coordinated

effort to provide emergency medical service in the most effective manner.

A review of the literature was used as a basis for determining the basic elements of an EMS system and how these elements should be combined into a cohesive whole to form the system. Extensive interviews were conducted with installation personnel in order to properly analyze the available resources and determine which could be adapted to an EMS system. It was determined that three resources should be joined together to form a comprehensive EMS system for the installation: (1) Martin Army Hospital, (2) 498th Medical Company, and (3) the Fort Benning Fire Department.

Finally, the proposed design for an installation EMS system was presented, followed by a discussion of the relative merits of a fire department based system versus a hospital based system. There were several factors which made the hospital based system the most appropriate choice. The availability of nurses and physicians to assist the EMS dispatcher in making decisions which could affect the life or well-being of the patients served pointed strongly in favor of a hospital based system. Further, a hospital based system offered training opportunities in emergency medical care for the system's personnel which would be difficult to duplicate in a fire department based system. Finally, control of the system by the Chief, Emergency Treatment Service would be enhanced by the hospital based system and duplication of communications equipment would be avoided.

Footnotes

[1]Headquarters, U.S. Army Infantry Center, Fort Benning, Georgia, USAIC Regulation 40-9: Emergency Telephone System for Reporting Accidents (Fort Benning, Georgia: 18 March 1969).

[2]Private interview with Mr. Willie C. Smith, Chief, Communications System Division, U. S. Army Communications Command Agency, Fort Benning, Georgia, 7 March 1975.

[3]Private interview with Sergeant Major Danniel, Provost Marshal Division, Directorate of Personnel and Community Activities, U.S. Army Infantry Center, Fort Benning, Georgia, 4 March 1975.

[4]Private interview with Mr. Willie C. Smith, Chief, Communications System Division, U.S. Army Communications Command Agency, Fort Benning, Georgia, 7 March 1975.

[5]Private interview with Captain Joan L. Kolenich, Head Nurse, Emergency Treatment Service, Martin Army Hospital, Fort Benning, Georgia, 11 March 1975.

[6]American Medical Association, Recommendations of the Conference on the Guidelines for the Categorization of Hospital Emergency Capabilities (Chicago: American Medical Association, 1971), p. 13.

[7]Headquarters, U.S. Army Medical Department Activity, Fort Benning, Georgia, MEDDAC Regulation 10-1: Organization and Functions (Fort Benning, Georgia: 20 January 1975), p. 3-18.

[8]Private interview with Major Paul D. Gatens, Administrative Officer, Department of Clinics and Community Health Care Services, Martin Army Hospital, Fort Benning, Georgia, 5 March 1975.

[9]Headquarters, U.S. Army Medical Department Activity, Fort Benning, Georgia, MEDDAC Regulation 700-5: Ambulance Service (Fort Benning, Georgia: 12 November 1974).

[10]Private interview with Captain Ashley, Provost Marshal Division, Directorate of Personnel and Community Activities, U.S. Army Infantry Center, Fort Benning, Georgia, 4 March 1975

[11]Private interview with Major Paul D. Gatens, Administrative Officer, Department of Clinics and Community Health Care Services, Martin Army Hospital, Fort Benning, Georgia, 5 March 1975.

[12]Private interview with Mr. Robert Stewart, Columbus Rescue Squad, Columbus, Georgia, 11 March 1975.

[13]Private interview with Captain Ken Kremenak, Commander, 690th Medical Company, Fort Benning, Georgia, 5 March 1975.

[14]Private interview with Major Jo Wolf, Training Officer, 34th Medical Battalion, Fort Benning, Georgia, 5 March 1975.

[15]Headquarters, U.S. Army Infantry Center, Fort Benning, Georgia, USAIC Regulation 40-2: Field Medical Support and Emergency Evacuation (Fort Benning, Georgia: 4 February 1974).

[16]Private interview with Captain Ken Kremenak, Commander, 690th Medical Company, Fort Benning, Georgia, 5 March 1975.

[17]Private interview with Captain Charles A. Davis, Operations Officer, 34th Medical Battalion, Fort Benning, Georgia, 5 March 1975.

[18]Ibid.

[19]Private interview with Captain Marc G. Cloutier, Operations Officer, 498th Medical Company, Fort Benning, Georgia, 6 March 1975.

[20]Ibid.

[21]Ibid.

[22]Private interview with Mr. Robert Young, Chief, Fort Benning Fire Department, Fort Benning, Georgia, 7 March 1975.

[23]Private interview with Mr. Willie C. Smith, Chief, Communications System Division, U.S. Army Communications Command Agency, Fort Benning, Georgia, 7 March 1975.

[24]American Hospital Association, A Guide for Hospital Participation in an Emergency Medical Communications System (Chicago: American Hospital Association, 1973), p. 13.

[25]Headquarters, U.S. Army Health Services Command, Fort Sam Houston, Texas, Ambulatory Patient Care Model #16 (Fort Sam Houston, Texas: August, 1974), Annex C.

[26]Ken E. Jensen, "A Hospital-based Ambulance Service," Hospitals, XLVI, No. 6 (1972), 65-69.

CHAPTER III

CONCLUSION AND RECOMMENDATIONS

Conclusion

Fort Benning should implement a hospital based EMS system utilizing the ambulance resources of Martin Army Hospital, the rescue vehicle of the fire department, and the aircraft of the 498th Medical Company.

Recommendations

The following recommendations are made:

1. A communications center with a 24-hour dispatcher operation should be established in the emergency room of Martin Army Hospital. All dispatchers should receive the EMT-Dispatcher training course.

2. A current minimum of five ambulances should be upgraded to meet the Department of Transportation's ambulance design criteria for utilization in the EMS system. To meet the future needs precipitated by Project CONCISE, two additional ambulances should be available by July, 1981.

3. Ambulances should be under the control of the Chief, Emergency Treatment Service and distributed in areas of population density in order to minimize response times. The proposed distribution of ambulances is as follows: Two ambulances located at Martin Army Hospital emergency room; one at Fire Station #1,

Main Post; one at Fire Station #4, Lawson Army Airfield; and one at Fire Station #5, Harmony Church. When the Sand Hill BCT/AIT complex begins operation in July, 1981, one additional ambulance should be stationed at the fire station which is to be constructed at Sand Hill.

4. The fire department rescue vehicle, an integral part of the EMS system, should be responsive to the EMS central dispatcher and used in each situation requiring extrication of patients.

5. The 34th Medical Battalion should continue to provide on-site medical support for training functions and other activities of the U. S. Army Infantry Center, but should not be integrated into the EMS system. Ambulances of the 34th Medical Battalion should only be used as a method of patient evacuation when no organic resource of the EMS system is available. That decision should only be made by the EMS dispatcher and the emergency room staff.

6. Calls for ambulance service from off-post locations should be referred to the Columbus Rescue Squad or one of the three commercial ambulance companies in Phenix City, Alabama. Off-post dispatches should be made only in the event that the rescue squad or ambulance company cannot respond.

7. All ambulances, including aircraft, should carry the 24 essential items of equipment as recommended by the American College of Surgeons. Additionally, minimal extrication

equipment should be available at each ambulance location to be carried aboard the ambulance when the situation warrants.

8. All EMS personnel should have EMT certification by the State of Georgia. Additionally, all should be trained in radio communications procedures.

9. All EMT's should be adequately trained and have the authority to administer drugs, start IV's, and perform cardiopulmonary resuscitation to include cardiac defibrillation when the capability exists.

10. All EMS personnel should be under the direct control and supervision of the Chief, Emergency Treatment Service, Martin Army Hospital, and the TDA should be changed to recognize the emergency dispatcher, ambulance driver, and attendant positions.

11. Since an EMS system can only be optimally effective when EMT personnel are thoroughly familiar with the operating geographical area and are highly trained and experienced, the EMT positions should be civilianized to ensure the necessary stability and continuity of operations.

12. The existing 112 telephone number should be modified so that anyone dialing the number is tied directly into the EMS dispatcher without going through the telephone exchange operator. The 112 number should also be modified to remove the other extensions presently in operation at the military police station, Lawson Army Airfield, 498th Medical Company, the

emergency room, and Range Control. All calls on the 112 line should be recorded to ensure that no essential information from the caller is lost.

13. The 112 emergency telephone number should be extensively advertised through a multi-media approach to ensure that the public recognizes it as the single mode of entry into the emergency medical response system.

14. The present Fort Benning telephone directory should be amended to delete the entries: EMERGENCY AMBULANCE ... 544-1123, and EMERGENCY RESCUE AND EVACUATION ... 112. These entries should be replaced with the single entry EMERGENCY AMBULANCE AND RESCUE ... 112.

15. The dispatcher communications center should have sufficient communications equipment to facilitate the following required radio communications:

a) Dispatcher/ER physician to EMS ambulance and aircraft.

b) Dispatcher to military police.

c) Dispatcher to fire department.

d) Dispatcher/ER to Columbus Rescue Squad.

e) Dispatcher/ER to Columbus Medical Center.

Additionally, the capability for recording of all radio traffic should be included to serve as an evaluation and training device.

16. Each ambulance should be equipped with two-way radios

to facilitate communication with the EMS dispatcher, Martin Army Hospital emergency room physicians, and military police, the latter for traffic control and assistance. Each ambulance should also have a portable radio to facilitate out-of-ambulance communication with the emergency room staff and the dispatcher.

17. All ambulance and aircraft responses to emergency requests should be recorded on the forms recommended in U.S. Army Health Services Command's Ambulatory Patient Care Model #16. These forms, in addition to providing necessary and vital medical information on the patient, will provide information to enable a data base to be developed for continuing evaluation of the EMS system.

Areas for Further Study

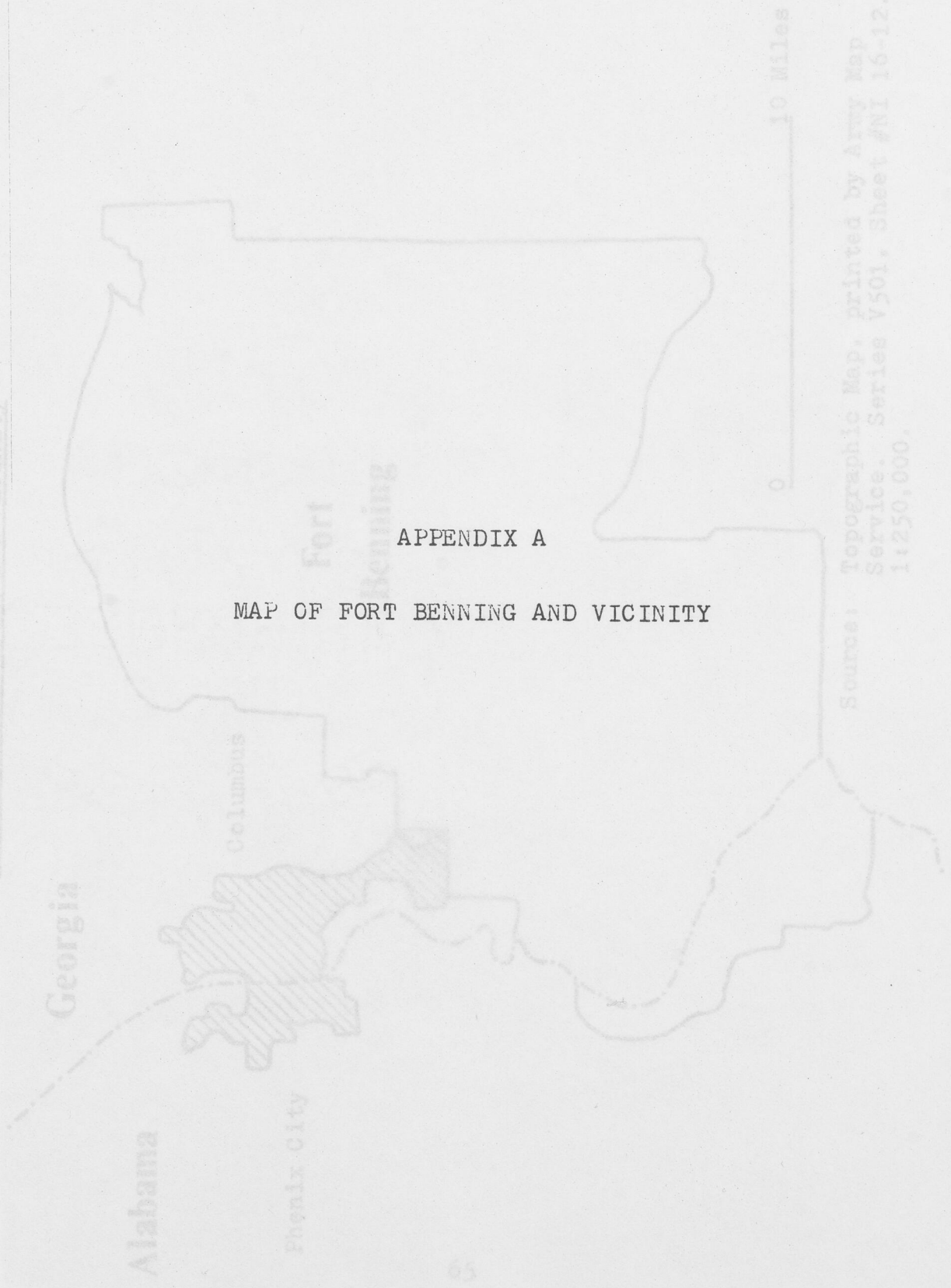
The following areas, which might enhance the effectiveness of the EMS system, are worthy of further study:

1. The development of an EMT training program within Martin Army Hospital.

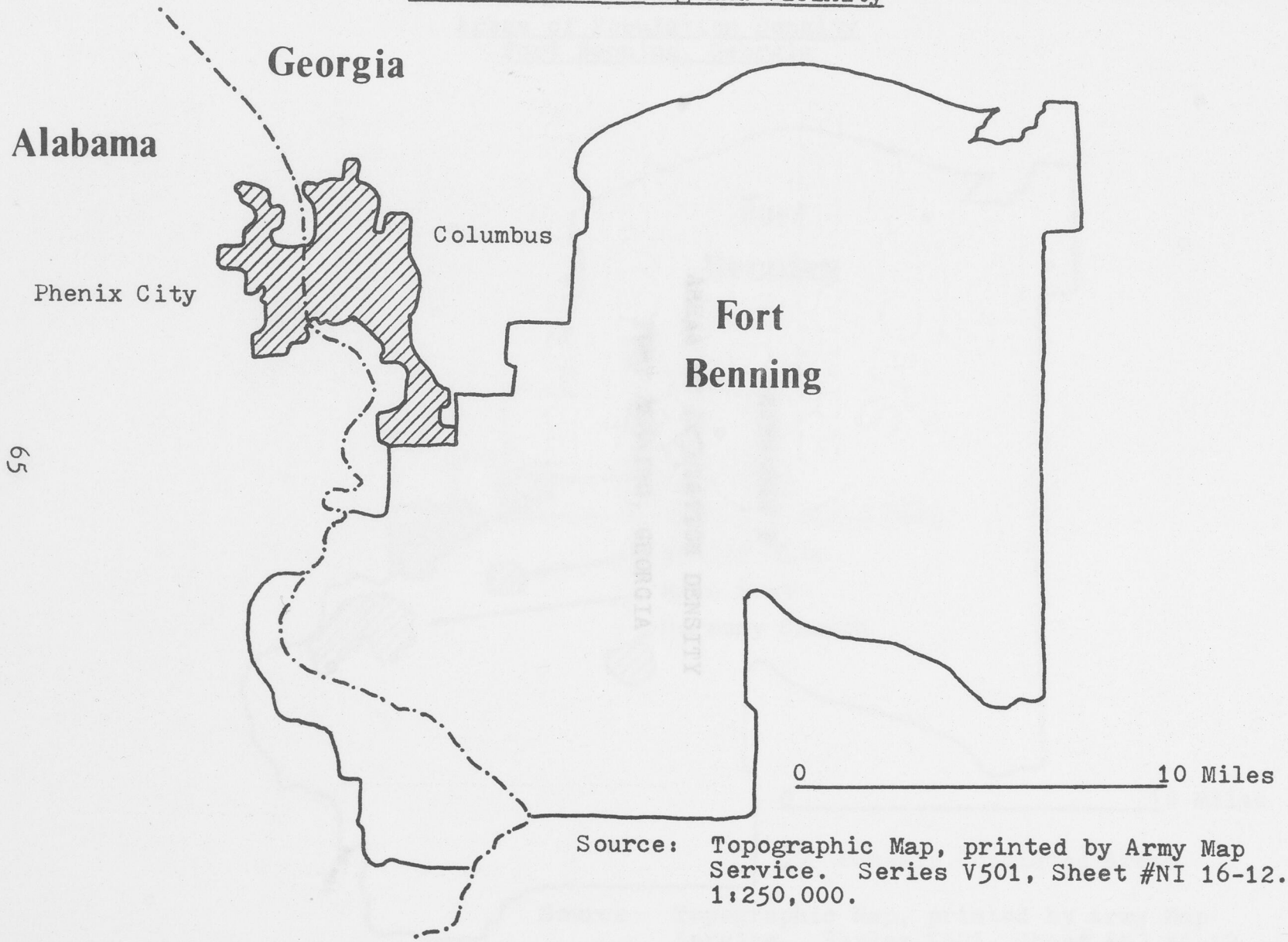
2. The feasibility of implementing a medical telemetry capability.

APPENDIX A

MAP OF FORT BENNING AND VICINITY



Map of Fort Benning and Vicinity

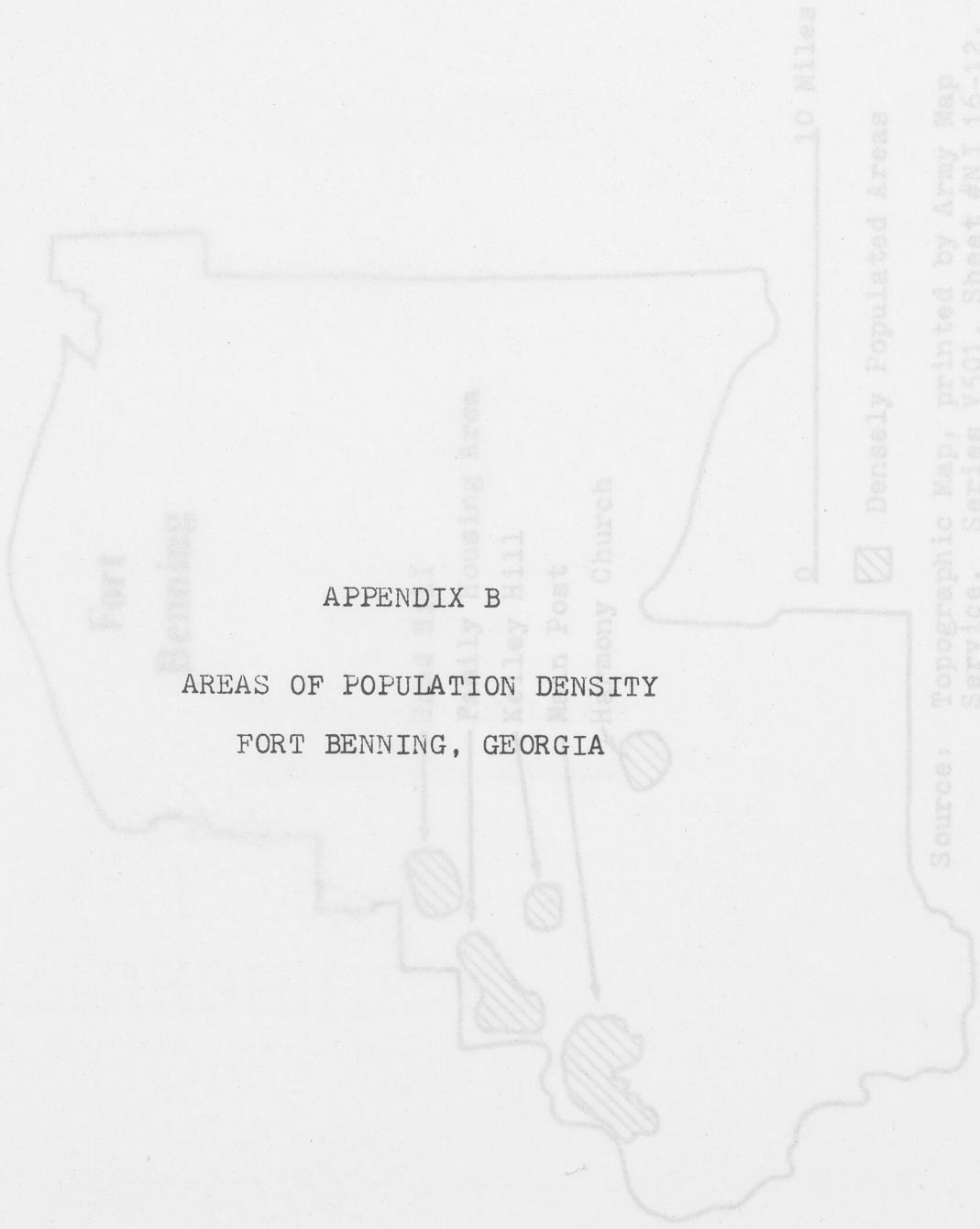


Source: Topographic Map, printed by Army Map Service. Series V501, Sheet #NI 16-12. 1:250,000.

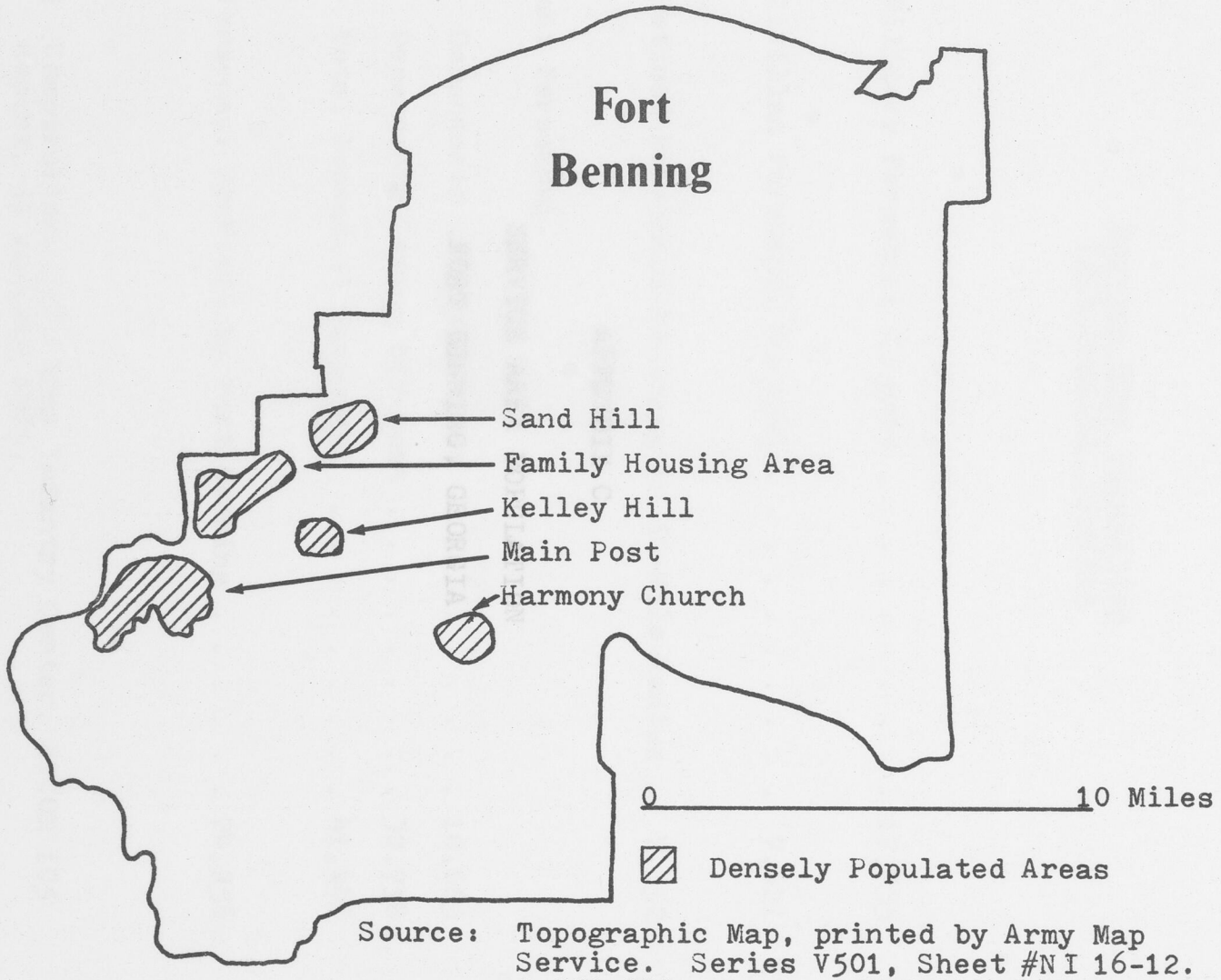
APPENDIX B

AREAS OF POPULATION DENSITY

FORT BENNING, GEORGIA



Areas of Population Density
Fort Benning, Georgia



Source: Topographic Map, printed by Army Map Service. Series V501, Sheet #N I 16-12. 1:250,000.

APPENDIX C

SERVICE AREA POPULATION

FORT BENNING, GEORGIA

Service Area Population
Fort Benning, Georgia

Total Military Personnel On-post	17,835
Total Civilian Personnel On-post	7,621
Total Retired Personnel Residing in 50-Mile Radius	7,352
Dependent Personnel:	
Dependents Living On-post	10,663
Dependents Living Off-post	30,758
Total Dependent Personnel	41,448
Total Personnel Serviced by Fort Benning	74,256

Source: Comptroller, U.S. Army Infantry Center, ATCOM 105 Report, 31 January 1975.

APPENDIX D

ESSENTIAL EQUIPMENT FOR AMBULANCES

Essential Equipment for Ambulances

1. Portable suction apparatus, with wide-bore tubing and rigid pharyngeal suction tip.
2. Bag-mask ventilation unit, hand-operated, with adult, child, and infant-size masks. Clear masks are preferable. Valves must operate in cold weather, and unit must be capable of use with oxygen supply.
3. Oropharyngeal airways, adult, child, and infant sizes.
4. Mouth-to-mouth artificial ventilation airways, for adults and children.
5. Portable oxygen equipment, with adequate tubing and semi-open, valveless, transparent masks in adult, child, and infant sizes.
6. Mouth gags, either commercial or made of three tongue blades taped together and padded.
7. Sterile intravenous agents, preferably in plastic bags, with administration kits.
8. Universal dressings, approximately 10 inches by 36 inches, compactly folded and packaged in convenient size.
9. Sterile gauze pads, 4" x 4".
10. Bandages, soft roller, self-adhering-type, 6" by 5 yards.
11. Aluminum foil, roll, 18" x 25', sterilized and wrapped.
12. Adhesive tape, two rolls, 3" wide.
13. Burn sheets, two, sterile.
14. Traction splint, lower extremity, hinged half-ring (ring 9" dia., overall length of splint 43"), with commercial limb-support slings, padded ankle hitch, and traction strap.
15. Padded boards, two or more, 4-1/2 feet long x 3 inches wide. Padded boards, two or more, 3 feet long, of material comparable

to 4-ply wood for coaptation splinting of leg or thigh.

16. Padded wooden splints, two or more, 15" x 3", for fractures of the forearm (by local option, similar splints of cardboard, plastic, wire-ladder, or canvas slotted lace-on may be carried in place of the above 36" and 15" boards).

17. Inflated splints, uncomplicated, in addition to item #16 above, or as substitute for the short boards.

18. Back boards, short and long, with accessories (adult and child).

19. Triangular bandages.

20. Safety pins, large size.

21. Obstetrical kit, sterile.

22. Shears, for bandages.

23. Poison kit.

24. Blood pressure manometer, cuff, and stethoscope.

Source: Bulletin, American College of Surgeons, May 1970

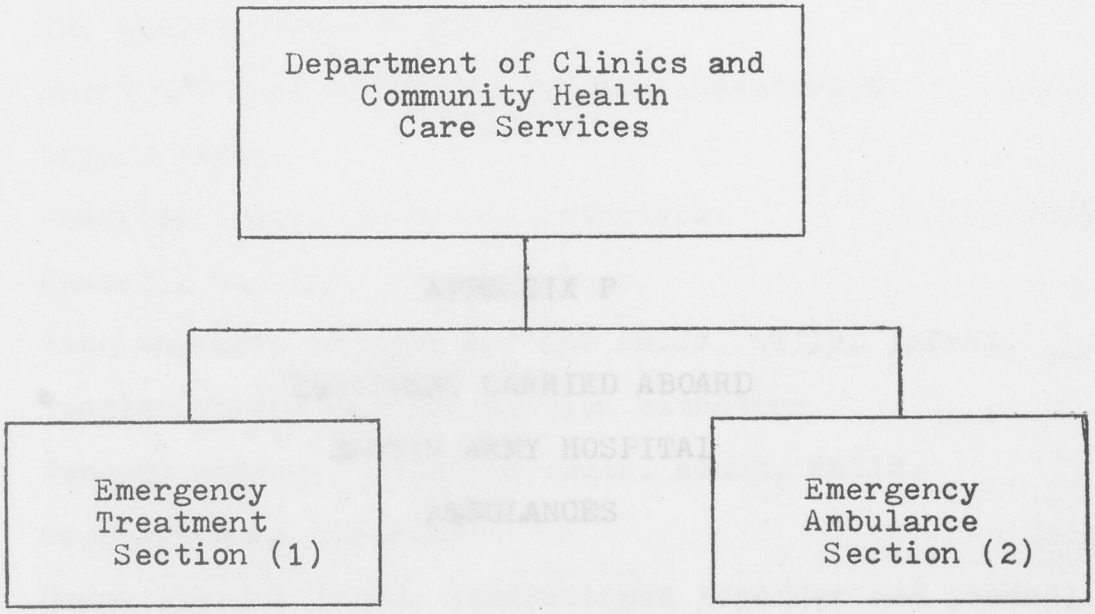
APPENDIX E

ORGANIZATION OF EMERGENCY TREATMENT SERVICE

MARTIN ARMY HOSPITAL

FORT BENNING, GEORGIA

Organization of Emergency Treatment Service
Martin Army Hospital, Fort Benning, Georgia



Note 1: Medical Attendants are assigned to Department of Nursing.

Note 2: Ambulances are the responsibility of Supply and Services Division.

Source: Major Paul D. Gatens, Administrative Officer, Department of Clinics and Community Health Care Services, Martin Army Hospital, Fort Benning, Georgia.

APPENDIX F

EQUIPMENT CARRIED ABOARD
MARTIN ARMY HOSPITAL
AMBULANCES

Equipment Carried Aboard Martin Army Hospital Ambulances

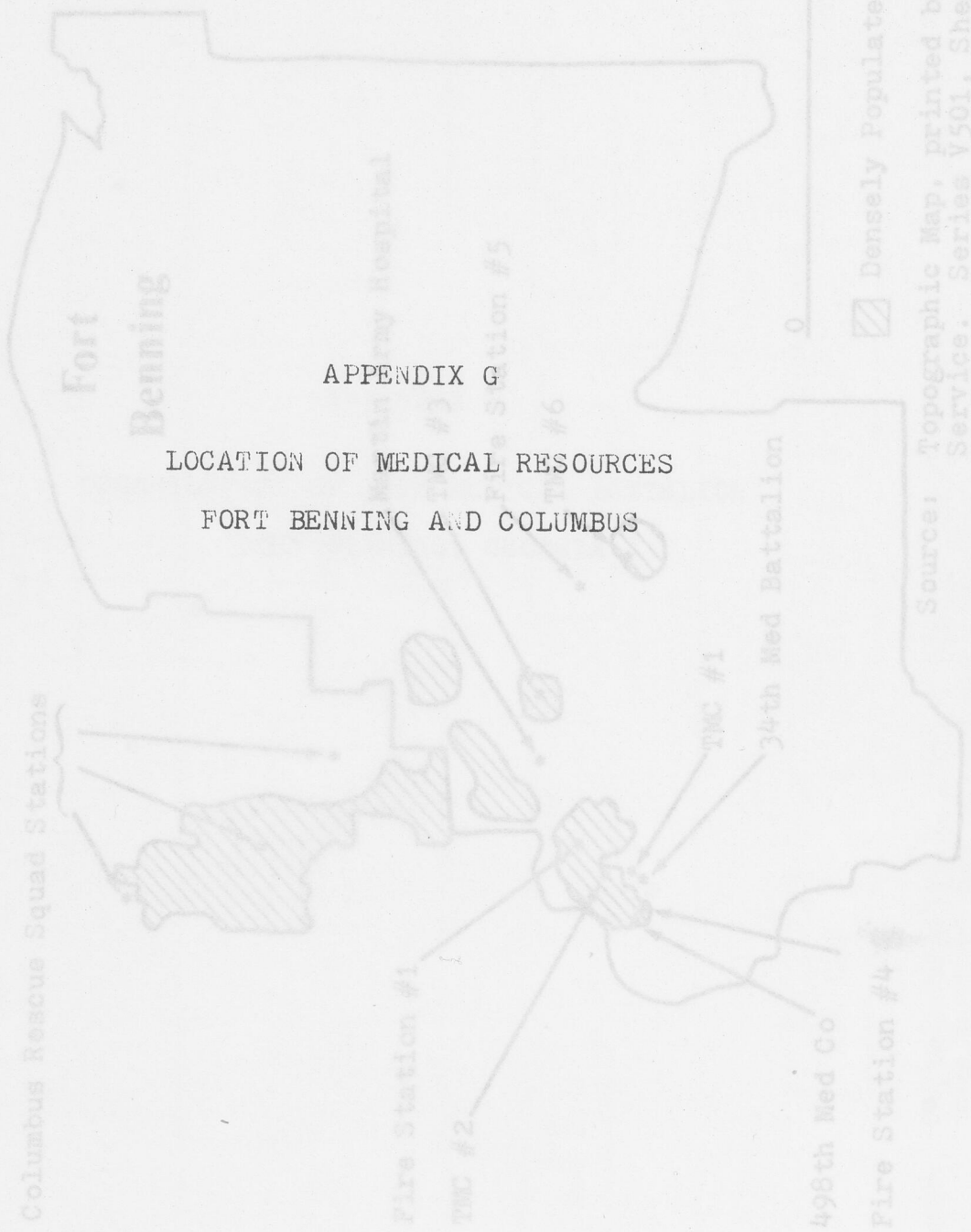
1. Hare leg splint.
2. Inflatable foot/ankle - wrist/arm/leg splints.
3. Two padded basswood splints.
4. Short and long spine boards with accessories.
5. Oxygen tanks.
6. Assorted oxygen masks and catheters.
7. Assorted bandages and dressings.
8. Ambu-bag with accessories for adult, child, infant.
9. Suction apparatus with suction catheters.
10. Two-way airways, mouth-to-mouth, adult, child.
11. Oropharyngeal airways.
12. Mouth gags (3 tongue blades taped together and padded).
13. Assorted sizes of adhesive tape.
14. Triangular bandages.
15. Safety pins (large size).
16. Shears for bandages.

Source: SP6 Robert S. McCoy, Emergency Treatment Service, Martin Army Hospital, Fort Benning, Georgia.

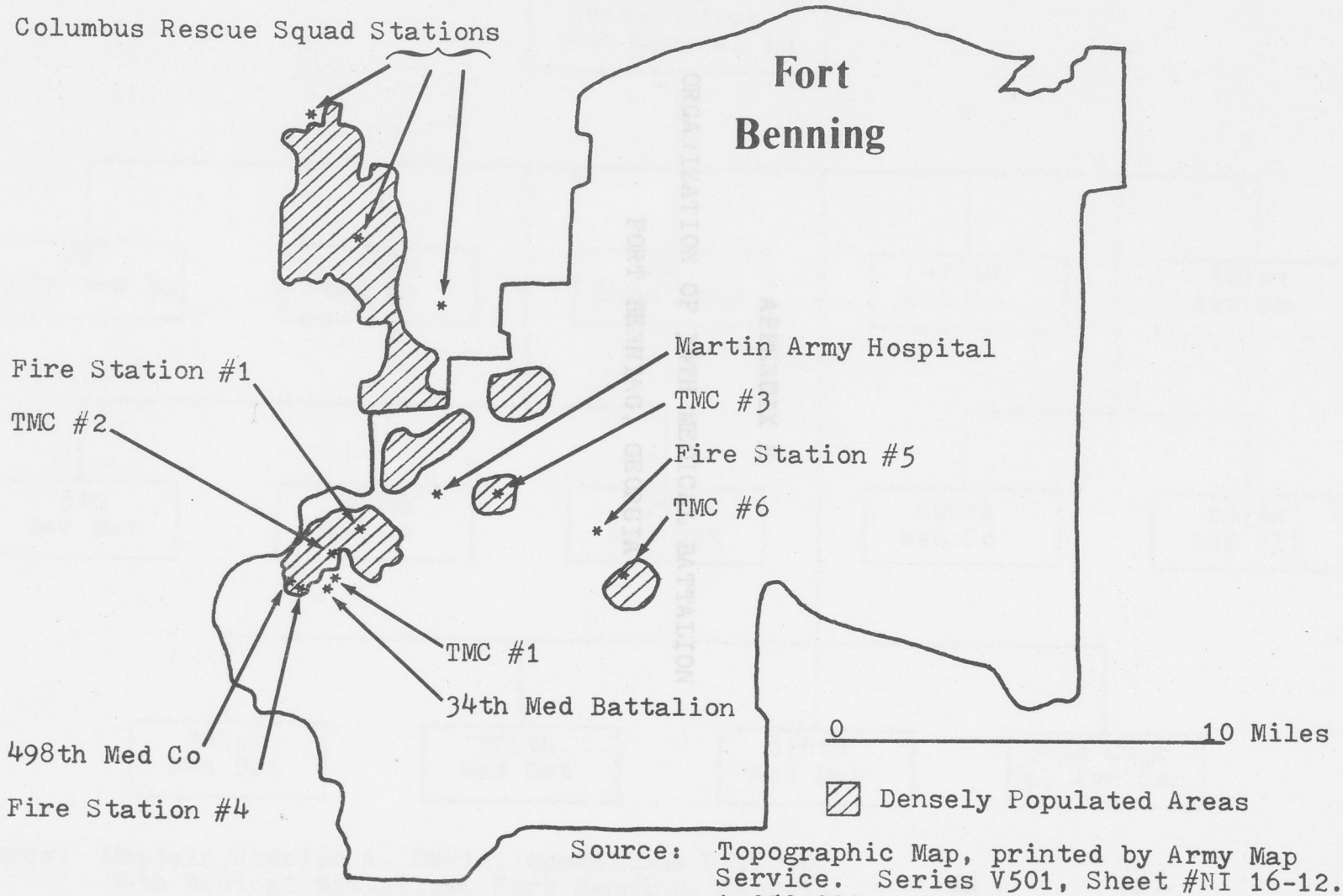
APPENDIX G

LOCATION OF MEDICAL RESOURCES

FORT BENNING AND COLUMBUS



Location of Medical Resources
Fort Benning and Columbus

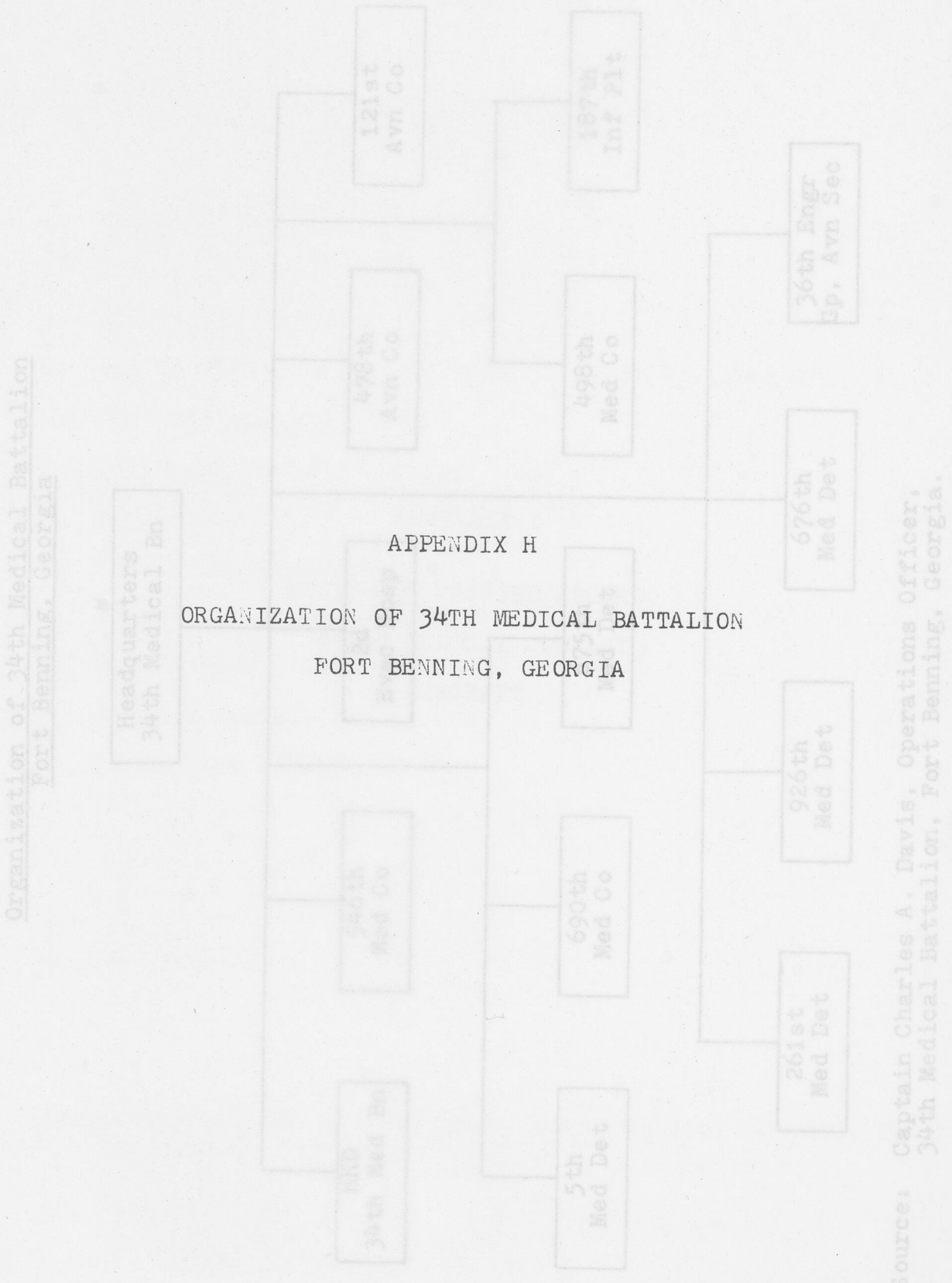


Source: Topographic Map, printed by Army Map Service. Series V501, Sheet #NI 16-12. 1:250,000.

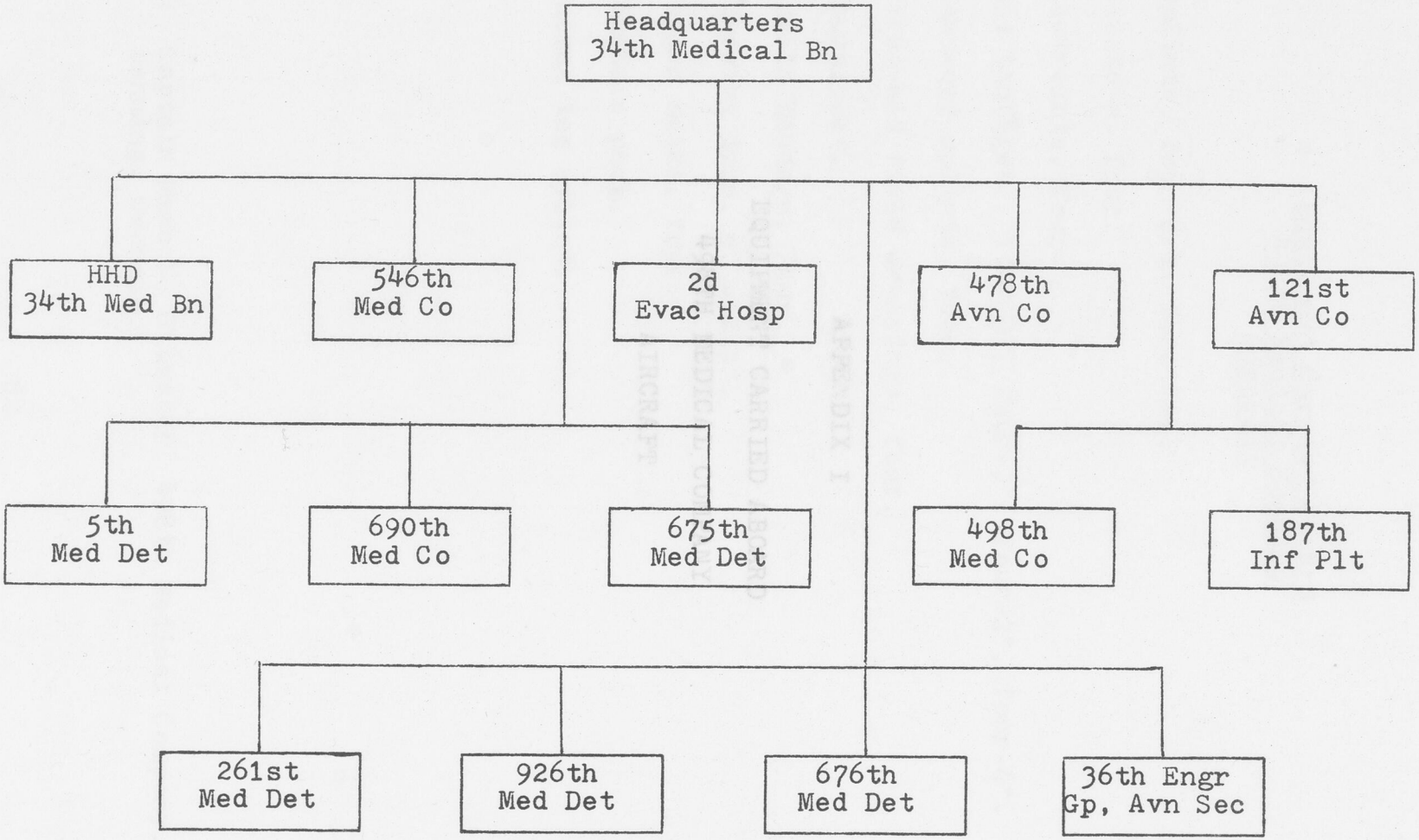
APPENDIX H

ORGANIZATION OF 34TH MEDICAL BATTALION

FORT BENNING, GEORGIA



Organization of 34th Medical Battalion
Fort Benning, Georgia



Source: Captain Charles A. Davis, Operations Officer, 34th Medical Battalion, Fort Benning, Georgia.

APPENDIX I

EQUIPMENT CARRIED ABOARD
498TH MEDICAL COMPANY
AIRCRAFT

Equipment Carried Aboard 498th Medical Company Aircraft

1. Splints, four arm, four leg.
2. Blankets, four.
3. Restraints, four.
4. Ace bandages: four-4", four-3", four-2", four-6".
5. Basswood splints, four.
6. First-aid field dressings, four.
7. Tourniquet.
8. Muslin bandage, four.
9. Adhesive tape, 4" and 1".
10. Oxygen masks, four.
11. Fracture pack.
12. Thomas leg splint.

Source: Captain Marc G. Cloutier, 498th Medical Company, Fort Benning, Georgia.

APPENDIX J

EQUIPMENT CARRIED ABOARD
FIRE DEPARTMENT
RESCUE VEHICLE

Equipment Carried Aboard
Fire Department
Rescue Vehicle

1. Bolt cutters.
2. Oxy-acetylene cutting torch.
3. Smoke ejectors.
4. Generator with flood lights.
5. Lowering Device.
6. Lowering body harnass.
7. Pomper belt and "D" attachment.
8. Air mask, self-contained.
9. Tourniquet, pneumatic.
10. Vacuum unit, surviv-air salvage master.
11. Port-a-power jacks, 5 and 10 ton.
12. K-12 saw.
13. Electric metal saw.
14. Flameproof blankets, four.
15. Pick-head axe.
16. Pistol-grip light.
17. Litter bags (human remains).
18. First-aid kit.
19. Assortment of forcible entry tools.
20. Electrical jack-pullers, ropes, canvas litter.

Source: Mr. Robert Young, Chief, Fort Benning Fire Department.

APPENDIX K

DEFINITIONS

Definitions

Emergency medical services (EMS): the services utilized in responding to a medical emergency in order to prevent loss of life or further aggravation of illness or injury.

Emergency medical services system: the arrangement of personnel, facilities and equipment in a community or regional network to provide for detection and reporting of medical emergencies, initial care at the scene, transportation and care en route to a medical facility, and care of the patient until he is discharged, referred, or admitted for definitive medical care.

Emergency medical technician (EMT): an individual who has completed, as a minimum, the Department of Transportation 81-hour Basic Training Program for Emergency Medical Technician-Ambulance and is registered as an EMT at either the state or national level.

Mag-drop line: remote telephone terminals located throughout the Fort Benning installation. The terminology derives from the earlier use of a magneto device to generate a telephone signal.

Medical emergency: an unforseen event affecting an individual in such a manner that a physiological or psychological need for immediate medical care is created or perceived.

Medical telemetry: the transmission of biological data from a living subject to a monitoring point by means of radio or wire circuits.

UHF: ultrahigh frequency. The radio frequencies between 300 and 3000 megahertz (MHz).

VHF: very high frequency. The radio frequencies between 30 and 300 megahertz (MHz).

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