A STUDY OF THE MATERIEL MANAGEMENT EDUCATION AND TRAINING PROGRAM FOR MEDICAL SUPPLY OFFICERS SERVING IN THE UNITED STATES ARMY MEDICAL DEPARTMENT

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ABSTRACT

The problem discussed in this study is that of developing specific recommendations that would improve the materiel management education and training program for medical supply officers serving in the United States Army Medical Department. The study analyzed and evaluated the career management pattern for medical supply officers serving in the Army Medical Department, as well as their educational and training opportunities. Current military and civilian writings were reviewed on the general subjects of management, logistics management, materiel management, education and training.

Management of the medical materiel system has become a highly complex and sophisticated activity. At the present time only twenty-four per cent of the Army's career medical materiel managers are formally educated in graduate level management techniques and skills. These officers received their education through attendance at advanced service schools or graduate programs conducted at civilian institutions.

The study concluded that the present materiel management education and training program of the Army Medical Department provides too few of its medical supply officers with graduate level management education and recommended the establishment of a graduate level medical materiel management course at the United States Army Medical Field Service School.

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CHAPTER I

INTRODUCTION

Management, as it is viewed today, would seem to encompass all of civilization. If we accept the theory that all civilized activity is generally purposeful, then the management function would appear to be indispensable in guiding human activity toward its goals. Generally speaking, management is involved whenever we set implied or stated objectives for our endeavors and then bring to bear the factors of men, money and materiel, which can contribute to their realization.[1]

Management has far from a standard meaning, although most authors in the field generally agree that it involves getting things done through and with people. However, for purposes of this discussion, it would appear more appropriate to select a definition that clearly points up a concern for objectives and their attainment. A precise definition along this line is provided by the Air Force's The Management Process:[2] "Management is defined as a process of organizing and employing resources to accomplish predetermined objectives. . . . The proof of success of management is operational effectiveness." Management, in this sense, is viewed as a process or as a function.

Management can be both an art and a science. As such, it is no longer practiced solely by instinct and experience. Rather, modern management has become a painstaking and orderly process designed to

demonstrate, both objectively and statistically, the nature and characteristics of significant cause and effect relationships.[3] Today's modern manager must keep abreast of the knowledge explosion going on all around him. His background must include a knowledge of organizational principles, behavioral science, information systems, systems analysis, financial management, quantitative methodology and operations research, to name but a few. The successful manager in today's environment requires a greater depth of knowledge than experience alone can provide him. He must be educated and trained in the art and science of management.

Professionalization of the managerial elite has probably progressed further in the United States than in any other advanced industrial country.[4] The status which management now enjoys in the social and economic scale of American occupations and professions provides a serious challenge to the Armed Forces in their competition with American firms and industry for managerial manpower. The challenge and the rewards of success in civilian firms and industries have long been recognized as a serious deterrent to the choice of a military career by the thousands of young men who complete their obligated military service and subsequently return to civilian life. This competition for managerial manpower has been heightened by the recent trend toward company sponsored programs of continuing managerial education and training. While this concept of continuing professional development is inherent in the training programs of the Armed Forces, the acceleration of such programs in civilian firms and industries has created a serious challenge in excellence.

Management within the Department of Defense has been experiencing a revolution during the decade of the sixties. The sharp and continuing rise in defense costs has been accompanied by new management techniques, procedures and controls aimed at achieving the best utilization of available funds.

> This impact will be felt in the application of new management techniques, in the structuring of forces, in the refinement of methods for assessing readiness, and in the types and quantities of weapon systems that are procured. The integration and hardening of the requirements and allocations of manpower, materiel, dollars, and readiness into a total resource management package will result in improved management and, therefore, a better Army.[5]

There is no management responsibility in industry that is equivalent in scope or complexity to the responsibility for materiel management within the Department of Defense supply system.[6] Some problems arise simply from the size and diversity of the Department of Defense inventory, the value of the physical facilities involved and the numbers of personnel required to accomplish the materiel management mission. Additional problems arise from the absence of a profit motive, the lack of competition and the requirement to utilize modern logistical management systems to efficiently and economically meet both peacetime and emergency situations. Superimposed upon all of these problem areas are the limited manpower, money and materiel made available for defense.

The complexities and responsibilities of materiel management within the Department of Defense become no less demanding as the scope of the management responsibility narrows. Irrespective of service affiliation, any program of materiel management within the Department of Defense must include, as a minimum, two basic components:

1. A continuing emphasis on assessing performance in terms of its cost.

2. A thorough understanding of the materiel management function, not in terms of its individual elements, but in terms of an interrelated chain of management activities that encompasses procurement, storage, inventory, distribution, consumption and disposal.

Compounding the overall requirements for materiel management are the individual complexities of the commodities themselves. The logistical support system of the Department of Defense has long recognized that certain commodities possess peculiarities or characteristics that make them sufficiently distinctive so that they must be managed separately by specially trained personnel. One such commodity is medical materiel. Its distinction is vested not only in the peculiarities of the commodity itself, but also in the highly specialized requirements that are generated by the patient and the physician.

The medical supply officer serving in the United States Army Medical Department is charged with the management and direction of a highly complex and sophisticated supply system, a supply system that must be as responsive to the demands of an infantry division operating on some distant battlefield as it is to the multitudinous professional and administrative demands of a major medical center. The difficulty is in educating this individual whose awareness and comprehension must span so many of the managerial and professional dictates of a highly responsive supply system. If we cannot present the many aspects of managerial specialization within a total management concept, then it must follow

that his decisions will be fragmented and limited when he actually functions as a medical materiel manager.

Footnotes

[1]Fred R. Brown, "Management and Human Enterprise," in Management: Concepts and Practice, National Security Management Series (Washington: Industrial College of the Armed Forces Press, 1967), p. 1.

[2]United States, Department of the Air Force, The Management Process, Air Force Manual 25-1 (Washington: Government Printing Office, 1954), p. 2.

[3]Brown, "Organization and Management," Management, p. 14.

[4]Fredrick Harbison and Charles A. Myers, "American Management in Perspective," ibid., p. 227.

[5]Lt. Gen. Ferdinand J. Chesarek, "New Techniques for Managing Men and Materiel," Army, XVII, No. 10 (October, 1967), 51-52.

[6]Thomas M. Whitin, The Theory of Inventory Management (Princeton: Princeton University Press, 1967), p. 165.

CHAPTER II

THE PROBLEM

Statement of the Problem

The problem is to develop specific recommendations that will improve the materiel management education and training program for medical supply officers serving in the United States Army Medical Department.

Objectives

The objectives of the study are to:

1. Analyze and evaluate the existing materiel management education and training program for medical supply officers serving in the Army Medical Department.

2. Discuss and evaluate alternative methods for providing these officers with the necessary theories, principles, concepts and techniques that will permit them to perform more efficiently in executive level decision-making positions within the medical materiel system.

Criteria

The materiel management education and training program for the medical supply officer serving in the Army Medical Department must ultimately provide the individual with the ability to:

1. Compute initial medical materiel requirements and compute and forecast replenishment requirements.

2. Efficiently and economically acquire medical materiel at the installation and inventory control point level.

3. Efficiently and economically manage medical inventories at the installation and inventory control point level.

4. Efficiently and economically control property in use at Army Medical Department installations and activities.

5. Efficiently and economically manage all service elements assigned to the hospital's Supply and Services Division.

6. Efficiently and economically program and budget for all materiel and services required by Army Medical Department facilities.

7. Determine objectives; develop plans, policies and procedures; and efficiently and economically control and evaluate all elements of the medical materiel system.

8. Efficiently and economically manage the world-wide distribution of medical materiel.

9. Evaluate alternatives for decision making in qualitative and quantitative terms.

10. Utilize the scientific method in problem solving.

11. Formulate a personal philosophy of management.

Factors Bearing on the Problem

The Army Medical Department currently conducts four separate courses exclusively designed for the training of its medical supply officers: the Medical Supply and Services Course, the Medical Depot Inventory Management Course, the Medical Depot Storage Course and the Procurement Officers Program for Medical Service Corps Officers.

The Army Medical Department is afforded the opportunity of enrolling a limited number of its medical supply officers in the Army Logistics Management Course conducted at the United States Army Logistics Management Center.

Assumptions

1. Promotions for commissioned officers of the United States Army will continue at their present accelerated rate.

2. The primary military occupational specialty (MOS) for medical supply officers will continue to be awarded only after completion of a one-year utilization tour.

3. Within the Department of the Army the trend toward a separate and distinct medical materiel system will continue.

Research Methodology

This study was begun in September, 1967, when the author initiated an analysis and evaluation of the ten-week Medical Supply and Services Course conducted at the United States Army Medical Field Service School. While this program of instruction was being revised, a concurrent analysis was made of the career management pattern for medical supply officers serving in the Army Medical Department. This analysis included a review of educational and training opportunities and of duty assignment patterns.

Programs of instruction for courses specifically designed for the education and training of medical supply officers of the Army Medical Department were reviewed and evaluated. In addition, programs of

instruction for any courses conducted at the Army Logistics Management Center that regularly have medical supply officers in attendance were similarly analyzed. Finally, the curriculum of the United States Army Medical Department Advanced Course was subjected to a like review. The purpose of these studies was to evaluate the specific content of those courses that presently comprise the education and training base for the medical supply officer.

A survey of the current literature relevant to the problem was undertaken. This review covered both military and civilian writings on the general subjects of management, logistics management, materiel management, education and training. This review was undertaken in order to gain some insight into the magnitude of these areas and to determine more precisely what subject matter should be included within a program of management training and education for materiel managers.

In May, 1968, the author attended an institute for medical materiel management held in Denver, Colorado, under the auspices of the Army Medical Department. Interviews with leading medical materiel managers of the Army Medical Department were conducted to determine their specific requirements for levels of knowledge by grade and position. Their views on education and training were similarly solicited. Additional interviews were held with officers of varying experience and education serving in the medical materiel field in order to obtain their thoughts on patterns of assignments and education.

Representatives of the United States Air Force and the United States Navy were consulted regarding the content of their programs of education and training in medical materiel management. Selected college

and university programs were reviewed in order to evaluate the methodology employed in the study of the materiel management function.

CHAPTER III

REVIEW OF THE LITERATURE

Medical Materiel Management in the Military Environment

The Department of Defense has recognized that the medical commodity possesses certain peculiarities or characteristics that require its management by specially trained personnel. The necessity for this specialty training is required by the characteristics of the commodity itself and by the dictates of the medical profession.[1] Responsiveness is the keynote of a materiel support system in which the needs of the patient must be paramount.

By regulation, the mission of the Army Medical Department is to maintain the health of the Army and conserve its fighting strength.[2] Also, the Army Medical Department has responsibility for all medical services provided within the Department of the Army. Consequently, the Army Medical Department is a completely functionalized, Army-wide system that includes all services related to the health of the Army and to the care and treatment of patients. These services include, among others, hospitalization, evacuation, dental service, veterinary service, laboratory service, optometry service, preventive medicine services, and medical supply and maintenance services, all of which are inextricably interwoven with patient care.

Medical supply officers serving in the United States Army perform their management functions at every echelon of the organizational

structure of the Army. The organization for medical materiel management extends from levels of national policy development, where objectives are defined and dollar and statutory limitations are established, down to the lowest echelon of the military establishment. The size of the medical materiel system is equaled by the complexity of its operations. The supply of some critical items is planned and controlled at the highest level in the medical materiel system. Other items are left to the discretion of the local medical supply officer at an Army installation.

All of the varying processes of medical materiel management have a common end--to support the current or planned operations of the Army--and all have a more or less integral relationship with each other. To provide for the management of medical materiel operations, the entire process breaks down into functions constituting a medical materiel management system:

1. The computation of medical materiel requirements.
2. The procurement of medical materiel.
3. The management of medical inventories.
4. The storage and distribution of medical materiel to meet the needs of the consumer.
5. The maintenance of medical materiel.
6. The disposal of surplus medical materiel.

These components of the medical materiel management system follow a logical sequence: requirements, procurement, inventory, distribution, maintenance and disposal.

In the management of an operating supply system the supply cycle may be encountered in many different stages and forms at any given moment. The interrelationship of requirements, procurement,

inventory, storage and distribution, maintenance and disposal at all levels makes it impossible to manage any one function as an element isolated from the others.[3]

Management and the Materiel System

It has been said that "management is what managers do." This statement suggests that the total process of management should be viewed in terms of the characteristic and common activities of the occupation. One well-known simplified breakdown of the duties of a manager is that of Luther Gulick; it consists of planning, organizing, staffing, directing, coordinating, reporting and budgeting.[4]

Any meaningful medical materiel management training and education program should be capable of merging the seven activities of the management process with the six functions of the medical materiel management system. An integrated, overall training and development program for medical materiel managers must include a developmental plan which will enable orderly progression from one level of managerial responsibility to each succeeding higher level.

Such a developmental plan should give attention to three major aspects.

1. Technical and professional needs in the functional areas.

2. Conceptual skills, including principles of organization and the management processes.

3. Human skills involving the manager's own personal effectiveness.[5]

In developing such an educational program, extreme care must be exercised in the presentation of these functional activities concerned

with materiel management. Materiel management is an integrated activity. The systems approach to management, electronic data processing and automation are all major forces working to broaden the acceptance of the total materiel management concept. Materiel management can best be viewed as a specialized application of the principles of economics and management.[6]

Fundamental to an understanding of materiel management, therefore, is an understanding of the principles of management and the tools of modern management. An increasing emphasis has been placed upon the speed and efficiency of supply operations. To an increasing degree, materiel management is being looked upon as a subsystem operating within an overall management system. The materiel manager must, therefore, have a working knowledge of the latest management tools if he is to operate efficiently and economically within that subsystem. He must be fully capable of utilizing the modern analytic techniques for executive decision making.

While no single duty of the manager can be considered more essential than another, certain of these duties must be examined in greater detail due to the technological advances that have occurred in their areas. Organizing, staffing, directing and coordinating are all essentially functions of managing the human resource and, as such, have not been so completely swept up in the technological explosion of the past decade. This is not to imply, however, that the human resource should be ignored in a materiel management program of education and training; to the contrary, it is a vital and traditional element of any

meaningful educational program. Its omission from this discussion suggests that the inclusion of the human resource in such a program is self-evident.

Planning is the process of looking ahead and selecting those activities which affect the future of the organization. Essential to this never-ending process is forecasting, deciding and communicating the decisions to those who will effectuate them.[7] One of the most comprehensive research approaches to planning is operations research. There are almost as many definitions of operations research as there are writers on the subject. Perhaps the most acceptable definition is that it is the application of a scientific method to the study of alternatives in a problem situation, with a view to providing a quantitative basis for arriving at an optimal solution in terms of the goals sought.[8] Operations research does not provide decisions, but it does scientifically develop quantitative data to help the manager make decisions.

This new scientific computer-age systems approach to management has provided modern analytic techniques for executive decision making by the materiel manager. Planning or forecasting can now be done with greater accuracy through the development of simulation models. Such terms as exponential smoothing, linear programming, critical path analysis and the queueing theory (to name but a few) must now be household words to the modern materiel manager. Buchan and Koenigsberg, in their writings on scientific inventory management, bring into play all of the modern management tools designed to quantify inventory management decisions.[9] We traditionally think of purchasing as taking place within a

framework of the rational decision-making process. Lee and Dobler point out that the scientific system of critical path analysis has now become an essential element of that planning process.[10]

Intuitive methods of materiel management are only satisfactory when inventories are numerically and financially insignificant and are required in the absence of decision-making techniques. Many commercial and governmental organizations find that rules of thumb are now neither acceptable nor required. Those managing individual items or commodities, as well as those administering complete inventory control and distribution systems, must embrace scientific inventory management techniques if they are to compete successfully in private enterprise or discharge efficiently the duties of public office.[11]

The systems approach to materiel management puts a firm foundation under information and control procedures. When historical statistics, current data and quantified forecasts are processed, they become information on the basis of which management makes its decisions. Only the systems approach can give management the kind of information and control it needs to maximize growth and profitability.[12]

Some writers in management have chosen different key words to denote the management duties presented by Gulick. Koontz and O'Donnell, for example, view reporting and budgeting as but two of the procedures by which control is exercised by the manager in an organization.[13] Control involves a determination as to whether enterprise objectives and standards are being attained and also involves the taking of corrective steps if these goals are not being met. Military managers are continually faced with establishing objectives, determining the need for and

applying available resources and controlling the execution of tasks in order to achieve their mission.

Management control in the materiel system must have the objective of measuring and relating performance in both effective and economical supply. Standards of effective supply support are well developed within the Army materiel system. However, equally valid standards of economical supply support have not as yet been fully perfected. The basic mechanics have been established, but the materiel system is just now beginning to produce the data on which standards of economy can be based.[14]

Materiel management within the military environment is keyed to a highly refined system of quantitative and qualitative controls. All levels of military management have become increasingly aware of the importance of these controls in measuring their own efficiency and economy of operation. In the area of financial management alone, the Army's modern materiel manager must be capable of utilizing, analyzing or interpreting the highly sophisticated elements of financial inventory accounting, stock funding, industrial funding, consumer funding, integrated accounting, internal audit, and budgeting and funding.[15] And these are but a few of the management controls deemed essential for efficient, effective and, above all, economical materiel management. The Army's recently adopted Resources Management System is another complex, but essential, catalyst for and control of the materiel management function.

Materiel Management Education and Training

There seems little question that fundamental to an understanding of materiel management is an understanding of management itself. The question is: How can we best train and educate a materiel manager? Every study that has been made indicates that there is no agreement as to precisely what activities should be undertaken by the materiel manager.[16] There is a like disagreement as to the methodology to be employed in their education. Under the influence of the Harvard Business School the case method has spread widely, although few American universities have gone so far in its use. At MIT, Carnegie Institute of Technology and the University of Chicago the social sciences and quantitative approaches to business problems have been the basis for training such managers.[17] The United States Army Logistics Management Center employs a combination of the case method, computer simulations, practical exercises, programmed instruction, and lecture-conferences by guest speakers and members of their faculty.[18] These same instructional methods are employed by the United States Army Medical Field Service School in the conduct of their various officer courses.

A review of the medical materiel management programs of education and training for the three military departments reflects a decided diversity in their approach and objectives. The Navy Medical Department has no formal training in medical materiel management for its Medical Service Corps officers.[19] The Air Force conducts a four-week medical supply class in conjunction with its basic course of medical administration and, in addition, annually presents two five-day symposiums for medical supply officers.[20] The Army Medical Department conducts a

ten-week basic course in medical supply and service operations and also provides additional training in the fields of depot operations and procurement.[21] All three military departments share in a one-year medical logistics internship program presented in conjunction with the Defense Supply Agency.

The United States Army Medical Department currently conducts four courses specifically designed for the training of its medical supply officers.

1. A ten-week, performance-oriented Medical Supply and Services Course at the United States Army Medical Field Service School is designed to provide Medical Service Corps officers with basic formal training in the fundamentals of medical materiel management, as well as an introduction to financial management, personnel management, management methods, information systems and logistical planning.[22] The majority of the students are lieutenants with ten weeks of prior service.

2. A twenty-two week Medical Depot Inventory Management Course at the United States Army Medical Materiel Management Agency provides Medical Service Corps officers with formal training in medical depot stock control procedures and activities.[23] The majority of the students are captains with approximately three years of prior service. All have attended the Medical Supply and Services Course.

3. A twenty-two week Medical Depot Storage Course at the Atlanta Army Depot develops trained storage officers to staff TOE medical depots.[24] The majority of the students are lieutenants and captains with six months to three years of prior service. All have attended the Medical Supply and Services Course.

4. The Procurement Officers Program for Medical Service Corps Officers provides one year of training in procurement functions. It is conducted at Army general hospitals located in the United States and includes both on-the-job training and formal procurement instruction at the United States Army Logistics Management Center.[25] The majority of the students are captains with four years of prior service. All have attended the Medical Supply and Services Course.

In addition to the courses enumerated above, the United States Army Medical Department is afforded the opportunity of enrolling a limited number of its medical supply officers in courses conducted at the United States Army Logistics Management Center at Fort Lee, Virginia. These courses are not oriented to the medical materiel management function, but rather view logistics management as a totality. Of particular note is their twelve-week course entitled Army Logistics Management. This course is designed to present the top-level management aspects of wholesale logistics to include the application of scientific management techniques.[26]

Summary

Within the Department of Defense, management of the materiel system has become a highly complex and sophisticated activity. The logistical support system of the Department of Defense has long recognized that certain commodities possess peculiarities or characteristics that make them sufficiently distinctive so that they must be managed separately by specially trained personnel. One such commodity is medical materiel. Its distinction is vested not only in the peculiarities

of the commodity itself, but also in the highly specialized requirements that are generated by the patient and the physician. The medical materiel system functions as a separate subsystem within an overall management system. Fundamental to an understanding of medical materiel management is an understanding of the principles of management and the tools of modern management. The modern materiel manager must be capable of utilizing the latest techniques for executive decision making. The question is: How to best train our modern medical materiel manager?

Footnotes

[1]Letter from Brig. Gen. George J. Hayes, Director of Professional Services, Office of The Surgeon General, Department of the Army, Washington, D. C., to Lt. Col. Dana S. Slack, February 6, 1968.

[2]United States, Department of the Army, Composition, Mission, and Functions of the Army Medical Service, Army Regulation 40-1 (Washington: Government Printing Office, 1965), p. 2.

[3]United States, Department of the Army, Logistics Supply Management, Army Field Manual 38-1 (Washington: Government Printing Office, 1961), p. 35.

[4]Luther Gulick, Papers on the Science of Administration (New York: Institute of Public Administration, 1937), p. 13, cited by Fred R. Brown, "Management and Human Enterprise," in Management: Concepts and Practice, National Security Management Series (Washington: Industrial College of the Armed Forces Press, 1967), p. 6.

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[6]Dean S. Ammer, Materials Management (Homewood, Illinois: Richard D. Irwin, Inc., 1968), p. 1.

[7]Fred R. Brown, "Management and Human Enterprise," in Management: Concepts and Practice, National Security Management Series (Washington: Industrial College of the Armed Forces Press, 1967), p. 6.

[8]Harold Koontz and Cyril O'Donnell, Principles of Management: An Analysis of Managerial Functions (3d ed. rev.; New York: McGraw-Hill Book Co., Inc., 1964), pp. 146-47.

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[10]Larmar Lee, Jr. and Donald W. Dobler, Purchasing and Materials Management (New York: McGraw-Hill Book Co., Inc., 1965), pp. 398-99.

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[12]James A. Constantin, Principles of Logistics Management (New York: Appleton-Century-Crofts, 1966), p. 24.

[13]Koontz and O'Donnell, p. 547.

[14]United States, Department of the Army, Logistics Management Controls, Army Field Manual 38-6 (Washington: Government Printing Office, 1965), p. 5.

[15]Logistics Supply Management, pp. 177-87.

[16]Ammer, p. 1.

[17]Fredrick Harbison and Charles A. Myers, "American Management in Perspective," in Management: Concepts and Practice, National Security Management Series (Washington: Industrial College of the Armed Forces Press, 1967), p. 232.

[18]United States Army Logistics Management Center, "Army Logistics Management Course," Program of Instruction, Fort Lee, Virginia, n.d., p. 4.

[19]Telephone Conversation with Commander J. J. Dean, Assistant for Navy Materiel, Bureau of Medicine and Surgery, Navy Department, April 22, 1969.

[20]Private interview with Major James R. Bellor, United States Air Force, Fort Sam Houston, Texas, November 22, 1968.

[21]United States, Department of the Army, Army Medical Service Professional Postgraduate Training Programs, Army Pamphlet 350-5 (Washington: Government Printing Office, 1967), pp. 2-3 and 2-5.

[22]United States Army Medical Field Service School, "Medical Supply and Services Course," Program of Instruction, Fort Sam Houston, Texas, February 20, 1968, pp. 9-39.

[23]United States Army Medical Materiel Agency, "Medical Depot Inventory Management Course," Program of Instruction, Phoenixville, Pennsylvania, n.d., pp. 10-39.

[24]Atlanta Army Depot, "Medical Depot Storage Course," Program of Instruction, Atlanta, Georgia, n.d., pp. 5-14.

[25]Army Medical Service Professional Postgraduate Training Programs, p. 2-5.

[26]"Army Logistics Management Course," pp. 7-37.

CHAPTER IV

DISCUSSION

Previous Army Courses in Medical Materiel Management

The necessity for a formal program of medical materiel management training and education is well established within the Army Medical Department. Many of the leaders in today's Department of Defense medical materiel system received their initial training in the medical supply course conducted at the Army's Saint Louis Medical Depot in Saint Louis, Missouri. This six-month course, presented in the late 1940's and early 1950's, was primarily designed to formalize the training of the medical materiel manager, as well as to provide an accrediting vehicle for the awarding of the primary military occupational specialty (MOS) for medical supply officers. While the course tended to emphasize depot operations, to the virtual exclusion of unit and hospital operations, it did provide an academic environment for introducing the latest techniques in materiel management. Mechanized stock accounting, consolidated tri-service functions, stock funding and financial inventory accounting were just a few of the more significant advances in the state of the art that were introduced during that period. Selected graduates of the course were afforded the opportunity of receiving three to six months of further on-the-job training at other Army medical depots. It is significant to note that virtually all of the officers selected for

attendance at this course had several years of military experience, while some had even risen to the rank of major and lieutenant colonel. Annual student inputs varied from ten to fifty officers.

In 1955 the Army Medical Supply Officer Course was moved to the Army Medical Service School (later to be designated the United States Army Medical Field Service School). The entire concept of medical materiel management training was revised. Emphasis shifted from depot operations to hospital materiel management. The basic program was divided into two training phases: a ten-week academic course and a one-year on-the-job training phase at a selected Army hospital. Keynoting this program was the relationship of medical supply activities to the professional medical staff of the Army Medical Department and the team concept that fuses medical personnel, medical facilities and medical materiel under the direction of the physician.[1] The course was established with a class capacity of ten students with two classes offered annually. It is again significant to note that all of the officers selected for attendance at this course had, as a minimum, one previous military assignment.

While course length varied from ten to twelve weeks, the concept of a two-phase training program remained until 1963. At that time the on-the-job training phase was discontinued, and the course became a basic ten-week training program in medical materiel management and, to some degree, hospital services management. The curriculum continued to stress medical materiel management at the major or general hospital level until late 1967, when much of the emphasis was shifted to the unit and organizational level and greater stress was placed upon services

management. Officers selected for attendance at this course generally had no previous military experience, and the annual student input rose to over 200. In 1968 the policy of awarding graduates of this course the primary military occupational specialty (MOS) of medical supply officer was discontinued. The award of the primary MOS is now made to graduates only after completing a one-year utilization tour.

The Army's Current Medical Materiel Training Program

The Army Medical Department's current program of medical materiel management training reflects a rapid and realistic response to the increased manpower requirements of the Vietnam war. With the sudden escalation of the Vietnam conflict in 1965, the demand for trained medical supply officers multiplied overnight. Increased numbers of trained medical supply officers were required to staff the countless hospitals and troop units being deployed to Southeast Asia. The greatest demand was for company grade officers (lieutenants and captains), who were assigned to divisions, hospitals and elements of the medical depot. The requirement for these company grade officers has been a continuing one due to the Army's one-year rotation policy for its personnel serving in Vietnam.

The Army Medical Department currently conducts four separate courses exclusively designed for its medical supply officers, and each is tailored to meet a specific manpower requirement: the basic Medical Supply and Services Course, the Medical Depot Inventory Management Course, the Medical Depot Storage Course and the Procurement Officers Program for Medical Service Corps Officers. All officers entering the

medical supply field must first complete the ten-week Medical Supply and Services Course conducted at the United States Army Medical Field Service School. This course is a prerequisite for subsequent attendance at the Medical Depot Inventory Management Course, the Medical Depot Storage Course or the Procurement Officers Program.

For the past two years approximately ninety per cent of the students attending the Medical Supply and Services Course have entered this course immediately following completion of their eight-week Army Medical Department Basic Officer Course. The Medical Supply and Services Course provides the young officer with a working knowledge of the fundamentals of materiel and services management at the unit, organization and installation level, as well as an introduction to financial management, personnel management, management methods, information systems and logistical operations.[2] The graduate of this course, however, possesses only the basic tools necessary to begin his initial assignments in the medical supply career field: the procedures, the techniques, the policies and the doctrine.

The present graduate of the Medical Supply and Services Course will normally receive an initial assignment within the United States: to a troop unit; a type field hospital; a major hospital located at some camp, post or station; or, in rare instances, one of the Army's seven general hospitals located within the Continental United States. A small percentage of each class will go directly to Vietnam. Within six months to one year all graduates of the Medical Supply and Services Course can expect to be assigned to Vietnam. There they will join either a division, hospital or element of the medical depot. Within a ten-week

period the Medical Supply and Services Course must provide the student with a sufficient working knowledge of materiel and services management so that he can function efficiently, commensurate with his grade, in assignments that range from the highly complex supply system of the general hospital to the rudimentary, yet more demanding and diverse requirements of a medical field unit.

The Medical Depot Inventory Management Course and the Medical Depot Storage Course were born of necessity. In 1963, at the direction of the Defense Supply Agency, the Army Medical Department reluctantly closed the last of its medical depots located within the continental boundaries of the United States. In 1965 two large Army medical depots in France were disbanded with the withdrawal of NATO forces from that country. As the United States involvement in Vietnam escalated, the requirement for trained medical depot personnel concurrently increased. The Army medical depots in Vietnam and Okinawa expanded overnight to support the troop buildup in Southeast Asia. An Army medical depot was quickly moved into Japan to support the deployment of general hospitals to that area. The initial staffing of these medical depots with trained personnel was difficult and the situation quickly worsened. The training base for Army medical depot personnel had been dealt a severe blow with the closing of three major medical depots. As a result, the Medical Depot Inventory Management Course and the Medical Depot Storage Course were quickly established in 1967 to provide an accelerated training base for medical depot operations. Each of these twenty-two week courses is designed to train medical supply personnel for a specific aspect of depot operations: the Inventory Management Course prepares

the student for a stock control assignment, while the Depot Storage Course provides the training base for a subsequent assignment in storage operations.

The Inventory Management Course is conducted at the United States Army Medical Materiel Agency with a stated course purpose of preparing depot stock management officers to staff medical depots.[3] An individual assigned to this course must have either an actual or anticipated assignment to a medical depot position. The course content ranges from a detailed analysis of the organization of the Department of Defense medical materiel system through the specifics of editing requisitions, maintaining stock records, and all methods and procedures designed to receive, store, maintain, distribute and control the flow of medical materiel within the depot's distribution system. The training of these potential medical depot stock control officers is directed by a staff of highly competent medical supply officers. By virtue of the mission of the Army Medical Materiel Agency, students attending this course are able to receive actual on-the-job training in many areas of the course curriculum. The conduct of this course, however, is only one aspect of the Agency's overall mission, and day-to-day operations may, of necessity, take precedent over the training mission.

The Depot Storage Course, conducted at the Atlanta Army Depot, is designed to develop an ability in the student to formulate sound storage management decisions based upon logical analysis.[4] Attendance at this course is based upon an actual or anticipated assignment to a medical depot. Emphasis is placed upon the detailed aspects of receiving, storing, maintaining, surveilling, and shipping medical materiel.

The capability of the Atlanta Army Depot to provide the student the opportunity for actual on-the-job training is a vital and positive aspect of this course. Supervision and direction of this training program is vested in the staff of the Atlanta Army Depot and, as such, is not necessarily the direct responsibility of a medical supply officer. At the present time the program is being guided by a Transportation Corps officer, who has little or no formal training in the management of medical materiel.

The Procurement Officers Program for Medical Service Corps Officers is the only element of the Army Medical Department's current programs of medical materiel management training that has not been either instituted, qualified or quantified as a result of the Vietnam war. This program was originally designed to insure a continuing supply of trained medical materiel procurement officers, and the present Vietnam conflict has not dictated any alterations in course content or student input. Procurement of medical materiel is a highly technical and specialized endeavor. The graduate of this one-year program can reasonably expect that the greatest majority of his subsequent assignments will be in the medical materiel procurement field.

Student input and the numbers of classes for the Inventory Management Course, the Depot Storage Course and the Procurement Officers Program have remained relatively stable since the inception of these courses. Both the Inventory Management Course and the Depot Storage Course are presented twice each year with an average attendance of six students per class. This provides the field an annual resource of approximately twenty-four officers who possess formal training in specific

aspects of medical depot operations. Three officers annually are admitted to the Procurement Officers Program. Only the ten-week Medical Supply and Services Course has been subject to drastic variations in student load. Since 1967 the number of classes presented annually has increased from three to seven and the student input has risen from ninety to two hundred and fifty students.

Should he decide to remain in the military upon completion of his obligated term of service, the young medical supply officer will be offered additional management training. Somewhere between three to eight years after entering upon active duty he will attend the twenty-two week Army Medical Department Officer Advanced Course conducted at the Army Medical Field Service School. This course is designed to serve the needs of each of the six corps that comprise the Army Medical Department and to prepare the graduate to perform the duties to which he will most probably be assigned during the period from five to eight years after graduation. All Medical Service Corps officers, regardless of their military occupational specialty, are required to attend the Advanced Course.

The stated purpose of the Advanced Course is to provide training in military medical service support operations and an overall working knowledge of the duties and responsibilities of Army Medical Department officers in military operations during periods of peace and hostilities.[5] Inasmuch as the Department of the Army does not make an arbitrary distinction between operational activities and management activities, this entire course must be considered as management training.[6] However, the Advanced Course does not provide the medical supply officer with all of

the requisite skills necessary to becoming a finished manager of the medical materiel system. The course is designed to bring all members of a particular corps to the same level of knowledge regarding the operation of the Army Medical Department. The medical supply officer, like all of his Medical Service Corps classmates, receives training in the fundamentals of such broad subject areas as field medical service operations, command and staff responsibilities, preventive medicine, patient administration and personnel management. Specific hours devoted to those advanced managerial techniques and skills required of the modern medical materiel manager are:[7]

1. Materiel and services management--18 hours.
2. Resource management--40 hours.
3. Principles of administration--6 hours.
4. Personnel management--41 hours.
5. Operations research--12 hours.
6. Automatic data processing systems--40 hours.

In addition, the Advanced Course student is afforded the opportunity of enrolling in one fifty-hour elective of his choice. Although these electives run the full gamut of advanced managerial discipline, the student is permitted to attend only one elective.

For many medical supply officers, graduation from the Advanced Course marks the end of their managerial training. On the other hand, a selected number of medical supply officers will be afforded the opportunity to obtain additional management education, this time at the graduate level. These additional educational opportunities can be generally separated into two broad alternatives. The first includes attendance at

an advanced service school, such as the Command and General Staff College, or attendance at a civilian university. The second involves attendance at graduate level specialty courses conducted by other service schools. The determination as to whether or not an officer, upon completion of the Advanced Course, will receive additional management training and education becomes a joint decision of the individual, his commander and the Office of The Surgeon General. Advanced civilian schooling at the master's or doctorate level requires formal application on the part of the individual as well as approval by the Office of The Surgeon General and the institution concerned. Care is exercised to be certain that one career field does not receive priority over another. Attendance at the United States Army-Baylor University Program in Health Care Administration, the Command and General Staff College, the Armed Forces Staff College or any other senior service school requires selection by the Office of The Surgeon General. In the case of advanced or senior service schools, selection is also based upon Department of the Army approval. Attendance at specialty training courses conducted at other service schools requires an application on the part of the individual, approval by his commander and acceptance by the school concerned.

The successful completion of a master's degree program with either business, health care, quantitative or management emphasis should provide the graduate with the necessary advanced or graduate level managerial techniques and skills to function effectively as a medical materiel manager. The same can certainly be said for the graduate of the Command and General Staff College or the Armed Forces Staff College. Additional training obtained through completion of a doctorate program

or attendance at the National War College, the Industrial College of the Armed Forces or the Army War College would obviously serve to increase these managerial skills.

Attendance at advanced service schools and civilian institutions is competitive within the Medical Service Corps. The demands of each career field are considered during the selection process, and an equitable distribution among the specialty fields is attempted. Officers attending these programs are lost to their career fields for periods that range from six months to three years. None of these programs are capable of providing a pure materiel and services management curriculum, but all present excellent graduate level management education.

Inasmuch as selection for graduate civilian schooling and the advanced service schools is competitive within the Medical Service Corps, additional avenues for already existing advanced management training must also be explored. The two best sources for such training appear to be the United States Army Management School and the United States Army Logistics Management Center. While both of these institutions are ideally suited for advanced management training, the courses presented by the Logistics Management Center more closely approximate the goals established for the training of a modern materiel manager. A review of the courses conducted at the Logistics Management Center reflects a broad spectrum of two- to six-week specialty courses in addition to several graduate level logistics management courses of varying lengths. Of these graduate logistics management courses, only the twelve-week Army Logistics Management Course is available to officers in the medical materiel field. The stated scope of this course follows:

> The top-level management aspects of wholesale logistics, to include the application of scientific management techniques, are studied from initial planning, programing, budgeting, and requirements computation, through procurement, distribution, maintenance, financial and other controls to the ultimate disposal of surplus stocks.[8]

Logisticians serving in the Department of Defense materiel system hold this Logistics Management Course in the highest regard. Certainly, the graduate of this course has been exposed to the full gamut of advanced managerial techniques.

It should be noted, though, that this course is not oriented to the medical materiel management function; instead, it views logistics management as a totality. A review of the course content reflects that approximately fifty per cent of the curriculum is slanted toward wholesale materiel management at the national inventory control point level. This is a level of materiel management at which only a selected few within the Army's medical materiel system will ever be assigned.

There are presently 613 commissioned officers in the Army Medical Service Corps with the primary military occupational specialty of medical supply officer (see Table 1). Of this number, forty-nine have attended advanced or senior service schools (see Table 2).

TABLE 1

NUMBER OF ARMY MEDICAL SERVICE CORPS OFFICERS WITH THE PRIMARY MILITARY OCCUPATIONAL SPECIALTY OF MEDICAL SUPPLY OFFICER

GRADE	TOTAL
Colonel	47
Lieutenant Colonel	112
Major	150
Captain	195
Lieutenants	109
	613

Source: United States Army Data Support Command, The Adjutant General's Office, "Officer MOS Roster," Washington, D. C., July, 1968.

TABLE 2

ADVANCED OR SENIOR SERVICE SCHOOL ATTENDANCE BY SCHOOL AND GRADE

SCHOOL	COLONEL	LIEUTENANT COLONEL	MAJOR	CAPTAIN	LIEUTENANTS	TOTAL
National War College	0	0	0	0	0	0
Industrial College of the Armed Forces	2	1	0	0	0	3
Army War College	0	0	0	0	0	0
Armed Forces Staff College	1	0	0	0	0	1
Command and General Staff College	19	21	5	0	0	45
TOTAL	22	22	5	0	0	49

Source: United States Army Data Support Command, The Adjutant General's Office, "Officer MOS Roster," Washington, D. C., July, 1968.

Additionally, five officers have professional degrees, and forty-one officers possess a master's degree (see Table 3).

TABLE 3

CIVILIAN GRADUATE AND UNDERGRADUATE DEGREES BY GRADE

DEGREE	COLONEL	LIEUTENANT COLONEL	MAJOR	CAPTAIN	LIEUTENANTS	TOTAL
Professional Degree						
Biological Sciences	0	0	1	0	0	
Law Civil	0	0	0	1	0	
Law General N.E.C.	0	0	0	1	2	
TOTAL	0	0	1	2	2	5
Master's Degree						
Business	6	6	2	4	4	
Medical Science	1	4	2	1	0	
Social Sciences	0	1	1	3	4	
Agriculture--Forestry	0	0	0	0	1	
Arts Classic	0	0	0	0	1	
TOTAL	7	11	5	8	10	41
Total Bachelor's Degree	12	39	124	177	97	449
TOTAL	19	50	130	187	109	495

Source: United States Army Data Support Command, The Adjutant General's Office, "Officer MOS Roster," Washington, D. C., July, 1968.

Excluding those officers who may have attended some form of management training presented at an institution such as the Logistics Management Center, fifteen per cent of the Army's medical materiel managers are formally trained in advanced or graduate level management techniques and skills. This percentage is subject to even further reduction when one considers that twenty-two of the forty-five graduate degrees are held by officers in the grades of captain and lieutenant, many of whom are serving in an obligated volunteer status and, as such, may leave the military upon completion of that two- or three-year obligation. Of equal importance is the fact that thirty per cent of this advanced or graduate level management training is held by officers in the grade of colonel. Any one or all of these officers could choose to retire at any time and thereby create a significant void in this highly trained managerial resource. In the grade of major and lieutenant colonel, where one would expect to find the greatest reservoir of advanced management training and education, only seventeen per cent of the medical supply officers serving in this grade possess such a background. In addition, only forty-five per cent of the lieutenant colonels hold a bachelor's degree (see Table 3).

Inasmuch as the Army Logistics Management Course represents a potential avenue for advanced materiel management education, the Army Logistics Management Center was asked to review their records for the past five years and determine the number of medical supply officers who had actually attended this twelve-week course. For this five-year period, in which the course had been presented fourteen times, only two medical supply officers are listed as graduates.[9] One of these officers

has a master's degree and the other attended the Command and General Staff College.

In the present environment, therefore, it appears that there are only two alternatives to improving the materiel management education and training program for medical supply officers. The first of these would involve the selection of greater numbers of medical supply officers for advanced service schools and graduate civilian education. The second alternative would be to increase the attendance of medical supply officers at the Logistics Management Course.

Career Management

The present career management pattern for medical supply officers serving in the Army Medical Department is designed to provide a logical progression through succeedingly more difficult assignments. This is hardly a unique objective, however, since all of the military occupational specialties attempt to adhere to a program that provides a proper balance between training, education, experience and professional progression. Therefore, in the subsequent analysis of the critical areas in the medical supply officer's career pattern, care must be exercised to determine if there is, in fact, this proper balance between training, education, experience and professional progression.

At the present time virtually all of the officers entering the medical materiel career field are doing so through attendance at the Medical Supply and Services Course. For the past two years approximately ninety per cent of the students attending this course have just completed the Army Medical Department Basic Officer Course. The remaining ten

per cent are normally either officers in their first year of military service or career officers who have completed three to seven years service. While these graduates are tentatively identified with the medical supply career field, they are awarded the military occupational specialty (MOS) of medical supply officers only as a secondary MOS. As such, they are not necessarily subject to assignment as a medical supply officer. Those who will ultimately receive the primary MOS of medical supply officer will do so only after having received a one-year utilization tour.

The current retention rate for young Medical Service Corps officers remaining on active duty following the completion of their obligated tour of service is approximately one out of four.[10] Since approximately ninety to ninety-five per cent of the officers presently entering the medical supply career field are still within their obligated term of service, it follows that only about twenty-five per cent of that number will continue to utilize the training they received in the Medical Supply and Services Course past the expiration of this period. This could mean that for every 200 officers that are graduated from the Medical Supply and Services Course, only about forty-five of them will still be utilizing their training three years after graduation. The remaining 155 will have returned to civilian life. In terms of obtaining a maximum return on their training investment, the Army Medical Field Service School has limited the curriculum of the Medical Supply and Services Course to include only that materiel which the graduate will require within his first three to five years in the military.

Within this first three- to five-year period, the young medical supply officer can expect to serve in a wide variety of assignments. The emphasis will be placed, however, on troop duty where he will be assigned to either a division, field type hospital or element of a field medical depot. The majority of medical supply officers assigned to troop duty eventually receive at least one assignment to a field type hospital. Here the medical supply officer must first see that all medical and general supplies are on hand and ready for delivery to the activity requesting them--where and when they want them. The medical supply officer also directs his own transportation system. This transportation system includes the pick-up and delivery of supplies, equipment and linen; personal and group transport of hospital personnel; and ambulance service to and from the hospital. The medical supply officer will also serve as the hospital engineer and in this capacity be responsible for all new construction, telephone service, water supply, waste disposal, power and utility systems, as well as maintenance of all the equipment and facilities of the hospital plant. This young officer is, in effect, responsible for the control and maintenance of a half million dollars of supplies and equipment. The supply system is rudimentary, but its requirements are demanding and diverse.

The initial assignments of the medical supply officer will not be limited solely to field units. Sometime prior to attending the Army Medical Department Officer Advanced Course he can also expect to be assigned to a major hospital located at some camp, post or station or to one of the Army's seven general hospitals located within the Continental

United States. Here, under the supervision of a senior medical supply officer, he will become involved in one or more phases of the following major activities:

1. Maintenance of a stock record account, stock funds, and financial accounting data with related voucher files, registers and documents.

2. Acquisition, storage and issue of property.

3. Operation of the medical equipment maintenance program.

4. Provision of linen service.

5. Provision of ambulance and other motor transportation services.

6. Provision of repair and utility service to medical or dental activities.

7. Maintenance of central property control records.

8. Maintenance of a centralized housekeeping program.

Following this series of assignments the medical supply officer can normally expect to be selected for attendance at the Army Medical Department Officer Advanced Course. He will have completed approximately five to six years of service and will have been awarded the primary military occupational specialty (MOS) of medical supply officer. More importantly, however, he will be desperately in need of further education and training. The reservoir of professional knowledge that he had accumulated as a student in the Medical Supply and Services Course will have been exhausted. The medical supply officer is at a point in his career where he must gain additional professional knowledge and skills in order to function efficiently as a senior medical materiel manager.

The twenty-two week Advanced Course has provided the medical supply officer with a working knowledge of the duties and responsibilities of Army Medical Department officers in military operations during periods of both peace and hostilities. It has also given him a broad managerial background. It has not, however, added significantly to the specific professional skills that he will require in his subsequent assignments. He was quite likely promoted to major while attending the Advanced Course, and he knows that approximately fifty-four per cent of all authorized positions for medical supply officers require a field grade officer (officer in the rank of major, lieutenant colonel or colonel). He is also aware that although fifty-four per cent of the authorized medical supply positions require a field grade officer, only forty-three per cent of the Army Medical Department's medical supply officers are, in fact, field grade officers.[11] This means that he may be assigned to a position that requires greater seniority and experience than he possesses.

During the past five years there has been an ever-increasing acceleration of promotions for commissioned officers of the United States Army. There has not been, however, a corresponding increase in the grade authorizations for units, organizations and installations that require the services of a medical supply officer. For example, Kenner Army Hospital, a 150-bed hospital located at Fort Lee, Virginia, is authorized a major as the Chief, Supply and Services Division. In this capacity he supervises the activities of approximately seventy persons who are engaged in such diversified activities as stock record accounting; financial inventory accounting; receipt, storage and issue of supplies and

equipment; medical equipment maintenance; transportation services; repair and utility service; property control; housekeeping; and linen service. He is accountable for some five and one-half million dollars worth of supplies and equipment.[12] Six years ago this officer would have had a minimum of twelve years experience. Today he has a minimum of six years experience.

The challenges that Kenner Army Hospital offer are not unique. Our graduate of the Advanced Course, as a major, could find himself in Vietnam commanding an advanced medical depot in support of 200,000 troops. Perhaps he will be assigned to the United States Army Medical Materiel Agency, where he will be responsible for computing the Army's billion dollar medical materiel mobilization requirements or managing the forty million dollars of mobilization stocks held in Defense Supply Agency depots. He may be sent to the Depot Storage Course at the Atlanta Army Depot with subsequent assignment to the 70th Medical Depot in Okinawa, where, as Chief of the Storage Division, he will be responsible for the storage activities that occur on 650,000 square feet of storage space. As a major, he could be the logistics staff officer (S4) of a medical group in Vietnam. Here he will provide staff supervision over as many as ten hospitals in the areas of supply, maintenance, transportation, evacuation, labor and construction. Another potential assignment would be to an Army headquarters, as the assistant medical supply staff officer for a fourteen-state Army area. Perhaps he will go to a larger station or general hospital, where, as the Chief of the Supply Branch, he will become involved in the design of a new automatic data processing system for stock accounting. In his duties as Chief of the

Supply Branch he will be called upon to put into practice such modern analytic techniques for decision making as exponential smoothing, linear programing and critical path analysis. Instead of being assigned to the supply branch, he may be assigned to the property management branch. Here he will exercise control measures over property valued at six million dollars.

The list of potential assignments for our young field grade medical supply officer is extensive. Those that were enumerated in the preceding paragraphs should not be considered particularly unique or excessively more difficult than others that were omitted. These assignments represent a sampling of typical assignments that a medical supply officer, serving in the rank of major, can expect to encounter upon graduation from the Army Medical Department Officer Advanced Course. He should anticipate that in the next six to nine years of his career he will have a minimum of two duty assignments appropriate to his specialty field. He will normally receive an assignment to a type field hospital, station or general hospital, medical depot, troop unit or major headquarters. If assigned to a headquarters or to a command and control element of a troop unit, he will function as a supply staff officer responsible for planning, coordinating and supervising all activities concerned with arrangements for supply, evacuation and transportation services and other related logistical matters. Assignment to a hospital will carry with it responsibility for any one or all of the functions associated with the Supply and Services Division mission. The operational complexities and degree of sophistication that he will encounter are dependent upon the size and mission of the hospital. It is during this period of his career

that the officer may be selected for graduate level education at a civilian institution or attendance at the Command and General Staff College.

As was noted earlier, fifteen per cent of the Army's medical materiel managers have received formal education in advanced or graduate level management techniques and skills at some civilian institution, advanced or senior service school. Conceivably, for eighty-five per cent of the Army's medical materiel managers their formal education and training has come to an end when they graduate from the Army Medical Department Officer Advanced Course. However, inasmuch as the career intentions of officers in the grades of captain and lieutenant are to some degree unknown, they should be omitted from this particular discussion. At the present time there are 309 medical supply officers on active duty who are serving in the field grades. Seventy-three of these officers have received graduate level training at civilian institutions, advanced or senior service schools. This means that 236, or seventy-six per cent, of the career medical supply officers will continue on active duty, assuming positions of increasing responsibility, with a background of military professional training that includes the eight-week Basic Officer Course, the basic ten-week Medical Supply and Services Course and the twenty-two week Army Medical Department Officer Advanced Course. A few of these officers will have augmented their professional training, however, by attending the Depot Inventory Management Course or the Depot Storage Course.

Career management personnel have designated the sixteenth through the twenty-third year of the Medical Service Corps officer's career as

his "advanced contribution and development period."[13] This period is designed to prepare the officer to fill top level command, staff and/or supervisory positions. It is during this period that a previous lack of professional development could seriously hamper the career desires of the medical materiel manager. Those medical supply officers who have not had the benefit of any graduate level management education and training will find it extremely difficult to compete for these key positions with the officer who has received the professional advantages of such a program. There is also an inherent danger that a number of the medical supply officers enter this period already doomed to obscurity. Failure to perform efficiently in the previous complex and diversified career period has dealt a death blow to their career goals. For those medical supply officers who have survived the demands of the previous career period and have received graduate level education, there is an opportunity for additional civilian and service school training. During this period much emphasis is directed toward executive development by increasing the overall knowledge and experience of the individual officer. Most formal training is on a short-course basis. During this period, as a general rule, the type assignments and courses of instruction depend upon the officer's demonstrated abilities and his desires regarding future utilization.

In the final career period, the medical materiel manager is expected to fill any position appropriate to his grade and experience. His assignments depend primarily upon the Army's needs.

The Army Medical Materiel System and Its Manager

It is clearly established that the medical commodity possesses certain peculiarities or characteristics that require its management by specially trained personnel. The necessity for this specialty training is required by the characteristics of the commodity itself and by the dictates of the medical profession. Medical supply officers serving in the United States Army perform their management functions at every echelon of the organizational structure of the Army. The size of the medical materiel system is equaled by the complexity of its operations and by the diversity of demands that we place upon its managers.

The Army requires its medical materiel managers to have a working knowledge of the fundamentals of materiel and services management early in their careers. And to this end, they insure that the medical supply officer is given the necessary training to perform efficiently in his early assignments. While it is true that his initial training provides only the basic tools in terms of procedures, techniques, policies and doctrine, the demands of those early assignments do not, in general, require a mastery of sophisticated and complex systems. Instead, these assignments require a proficiency in certain basic and essential materiel and services functions. The ten-week Medical Supply and Services Course provides this basic training, but it does not provide an educational curriculum that will enable the graduate to progress from one level of materiel management responsibility to each succeeding higher level through a twenty- to thirty-year career management pattern.

A review of current military and civilian literature on the subject of materiel management leaves no doubt in the mind of the reader

that this field is experiencing a technological management revolution during the decade of the sixties. There is no management responsibility in industry that is equivalent in scope or complexity to the responsibility for materiel management within the Department of Defense supply system. The new scientific computer-age systems approach to management is continuing to provide additional modern analytic techniques for executive decision making by the materiel manager. At no time in history have we required so much managerial "know-how" of our military materiel executives. At every echelon of the organizational structure of the Army Medical Department we are placing greater demands upon our medical materiel managers.

From the time the medical supply officer graduates from the Army Medical Department Officer Advanced Course until he finally retires from active duty, he is charged with the executive management and direction of a highly complex and sophisticated supply system. Materiel management, at this executive level, can best be viewed as a specialized application of the principles of economics and management. Today's modern medical materiel manager must keep abreast of the knowledge explosion going on all around him. His background must include, to name but a few, a knowledge of organizational principles, behavioral science, information systems, systems analysis, financial management, quantitative methodology, economics and operations research.

Contrast these requirements with the Army's present program of medical materiel management training and education that permits approximately seventy-six per cent of its career medical supply officers to continue on active duty, assuming increasing managerial responsibility,

with a background of military professional training that includes the eight-week Basic Officer Course, the basic ten-week Medical Supply and Services Course and the twenty-two week Army Medical Department Officer Advanced Course. Additionally, there appears to be no attempt to validate academically the primary military occupational specialty that the medical supply officer receives one year after graduation from his basic medical supply training.

The current Army medical materiel system, in terms of supply performance, is generally acknowledged to be one of the most efficient supply systems within the Department of Defense. The success that this system currently enjoys, however, has resulted from the managerial abilities of those officers who presently fill its leadership roles. Unfortunately, however, the very existence of any materiel system can be quickly threatened if it fails to insure the professional development of all of its managers. The complexities and responsibilities of materiel management within the Department of Defense are growing daily at every echelon of the organizational structure. A "hard core" of highly trained materiel managers is no longer a sufficient resource to insure the continued success of the Army medical materiel system. At every echelon of the Army Medical Department the requirement exists for skilled materiel management executives--medical supply officers, whose training and education will permit the application of advanced managerial techniques at each of their succeeding levels of professional responsibility.

The Surgeon General should attempt to provide each of his materiel managers with the necessary advanced or graduate level managerial techniques and skills that would permit them to function more efficiently

within the medical materiel systems. In view of the fact that only twenty-four per cent of its career medical supply officers actually receive advanced or graduate level managerial training and education, the Army Medical Department could consider the establishment of their own graduate level medical materiel management course. The establishment of such a course would provide a third alternative to improving the materiel management education and training program for medical supply officers. Such a course would, perhaps, have as its stated purpose:

> To provide commissioned officers of the Army Medical Department a working knowledge of the medical materiel system in order to enable them to perform in executive level decision-making positions within this system. Specifically, the student is to be provided the fundamental knowledge and skills required to effectively perform at the division/directorate level in hospitals, medical depots, inventory control points, and major headquarters and at the branch level of the Directorate of Medical Materiel, Defense Personnel Support Center.

The establishment of such a graduate level course would insure that all medical supply officers have the opportunity to acquire the requisite knowledge and skills necessary to efficiently manage the medical materiel system at every echelon of the Army Medical Department. The appendix reflects the proposed program of instruction for a graduate level medical materiel management course. This course, if presented to each career medical supply officer immediately following his completion of the Army Medical Department Officer Advanced Course, would serve to accomplish three basic objectives:

1. Insure that the young field grade medical supply officer possesses the necessary professional training and education to effectively assume greater executive responsibilities within the medical materiel system.

2. Academically validate the primary military occupational specialty of the medical supply officer.

3. Minimize the number of medical supply officers that are lost to their career fields during the pursuit of graduate level training, inasmuch as fewer than twenty medical supply officers attend the Advanced Course at any one time.

In view of the stated purpose of this graduate level materiel management course, its proposed curriculum (appendix), and its intended utilization within the career management pattern of the medical supply officer, it would appear appropriate to establish such a course at the Army Medical Field Service School. This institution possesses all of the requisite academic and professional skills necessary to insure a sound and meaningful program of instruction. Because of their involvement in the United States Army-Baylor University Program in Health Care Administration, the Army Medical Field Service School possesses a faculty that is capable of presenting graduate instruction in the areas of organizational principles, behavioral science, information systems, systems analysis, financial management, quantitative methodology, economics, operations research and materiel and services management.

Summary

At every echelon of the organizational structure of the Army Medical Department greater demands are being placed upon the medical supply officer. Early in his career the young officer requires a working knowledge of the fundamentals of materiel and services management. Upon completion of the Army Medical Department Officer Advanced Course,

the medical supply officer's emphasis must shift from a knowledge of fundamental and diverse requirements to a proficiency in successively more complex and sophisticated materiel and services management techniques or skills.

The Army Medical Department's current program of medical materiel management training reflects a rapid and realistic response to the increased manpower requirements of the Vietnam war. This program does not provide any graduate level management education except in the specific fields of depot inventory management and procurement. At the present time only twenty-four per cent of the Army's career medical materiel managers are formally educated or trained in graduate level management techniques and skills. These officers received their education through attendance at advanced service schools or graduate programs conducted at civilian institutions.

The current and projected demand for highly trained materiel management executives within the Army Medical Department would appear to far outstrip the available supply of such a resource. Expansion of the present graduate level training base for medical supply officers could occur in any one of three ways:

1. Greater numbers of medical supply officers selected for advanced service schools and graduate civilian education.

2. Increased attendance at the Logistics Management Course.

3. Establishment of a graduate level medical materiel management course.

Attendance at advanced service schools and civilian institutions is competitive within the Medical Service Corps. The demands of each

career field are considered during the selection process, and an equitable distribution among the specialty fields is attempted. Officers attending these programs are lost to their career fields for periods that range from six months to three years. None of these programs is capable of providing a pure materiel and services management curriculum, but all present excellent graduate level management education.

The twelve-week Army Logistics Management Course presents the top-level management aspects of wholesale logistics, to include the application of scientific management techniques. This course, while not specifically oriented to the medical materiel function, does provide graduate level materiel management training and education. During the past five years only two medical supply officers have attended this course.

The establishment of a graduate level medical materiel management course at the Army Medical Field Service School would insure that all medical supply officers have the opportunity to obtain the necessary professional training and education that would permit them to effectively assume executive responsibilities within the medical materiel system.

Footnotes

[1]Colonel Bernard J. Kotte, "Army Medical Supply Officer Course," Medical Technician's Bulletin, VII, No. 6 (November-December, 1956), 255-58.

[2]United States Army Medical Field Service School, "Medical Supply and Services Course," Program of Instruction, Fort Sam Houston, Texas, February 20, 1968, pp. 9-39.

[3]United States Army Medical Materiel Agency, "Medical Depot Inventory Management Course," Program of Instruction, Phoenixville, Pennsylvania, n.d., p. 1.

[4]Atlanta Army Depot, "Medical Depot Storage Course," Program of Instruction, Atlanta, Georgia, n.d., p. 1.

[5]United States Army Medical Field Service School, "United States Army Medical Department Officer Advanced Course," Program of Instruction, Fort Sam Houston, Texas, May 24, 1968, p. 1.

[6]Letter from Headquarters, United States Continental Army Command, Fort Monroe, Virginia, December 1, 1967, to Continental Army Command Service Schools.

[7]"United States Army Medical Department Officer Advanced Course," pp. 15-92.

[8]United States Army Logistics Management Center, "Army Logistics Management Course," Program of Instruction, Fort Lee, Virginia, n.d., p. 2.

[9]Telephone Conversation Between the Registrar, Army Logistics Management Center, and Lieutenant Colonel K. K. Wheatley, United States Army Medical Field Service School, Fort Sam Houston, Texas, February 26, 1969.

[10]Telephone Conversation with Major T. R. Edwards, Medical Service Corps Career Management Branch, Office of The Surgeon General, Department of the Army, March 5, 1969.

[11]Colonel Jesse N. Butler, Assistant Chief, Supply Division, Office of The Surgeon General, Department of the Army, Lecture to the Medical Supply and Services Course at the United States Army Medical Field Service School, Fort Sam Houston, Texas, February 18, 1969.

[12]Telephone Conversation Between Major Harry E. Bonner, Chief, Supply and Services Division, Kenner Army Hospital, and Lieutenant Colonel Earl W. Lauck, United States Army Medical Field Service School, Fort Sam Houston, Texas, February 26, 1969.

[13]Data (Typewritten) Furnished the Author by Lieutenant Colonel James Van Straten, Medical Service Corps Career Management Branch, Office of The Surgeon General, Department of the Army, undated.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

It is concluded that:

1. The present materiel management education and training program for medical supply officers serving in the United States Army Medical Department provides too few of its membership with graduate level management education.

2. The demands of modern materiel management require a working knowledge in the academic areas of organizational principles, behavioral science, information systems, systems analysis, financial management, quantitative methodology, economics, operations research and, quite obviously, materiel and services management.

3. In his assignments subsequent to completion of the Army Medical Department Officer Advanced Course, each medical supply officer will require a proficiency in those academic areas that are presently associated with modern materiel management.

4. It would be infeasible to assume that each field grade medical supply officer serving in the Army Medical Department would be selected to attend an advanced service school or receive graduate education at a civilian institution.

5. The twelve-week Army Logistics Management Course does not meet the specific requirements of the Army Medical Department for the graduate level training of its materiel managers.

Recommendations

It is recommended that:

1. The Army Surgeon General immediately establish a graduate level medical materiel management course at the Army Medical Field Service School.

2. The Army Medical Field Service School and The Surgeon General adopt the program of instruction contained in the appendix as the basic curriculum for a graduate level medical materiel management course.

3. The Medical Materiel Management Course be required of each of the Army Medical Department's materiel managers immediately upon completion of the Advanced Course.

4. The primary military occupational specialty (MOS) of medical supply officer be awarded only upon graduation from the Medical Materiel Management Course.

5. The Army Medical Department continue its present policy of selecting for advanced military and civilian schooling those medical supply officers who meet the established criteria.

APPENDIX

PROPOSED PROGRAM OF INSTRUCTION FOR A GRADUATE LEVEL MEDICAL MATERIEL MANAGEMENT COURSE

U.S. ARMY MEDICAL FIELD SERVICE SCHOOL
BROOKE ARMY MEDICAL CENTER
FORT SAM HOUSTON, TEXAS

May 1969

PROGRAM OF INSTRUCTION

FOR

MEDICAL MATERIEL MANAGEMENT COURSE

MOS: 4490

Length: Peacetime--12 Weeks
Mobilization--8 Weeks

SECTION I--PREFACE

A. Course: Medical Materiel Management Course

B. Purpose: To provide commissioned officers of the Army Medical Department a working knowledge of the medical materiel system in order to enable them to perform in executive level decision-making positions within this system. Specifically, the student is to be provided the fundamental knowledge and skills required to effectively perform at the division/directorate level in hospitals, medical depots, inventory control points, and major headquarters and at the branch level of the Directorate of Medical Materiel, Defense Personnel Support Center.

Instructional objectives:

1. Ability to compute initial medical materiel requirements and compute and forecast replenishment requirements.

2. Ability to efficiently and economically acquire medical materiel at the installation and inventory control point level.

3. Ability to efficiently and economically manage medical inventories at the installation and inventory control point level.

4. Ability to efficiently and economically control property in use at Army Medical Department installations and activities.

5. Ability to efficiently and economically manage all service elements assigned to the hospital's Supply and Services Division.

6. Ability to efficiently and economically program and budget for all materiel and services required by Army Medical Department facilities.

7. Ability to determine objectives; develop plans, policies and procedures; and efficiently and economically control and evaluate all elements of the medical materiel system.

8. Ability to efficiently and economically manage the world-wide distribution of medical materiel.

9. Ability to evaluate alternatives for decision making in qualitative and quantitative terms.

10. Ability to utilize the scientific method in problem solving.

11. Ability to formulate a personal philosophy of management.

C. Prerequisites: Commissioned officer of the Medical Service Corps who has completed the Medical Supply and Services Course and the USAMEDD Officer Advanced Course and has been identified in the Medical Supply career field. Security clearance required: SECRET. Obligated service for Active Army commissioned officers: 1 year.

D. Length:	Peacetime	Mobilization
	12 weeks	8 weeks
E. Training locations:	USAMFSS	USAMFSS

F. MOS feeder pattern:

Prerequisite MOS	MOS Trained in This Course	Feeds Following MOS
None	4490	4010, 4310

SECTION II--SUMMARY

MEDICAL MATERIEL MANAGEMENT COURSE

Peacetime: 12 weeks; 528 hours
Mobilization: 8 weeks; 384 hours

Subject	Hours Peace	Hours Mob	Annex	Page
A. Academic subjects:				
The Medical Materiel System	22	17	A	5
Inventory Management	96	55	B	7
Distribution Management	28	18	C	11
Procurement Management	23	14	D	14
Services Management	35	20	E	16
Resource Management System	95	88	F	19
Principles of Administration	11	8	G	24
Personnel Management	32	25	H	26
Quantitative Techniques for Materiel Management	37	32	I	28
Research and Examinations	42	42	J	31
Subtotal	421	319		
B. Nonacademic subjects:				
Opening Exercise	1	1		
Processing	20	12		
Graduation Exercise	1	1		
Commandant's Time	30	20		
Physical Conditioning	30	20		
Open Time	25	11		
Subtotal	107	65		
Total	528	384		
C. Recapitulation:				
1. Security classification				
UNCLASSIFIED Total	421	319		
2. Type of Instruction				
Lecture	122	112		
Conference	147	102		

Subject	Hours Peace	Hours Mob	Annex	Page
Case Study	10	5		
Practical Exercise	63	32		
Examinations	18	18		
Research Time	24	24		
Guest Speakers	12	6		
Programmed Instruction	8	8		
Film	1	1		
Seminar	15	11		
Television	1	0		
Total	421	319		

SECTION III--ANNEXES

ANNEX A

THE MEDICAL MATERIEL SYSTEM

Peacetime: 22 hours
Mobilization: 17 hours

PURPOSE: To provide the student with a general knowledge of the total materiel cycle, a working knowledge of the total medical materiel system within the Department of Defense and to present the underlying philosophy of the management of medical materiel.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Orientation and Introduction to Medical Materiel Management	U	2C	2C	Orientation on course content. The philosophy of medical materiel management.	
The Materiel Management System	U	2L	1L	A discussion of the elements, to include their functions, that compose a total materiel management system.	Ammer, chap 1-4.
Organizations and Logistics Systems of the Department of Defense	U	2C	1C	Defense organization as it relates to logistics. Current logistical systems and trends toward future systems. An overview of the logistics systems within the Navy and Air Force as they relate to medical materiel.	DA Pam 700-1; ICAF, Supply Management; ICAF, Defense Organization.
The General Services Administration	U	1C	1C	The role of GSA and its relationship to DOD.	
The Defense Supply Agency	U	2C	1C	The mission, organization, and functions of the Defense Supply Agency as it relates to medical materiel.	AR 700-2.

ANNEX A (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
The Defense Medical Materiel Board	U	1C	1C	The role of DMMB in the materiel cycle and its relationship to The Surgeon General.	
The Department of Army Logistics System	U	2C	2C	The overall logistics organization of DA to include the Army Materiel Command.	AR 10-11; ICAF, Supply Management.
Supply Division, Office of The Surgeon General	U	2GS	2GS	The mission, organization, and functions of the Supply Division. Relationship of OTSG to DPSC, USAMMA, DMMB and installations.	
U.S. Army Medical Materiel Agency	U	2GS	2GS	The organization and functions of USAMMA. Relationship of USAMMA to DPSC, OTSG, DMMB and installations.	USAMMA Org and Functions Manual.
The Class II System	U	1C	1C	The class II medical system to include R&D, MEDL, and T&E.	OTSG Reg 10-2; OTSG Reg 705-2.
The Class I System	U	1C	1C	The class I medical system as it relates to medical materiel.	AR 40-4; AR 40-61.
The Overseas Commands	U	2C	1C	The organization of the overseas medical materiel effort.	AR 40-4; AR 40-61.
Introduction to International Logistics	U	2L	1L	Introduction to the mission and functions of DOD organizations in the planning and execution of Mutual Security Programs. The medical role in these programs.	AR 795-12; FM 38-8.

ANNEX B

INVENTORY MANAGEMENT

Peacetime: 96 hours
Mobilization: 55 hours

PURPOSE: To provide the student with a working knowledge of the concepts, principles and techniques applicable to the management of worldwide medical inventories.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Introduction to Inventory Management	U	1L	1L	The function of inventories and their characteristics. Principles of inventory management.	Prichard and Eagle, chap 1; Ammer, chap 8.
Item Development, Identification and Standardization	U	3C	2C	The type classification system. The need for item identification and standardization. The Federal Supply Catalog System.	AR 40-56.
Item Categories	U	2C	1C	The need for item and inventory categorization. Principal, secondary and repair parts. Critical and high dollar categories.	FM 38-22.
Introduction to Army Requirements	U	2L	1L	The administrative and conceptual aspects of requirements planning. General principles, objectives and procedures in the accomplishment of the requirements function for medical items.	FM 38-21; FM 38-22; ICAF, Requirements: Matching Needs with Resources.

ANNEX B (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Elements of Requirements Computation	U	6C	4C	Concepts and theory of the elements of requirements computation: to include initial requirements, initial provisioning, theoretical pipeline, the replenishment process, and PWRR-MF.	AR 700-18; AR 700-19; AR 710-45; AR 711-1; FM 38-2-1; FM 38-5; FM 38-22; Prichard and Eagle, chap 2.
Elements of the Requirements Computation	U	6PE	6PE	An exercise which begins with determining initial requirements and develops the replenishment process through the operation of a theoretical materiel pipeline.	FM 38-22.
Demand Information	U	2C	1C	Collection and analysis of data. The internal and external factors which affect forecasting.	FM 38-22; Prichard and Eagle, chap 12.
Demand Forecasting	U	2PE	2PE	An exercise requiring the student to project demands with analytical methods to include least squares, weighted averages, and exponential smoothing.	FM 38-22; Prichard and Eagle, chap 12.
Major Item Management	U	2C 2PE	2C	Policies and procedures governing the preparation and submission of materiel requirements for PEMA funded AMEDD investment-type equipment. Practical exercise in developing an item requirement at the ICP level.	AR 711-35; TAG Ltr MEDDD-SM, 18 Jul 68.
Introduction to Selective Management of Secondary Items and Repair Parts	U	3C	2C	Selective management methods that are applied to the inventory management of secondary items and repair parts.	AR 710-45; FM 38-22.

ANNEX B (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Installation Stock Accounting	U	2C	1C	Review of policies and procedures at hospital level. Applicability of modern techniques at station level.	AR 40-61; AR 711-16.
Inventory Management	U	8PE 2S	8PE 2S	Student will complete programmed instruction with RO, EOQ, discounts, frequency distribution and variable safety levels. Group discussion of the concepts will follow.	Entelek, Inc PI in Inventory Management.
Economic Inventory Policy	U	2PE	2PE	Techniques and application of economic order formulas and economic order frequency tables.	AR 711-16; Lee and Dobler, chap 9.
Reorder Points, Safety Levels, and Inventory Models	U	2C 4PE	2C 4PE	Discussion of the concept of inventory models to include their advantages. Methods of computing reorder points and variable safety levels.	AR 711-16; FM 38-22; Prichard and Eagle, chap 7.
Supply Control Studies	U	2C 4PE	1C 4PE	A discussion followed by an exercise on the control studies for HDV, MDV, and LDV items. The use of automated studies and computer assisted studies. Manual procedures are also discussed.	AR 710-45; FM 38-22.
DOD Disposal Program	U	2C	1C	Introduction to objectives, policies and organization of the DOD Disposal Program. Installation disposition of excess and surplus.	AR 755-20.
Supply Control Systems	U	5S	5S	Each student group will be required to analyze one of five different supply control systems and present to the entire class this	FM 38-22.

ANNEX B (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
				analysis, highlighting advantages, disadvantages, and the system's application to medical supply control.	
Inventory Control and Evaluation	U	2C 2PE	1C 2PE	The standards and indicators of effective inventory management. The exercise will require the students to present and defend the performance of a typical inventory control operation.	FM 38-22.
Medical Inventory Simulation	U	28PE	0	An inventory management computer assisted simulation game. The students will perform as ICP commodity managers and will be required to manage all types of medical items.	

ANNEX C

DISTRIBUTION MANAGEMENT

Peacetime: 28 hours
Mobilization: 18 hours

PURPOSE: To provide the student with a working knowledge of those aspects of the medical materiel distribution subsystem required to effectively direct, control and evaluate at the decision-making level.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Introduction to Distribution Management	U	2C	1C	Definition, objectives, principles and scope of the function of distribution management. Its place in the total material system and its relationship to other subsystems.	Mossman and Morton, chap 1.
DOD Wholesale Distribution System for Medical Materiel	U	1C	1C	The organization, type, location and functions of the DSA and AMC depots distributing medical materiel.	
The Army Retail Distribution System	U	2C	1C	The organization and functions of the Army retail distribution system.	
Depot Organization	U	2C	1C	The overall organization of each type depot.	AR 780-10.
Requisition Flow	U	1C	1C	Tracing the flow of MILSTRIP requisitions from origin to destination.	AR 725-50.
Fundamentals of Receiving	U	2C	1C	Planning, documentation, handling methods and techniques involved in the receiving function.	TM 743-200.

ANNEX C (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Receiving Problems at the Splendid Medical Depot	U	1CS	1CS	Discussion of typical problems in receiving operations at a depot.	TM 743-200.
Storage Methods and Procedures	U	1C 1TV	1C	Discussion of the principles and techniques of storage.	TM 743-200.
Warehouse Organization and Layout	U	1C	1C	Policies and procedures for warehouse layout and utilization.	TM 743-200.
Warehouse Gross Performance Measurement System	U	1C 1PE	1C	Basic policies, concepts and reporting procedures.	AR 780-62; DOD Manual 5105.34-M.
Storage of Special Commodities	U	1C	1C	Techniques and procedures involved in storage of special medical commodities, such as refrigerated, potency, narcotics, and hazardous items.	AR 40-61; AR 700-68.
Medical In-Store Quality Control	U	2CS	1C	Objectives and procedures for the surveillance of medical materiel in storage. A discussion of cyclic, scheduled and special inspections and the use of statistical quality control. Special problem areas, such as I.V. fluids, PWRS-MF, medical sets, kits, outfits and assemblies, etc.	TB Med 1; DSA DPSC Manual 4155.3.
Preservation, Packaging and Packing	U	2C	1C	Objectives, principles and methods applicable to the protection of medical materiel during shipment and in storage.	TM 38-230; TB Med 1.

ANNEX C (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Medical Assemblage Build and Reconstitution	U	1C	1C	Objectives and procedures for building and reconstituting medical assemblages to include procedure for accumulating components.	TB Med 1.
Fundamentals of Issue and Shipping	U	2C	1C	Principles of planning, documentation, handling methods and techniques involved in the issue and shipping function.	TM 743-200.
Fundamentals of Traffic Management	U	1C	1C	The U.S. transportation system, regulations, role of traffic, freight rates and tariffs. Use of air for medical shipments.	Lee and Dobler, chap 14.
MILSTAMP	U	1C	1C	The objectives and use of MILSTAMP.	AR 55-10.
Control and Evaluation of the Distribution System	U	2C	1C	A discussion of reports. Indicators of effective performance. Cost analysis of the distribution effort.	Mossman and Morton, chap 12.

ANNEX D

PROCUREMENT MANAGEMENT

Peacetime: 23 hours
Mobilization: 14 hours

PURPOSE: To provide the student with a general knowledge of the function and fundamentals of purchasing to enable him to effectively direct, control, and evaluate the purchasing effort at the decision-making level.

Subject	Classification	Hours & Type of Instruction: Peace	Hours & Type of Instruction: Mob	Scope of Instruction	References
The Purchasing System	U	2C	1C	The scope and importance of purchasing to include objectives, responsibilities and authority. Purchasing's place in the organization. Centralization versus Decentralization.	FM 38-3; FM 38-33; England, chap 12.
Quality Control	U	2C	2C	Quality defined. Suitability, the basic consideration, and its relationship to cost. Purchasing by brand name. Specifications outline and use. Inspection--where and when. Standardization.	FM 38-3; ASPR Sec I, Parts 11 and 12; Ammer, chap 13.
The Right Source	U	2C	1C	The stages of selection. Studying the supply sources. Developing sources. Evaluating suppliers' service.	FM 38-3; ASPR Sec I, Parts 5 and 6; Lee and Dobler, chap 5.
Negotiation	U	2C	1C	Nature of negotiation. Strategy. Planning for negotiation. Relationship to bid system.	FM 38-3; FM 38-33; ASPR Sec III; Heinritz and Farrell.
The Right Time	U	2C	1C	Timing the buy. Studying the market. Speculative purchasing. Economic impact of purchasing.	Lee and Dobler, chap 10.

ANNEX D (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
The Right Price	U	2C	1C	Price objectives. General economic considerations. Price related to cost. Type of contracts and their significance in pricing. Discounts.	FM 38-3; FM 38-33; ASPR Sec VII; Lee and Dobler, chap 6.
Make or Buy Decision	U	1C	1C	Reasons for manufacture instead of purchase. Danger involved in decision to manufacture. Cost analysis.	Lee and Dobler, chap 13.
Procedures and Systems	U	2C	1C	A discussion of major systems. Simplified methods. Computer application. Values of automation.	
Government Purchasing	U	4C 2GS	4C	Organization for government purchasing methods. Policies. Summary of differences. ASPR, Small Business Act and Labor Surplus Program. The medical procurement effort at DPSC.	FM 38-3; FM 38-33; ASPR; Lee and Dobler, chap 25.
Appraisal and Control	U	2C	1C	Concepts for control. Standards. Indicators of performance.	FM 38-3; FM 38-33; Lee and Dobler, chap 27.

ANNEX E

SERVICES MANAGEMENT

Peacetime: 35 hours
Mobilization: 20 hours

PURPOSE: To provide the student with a working knowledge of the fundamental evaluation and control techniques as they relate to the Supply and Service Division functions in a hospital.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Introduction and Organization of Service Elements	U	2L	1L	An introduction to how the hospital service elements are organized. Centralized versus Decentralized organization. Contractual versus In-House services.	AR 40-4; OTSG Reg 10-2; Koontz and O'Donnell; Newman.
Linen Management	U	1L 1CS	1L	Linen control and distribution. Identification, inventories, and methods of preventing abnormal losses. Prevention of cross infections.	AR 40-61; AHA Laundry Manual.
Housekeeping	U	2L 2CS	1L 2CS	Centralization versus Decentralization. Environmental sanitation, staffing, responsibilities, equipment, and problems associated with this function.	AR 40-4; TM 5-609; AHA Housekeeping Manual.
Centralized Materiel Section	U	1L	1L	Operation of CMS and its relationships to other supply activities of the hospital.	TM 8-275.
Pharmacy Service	U	1L	1L	Operation of the pharmacy and its relationships with other supply activities of the hospital. Purposes and functions of the therapeutic agents board.	AR 40-2.

ANNEX E (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Optical Fabrication and Repair	U	1L	1L	Terminology, personnel qualifications, and relationships with the hospital optometry section.	AR 40-3; AR 40-4; AR 40-61.
Transportation Services	U	1L	1L	Ambulance service, ambulance attendant training, and operation of the hospital motor pool.	AR 40-4; AR 58-1.
Distribution Systems	U	1L	1L	Supply distribution methods utilized within the hospital.	AR 40-4; TM 8-275.
Latest Trends in Services Management	U	2LC	0	Review of current literature presenting future concepts in services management.	Current Literature.
Property Management	U	2CS	2L	Objectives, procedures and systems of property control. Security systems.	AR 735-35; Anderson and Schmidt, chap 3; MacEachern, chap XV.
Corps of Engineers	U	1L	1L	Functions of CE, work order submissions, funding, and installation planning boards.	AR 420-17.
Hospital and Plant Maintenance	U	6C 2CS	2CS	Capital equipment and facilities, maintenance of utilities systems (e.g., heating, plumbing, air-conditioning, central oxygen, compressed air, electrical, waste disposal, and communications).	AR 420-43; AR 420-46; AR 420-49; MacEachern, chap XVI; Newbrough, chap 15 and 18; Reed, Sec III; Timms, chap 11; AHA Manual of Hospital Maint; AHA Pvnt Maint Guide.

ANNEX E (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Safety and Fire Prevention	U	1L	1L	Safety Programs and Accident prevention. Fire prevention standards.	AR 385 series; TB Med 35; TB Med 245; NF PA Pam 56; AHA Hospital Safety Manual.
Review of Equipment Preventive Maintenance and Maintenance Records and Reports	U	4C	2C	Responsibilities, purposes, and performance of preventive maintenance. TAERS. CMMI.	AR 750-808; FM 38-5; TM 38-750; TB 8-75; TB 38-750-2.
Medical Maintenance Management	U	4GS	2GS	Effective control and evaluation of the maintenance effort.	FM 38-5.

ANNEX F

RESOURCE MANAGEMENT

Peacetime: 95 hours
Mobilization: 88 hours

PURPOSE: To provide the student with a general knowledge of the economic concepts underlying resources management, the use of accounting principles and techniques in the management of resources, and the application of economic and accounting principles and techniques in the planning, programming, budgeting, accounting, and controlling of resources in DOD, DA, and medical activities.

Subject	Classification	Hours & Type Peace	Mob	Scope of Instruction	References
National Economic Analysis	U	3L 2PE	3L	Explanation of the family of product and income accounts: GNP, NNP, PI, DPI, S.C.	Samuelson, chap 10, pp 179-202.
Defense Economics	U	3L	3L	Explanation of the concept of optimization and suboptimization as developed by Hitch and implemented by Secretary McNamara.	AR 37-13; ICAF, Defense Economics.
Economics of Health	U	2L	2L	Explanation of the nature of the health care industry; explanation of the flow-of-the-health-care-funds chart.	
Balance of International Payments	U	5L	5L	Explanation of different types of international exchange systems, introduction to recent adverse U.S. balance of payments; explanation of problems, alternatives, and solutions.	AR 35-109; AR 37-81; United Nations, International Finance Statistics.
Development of Economic Theory	U	10C	5C	Introduction to the economics of the nations of Southeast Asia; problems of development; discussion of development theory; discussion of military and economic development.	AR 37-25; AR 37-81; ICAF, Foreign Economic Policy.

ANNEX F (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Fundamental Accounting Relationships	U	2L	2L	Definition of Accounting, the accounting entity, recording transactions, accounting statements.	AR 37-24; Niswonger and Fess, chap 1.
Ledger and Trial Balance	U	2L	2L	Nature of the accounting classification of accounts, illustration of the ledger, the nature of a trial balance.	AR 37-24; Niswonger and Fess, chap 2.
Journals and Posting to Accounts	U	2L	2L	Need for journals, posting to accounts, chart of accounts, discovery and correction of error.	AR 37-24; AR 37-100-XX; Niswonger and Fess, chap 3.
Completion of the Accounting Cycle	U	2L	2L	The work sheet, adjustments, financial statement preparation, posting adjusting and closing entries, review of the accounting cycle.	AR 37-24; Niswonger and Fess, chap 4.
Sales and Cash Receipts	U	2L	2L	Need for special journals, merchandising, sales procedures, subsidiary ledgers, sales returns and allowances, credit terms, cash discounts, cash receipts journal, accounts receivable.	AR 37-24; Niswonger and Fess, chap 5.
Purchases and Cash Payments	U	2L	2L	Purchasing procedures, purchases journal, purchase returns and allowances, cash payments journal, accounts payable, transportation terms.	AR 37-24; Niswonger and Fess, chap 6.

ANNEX F (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Periodic Summary	U	2L	2L	Outline of the periodic summary, adjustment of merchandising inventory, completing the work sheet, income statement, balance sheet and capital statement, post-closing trial balance, errors of past periods.	AR 37-24; Niswonger and Fess, chap 7.
Deferrals and Accruals	U	2L	2L	Periodic reports, prepaid expenses, unearned revenue, accrued liabilities, accrued assets.	AR 37-24; Niswonger and Fess, chap 9.
Receivables and Merchandise Inventory	U	2L	2L	Classification of receivables, procedures for recording bad debts, inventory systems, concept of cost or market, retail method of costing inventory, gross profit method of estimating inventories.	AR 37-37; Niswonger and Fess, chap 10.
Plant Assets and Depreciation	U	2L	2L	Nature of fixed assets, initial costs, nature of depreciation, depreciation methods, capital versus revenue expenditures, disposal of fixed assets.	AR 37-111; AR 37-120; Niswonger and Fess, chap 11.
Systems and Controls	U	2L	2L	Accounting systems, internal control, bank reconciliations, petty cash, other cash funds, control over non-cash items.	AR 37-108; Niswonger and Fess, chap 12.
Measuring the Flow of Funds	U	4L	4L	The need for funds flow analysis, meanings of funds, sources and uses of funds, comparative merits of different funds concepts.	AR 37-152; Black et al, chap 5.

ANNEX F (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Appraising Business Financial Results	U	3L	3L	Bases and methods of comparing financial results, measures of appraising operating results, measuring liquidity and solvency, measuring long range.	AR 37-152; Black et al, chap 10.
Measuring and Controlling Cash and Receivables	U	2L	2L	Accounting for income versus accounting for cash, importance of accounting for cash, nature of receivables uncollectible accounts, accounts receivable turnover rates.	AR 37-111; Black et al, chap 12.
Measuring, Planning and Controlling Inventories	U	1L	1L	Comparing inventory methods, FIFO, LIFO, average cost, the objective of planning for inventory, controls, measurements of effectiveness of inventory management.	AR 37-37; AR 37-111; Black et al, chap 13.
Analyzing Cost and Revenue Behavior	U	3L	3L	Past and future costs, fixed costs, variable costs, interrelationships of revenues, expenses and assets, predicting alternative courses of actions, break-even analysis.	AR 37-29; AR 37-108; AR 37-111; Black et al, chap 19.
Accounting for Manufacturing Under Historical Costs	U	3L	3L	Cost centers, types of costs, job-order and process cost systems, behavior of production costs, predetermined overhead rates, analysis of variances.	AR 37-100-XX; AR 37-108; Black et al, chap 21.
Accounting for Manufacturing Under Standard and Direct Costs	U	4L	4L	Accounting for standard costs, using variance information, full costing, direct costing, management uses of standard and direct costing.	AR 37-29; AR 37-108; Black et al, chap 22.

ANNEX F (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Resource Management Systems	U	5C	5C	DOD resource management systems, concepts, elements, requirements of Army Resource Management System Programming, budgeting, accounting, and controlling of resources.	AR 37-1; AR 37-15; AR 37-100; AR 37-100-69; DA Pam 35-10; DA Pam 37-5; DOD Dir 7000-1.
Programming Budgeting	U	10CPE	10CPE	Principles of programming and budgeting. Techniques for determining resource requirements. Application of capital budgeting to medical activities (MEPRS).	AR 37-13; AR 37-15; AR 37-29; AR 37-100; AR 37-120; DA Pam 35-10; DA Pam 37-5; DOD Dir 7000-1.
Resource Control	U	5C	5C	Controlling of resource use. Use of cost data in measuring and evaluating resource consumption. Application of breakeven analysis to medical activities, measurement and analysis of actual performance against budgeted performance and other standards and controls.	AR 37-29; AR 37-100-69; DA Pam 35-10; DA Pam 37-5.
Financial Inventory Accounting	U	2C	2C	The concept of FIA as it applies to worldwide medical inventories.	FM 38-6.
The Army Stock Fund	U	6C	6C	The objectives, policies, organization and operation of the ASF.	FM 38-6.

ANNEX G

PRINCIPLES OF ADMINISTRATION

Peacetime: 11 hours
Mobilization: 8 hours

PURPOSE: To provide a general knowledge of the principles of administration.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Introduction and Basis of Management	U	2LCF	1LCF	Introduction and outline of the subject; importance of administration; role of administrative principles; definitions of administration; historical development of administration, and emergence of modern thought in administration. Introduction to concepts of authority to include sources and limits; interrelationship of responsibility to authority; and principles of delegation of authority. Films: MF 61-5024, MF 61-9674.	Koontz and O'Donnell, Part I.
Planning	U	2L	2L	Introduction to planning as a function within administration. Includes the nature of planning; definition of planning; importance of planning; and the steps in planning. Discussion on establishing a climate for planning.	Koontz and O'Donnell, Part II.
Organizing	U	1L	1L	Introduction to organization as a function within administration. Organization defined. Discussion of formal and informal organizations. Delineation of the process of organizing.	Koontz and O'Donnell, Part III.

ANNEX G (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Staffing	U	1L	1L	Introduction to staffing as a function within administration.	Koontz and O'Donnell, Part IV.
Directing	U	1L	1L	Introduction to directing as a function within administration. Definition of directing. Discussion of the process of directing.	Koontz and O'Donnell, Part V.
Controlling	U	1L	1L	Introduction to and definition of control as a function within administration. Discussion of the basic control process.	Koontz and O'Donnell, Part VI.
Philosophy of Administration	U	2GS	0	Presentation of guidelines for the personal development of a philosophy of administration.	
Summary Reinforcement	U	1C	1C	Review of the basis of management and the functions thereof: planning, organizing, staffing, directing and controlling.	All previous references.

ANNEX H

PERSONNEL MANAGEMENT

Peacetime: 32 hours
Mobilization: 25 hours

PURPOSE: To provide a general knowledge of the concepts, principles and techniques of personnel management for officers, enlisted personnel and civilian employees within the Army Medical Department Supply System.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Introduction to Personnel Management	U	2C	1C	Review of Principles of Personnel Management and overview of the instruction in Personnel Management.	AR 600-200; Lee and Dobler, chap 21; Pigors and Meyers, chap 26, 2, 3.
Manpower Authorizations	U	2C	2C	Planning and programming of supply manpower requirements, Table of Distribution and Allowances, staffing guide, and Manpower Utilization Surveys.	AR 616-1; DA Pam 20-557.
Management of Medical Supply Personnel	U	2C	2C	Career management of supply personnel including officers, enlisted and civilians.	AR 600-200; AR 611-101; AR 611-201; AR 624-100; Fleishman, Sec 1.
Methods of Supervision	U	2C 4S	2C 2S	Review of theories of motivation, use of authority, communication, role of status, informal organization.	Fleishman, Sec 4 and 5; Pigors and Meyers, chap 7; Yoder, Sec II.

ANNEX H (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Development of Supervisors and Managers	U	2C 4S	2C 2S	Principles of supervisory and managerial development; identifying training needs, administration of training program, methods used in training.	Yoder, chap 18 and 19; Aljian, Sec 23; Fleishman, Sec 3; Pigors and Meyers, chap 17.
Safety Management	U	2C	2C	The physical and psychological factors related to safety. The considerations necessary in creating and maintaining an environment conducive to safe practices and procedures.	AR 385-10; AHA Hospital Safety Manual; Fleishman, Sec 8; Pigors and Meyers, chap 25.
Performance Evaluation	U	2C	2C	Policy on evaluation; review of OER, EER; improving evaluation, establishing performance goals.	Fleishman, Sec 2; Lee and Dobler, chap 22; Yoder, chap 17.
Employee Organizations	U	2C	2C	Unions and labor movement, right to bargain, contract administration, Governmental policies.	Pigors and Meyers, chap 8, 13 and 14; Yoder, Sec III; Federal Personnel Manual.
Civilian Personnel Management	U	2L 4C 2PE	2L 2C 2PE	The principles, policies and organization of the Army civilian personnel management system; the responsibilities of the supply officer in relation to DAC.	Federal Personnel Manual.

ANNEX I

OPERATIONS RESEARCH

Peacetime: 37 hours
Mobilization: 32 hours

PURPOSE: To develop a working knowledge of basic mathematical and statistical tools for use in problem-solving in logistics management; to develop a working knowledge of those operations research techniques which are valuable to career officers engaged in medical materiel management.

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Rules of Algebra	U	2LPE	1L	Discussion and practical exercises on the rules of expressions, factoring and fractions.	Springer, chap 4.
Rates, Ratios, and Proportions	U	2LPE	2LPE	Discussion and practical exercises on decimals and their representation as rates, ratios, and proportions in the area of materiel management.	Croxton and Cowden, chap 8.
Presentation	U	2LPE	2LPE	Explanation of and practical exercises involving charts, tables, graphs, and significant digits, equations and inequalities.	Croxton and Cowden, chap 6 and 10; Springer; chap 2.
Mean, Median, and Mode	U	2LPE	2LPE	Discussion and practical exercises of the basic measures of central tendency.	Croxton and Cowden, chap 16.
Analysis of Trends	U	2LPE	2LPE	Discussion and practical exercise involving the use of linear trends, moving averages, seasonal movements and cycles.	Croxton and Cowden, chap 28-31.

ANNEX I (CONT)

Subject	Classification	Hours & Type Peace	Hours & Type Mob	Scope of Instruction	References
Sampling Theory and Data Gathering	U	2L	2L	Methods of sampling; sampling designs, factors affecting sampling, sample size; and steps in statistical investigation.	Croxton and Cowden, chap 10 and 13.
Probability	U	2LPE	2LPE	Discussion and practical exercises on expected value and the probability functions.	Croxton and Cowden, chap 11; Levin and Kirkpatrick, chap 3.
Probability	U	2LPE	2LPE	Further explanation of a forecasting system and application of exponential smoothing techniques to materiel management situations.	Brown, chap 1-3; Bursk, chap 12.
EOQ Theory	U	4LPE	2LPE	Discussion, programmed instruction, and practical exercises on Economic Order Quantity theory and practice in civilian and military inventory management systems.	Entelek, Programmed Instruction on Inventory Management; Levin and Kirkpatrick, chap 5.
Linear Programming	U	8LPE	6LPE	Presentation, discussion and practical exercises of linear programming with emphasis on the transportation method; use of the technique in distribution and supply problems.	Churchman, chap 11; Levin and Kirkpatrick, chap 8-9.
PERT and PERT/COST	U	4LPE	4LPE	Review of Program Evaluation Review Technique; explanation of PERT/COST with emphasis on uses for inventory control; practical exercise involving PERT plan for hospital facilities construction.	Bursk, chap 3; DOD Pam on PERT/COST.

ANNEX I (CONT)

Subject	Classification	Hours & Type Peace	Mob	Scope of Instruction	References
Decision Theory	U	2L	2L	Review of decision making under both risk and uncertainty. Emphasis on various approaches utilized in the control and management of inventory.	Levin and Kiripatrick, chap 4.
OR Methodology	U	1L	1L	The application of the scientific method to the solution of operations research problems.	Johnson, chap 13-15.
Queueing Theory and Monte Carlo Simulation	U	1L	1L	Discussion and explanation of queueing theory and Monte Carlo techniques, and general simulation methods for problem solution with emphasis on materiel management problems and situations.	Levin and Kirkpatrick, chap 12.
Summary and Reinforcement	U	1L	1L	Review of all previous instruction with emphasis on applications to materiel management.	All previous references.

ANNEX J

COURSE EXAMINATIONS, RE-TEACHING SESSIONS AND RESEARCH TIME

Peacetime: 42 hours
Mobilization: 42 hours

PURPOSE: To evaluate student knowledge of course material at the beginning, during and at the completion of the training period; to reinforce deficient areas and to allow the student time for completing case studies and research projects.

Subject	Classification	Hours & Type Peace	Mob	Scope of Instruction	References
Examinations	U	12E	12E	Comprehensive examinations will be administered every two weeks.	None.
Re-Teaching	U	6E	6E	Reinforcement of deficient areas.	None.
Research	U	24R	24R	Case studies and specially assigned research projects.	None.

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Lieutenant Colonel John W. Arnold [redacted]. He attended Stanford University prior to entering the United States Army in 1951. In 1953 he received a Regular Army Commission in the Medical Service Corps.

Virtually all of Lieutenant Colonel Arnold's military service has been in the medical supply and logistics fields. His duties have included assignments in medical depot operations, medical inventory control activities and Department of the Army staff agencies. On two separate occasions he has served as an instructor at the United States Army Medical Field Service School.

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