THE ROLE OF HIGHER EDUCATION IN EMERGENCY MEDICAL SERVICES

Dissertation for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
JOHN WILLIAM FLICKINGER

1975

This is to certify that the

thesis entitled

THE ROLE OF HIGHER EDUCATION IN EMERGENCY MEDICAL SERVICES

presented by

John William Flickinger

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Higher Education

Major professor

Date 11/5/75

O-7639

ABSTRACT

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By

John William Flickinger

Examined in this study were the present and future roles of higher education in the emergency medical services system. The creation of a new health care system was investigated and its educational requirements enumerated.

Key informants were contacted and an exhaustive search of the literature in the area was made. Searches were conducted at the American College of Emergency Physicians and the National Criminal Justice Reference Service, in addition to the traditional sources. The writer participated in the development of the emergency medical services plan for the state of Michigan, and drew upon that plan for some background material.

The study is a descriptive analysis of the present educational and training programs for emergency medical services personnel in the United States. A discussion of ideal responses to the need was included, along with an examination of existing responses. Ways for higher education to meet the educational requirements of the system were proposed.

Findings

At this time there is no comprehensive emergency medical services educational program at a single higher educational institution in the United States. Institutions of higher education have the resources necessary to educate the emergency medical services system personnel. However, it is unlikely that any single institution will meet this need, primarily because of the diversity within the university.

Leadership must come from the emergency medical services system personnel and those in higher education who are concerned with the development of such a system. Both internal and external organizations are needed to facilitate an improved response from institutions of higher education. A comprehensive program of this nature would require generous funding from a variety of sources; another possibility would be a combined effort by the U.S. Departments of Transportation and Health, Education, and Welfare.

The development of the criminal justice system and its educational program was compared to that of the emergency medical services system and its educational efforts; both systems have had similar experiences. Although both have ample educational programs, neither has a comprehensive program at a single institution, primarily because of the wide range of personnel from semi-skilled to professional.

Change in higher education is deliberate and occurs slowly. The response of higher education institutions to the

need for emergency medical services systems has been and will continue to be delayed until such systems become more fully developed. The bureaucracy inherent in institutions of higher education also contributes to the delay in responding to the need for emergency medical services training programs.

Higher education should continue to contribute to the growth of emergency medical services in the United States, to the extent that such growth is compatible with institutional goals and objectives. Dialogue between higher education practitioners and emergency medical services personnel should be expanded to explore the interface more fully. Higher education personnel could provide valuable leadership to the growth and development of emergency medical services.

Further research into the role of higher education in emergency medical services should be conducted. The present dynamic nature of emergency medical services makes stable and continuing interrelations tenuous.

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By

John William Flickinger

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Administration and Higher Education

1975

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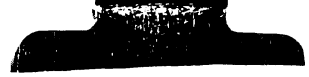

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CHAPTER I

INTRODUCTION

Emergency medical services have existed since shortly after the beginning of time, when one person first gave aid and assistance to another. Such services have recently become much more organized and are now playing an ever-increasing role in our society, reducing losses that result from accident or illness. When properly organized and staffed, emergency medical services provide quick, effective, and efficient response to and treatment of injuries and illness, enabling rapid restoration of the affected individual to his previously productive position in society. Although emergency service is many faceted, this study deals only with recent developments in the field and their relation to and implications for higher education in the United States.

The principal problem in the relationship between emergency medical services and higher education is the almost total lack of leadership by higher education in developing training and educational programs in this field. Existing higher educational institutions can provide the necessary resources for training emergency medical services personnel if educators become actively involved in the task. Specialized training programs should be developed to prepare various

professional groups for the new specialty of emergency medicine. First, it is necessary to educate or reeducate physicians and nurses; then system administrators must be trained to meet the demand for professional management of the programs and their component parts. The education and training of the people necessary to deliver efficient and effective emergency medical services takes anywhere from a few hours to many years, depending upon the role and function of the position within the system.

The emergency medical services field is characterized by the emergence of many new paraprofessionals, the most important being the emergency medical technician, whose training ranges from the basic course of 66 to 100 hours to the advanced course of 400 or more hours. The nature and scope of these paraprofessionals' duties vary widely, according to geographic location. The profession of full-time emergency department physician has emerged, and requires a special residency. The emergency nurse has been acting, in a limited way, as his assistant; however, the roles in emergency practice are changing, as they are throughout the whole field of medicine. The position of emergency physician's assistant has been slower to develop than that of emergency medical technician, and appears to be an evolutionary step up from the latter.

Emergency medical services are an outgrowth of efforts over many years by numerous individuals and

organizations to provide such care. Outstanding among these are the American National Red Cross, the American Academy of Surgeons Committee on Trauma, the American Academy of Orthopedic Surgeons, and numerous others. On a national scale, the primary impetus, inspired by these other efforts, has come from the National Academy of Science. Conceptualization and implementation of emergency medical services, outside of the hospitals, has been facilitated by the United States Department of Transportation, National Highway Traffic Safety Administration. That agency is interested in reducing mortality, morbidity, and days lost from work as a result of highway traffic accidents. It provides funds for various projects designed to reduce these losses.

Each state is required by the Department of Transportation to provide emergency medical services. If any state failed to implement a highly safety program, the federal aid highway funds apportioned on or after January 1, 1969, would be reduced by an amount equal to 10 percent of the amount that would otherwise have been apportioned to the state under provisions of Public Law 89-564, the Highway Safety Act of 1966.

The education and training requirements for approximately 22 health occupations range from a few weeks of on-the-job training for a nurses' aide to ten or more years of post-high school education and training for a physician. Many studies and innovations are taking place with respect

to the education of health workers. The most serious problem with these studies is that they are isolated from the mainstream of medical practice and are not evaluated by involved professionals and employer groups.[1]

Emergency medical services are developing, with the reluctant participation of some professional and employer groups; however, participation is increasing, especially in response to the stimulus of larger amounts of both public and private funds. Even so, as late as 1971, no programs were provided in emergency medical technology in the senior colleges of the United States.[2] Generally, emergency medical technician training in the United States has been outside of four-year colleges altogether. It has been community or hospital based, or found in the community and junior colleges or technical institutes.

Emergency medical education is currently an adult education enterprise, and adult education is generally characterized by a lack of data bases.[3] Existing personnel are being trained to meet the new personnel needs. The

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[1] Manpower Demand and Supply in Professional Occupations, Manpower Report of the President, 1970 (Washington, D.C.: Government Printing Office, 1970), p. 166. (Reprint.)

[2] Association of Schools of Allied Health Professions, Allied Health Education Programs in Senior Colleges, 1971 (Washington, D.C.: Government Printing Office, 1973).

[3] A. A. Liveright, A Study of Adult Education in the United States (Boston: Center for the Study of Liberal Education for Adults, 1968).

educational enterprise will change as soon as roles are defined and accurate manpower forecasts are made. The general lack of data was pointed out in the following passage:

> One of the primary needs of the health field is for an effective, coordinated clearinghouse of information and data, in order to assess current situations, provide enlightened projections and support subsequent planning that will be responsive to changes in the demand for health personnel and in performance requirements.[1]

Presently there is a wasteful duplication of efforts, especially at the basic emergency medical technical level; scarce resources are expended recklessly because there has not been careful planning, thoughtful program design, or adequate national or uniform standards. This is partially a result of pressure from the public, induced by mass media stimuli such as the National Broadcasting Corporation's television series, "Emergency."

When the question is asked, "How well are our emergency medical services personnel prepared for their critical role in the health care system?" it must generally be answered, "Unsystematically and inadequately!" In Michigan, for example, the state's ambulance licensing act only requires a minimum of one licensed person per ambulance. There are currently 4,300 licensed attendants. However, it is estimated that many more people, possibly an additional 4,000 or more (firemen, police personnel, and others), provide emergency care (not

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[1]Robert M. Tomlinson, Lois M. Langdon, and Chester S. Rzonca, Guidelines for Health Occupations Education Programs (Washington, D.C.: Government Printing Office, 1971), p. 4.

necessarily in conjunction with conveyance). Throughout the state, only 1,300 people out of the potential group have received the basic 66 to 100 hours of emergency medical technician training.[1] About 100 individuals, primarily in the cities of Grand Rapids and Southfield,[2] have received some form of advanced training, from 180 to 400 hours.

The Michigan Department of Public Health licenses 240 hospital facilities, 212 of which provide emergency outpatient care.[3] In some of these hospitals, full-time emergency physicians and staffs provide 24-hour coverage; however, in others only nurses are available to receive the emergency patients. Physicians who are not full-time emergency physicians must be summoned from home to treat the patients. Some hospitals rotate the physician staff for emergency department coverage, resulting in the possibility of a pediatrician attending a serious cardiac or trauma patient.

The American Medical Association's "Recommendations of the Conference on the Guidelines for Categorization of Hospital Emergency Medical Capabilities," published in 1971, delineated three specific categories of emergency medical services. A "comprehensive" emergency medical service was

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[1] K. Malkowski, Draft of Michigan's Emergency Medical Services Plan (Lansing: Michigan Department of Public Health, 1974), p. II-7.

[2] Ibid., p. II-8.

[3] Ibid.

defined as one that is capable of treating all types of emergencies immediately, that has a full-time physician director, and whose department is staffed by emergency physicians who have had two or more years of residency training. The comprehensive unit would have a blood bank and storage facilities available in the emergency room, with in-hospital laboratory services, radiology, angiography, operating rooms ready and staffed, a ready and staffed recovery room, and a staffed intensive care unit. A "major" emergency service would be able to deal with most types of emergencies immediately, with a recommended full-time physician director, and would staff the unit with physicians who have completed one or more years of residency training. This service would differ from the support services offered by "comprehensive" services only in that the angiography service would not be required. A "general" emergency service would be able to treat emergency cases immediately, with physicians available in the hospital and support services available either in the hospital or on call. Of the 147 hospitals responding to a categorization survey, only one in Michigan could be categorized as "comprehensive," 11 as "major," and 39 as "general."[1]

The Michigan Hospital Association, as well as other medical groups, has been active in efforts to enhance emergency care in the state; with their continued attention, the

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[1]Ibid., p. II-11.

situation should continue to improve. A body of physicians devoted to the improvement of emergency care in Michigan has founded the Michigan Chapter of the American College of Emergency Physicians. Since its inception, the Michigan Emergency Services and Health Council has provided the primary forum for the improvement of emergency care in Michigan. It has now taken on the role of being an advisory body to the Michigan Department of Public Health, which may mute the strong advocacy role it initially played. Local emergency medical services councils have been formed in some areas of Michigan, often as parts of regional comprehensive health planning agencies. One of the most active has been the Tri-County Emergency Services Council, which represents the greater Lansing area.

As the preceding discussion has indicated, many divergent groups are interested in emergency care; each has its own specific ideas on the subject. It is not always possible to determine whom a group really represents, as opposed to whom it purports to represent. Positions are constantly changing, so much so that it is common to have agreement on an issue one day and to find it unresolved the next.

Purpose of the Study

No known comprehensive program meets all of the educational needs of emergency medical services in the United

States today. Therefore a primary purpose of this study was to enumerate the university resources necessary to provide a comprehensive program and the steps necessary to mobilize these resources. The discussion focuses on those external and internal considerations necessary for program development. It may be that a comprehensive program is not possible at any single institution, given the resources required. If that is the case, perhaps a consortium could be formed to provide a comprehensive program.

Statement of the Problem

The problem of emergency medical services as it relates to higher education is how to provide the leadership, training, and education for the personnel who are needed to staff the system. That problem was the primary focus of the present study.

Selected books and reports were used to secure the necessary data for the study. Assessments of historical and geographical influences were made insofar as it was economically feasible, and interviews were conducted with concerned individuals at all levels of the emergency medical services system. The literature was reviewed and interviews conducted in detail to provide the essential problem background.

There has been constant change, reassessment, and revision in programs concerning emerging allied health

professionals in emergency medical services. The major efforts, to date, have been to identify the skills and behavior objectives desirable for emergency care careers. Pilot programs have been established to determine ingredients necessary to produce competent practitioners at all levels.

Curriculum development has focused on training those people with collateral skills in the new specialty of emergency medical care. Educators must now begin to develop a comprehensive curriculum exclusively for emergency medical services.

A major problem is that there is no clear-cut accreditation program for emergency medical services educational programs. The American Medical Association has been reluctant to move into the area of accreditation, and seems to be moving very deliberately toward any action in 1975, at the earliest.[1] The AMA did approve a 1974 Michigan State Medical Society resolution aimed at recognizing emergency physician residency programs sponsored by the American College of Emergency Physicians; this is a first step toward solving the problem.

The National Registry of Emergency Medical Technicians-Ambulance has been established for several years, but it is not recognized in several states. Michigan has no statutory provision for certifying basic emergency medical technicians;

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[1]Robert L. Donald, M.D., chairman of AMA Emergency Medical Services Committee, telephone conversation, May 27, 1974.

however, there is a legislative act to certify advanced emergency medical technicians.

Limitations

One limitation of the study is that it is descriptive rather than analytic, because of the unavailability of data and the innovative nature of the study. A further limitation is the paucity of information concerning emergency medical services systems. The review of literature includes the limited amount of information available, mainly relating to Highway Safety Standard Number 11 and the Highway Safety Act of 1966.

For the purposes of this study, discussion is limited to the operating executive; another study might include planning personnel as well. The study is not designed to identify any single institution or group of institutions that could provide a comprehensive emergency medical services career education program. A self-imposed limitation of the study is that no measure or comparison of the various programs is included, nor is any intended. Program accreditation is not specifically examined; it is recognized as another problem for further investigation and possible resolution.

Procedures

The main procedure of the study was to identify the elements of a comprehensive emergency medical services program.

Elements identified from the Highway Safety Standard Number 11 were patient care, administration, and operations.

The patient care staff consists of primary care personnel: the basic emergency medical technician, the advanced emergency medical technician, and the emergency physician. The areas of emergency department nursing and the emergency physician's assistant are also evolving.

Administration refers to the overall management of the emergency care system. Only the function of the operating executive is examined in this study.

The operations element is difficult to isolate, but generally includes dispatching and routine procedural matters, such as keeping records and making out reports.

Definition of Terms

The following terms are defined in the context in which they are used in this study.

Emergency Medical Services: The services used in responding to the perceived individual need for immediate medical care in order to prevent loss of life or aggravation of physiological illness or injury.[1]

Emergency Medical Services System: A system that arranges personnel, facilities, and equipment to provide effective and coordinated delivery of health care services

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[1]"Emergency Medical Services," Federal Register 39 (March 29, 1974), 11758, 56a. 103, Title 42, Code of Federal Regulations.

in a specific geographical area under emergency conditions (occurring either as a result of a patient's condition or of natural disasters or similar situations), and that has the authority and resources to administer the system efficiently.[1]

Basic Emergency Medical Technician (B-EMT): A term used interchangeably with Emergency Medical Technician-Ambulance (EMT-A) to denote anyone who responds to requests for efficient and immediate emergency medical assistance to the critically ill and injured, and who has completed a basic training course or equivalent approved by the Department of Transportation.

Advanced Emergency Medical Technician (A-EMT): As described in Michigan Act 275, one who has completed the emergency medical technician-ambulance course, emergency medical technician-ambulance advanced course, or an equivalent course; has passed written and practical examinations; and participates in an approved program of ongoing education.

An advanced emergency medical technician may render rescue and first-aid services, and in conjunction with a cooperating hospital may use the following life-saving techniques: (1) all phases of cardiopulmonary resuscitation, (2) cardiac monitoring, (3) defibrillation, (4) airway or gastric intubation, (5) relief of pneumothorax, and (6) the administration of appropriate drugs and intravenous fluids.

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[1]Ibid.

Emergency Department Nurse: A registered nurse who specializes in emergency department nursing and meets the current eligibility requirements of the Emergency Department Nurses Association.

Emergency Department Physician: A licensed attending physician who specializes in emergency treatment and who generally limits his practice to hospital emergency departments and meets the current eligibility requirements of the American College of Emergency Physicians.

Emergency Medical Services Administrator: One who administers an emergency medical services program, generally a comprehensive emergency medical services program for a specific geographical area.

Training: The process of bringing a person to required levels of competence in the skills of his craft, trade, or career endeavor.

Education: The process of conditioning a person to make sound judgments, to weigh alternatives, and to select the proper course of action, resulting in development of people who are competent in their values, judgments, and criteria.

Overview

Chapter I has provided an explanation of the emergency medical services system and its relationship to higher education. The future role of emergency medical services

training programs in the United States was also discussed. Included in the chapter were the purpose of the study and a statement of the problem, limitations, and definitions of terms used in the study.

Chapter II contains a review of literature related to emergency medical services and the development of the career concept. Contemporary training programs for emergency medical services personnel are also reviewed. Legal and legislative aspects of funding the system are considered as well.

The educational needs and responses of emergency medical services systems are examined in Chapters III and IV.

In Chapter V, ways are proposed in which higher education may meet these needs. The concluding chapter also contains a summary of the study and discussion of the findings.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The emergency medical service process is a combination of many elements. It is the interface of the public safety and health care systems, and provides for effective and efficient response to and care for people with medical emergencies, from incident to discharge. The essential components of the emergency medical service process are: detection, notification, response, initial care, transportation, diagnosis, definitive treatment, and rehabilitation.

This chapter contains a review of the literature related to emergency medical services and the development of the career concept. Also reviewed are contemporary programs for the education and training of personnel required to operate the emergency medical services system. Legal and legislative aspects and funding of the system are also considered.

A literature search was made by the writer, assisted by Judy Rudolph, librarian of the American College of Emergency Physicians, and James Edgar, Police Specialist, Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Reference Service. This search revealed a dearth of literature in the area.

History and Development of Emergency Medical Services

In the introduction to Chapter I, it was stated that the study would only deal with recent developments in emergency care and their relation to higher education in the United States. The contemporary growth of emergency medical care is a result of the 1966 "Highway Safety Act" passed by the United States Congress. Public Law 89-564, enacted September 9, 1966, amended Section 101, Title 23, United States Code by adding a new chapter: "Chapter 4--Highway Safety." Section 402 specifically called for highway safety programs; it stated, in part:

> Each State shall have a highway safety program approved by the Secretary, designed to reduce traffic accidents and deaths, injuries and property damage resulting therefrom.[1]

Section 402 further specified that the program provide standards for emergency services. The sanction section provided in part:

> Federal aid highway funds apportioned on or after January 1, 1969, to any State which is not implementing a highway safety program approved by the Secretary in accordance with this section shall be reduced by 10 percentum of the amounts which would otherwise be apportioned to such State under Section 104 of this title, until such time as such State is implementing an approved highway safety program.[2]

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[1] Highway Safety Act of 1966, U.S. Code, sec. 402, Public Law 89-564.

[2] Ibid.

On August 23, 1968, the United States Congress, in Public Law 90-495, extended the deadline for program implementation from January 1, 1969, to January 1, 1970.

Funding

Congress took affirmative action in Public Law 91-605 on December 31, 1970, by appropriating the sums of $75,000,000 for fiscal year 1971-72 and $100,000,000 for fiscal year 1972-73 to carry out section 402 (highway safety programs) by the National Highway Traffic Safety Administration. Congress also funded section 403 (relating to highway safety research and development) in the amounts of $70,000,000 and $115,000,000 for fiscal years 1971-72 and 1972-73, respectively. Congress has also provided the National Highway Traffic Safety Administration funds amounting to $100,000,000 for fiscal year 1973-74, $125,000,000 for fiscal year 1974-75, and $150,000,000 for fiscal year 1975-76.[1] Funds were also authorized, in increasing amounts, for section 403 (relating to highway safety research and development) for the same period.[2] Although emergency medical services are just one phase of the highway safety program, it is apparent that increased funding is becoming available for both program implementation and research and development.

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[1] Highway Safety Act of 1973, U.S. Code, sec. 202, Public Law 93-87, August 13, 1973.

[2] Ibid.

Amendments to sections 402 and 403 of Title 23, U.S. Code have clarified the authority to allocate funds to manpower training programs and demonstration programs, as well as for research and educational assistance.[1] Although Congress has provided funds for highway accident (trauma) portions of the emergency medical services system load through these provisions, it has not provided for nonhighway-related emergency care programs. These include farm, home, and industrial accidents and sudden illnesses, especially heart attack or coronary care.

In an attempt to overcome the limited scope of the "Highway Safety Acts," Congress passed the "Emergency Medical Services Act of 1973," Public Law 93-154. In passing this Act, Congress made dual sources of federal funding available. Funds from the Act of 1973 are administered by the Department of Health, Education, and Welfare and are not necessarily highway related. In the 1973 Act, funds are specifically allocated solely to emergency medical services. Congress provided $30,000,000 for fiscal year 1973-74, $60,000,000 for fiscal year 1974-75, and $70,000,000 for fiscal year 1975-76.

Personnel

These various federal laws have led to the development of the emergency medical services system. Since the

[1] Ibid., sec. 215 and 220.

"Highway Safety Act of 1966," the Department of Transportation has established "Standard Number 11-Emergency Medical Services" (see Appendix B). The "Standard" provides for the training of ambulance and rescue vehicle operators, attendants, drivers, and dispatchers.

In the Department of Health, Education, and Welfare definitions, the following personnel in the emergency medical services system are identified: physicians, nurses, allied health professionals, emergency medical technicians, and appropriate public employees charged with maintaining public safety.[1]

Paraprofessional Training

Basic Emergency Care Training

The emergency medical technician-ambulance is the basic level personnel category of the emergency care system. Although emergency care may be started by others, it is the emergency medical technician-ambulance (EMT-A) who begins the chain of professional care for the sick or injured patient. The functions of the EMT-A vary; however, the May, 1972, publication of the EMT-A description by the Department of Transportation, National Highway Traffic Safety Administration (Appendix C) is the one used for the purposes of this study. The EMT-A has been further identified as one who has

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[1] Emergency Medical Services, 42 Code of Federal Regulations, SS 56a. 103.

completed the Department of Transportation, National Highway Safety Administration's basic 81-hour course, which consists of 25 lessons involving 71 hours of classroom training plus 10 hours of in-hospital observation and training or an equivalent course.

Specialized Care Courses

Several specialized courses are provided for the EMT-A, preparing the technicians for specialized tasks. It has been reported that the state of Illinois is developing a general EMT-A intermediate course. Most common are cardiac care courses, using the basic EMT-A course as a prerequisite. The Columbus, Ohio, Fire Department has one of the oldest of these programs. In addition to formal programs, local physicians have often decided to continue the training of emergency services personnel beyond the basic course. Personnel trained in these specialized techniques are generally employees of local units of government, probably because of liability considerations or legal constraints. The Miami, Florida, Fire Department has a specialized program reported in a September, 1971, Department of Transportation, National Highway Traffic Safety Administration publication--Telemetry and Physician/Rescue Personnel Communication.[1] Advanced modalities included in the Miami project were defibrillation,

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[1]E. L. Nagel, Telemetry and Physician/Rescue Personnel Communication, Final Report, National Highway Traffic Safety Administration (Washington, D.C.: Government Printing Office, 1971).

intravenous fluids, and drugs. These courses are similar to others offered throughout the United States.

Advanced Care Courses

Advanced emergency medical technician courses have also been conducted throughout the United States, generally on a pilot basis. In Grand Rapids, Michigan, a comprehensive advanced emergency medical technician course, with both cardiac and trauma emergency training program components, has been offered for the past two years. This course was organized by a group of concerned physicians in Kent County, and the effort has received community support. The course includes approximately 400 hours of instruction and is truly an independent effort, meeting community needs and providing inspiration for other such undertakings. Other communities known to have had advanced programs are San Diego and Los Angeles, California; Arlington Heights, Illinois; Miami and Jacksonville, Florida; Seattle, Washington; and Houghton and Southfield, Michigan.

In September, 1970, the United States Departments of Transportation and Health, Education, and Welfare published Advanced Training Program for Emergency Medical Technicians-Ambulance.[1] The Department of Transportation has pilot

[1] Advanced Training Program for Emergency Medical Technicians-Ambulance, Guidelines and Recommendations prepared by the Committee on Emergency Medical Services and the Subcommittee on Ambulance Services, Division of Medical Sciences, DHEW Publication No. (HSM) 72-2007, reprinted March 1972.

tested an advanced, 480-hour emergency medical technician course. In a personal memorandum to the writer, Robert Motley of the National Highway Traffic Safety Administration expressed hope of having a final package by February, 1974; however, as of this writing, it has not yet been published. In the past this agency has been delinquent in achieving target dates for the release of emergency medical services programs, and there has been a great deal of intense interest in commenting on and reviewing the advanced program, which would contribute to the length of time required for release of the program. Latest projections for the release of the advanced medical technician program by the agency are for some time in the fall of 1974.

Dispatcher Training Program

In November, 1972, the Department of Transportation, National Highway Traffic Safety Administration developed a training course entitled "Emergency Medical Technician-Dispatcher," which "is designed to teach Emergency Medical Technicians the fundamentals of efficient and proper communications procedures."[1] The Public Safety Communications Standard Operating Procedure Manual, written and published by the Associated Public Safety Communications Officers, Inc.,

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[1]U.S. Department of Transportation, National Highway Traffic Safety Administration, Dispatcher, Emergency Medical Technician, Training Course (Washington, D.C.: Government Printing Office, 1973), foreword.

is used as the course textbook. The seven lessons are designed to provide ten hours of instruction in the basic fundamentals of proper telecommunications techniques. This course has not been widely used, because of the priority need to train the basic care personnel in the EMT-A course. Once the basic care personnel have been trained to the EMT-A level, the promotion of the dispatcher training program will increase. At present the emergency medical services communications pattern is very disjointed. Efforts to centralize and consolidate emergency care communications will foster course demand.

Basic Care Refresher Training Program

It is anticipated that EMT-A personnel will need to be given refresher training every two or three years. Such a training program was developed by the Department of Transportation, National Highway Traffic Safety Administration, and was published in March, 1971. The program is designed to maintain a high level of efficiency and effectiveness among the EMT-A personnel who have successfully completed a basic training program in emergency care. The Department of Transportation refresher course is primarily a review of the basic course, and is limited mainly to medical emergency topics. In the course guide, the department recommends a minimum of 20 hours of classroom training, in modular units of 30 or 60 minutes. This program has not

received a great deal of attention because of the large numbers of personnel yet to be trained in the basic course. However, it is achieving wider implementation as the persons who were originally trained require proof of in-service training to maintain licensure.

Traffic Law Enforcement Officers Course

In July, 1973, the Department of Transportation, National Highway Traffic Safety Administration released a course developed for NHTSA, entitled "emergency medical services, crash injury management for traffic law enforcement officers." The course is designed as a training program in emergency medical care for first responders to traffic accidents. NGTSA expects the first official at the scene of any accident will be a law enforcement officer who responds from patrol in a radio-equipped vehicle. It is not intended that these individuals will be involved in the care or transportation of the patient; once the ambulance arrives on the scene, patient care responsibilities are turned over to the EMT-A's staffing the ambulance. The major part of the officer's course is devoted to the practical aspects of medical emergencies encountered at the scene of an accident. A great deal of time is provided for in-class mastery of the basic first-aid and C.P.R. skills. There is material for a minimum of 40 hours of didactic and field training. Each of the 20 lessons requires between one and three hours for

completion. A student study guide is provided to facilitate review of the information presented in the classes.

Some authorities support this role enlargement for law enforcement officers. Cruse and Rubin stated:

> Because of the role conflict in policing today, as well as the serious deleterious effects of inactivity and boredom, it is recommended that each cadet be trained in a sub-specialty, such as emergency medical care, settling minor civil disturbances, handling of alcoholics and/or drug addicts. During his regular patrol, he would also be expected to function in wide areas of the city as a specialist. The generalist-specialist would be kept more busy and less susceptible to boredom. Training toward being a generalist-specialist as an integral part of the policeman's identity should be started in cadet school.[1]

A system of advanced emergency medical technician and law enforcement officer functions is presently in operation in Kent County, Michigan, as described in Chapter IV of this dissertation.

Technological Impact

In August, 1972, the Department of Health, Education, and Welfare, Health Services and Mental Health Administration released a publication entitled Emergency Medical Services Communications Systems. The phase of the system that is most important to the present study is the linkage between the professional and paraprofessional medical personnel made possible by the communications system. Biomedical telemetry

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[1]Daniel Cruse and Jesse Rubin, Determinants of Police Behavior, A Summary (Washington, D.C.: Government Printing Office, 1973), p. 14.

is especially important, because data can be transmitted from the remote patient to the hospital-based professional, who can supervise treatment from afar. Thus, the program extends the span of operations of the health care professionals.

New equipment is becoming available that improves patient care patterns. As a direct result of the United States space program, a new device is being declassified for use in civilian emergency medical diagnosis. It analyzes multiple parameters of human physiology to provide computer-assisted diagnosis. Several projects in the United States are devoted to the study of the potential of computer-aided diagnosis. Investigators are also considering the possibility of dual roles for the computer, not only to aid with diagnosis, but also to use for instructional programs so that emergency care personnel can assess them on a time-available basis for in-service education.

Personnel Accreditation

The Registry of Emergency Medical Technicians-Ambulance was formed in late 1971 "to bring a greater degree of professionalism to EMT primarily by administering tests nationwide that lead to certification of ambulance technicians."[1] This self-supporting organization was initially

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[1]"Over 6000 Ambulance Technicians Enroll in Registry," AID, Journal of the Ambulance Association of America, August 1972 (undated reprint).

funded through loans from the American Medical Association, Ambulance Association of America, and Employers Insurance of Wausau. Organizations interested in the development of the Registry included: Ambulance Association of America, International Association of Chiefs of Police, International Rescue and First Aid Association, International Association of Fire Chiefs, National Sheriffs' Association, National Funeral Directors Association, and the National Ambulance Medical Supply Association.[1] Formation of the Registry followed a recommendation from the President's Committee for Traffic Safety that a "national accreditation system" be established for personnel engaged in emergency medical care.

The stated objectives of the Registry included assisting in developing and evaluating EMS programs, establishing qualifications for registration, preparing and conducting examinations to assure the competency of EMS technicians, establishing a system for annual registration, and establishing procedures for revocation of certificates of registration for cause.[2]

In the United States the Registry has met with considerable success; however, several states do not recognize the Registry for licensing purposes. The Department of Transportation, National Highway Traffic Safety Administration

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[1] Ibid.

[2] J. D. Farrington, M.D., "The Registry of Ambulance Attendants," Police Chief, July 1972, pp. 74-75.

does recognize the Registry, and, regarding the EMT-A, stated that "all personnel who have received training be encouraged to take steps to be enrolled in the National Registry."[1]

The Department of Health, Education, and Welfare used the Registry to determine equivalency of EMT-A training programs to the D.O.T. 81-hour program. This has been a difficult problem for the various EMT-A training organizations that want to deviate from the D.O.T. 81-hour basic course. DHEW wrote:

> In order that a program may be recognized as "equivalent," the Secretary must find that at least 75 percent of the graduates of such program either pass the National Emergency Technician Registry examination within six months after graduation or meet applicable State requirements which are determined by the Secretary to equal or exceed Department of Transportation requirements.[2]

The Registry seems firmly established, although various difficulties have been encountered in several states. According to Rocco Morrando, Executive Director of the Registry, in the first half of 1974 the Registry had more than 9,900 registered emergency ambulance attendants, out of the 250,000 reported attendants on municipal, volunteer, and private ambulance services in the nation.

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[1] Highway Safety Program Manual No. 11, Emergency Medical Services (Washington, D.C.: Government Printing Office, 1974), p. A2.

[2] "Emergency Medical Services," Federal Register 39 (March 29, 1974), 11759, 56a. 103(c), Title 42, Code of Federal Regulations.

Professional Organizations

The American College of Emergency Physicians was founded in 1968 by a group of physicians to bring about better emergency care. They recognized that expertise in diagnostic and clinical medicine must be combined with management skills.

Members of ACEP must attend 150 clock hours of in-service education every three years. The college is active in organizing many scientific programs, seminars, workshops, conferences, forums, and legal institutes. The annual scientific assembly is ACEP's major educational meeting, at which scientific papers are presented; numerous in-depth postgraduate courses are also offered. A symposium serves as a management-oriented meeting that complements the program of the scientific assembly.

ACEP postgraduate courses are designed to provide six to eight hours of in-depth training on a specific clinical subject. These courses allow the physician to make up deficiencies through self-assessment or to satisfy his need for greater in-depth training in various areas.

To be eligible for ACEP membership, a physician must show significant interest in emergency medicine, have high moral and professional character, and be licensed in his state. The college is presently developing board examinations. At this time there are 4,791 members of the college in 39 chapters. The college is larger than 98 of the 125

national scientific medical societies recognized by the American Medical Association, according to the AMA's 1972 edition of Reference Data on the Profile of Medical Practice.

Before 1972 there were only three emergency medicine residencies: the University of Cincinnati General Hospital, the University of Southern California Medical School, and the Medical College of Pennsylvania. A number of residencies have been developed since that time. The ACEP provides an Emergency Medical Residencies-Resource Book to aid in the development of new programs.

The National Association of Emergency Paramedics is an organization of emergency medical professionals, answering the need for on-the-scene advanced emergency care. In the association's brochure an emergency paramedic is defined as one who has completed an appropriate course of study under the direction and supervision of a licensed physician. Course content and skills include, but are not limited to, all phases of cardiopulmonary resuscitation, defibrillation, airway maintenance, use of appropriate communications devices such as telemetry, and the administration of appropriate drugs and intravenous solutions.

The National Association of Emergency Paramedics is an adjunct of the American College of Emergency Physicians. The organization just became known in early 1974, and is aggressively recruiting members at the present time.

Goals of the National Association of Emergency Paramedics are:

> Providing a means of improving on-the-scene emergency care by supporting the interchange of ideas and information,
>
> Seeking a method of standardizing and improving the training of emergency paramedics,
>
> Strengthening relationships with other members of the EMS team,
>
> Increasing public awareness of the emergency paramedic's role,
>
> Providing effective continuing education programs,
>
> Representing the emergency paramedic at all levels of the EMS structure.

The Emergency Department Nurses Association is an organization for licensed emergency department personnel engaged in emergency nursing care, as well as other licensed persons in the nursing field who are engaged in emergency care or education. Committees of members are working on programs in the fields of legislation, professional standards, and education. They are also developing guidelines that define the role of the emergency department nurse, in addition to methods of certification.

The Emergency Department Nurses Association has been in existence since 1970; it has a present membership of 7,482 in 56 chapters, according to Art Auer of the executive staff. This organization is an adjunct of the American College of Emergency Physicians. Objectives of the association are:

To provide optimum emergency care to patients in emergency departments, by helping to establish standards,

To promote, encourage and implement a positive attitude toward education on all levels within the emergency department, using the resources available on both local and national levels,

To study, to analyze, and to offer her/his opinion regarding the transportation of the sick and injured of the community,

To promote and participate in education of the general public and of patients who may require emergency care,

To support, promote, and participate in formal programs of instruction for emergency techniques, research and development of postgraduate courses on a professional level,

To promote official community, state, and national representation for the emergency departments in organized and academic nursing.

New Professionals

The Emergency Medical Services Administrator was first brought to public attention in a presentation by Frederick J. Lewis, Jr.[1] He called for the creation of a "new profession," stating that the National Highway Traffic Administration felt the time had come to bring maturity, stability, and specificity to a new profession. The proposal

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[1]Frederick J. Lewis, Jr., Rescue and Emergency Medical Services Division, Office of Standards Development and Implementation, "The EMS Administrator: A New Career for the Emergency Medical Services System" (speech presented at the Second Annual Forum for the Committee on Injuries of the American Academy of Orthopaedic Surgeons, Chicago, Illinois, October 19 and 20, 1972).

was based upon his department's six years of experience in the initiation and management of the national EMS effort.

Lewis said it was evident that an improved, national EMS posture could not be achieved unless persons charged with its management were properly prepared with certain essential qualities and attitudes. He pointed out that no one was currently preparing professionals for this role in our society. In his remarks, Lewis pointed out that professionals of various backgrounds and education were being assigned to EMS management roles and adjusting as best they could to the unique demands of their assignments.

Lewis identified the performance requirements at the general level of conceptualization. The new professional must be able to solve problems, make decisions, and be a leader. He must be able to implement cost/benefit analysis techniques and identify future courses of action. The new professional has four major roles--management, manpower development, communications, and public education and relations.

In proposing a graduate program for a candidate with a B.A. or B.S. and three to five years' experience in public problems and/or programs, Lewis outlined the following topics that represent the major skills and knowledge required by EMS:

> The epidemiology and etiology of serious illness and injury.

Definition of time-critical injuries and illnesses and associated countermeasures.

Intensive course in general physiology.

Societal impact of medical emergencies, value and ethics philosophy.

The emergency medical services system--definition of system elements.

The economics of ambulance service.

Federal, state, and local government structures.

The art and science of grantsmanship--getting the funds to operate the system.

EMS communications--survey, command, control; federal, state, and local relationships as a focal point.

EMS facilities--categories, equipment, staffing, economics, and performance standards.

EMS manpower development, licensing and training of EMT's, police, firemen, volunteers, and the general public.

The helicopter in EMS--operational profile, advantages and disadvantages, economics and benefits.

EMS needs identification--state and local.

The modern surface ambulance--design, performance, costs, procurement considerations, safe operation.

EMS public information and education--constituency development, programs for kindergarten through high school, families, recreational and industrial areas.

Managing the EMS system--state and local roles, cost/benefit consideration, political and tax implications.

Practicum--on-the-job riding in the ambulance.

Lewis proposed a one-year master's program, with emphasis on the case study method of problem presentation as

an excellent vehicle to assure repetition, emphasis, involvement, and examination of learning progress. He went on to substantiate the need for the professional EMS administrator in the 85,000 different political jurisdictions and about 3,000 counties in the nation.

Community Colleges and EMS

Many community colleges have played a role in the EMT training area. Typical of these efforts are the Lansing (Michigan) Community College, the C. S. Mott Community College (Flint, Michigan), and the Tallahassee (Florida) Community College programs. These colleges have used the Department of Transportation's basic course as the core for their efforts, modifying it for local circumstances. Two schools, Lansing Community College and C. S. Mott Community College, have developed more advanced courses, short of the 480-hour advanced course. Lansing Community College is developing EMT training into a certificate program.

The development of the emergency medical technician program in the community or junior college is a logical outgrowth of the health technology field. Richard Richardson, Jr. wrote:

> The field of occupational education represents a topic that is both promising because of the tremendous need for technically trained personnel in a society involved in the throes of technological revolution. It is promising because of the desire of the rapidly growing junior college movement to share the responsibility for meeting the needs of an automated society. At the same

> time, it is perplexing because many junior colleges are experiencing difficulties in initiating new programs, and in maintaining those already in existence at an appropriate level of efficiency.[1]

The response of the community or junior colleges to the EMS training needs is necessarily limited to the basic-level program. Junior colleges thus far have neither shown the desire nor developed resources to become involved in the EMS educational program beyond the basic level. Part of the problem faced by the junior or community colleges is the lack of a clearly defined, universally accepted curriculum for emergency medical technicians.

Summary

In considering the emergency medical services educational program, educators, administrators, and employers must establish guidelines for certification of programs and personnel at all levels. Professional organizations are working toward these goals; in the future the clarification of roles must be achieved.

The various paraprofessional and professional careers in EMS have been identified and described. At this time there are limited opportunities for graduates of the various programs, especially the paraprofessional programs. Also,

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[1] Emphasis: Occupational Education in the Two Year College (American Association of Junior Colleges, 1966), p. iv.

further exploration is necessary to coordinate the more extensive professional and hospital components necessary for the advanced EMT training.

CHAPTER III

CAREER LADDER CONCEPT

Introduction

Categories of emergency medical services personnel were described in the preceding chapter. Although the roles of these people are not yet sharply defined, sufficient information exists with which to interrelate them. The linking of these roles is best illustrated through a building block concept, the keystone being the basic emergency medical technician-ambulance. From this foundation it is possible to build an emergency medical services career concept in which people can enter with no training or skills and progress through the stages from the basic emergency medical technician-ambulance to whatever terminal position they elect. Progression of the individual, at least theoretically, is only limited by the individual's abilities and goals.

Portions of the emergency medical services career progression or ladder concept have been articulated by Davidson and Wiegenstein. The concept put forward here is a combination of the ideas of the aforementioned individuals and the writer. Although the career ladder concept is theoretically feasible and desirable, it is not without problems, most of which would be encountered as a result of the rules

and regulations set forth by institutions of higher education. Most higher educational institutions are sufficiently inflexible so as to prohibit easy implementation of the career ladder concept with multiple entry levels, primarily because of institutional prerequisites.

Educational Level	EMS Role
Graduate Degree	E.D. Physician, E.D. Supervisor, Federal and State Administrator
Baccalaureate Degree	Physician's Assistant, E.D. Nurse and Local Administrator
Associate Degree	Advanced Emergency Medical Technician
Certificate	Basic Emergency Medical Technician

Figure 1.--Emergency medical services career ladder concept.

Basic Career Structure

The basis, or foundation, of the emergency medical services career concept is the emergency medical technician-ambulance position, described in Appendix C. This position requires completion of both clinical observation and didactic portions of an instructional program, with practical examinations to demonstrate competency.

Building upon the basic EMT are three specialized positions at the operating level, which require only short-term additional training. Completion of these supplementary short-term programs would qualify the basic emergency medical technician-ambulance as a dispatcher, rescue specialist, or instructor.

Dispatcher

The dispatcher would receive requests, generally by telephone, for emergency medical services and would perform the triage function, assessing the appropriate level of response needed. The dispatcher would then mobilize the necessary resources to respond to the crisis. Dispatchers would necessarily have to complete the basic emergency medical technician course to acquire sufficient expertise to permit intelligent handling of requests for assistance. The EMT-A training alone is not sufficient to provide skill in communication, decision making, and functions of dispatch; therefore, the dispatcher would need additional training to develop skill in the dispatching function.

Rescue Specialist

The rescue or extrication specialization would provide basic emergency medical technicians with skills unique to the removal of victims from entrapment. The rescue function should be expanded beyond simple extrication from automobiles to develop the competency of the personnel, enabling

them to perform rescues at scenes of explosions and natural disasters. Specialized rescue equipment and training are presently available on a very limited basis. Equipment capability currently outstrips training in the area of rescue. More sophisticated equipment is available than most basic emergency medical technicians are qualified to operate. Because rescue is generally considered a heavy function, experience in the use of heavy equipment should be provided.

Course Coordinator

The third position emanating directly from the EMT-A position is that of basic emergency medical technician course coordinator. Because of the lack of time available from professional medical people, it is necessary that course coordinators be developed to meet the basic training requirements of the service. Basic emergency medical technicians with extensive experience have been found to be able to function adequately in the basic emergency medical course coordination role. Courses can be conducted with a minimal amount of professional input, under local EMS physician direction. Emergency medical technicians with sufficient expertise in the field can provide certain insight and knowledge not commonly held by professional health care personnel. Individuals selected as coordinators should have demonstrated successful practice at the basic level for some period of time and have sufficient judgment and maturity to fulfill the role of

coordinator. Coordinators can be trained in basic educational methods in a course of approximately 40 hours duration.

Advanced Emergency Medical Technician

The next logical progression from the basic emergency medical technician is to the advanced emergency medical technician, whose duties, as well as the training program, are described in some detail in Act 275 of the 1974 Michigan Legislature. A copy of this Act is included in Appendix E. The duties, responsibilities, and training are enumerated in the Act in sufficient detail so as to preclude their inclusion here.

The advanced emergency medical technician, although not uniformly defined throughout the United States, generally performs advanced techniques under the supervision of competent medical practitioners. These techniques include intravenous and drug therapy, defibrillation, and other skills permitted by law or custom. One difficulty universally encountered by advanced emergency medical technicians is insufficient access to competent medical supervision. One apparently successful approach to providing either nursing or physician supervision was developed in Los Angeles County, California, as part of the emergency aid contract between the county and the hospital; under this agreement the hospital is required to have available sufficient personnel to

provide supervision for the advanced paramedic. The provision provides clear responsibility for supervision of medical care given by advanced emergency medical technicians. A copy of the emergency aid policy is included in Appendix I.

Advanced emergency medical technicians tend to be government employees who have successfully demonstrated the ability to care for patients. These career positions offer reasonable pay and prestige, but, unfortunately, few opportunities for professional advancement. Advanced emergency medical technicians have generally been in existence only since 1970. It is therefore difficult to assess the career implications of this occupation. Some employers, such as police and fire departments, include emergency medical technicians-advanced in normal promotion procedures and, as a result, certain numbers of advanced emergency medical technicians are lost to emergency medical services through promotion into line supervisory positions. However, government structures are generally rigid enough to preclude promotion within the position.

Advanced emergency medical technicians often have sufficient training to qualify for the associate degree with a specialization in emergency care by completing the academic requirements for the associate degree.

Hospital Emergency Department Technician

The hospital emergency department medical technician, also known as an EMT-III or EMT-H, is a person who specializes in hospital emergency department practice. He has completed the advanced emergency medical technician training and has additional training specializing in hospital emergency department care. Although this occupation was initially included in the National Academy of Science materials, it has been more or less dormant. The emergency medical technician-III is generally limited to hospital practice. This level is best shown on the modular plan for emergency medical care training from the University of Southern California at Los Angeles, included in Appendix I. The position requires training to qualify the individual for at least an associate degree, with additional specialized educational inputs.

Physician's Assistant--EMT-IV

The emergency medical technician-IV, or physician's assistant, is a continued progression from the EMT-III, or emergency department specialist. The emergency physician's assistant would assist the emergency physician in practice, performing such tasks and functions as permitted by the law or custom. Education for this position would be commensurate with the baccalaureate degree program. In the physician's assistant program, additional academic work

could be included of such a nature and extent as to qualify the individual for the baccalaureate degree. The emergency physician's assistant concept has been slow to develop because of the general uncertainty and in some cases concern about the role of physicians' assistants.

Emergency Medical Services Administrator

The position of emergency medical services administrator is entirely new, and is generally found in local, state, or federal government. The emergency medical services administrator should complete the basic emergency medical technician-ambulance course to acquire enough knowledge to be conversant about patient care. Education of the emergency medical services administrator includes work in political science, sociology, psychology, and other social sciences, enabling him to deal effectively with his support system group.

The local or county emergency medical services administrator completes a program terminating with a baccalaureate degree. This program provides the individual with sufficient knowledge and skill to enter the system and function effectively at the local or county level. The administrator should have sufficient background and training to work with the various constituencies of emergency medical services at that level. An example of the local emergency medical services administrator is the superintendent of the

Detroit, Michigan, Emergency Medical Services Department, or the director of the Jacksonville, Florida, Emergency Medical Services Organization.

A master's program, probably in public administration, should be provided for practitioners at the state and federal levels. The program would be for individuals with three to five years of public contact experience who desire to enter the state- and federal-level emergency medical service. Program emphasis would be on planning; intergovernmental relationships would also be explored as a component of the complete masters-level program. A program such as the one outlined in Appendix J could be adopted.

Emergency Department Nurse

The emergency department nurse could be a graduate of an existing nursing program with specialization in emergency care, or could be an individual who has completed the EMT basic course and the EMT-III or other emergency department specialty course, in addition to the traditional nursing curriculum. The motivated individual desiring a nursing career in emergency care would be provided a clear career path, enabling that person to gain practical experience upon completion of the various levels of training. This should reinforce the academic education provided in the program.

The person with higher aspirations, who has attained the emergency department nursing care competency level, can,

with additional educational attainment, be qualified as an emergency department supervisor. The emergency department supervisor would receive additional training in administration and personnel management.

Emergency Physician

The final position, or pinnacle, of the emergency medical services career pattern is the emergency physician. Individuals who want to become emergency physicians can pursue the traditional medical programs, with a specialty in emergency medicine at the time of residency. In addition, people who are involved in emergency care may progress from the basic course through the advanced course, picking up the associate degree upon completion of the advanced course and the academic work associated with it. They can then progres to the EMT-IV or physician's assistant level, and obtain the academic background necessary to complete the baccalaureate degree. These people may decide to progress through an accelerated program to qualify them as emergency physicians. Such a program would have to be developed in conjunction with a progressive medical school having modular training potential or capabilities.

The schematic diagram depicted in Figure 2 is a representation of the career ladder concept.

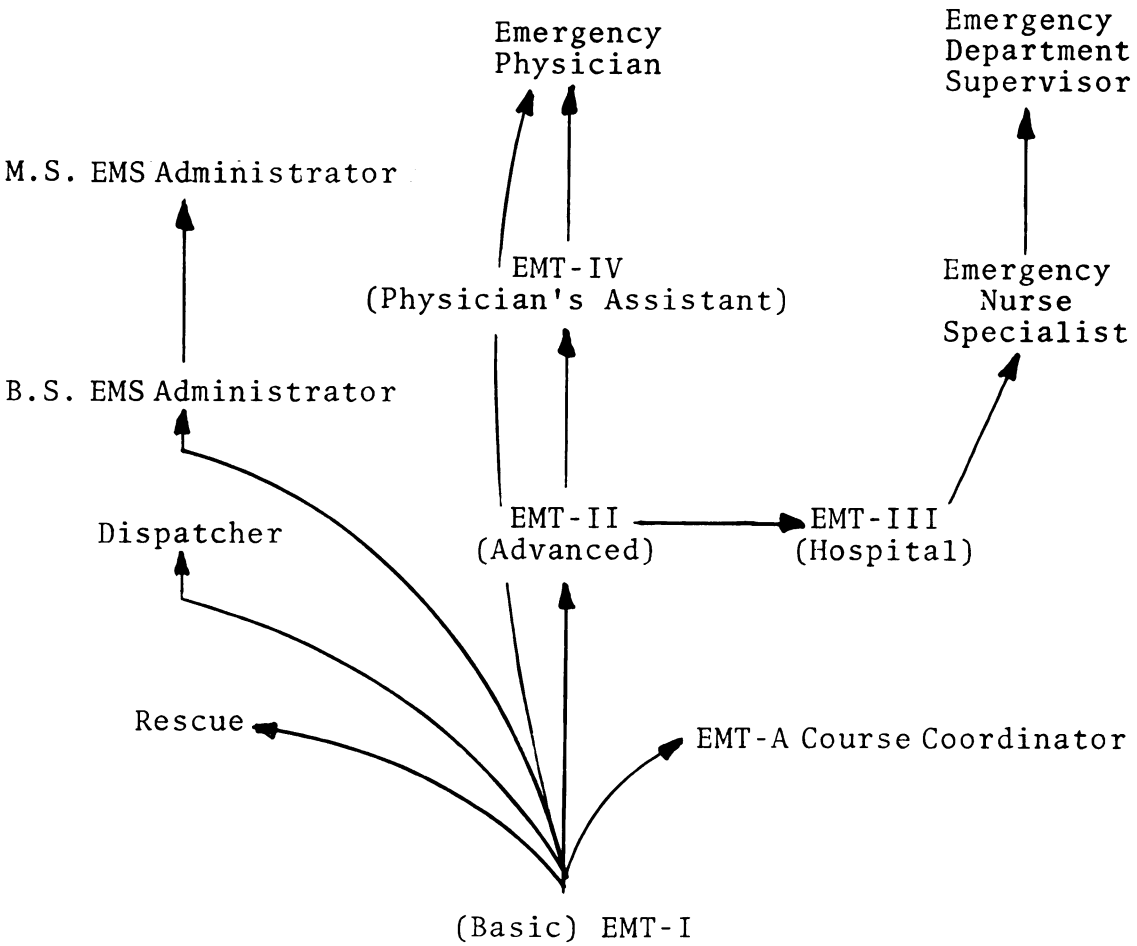

Figure 2.--Career ladder concept diagram.

Summary

If competent personnel are to be employed in the emergency medical services system, provision must be made for upward mobility within the system. Highly motivated individuals should be provided opportunities for advancement based upon their ability and the needs of the service. Using the career ladder concept, people could progress to their own level of competency. Systems personnel could be evaluated as

they progress through the system, providing better selection information than is generally available in most professions. This would provide a ready pool of personnel with competencies in emergency care, who could be economically educated for higher level positions.

A number of potential benefits might be gained from the career ladder concept. Recruiting and selection could be done on a better data base than is presently available. Training and education could be designed in such a way as to build upon the individual's previous educational experience. True integration of the positions in the system would enhance development of competent emergency medical services personnel at all levels.

CHAPTER IV

THE EDUCATIONAL RESPONSE TO THE NEED FOR EMERGENCY MEDICAL SERVICES TRAINING

Introduction

Communities and educational institutions have responded to emergency medical services training requirements in various ways. In this chapter representative and ideal programs are examined. The actual responses of the communities and educational institutions to the training needs of emergency medical services are included, as are ideal responses to these needs.

Community College Basic Courses

The Lansing, Michigan, Community College has offered a six-credit basic EMT course. This course was offered for three hours, one evening a week, over a period of six months. It followed the format of the Department of Transportation Basic EMT course, and was recognized by the Michigan Department of Public Health. Lansing Community College is presently expanding from this offering to a one-year certificate program for emergency medical technicians. The course is conducted on the campus with lectures, laboratory demonstrations, and practice; scheduled experiences take place in

emergency rooms, intensive care units, coronary care units, and labor and delivery units of operating hospitals and agencies.

The Lansing Community College certificate program is a 53-credit program, which includes courses in elementary anatomy and physiology, emergency care, patient assessment, medical terminology, pharmacology, and communication and telemetry techniques. The Lansing Community College program is typical of those community college programs intended to train basic emergency medical technicians. The course description is included in Appendix F.

The program objective embraced by Lansing Community College is to prepare the student to function effectively in emergency situations at the site, en route to definitive care, or in an organized emergency ward or unit in a hospital. The program is intended to provide new career opportunities for high school graduates, and to give those currently employed as ambulance technicians or emergency room personnel an opportunity to update and extend their knowledge and skills.

The California EMT-I course meets six hours a week for 16 weeks, with three or four credits given at community colleges offering a minimum of 120 hours of training. The attrition rate is approximately one in six.[1] This course

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[1]Stanley Grant, Roger Miller, and Jerome Simone, Los Angeles County Health Department, personal interview, Los Angeles, California, January 30, 1974.

admits all students, making no distinction between pre-service and in-service personnel. The cost to the student for this program is minimal--about three to five dollars. Community college instruction in California is funded by the state. There are 10 to 12 junior college EMT-I programs in the Los Angeles area.[1]

Hospital-Based Basic Training

In Los Angeles, a hospital EMT-I program has been offered at the USC Medical Center, Los Angeles, by a physician, on a noncredit basis.[2] The program was six weeks in duration, meeting two days each week. The hospital has also offered a course for three full weeks, six days a week, using emergency medical technician coordinators and physician's assistants, as well as physicians, for instructors in the program.

In a survey conducted by the writer in May, 1973, of emergency medical technician training programs known to the Michigan Department of Public Health, the majority of the programs in Michigan were found to be hospital based. Some had additional affiliations with educational institutions, primarily for academic-credit-granting purposes. Hospital-based programs were especially prevalent in small rural

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[1] Ibid.

[2] Neene K. Lyon, M.Ed., Los Angeles County, USC Medical Center, Department of Emergency Medicine, personal interview, Los Angeles, California, February 6, 1974.

communities. The results of the questionnaire have not been tabulated for statistical purposes because of the incompleteness of the responses received, but the questionnaire is reproduced in Appendix J. Further affirmation of the information gained from the survey was provided in the 1974 Health Facilities Program Plan, published by the Michigan Department of Public Health. On page 311 of the plan, regional training centers for the training of emergency medical technicians were identified; 25 centers were enumerated, of which 9 were educational institutions and the remaining 16 were hospitals.

Typical of the evolution of hospital-based training programs is the program in Washtenaw County, Michigan. During an interview with Richard Muhs of the Washtenaw County Health Department's EMS Section on April 3, 1973, he outlined the development of their program. The first class began in the fall of 1971, with two different hospitals cooperating--the University of Michigan and St. Joseph's Hospitals. The second class began in the fall of 1972, and was also hospital based. The facilities of Washtenaw Community College were used for didactic instruction. In the fall of 1973 the course was offered for credit by Washtenaw Community College.

Advanced Community-Based Courses

The second-level response to training needs of emergency medical services has been the development of courses going beyond the basic-level EMT training. The course developed with the city of Columbus, Ohio, and the Ohio State University Department of Medicine is representative of such a response. It deals with the early care of coronary victims. In a letter to the writer dated March 2, 1973, Batallion Chief Albert Scoles outlined the program used in conjunction with the Ohio State University Department of Medicine by the Columbus, Ohio, Fire Department.

Chief Scoles' letter reported that Oliver, in Great Britain, demonstrated that one-half of the total number of deaths resulting from heart attacks occur within two hours of the onset of heart symptoms; the delay from onset to hospitalization averages three to four hours. As early as 1966, studies were initiated (Pantridge, Belfast) in an effort to reduce the large number of deaths from heart attacks by attempting to shorten the precoronary care unit phase of the heart attack. Since then, others (Warren, Grace, Nagel, Cobb, Criley) have made significant contributions to the problem of mobile or emergency care.

An early effort to improve emergency care began with the Heartmobile program at Ohio State University. In addition, an eight-bed coronary care unit was established in 1964 in the Ohio State University hospital. Like other units,

it served to reduce mortality in the patients who came into the coronary care unit and to emphasize the need for early access to the coronary care system by heart attack victims. The emergency squad system personnel employed by the city of Columbus were interested in and cooperated with early efforts to reduce the delay between onset of symptoms and the arrival of help. A grant was obtained from the Ohio State Regional Medical Program to support a feasibility study for early or mobile coronary care. A special vehicle was designed to provide early on-the-scene care for the patient. This vehicle carried some unique equipment to provide emergency care for the heart attack victim, which precipitated the need for additional training beyond the basic level of emergency care.

Through Ohio State University hospitals, Columbus Fire Department rescue personnel were trained in techniques for the treatment of heart attack victims. Initially, physicians responded in the vehicle to the scene of the emergency; however, after fire rescue personnel were trained, this was no longer necessary.

The city of Columbus incorporated the cardiac care unit into its fire rescue squad system, effective July 1, 1971. It was decided that after this occurred, physicians would no longer staff the ambulance and that the city would need three vehicles to provide adequate coverage. To do this, a special 64-hour course was established for all

Columbus Fire Rescue Squad personnel. The course consisted of basic cardiovascular anatomy, physiology, pathology, and pathophysiology. Pupils were instructed in the diagnosis and therapy of life-threatening arrhythmias, and were taught techniques of starting an intravenous infusion, defibrillation, drug administration, and nasotracheal intubation. A protocol was drawn up for the management of patients with cardiopulmonary emergencies. This was used in place of telemetry, since satisfactory equipment could not be obtained. At the conclusion of the training program, the students were tested and certified to staff the units. An outline of the course may be found in Appendix G.

In a paper presented at a meeting of the American College of Physicians, the authors stated that more than half of the patients dying from myocardial infarction do not reach the hospital.[1] They said their experience indicated that between April and October, 1969, three-fourths of all patients who called for help did so less than one hour after the onset of symptoms. The experimental vehicle and crew usually arrived within 15 minutes of the patient's call. Of the 160 responses subsequent to the initial 500, two long-term survivors among 15 DOA's (those apparently dead on

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[1]John B. McMullen et al., "Experience With a Mobile Care Unit" (paper presented at the Fifty-First Annual Session of the American College of Physicians, Philadelphia, Pennsylvania, April 13, 1970).

arrival, who were pulseless and unresponsive) were resuscitated, reflecting a more aggressive approach to apparent DOA's. In the analysis of the Columbus experience presented in an article prepared by Lewis et al.,[1] the physicians compared results of treatment with and without a physician present. The long-term survivors of ventricular fibrillation, with a physician present, numbered 17 percent; without a physician they numbered 46 percent. The percentage of long-term survivors who had myocardial infarctions was 33 percent with a physician, as opposed to 45 percent without a physician. The number of patients seen by physicians before and after treatment by paramedics or physicians was comparable. The paramedic team saw more patients and appeared to be more effective in cardiopulmonary resuscitation. All types of cardiopulmonary emergencies were treated, and the majority of patients saved did not have a myocardial infarction. Therefore, this system, which is relatively inexpensive, should be considered to upgrade a preexisting basic life-support system toward an advanced life-support system, and should not be seen as a single disease-oriented operation.

Providence Hospital in Southfield, Michigan, has developed a 350-hour course based, in part, on the Ohio program. Nineteen fire fighters have been trained in advanced

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[1]Richard P. Lewis et al., "Mobile Cardiac Care: A Community Approach" (Columbus, Ohio: Department of Medicine, The Ohio State University Hospital, n.d.). (Mimeographed.)

emergency care procedures through the Southfield program. This endeavor is not an academic program, but has been developed by the physicians and staff of Providence Hospital in response to community needs and desires.

An advanced program has been developed in Grand Rapids, Michigan, in conjunction with Butterworth Hospital and community physicians. Before January, 1973, this program had trained 18 advanced technicians, including 12 Grand Rapids police officers, two Kent County sheriff's deputies, and four civilians. Another group of 16 members has recently completed the program. The course is offered in conjunction with Grand Valley State College for six hours of academic credit. The classes are instructed by a faculty member of Grand Valley State College, a registered nurse from the cardiac care unit of Butterworth Hospital, emergency medical technicians, and several physicians. This program is similar to those in Columbus, Ohio, and Providence Hospital in Southfield, Michigan.

EMT-II

The EMT-II developed by Los Angeles County consists of 360 hours of instruction. Its director, Colonel Gaylord Ailshie, stated that the program costs approximately $900 per student. It is a five-month program, of which two

months are devoted to didactic instruction and three months are spent in field training.[1]

Pasadena City College also offers a two-semester program for the EMT-II. Students must meet all criteria for admission to Pasadena City College Department of Nursing.

Curriculum

The EMT-II program consists of an 18-week semester course and a 12-week summer course. The program can be terminal in nature, or can be applied toward degree requirements. Upon admission to the program, the student will be programmed for one of these two options, based upon the needs, desires, or assessed abilities of the student. The basic terminal course is divided into defined clinical content areas. These include surgical and traumatic emergencies (traumatic, orthopedic, neurosurgical, chest and abdominal emergencies), emergencies relating to childbirth and children (obstetrical and pediatric emergencies), medical emergencies (cardiac, respiratory, and internal medical emergencies), and crisis emergencies (emotional and phychiatric emergencies). Content is planned to include medico-legal aspects, assessment skills, judgment, priority setting, professional attitudes, and relationships in each clinical area. Specific performance objectives have been developed

[1]Gaylord E. Ailshie, Director, Paramedic Training, Los Angeles County, personal interview, January 30, 1974, Los Angeles, California.

for each learning activity, and form the basis for evaluating a student's ongoing progress and terminal performance. The course content outline depicted in Figure 3 shows the manner and sequence in which the presentation of the material occurs.

Option 1 (preferred)			Option 2		
Semester 1 EMT-I			Semester 1 EMT-I		
Lec.	4 hrs	4 units	Lec.		4 units
Lab	3 hrs	1 unit	Lab		1 unit
FP	5 hrs	1 unit	FP		1 unit
Semester 2 EMT-II			Semester 2 EMT-II		
Lec.	9 hrs	6 units	Lec.	6 hrs	6 units
Lab	4½ hrs	1 unit	Lab	3 hrs	1 unit
FP	15 hrs	2 units	FP	10 hrs	2 units
Clin	13½ hrs	3 units	Clin	9 hrs	3 units
Semester 3 EMT-II			Semester 3 EMT-II		
Lec.	6 hrs	6 units	Lec.	9 hrs	6 units
Lab	3 hrs	1 unit	Lab	4½ hrs	1 unit
FP	10 hrs	2 units	FP	15 hrs	2 units
Clin	9 hrs	3 units	Clin	13½ hrs	3 units

Legend: Lec. - Lecture, Lab - Laboratory, FP - Field Practice, Clin - Clinical

Figure 3.--Course content outline of the EMT-II program in Los Angeles County.

Prerequisites to Semester 2 are the successful completion of Semester 1 and concurrent enrollment in Physiology 125A. Prerequisites to Semester 3 are successful completion of Semester 2 and concurrent enrollment in Physiology 125B.

EMT-III

An EMT-III course is presently being developed on a pilot basis at the University of Southern California Medical Center; it will require a total accumulation of 1,400 hours at completion. The course will consist of 720 hours of didactic instruction; the remaining 680 hours are devoted to field experience.

EMT-IV

The EMT-IV training program at Los Angeles USC Medical Center is in conjunction with the State Board of Examiners. This program consists of 300 hours of didactic instruction, 900 hours of hospital clinical experience, and approximately 800 hours of field experience. There is a nine-month assignment with a primary care physician, three months with a private practice physician, and six months of emergency care. It is only an emergency care training program for physician's assistants.

Basic Courses--Off Campus

Several outreach programs have been developed in an attempt to take the basic-level EMT training to the student. The Ohio Department of Education, Division of Trades and Industry program, provides a 66-hour, D.O.T. equivalent EMT training program in local communities. This program had its origin early in the development of emergency medical services. The first programs were conducted in the mid-1950's on a pilot basis in Ohio. Since then, the programs have been expanded on a state-wide basis, providing basic training through the local school district and the state for any emergency medical services personnel who require such training.

Michigan State University, through the University Extension Service, has adopted a similar program using the D.O.T. course in conjunction with local hospitals and local physicians to be delivered to the locale of the operating unit. These programs are not significantly different in content than those offered by community colleges or hospitals. They do, however, bring the training to the student, rather than requiring the student to go to the training. This is a particularly important aspect of the basic training program, in that many of the persons who provide basic-level care are volunteers or provide basic care as an ancillary function of their job. Generally, the dispatcher, rescue, and refresher courses have not been mounted off campus, because of the continuing need to train people in

the basic course. Pilot tests of the dispatcher, extrication, and refresher course have been conducted by Michigan State University in the Lansing area. However, there has been no sustained offering of these courses.

Other Basic Emergency Medical Technician Training

The state of Washington, Division of Vocational Education Fire Service Training, headquartered in Olympia, is offering the basic 81-hour D.O.T. course with local modifications throughout the state. Emergency paramedics from the City of Seattle Fire Department have been used as instructors in this course.[1] The program is an attempt to train personnel in rural areas removed from either hospital or community college instruction, and is offered in conjunction with medical societies and community colleges, where possible. The paramedic instructors in this program have completed a 1,100-hour modular advanced EMT course under the direction of Dr. Leonard Cobb, in conjunction with the University of Washington School of Medicine and Harbor View Medical Center in Seattle.

On a television program aired in Corvallis, Oregon, a representative of the Oregon Department of Health stated that in addition to the community college and hospital

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[1]Chief R. K. Maloney, Battalion Fire Chief, Seattle Fire Department Headquarters, personal interview, Seattle, Washington, February 13, 1974.

programs in Oregon, a rural videotape program with local physician direction is used to train basic emergency medical technicians in rural areas of the state.

Emergency Medical Technician Modular Program

EMT programs have been developed by Morrie Davidson of the Department of Emergency Medicine, University of Southern California School of Medicine in Los Angeles. Dr. Davidson's concept, as shown in Appendix H, outlines the Emergency Medical Technician I, II, III, and IV programs, and a progression through the programs. The Emergency Medical Technician program outlined by Dr. Davidson has been sanctioned by the California Department of Health as an experimental health manpower pilot project. The program uses the four-step module. California is clearly advanced in the development of emergency medical services training and personnel on a state-wide basis, but this response does not include the dispatcher, instructor, and extrication instructional modules. It does provide a career ladder, or building block program, for emergency medical technicians from the basic level to the physician's assistant.

University of Maryland

The University of Maryland has formed the Institute for Emergency Medicine, which is now designated as the System Control Center of a state-wide program for emergency medical

services. The Institute originated in 1956, and it has developed in several stages.

The initial stage was the animal experimental laboratory, in which experiments were conducted to develop an animal model for shock. Two important factors became evident. First, although animal experimental work was necessary for baseline data and model studies, a variance in responses of different species indicated the necessity for studying injury in man more directly. Second, to understand the overall structural pathophysiology and biochemical alterations occurring in the organism, it was necessary to expand the program to include multidisciplinary support to explore phenomena occurring at the cellular level.

On January 1, 1961, an Army grant enabled a clinical shock-trauma unit to begin and to establish and systematize the collection of pertinent data on trauma and shock patients on a 24-hour basis.

The University of Maryland in 1967 approached the State Police and suggested the development of the helicopter program to transport to the System Control Center any injured citizen of the state requiring specialized multidisciplinary care. A cooperative agreement was concluded between the Baltimore City Fire Department ambulance service and the Maryland State Police for using helicopters in the emergency evacuation of critically ill patients.

The critical care program now employs an IBM 1620 computer to assist in patient care. A low-cost, on-line automated system has been implemented for acquisition and management of physiological data from patients in the center. This system frees the nursing staff from much of the time-consuming record keeping that is necessary for patient care and research. The unit has been able to decrease the mortality rate since 1968 from 79 percent to 22 percent. It is also providing a research center for continuing research in emergency care. Cowley et al. further described the training course:

> Helicopter crew members are selected from the State Police ranks who have already received standard and advanced Red Cross Training. When these troopers enter the helicopter program, they attend an 81-hour lecture course on emergency care at the University of Maryland Fire Extension School and receive required certification as emergency medical technicians. They then rotate through the Center for the Study of Trauma in groups of two for a period of two weeks. During this time, they undergo an intensive in-hospital training program and return on a bi-annual basis for an updating session.[1]

Arizona State University

In an address presented to the EMS Systems Design and Implementation Symposium, John Miller, acting chief of the Emergency Medical Services Division of the Arizona Department of Public Safety, outlined the development of the

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[1]R. Adams Cowley et al., "An Economical and Proven Helicopter Program for Transporting the Emergency Critically Ill and Injured Patient in Maryland," The Journal of Trauma 13 (December 1973): 1029-38.

emergency medical services division in Arizona.[1] The project, "Air Medical Evacuation System" (AMES), was an idea originally conceived by a master's degree candidate at Arizona State University who recognized the fact that seriously wounded soldiers in Viet Nam had a much better chance of survival using helicopter evacuation than did a person who had been injured on Arizona highways. Funds were obtained from the Department of Transportation and subcontracts were let to a local helicopter company; the Department of Public Safety was designated to operate the medical evacuation helicopter. This project continued for approximately nine months until its conclusion in February, 1972.

In 1972 the Arizona Legislature purchased two helicopters, which are currently in operation, for the Department of Public Safety. They are manned by police officers who are expert emergency medical services technicians.

Personnel at Arizona State University have conceived other projects adopted by the Department of Public Safety--Highway Emergency Radio Control Operations (HERCO) and Emergency Medical Services Communication System (EMSCOM). In the HERCO system portable radio units are provided to interstate truckers along sections of Interstate 40 in Arizona to provide rapid notification of emergency conditions.

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[1]John B. Miller, address presented to the EMS Systems Design and Implementation Symposium, Chicago, Illinois, December 13, 1974.

The EMSCOM proejct, which is not yet operational, is a system whereby radios will be installed in hospitals along and adjacent to Interstate 40 and in ambulances associated with these hospitals. The system will allow direct ambulance-hospital communications. The Department of Public Safety's Dispatcher's Office in Flagstaff will serve as a communications clearinghouse for these activities.

Ideal Educational Response to the Need for Emergency Medical Services Training

In the ideal educational response, the development of an emergency medical services program would consist of multiple elements comprising the training and educational program necessary for emergency medical services. This program should be comprehensive and located within an educational institution with sufficient resources to support the program.

Basic EMT

The first element of this program would be the basic emergency medical technician course, comprising at least 81 hours, and perhaps more--something approaching 120 hours. Academic credit would be attached to that portion of the course recognized as didactic. The basic course would be used as the cornerstone, or building block, for the two-year associate degree in emergency medical technology. Other components could be courses for EMT instructors, extrication, and dispatching. Academic courses on English composition,

mathematics, anatomy and physiology, and elementary pharmacology should be included for the two-year associate degree.

Advanced EMT

The next step in the ideal educational response would be an advanced emergency medical technician program with the baccalaureate degree as the terminal level. This program would build upon the associate degree program and include advanced anatomy, physiology, medical terminology courses, chemistry, biology, and physical sciences, blended with the traditional academic program for a four-year degree. This would enable the advanced emergency medical technician to complete the entry-level requirements for professionalization.

Those persons who complete the advanced EMT course with the baccalaureate degree and desire upward mobility could then progress up either the nursing or physician ladders. Should the individuals completing the baccalaureate program desire to go into an emergency department specialization, they could complete an additional one year of training for a master's degree in Emergency Department Operations.

Another option open to persons completing the baccalaureate degree as advanced emergency medical technicians would be to enter medical school and complete the requirements for becoming a physician with a specialty in emergency medicine.

EMS Local Administrator

A baccalaureate degree program could be developed in conjunction with political science, business administration, or social science for local emergency medical services administrators. Students could study political science, psychology, sociology, finance, and other areas necessary to the successful administration of emergency medical services at the local level. This program would terminate at the baccalaureate degree stage, preparing individuals for entry into this level of position in the system.

State or Federal
EMS Administrator

A master's degree program for state- or federal-level emergency medical services administrators or planners should be developed. These people would take additional work in public administration, psychology, sociology, and planning.

Emergency Department Nurse

A baccalaureate degree program could be developed in schools of nursing, with a specialization in emergency care. Emergency department training could be provided in a major hospital emergency department, in addition to the traditional clinical experiences. Brief internships could be developed with both basic and advanced emergency medical technician practitioners to enhance the nurse's knowledge of pre-hospital care.

Emergency Physician's Assistant

Present physician's assistant educational programs should be able to adapt to the needs of emergency care as those needs mature. Because of the limited number of physician's assistant programs in the United States and the reluctance of the medical profession to employ those persons, programs should be mounted where a documented need exists.

Emergency Physician

The current and projected physician education programs could meet the demand for emergency physician education. This program can become a specialty within the current framework. Medical schools must become involved in the education of emergency physicians as the complexity of the specialization increases and as the body of knowledge grows.

Continuing Education and Extension

Programs should be developed to provide current in-service education for all EMS personnel. Large portions of the initial needs of emergency care have been met through continuing education and these programs continue to play a dominant role in improving emergency care.

All levels of emergency medical service personnel, professional and paraprofessional alike, require constant

education and training to enhance their skills. Rapid changes in the practice of emergency medicine require practitioners at all levels to participate in ongoing education and training programs.

Summary

Thus far, the response to emergency medical service's educational needs by higher education has been disorganized and sporadic. The response has been a direct result of pressure from an outside source, or the interest of a member of the higher education community.

There exists a clear career concept, articulated within Chapter III of this study, as well as a need to prepare professionals and paraprofessionals for these roles. An ideal educational response has been proposed that would require a comprehensive medical educational program in an institution of higher education with access to adequate clinical facilities, probably in a large metropolitan area. These component programs certainly suggest the possibility of creating an entire college devoted to emergency care.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

This study was intended to delineate the educational needs of emergency medical services. It provided the framework for a single comprehensive educational program to meet all the current needs of the field. The various elements of these educational needs were outlined.

Educational programs were investigated, and it was established that there is no single comprehensive educational program in existence in the United States today that meets all of the educational needs of emergency medical services. It may be that a single comprehensive program is not possible at any one institution, given the resources required.

The literature related to emergency medical services was reviewed, and knowledgeable persons were interviewed to construct a comprehensive career concept and to establish educational needs. An ideal educational response was also proposed. Chapters III and IV set forth the career ladder concept and the actual and ideal educational response to that concept.

The study was not designed to identify any single institution or group of institutions that could undertake a

a comprehensive program. Neither was the study designed to measure or compare the various programs' quality, or to propose ways to accredit the programs individually or collectively.

Findings

There is no comprehensive educational program for emergency medical services career personnel at any single institution in the United States at this time. Various programs do exist throughout the country, and are intended mainly to prepare local personnel. These programs have little, if any, interrelation to each other. Thus, it is impractical, if not impossible, for anyone to climb the career concept ladder.

The dynamic nature of emergency medical service indicates that the future development of this service and its educational programs will be diverse. The difference in career positions indicates the need for varied programs to prepare potential practitioners. The programs that are developed to prepare the different practitioners in the emergency medical services field must be accomplished jointly by higher education and the various constituencies involved.

Higher education can meet the educational needs of emergency medical services; however, it is highly unlikely that any one institution will be able to do this because of the nature of the university. Emergency medical services

educational programs need the input of many of the various faculties in a university, working together as a whole toward a common goal. This condition is unlikely, as Litchfield pointed out:

> There are few among us who regard the University as a total institution. It would be more accurate to say that we treat it as a miscellaneous collection of faculties, research institutes, museums, hospitals, laboratories, and clinics. Indeed, it has become commonplace to observe that most of our large university organizations are held together by little more than a name, a lay board of trustees, an academically remote figure called a president, and a common concern for the power plant. On most of our large university campuses, our individual faculties tend to live in isolated proximity.[1]

Although innovation and change in higher education can come from any source, it is doubtful sufficient external and internal forces will combine to enable establishment of a comprehensive emergency medical services program at a single institution. Evans found that almost every segment within the academic community can initiate change, including students and individual faculty members, as well as several sources outside the university.[2] However, for these changes to be enduring, they must continually be supported.

Emergency medical services are presently in a state of dynamic development. When these services reach a later

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[1]Edward H. Litchfield, "The University: A Congeries or an Organic Whole?" AAUP Bulletin, September 1959, pp. 375-76.

[2]Richard Isadore Evans, Resistance to Innovation in Higher Education (San Francisco: Jossey-Bass, 1968), p. 131.

stage of development with more form and substance, they can be a very effective influence on higher education. As emergency medical services mature and gain strength, they will have a greater potential for influence on higher education. As professional groups are organized on the state, national, and local levels, they can work for educational programs. However, the very number and nature of these groups tend to be defeating. They may be effective in improving their particular localities' emergency medical services, but have little influence on the system as a whole. Corson wrote of the influence of external groups on change in higher education:

> The distinctiveness of the relationships between external groups and educational institutions lies in two elements. One reflects the variety and number of interested outside groups and their tendency to apply pressure, without accepting a commensurate obligation to support or to contribute.
>
> . . . . . .
>
> The extent of control by other groups is broad. Pressure groups of national and local character attempt to exercise influence on the character of the educational program.[1]

He further stated:

> Decision making, therefore, takes place under the pressure of external forces which have more direct and powerful influence than the customer-supplier-company or public-bureau relationships of other institutions. In addition, such groups, by their own representative and through the allegiance of faculty members to their professions and disciplines, frequently operate within

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[1]John J. Corson, Governance of Colleges and Universities (New York: McGraw-Hill Book Company, Inc., 1960), pp. 36 and 37.

> the decision making councils in a manner not demonstrated in other institutions.[1]

Emergency medical services have not yet exercised a great deal of influence on higher education in the United States. Efforts of these services, to date, have been of a very limited scope, as shown in previous portions of this work.

Funding Considerations

Higher education is currently undergoing retrenchment in many areas of the United States, making it difficult, if not impossible, to obtain institutional funds for new program development. Evans stated that most university budgets are fixed from year to year, with some evidence that these budgets tend to support the existing system. He went on:

> Basically, we would hypothesize that the economics of the university system and the entire budgeting procedures too often appear to be dedicated to maintaining the status quo.[2]

Funds for the establishment of most emergency medical services educational programs must therefore come from outside sources, such as government and foundations. Corson noted:

> Foundations often provide the "venture capital" for higher education advances, for research in little

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[1] Ibid., p. 38.

[2] Evans, op. cit., p. 132.

> explored fields, for launching unprecedented courses or seminars, for experimentation with new administrative techniques.[1]

Funding by the United States Congress, although it has been increasing, is fragmented; the Departments of Transportation and Health, Education, and Welfare are both involved in distributing funds for emergency medical services. If funds were provided through a single, unified program, the potential for establishing a single, comprehensive educational program would be increased.

The largest block of private funds, those from the Robert Wood Johnson Foundation, has been given to communities to use more or less at their discretion. A number of drug companies have funded the Advanced Cardiac Treatment Foundation; however, their efforts have been largely geared toward community education.

A Similar System

A system analogous to the emergency medical services system has been developed within the last decade--the criminal justice system. The latter is comprised of various disassociated parts, each functioning independently to carry out its role. These parts have been brought together in a systems concept; attempts are being made to interrelate the various functions of the independent agencies and to integrate them into a comprehensive criminal justice system.

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[1]Corson, op. cit., p. 164.

Higher educational programs have been developed for the various components of the criminal justice system, paying attention to their interrelationship. To the writer's knowledge, there is no comprehensive program for all elements of the criminal justice system at a single institution.

Criminal justice agencies (system elements) have become aware of their interrelationships, and dialogue among them has facilitated a limited amount of integrated planning, programming, and budgeting. In the past decade the criminal justice system concept has grown and has massive support in the Congress. Large amounts of money have been provided by the Department of Justice, Law Enforcement Assistance Administration, to support the growth and development of the system.

Emergency medical services systems are also being developed from the constituent parts existing throughout the United States. Efforts to enhance dialogue among the various components have brought about some integration of them. Current federal funding priorities clearly indicate that comprehensive regional systems must be developed to qualify for federal assistance in development, implementation, and planning.

Current EMS Education

Present EMS educational efforts have largely been devoted to upgrading existing personnel through continuing education. Little attention has been given to the development of new career positions. The career positions that have been developed since 1966 are in direct response to the needs of the various components of present emergency medical services. As true systems develop, the demand for new professional personnel and other career positions will increase. Actualization of the systems concept has been realized on a limited basis in such areas as Jacksonville, Florida; Detroit, Michigan; and the state of Illinois.

Detroit, Michigan, has formed a division of Emergency Medical Services that provides basic life-support service. Formerly the police provided transportation in station wagons for the ill and injured. The fire department provided limited patient care services and removal of trapped persons from automobiles and buildings. These functions have been consolidated in a single service that attends only to medical emergencies.

In an attempt to reduce response time, the single telephone number 911 has been initiated in Detroit to handle all emergency calls. All summons for emergency assistance are received at and dispatched from a single location.

Detroit General Hospital Emergency Department physicians are working closely with the Division of Emergency

Medical Services personnel in an attempt to upgrade personnel and service to city residents.

Detroit has a civilian superintendent of its Emergency Medical Services Division and approximately 150 basic emergency medical technicians. Some EMS personnel have received specialized advanced training and education.

The city of Detroit recruited some personnel from the fire department and some former military medics as well as unskilled civilians. Before the service became operational, all personnel were given emergency medical care training by Detroit General Hospital Emergency Department staff members and other qualified medical personnel.

Higher education has been involved in the development of emergency medical services. Some institutions, especially community colleges, have become involved in the effort to train personnel for various positions in the emergency medical services area. The University of Mississippi has been involved in the implementation and evaluation of an emergency medical services system element--the use of aircraft for transportation of crash injury victims. Various faculty members and numerous institutions of higher education have become involved in the evolution of emergency medical services. They have brought their institutions into the evolutionary process, if only in a peripheral way. The University of Southern California Medical Center Department of Emergency Medicine, at Los Angeles, is involved in the

development and evolution of an emergency medical technician career ladder. Dr. Davidson and his colleagues have been instrumental in the implementation of the career ladder concept at that institution. They have not, as yet, been successful in integrating the program into the academic structure of the university.

Michigan State University has given credit for the basic emergency medical technician-ambulance program through the university's Department of Health, Physical Education, and Recreation; credit for the emergency medical technician instructor course is offered through the College of Education.

Community colleges have awarded credit for the various emergency medical technician courses they have conducted; this has generally been limited to the basic EMT-A course and the refresher course. Community colleges have not generally had the necessary resources or qualified personnel to mount the other career preparation programs enumerated.

The ideal educational response was outlined beginning on page 69. This model program would provide academic credit at all levels of study, with clear pathways for advancement. The career concept described in Chapter III could be realized through a single comprehensive program. Mobility, as proposed in the Career Concept Diagram on page 49, would then be possible.

Funds could be made available through the Departments of Health, Education, and Welfare and Transportation to fund a single comprehensive program. A request for proposals could be published and a contract awarded to either a single institution or a consortium of higher education facilities for a complete career concept program.

Conclusions

The career concept for emergency medical services systems personnel is very clear and developed. From this concept, it is possible to articulate programs to prepare personnel for these career positions. It would seem beneficial, both to emergency medical services and institutions of higher education, to develop programs to prepare career professionals. Emergency medical services are expanding, as evidenced by the provisions of the Highway Safety Act of 1966 and amendments thereto. Most recently, the Emergency Medical Services Act of 1973 provided increased funding for emergency medical services. The federal government, in general, has been expanding its role in all health care areas.

Higher education is faced with declining enrollments and must either contract or adapt. Very few institutions prefer to contract; rather they would prefer to maintain present enrollment levels or expand further. Recent federal legislation providing Basic Opportunity Grants for all

students put higher education into direct competition with other educational and training institutions. Institutions of higher education certainly have the capacity and capabilities necessary to meet the needs of emergency medical services career development.

Change in institutions of higher education is slow. One of the reasons for this is the democratic form of governance employed in educational institutions. It is difficult and time consuming to implement change in higher education. The larger the institution, the more difficult seems the change within that institution. Because many institutional structures have existed for many years, they are naturally resistant to change. Corson wrote:

> The task of college and university leadership is that of utilizing human, financial, physical, and spiritual resources to fashion an educational institution that persistently accepts new methods and programs but insists exactingly upon enduring values. That task, especially in the university, is infinitely more difficult than the task of leadership in the more authoritarian, more monolithic business firm, governmental agency, or military unit. The leader in the academic institution must bring about consensus among a much larger proportion of members of the enterprise. He must achieve consensus among individuals, within and without the institution, with widely varying values. He must obtain financial and physical aid from sources that little understand, or that oppose, the values he stands for. He must, at times, accept the influence of the alumni or the legislature, knowing that it may alter the institution's character--and find ways to persuade either of the greater desirability of the values he seeks. And all this he must achieve with less power to direct, less general acceptance of clearly stated goals, and less opportunity to relate tangible

> results to proposals than his analogue in other forms of enterprise.[1]

Change of the magnitude entailed in establishing a comprehensive emergency medical services educational effort would require an especially effective administrator in higher education--one with numerous external and internal sources of support for the change.

Higher education can play a vital and dynamic role in emergency medical services career education. These institutions have the unique capabilities of training all of the personnel required throughout the system. Whether one educational institution is capable of training all persons in the structure is questionable. Certain large institutions, such as Michigan State University, Ohio State University, the University of Southern California, and others, have the necessary resources to train the career people for emergency medical services. They have medical schools, nursing schools, business and administrative schools, and extension services. If the resources of institutions of this type could be mobilized to meet the requirements of emergency medical services career education, it would be possible to have a comprehensive emergency medical services educational program at a single institution. It should be realized that this program could not serve all of the individuals throughout the United States who desire education

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[1]Ibid., p. 182.

and training for the various levels. However, a single program could provide the experience and guidance for others in the development of emergency medical services educational endeavors. Accreditation of emergency medical services personnel and programs is a major problem because of the evolutionary stage of this endeavor. A single institution could provide the leadership in the program development and accreditation areas.

Other institutions of higher education could fulfill those functions in which they are uniquely capable, in the preparation of emergency medical services personnel. Community colleges can continue to train emergency medical technicians at the basic level, as well as mount refresher, rescue or extrication, and dispatcher courses. Advanced courses could be offered through community colleges that have affiliations at community hospitals and with the active participation of the medical community, particularly the medical societies.

Four-year institutions that offer degrees in business administration could prepare the emergency medical services administrators, and those offering graduate programs could prepare emergency medical services systems administrative personnel for the federal and state levels. The four-year institution could also train the basic emergency medical technician, advanced emergency medical technicians, and emergency nursing personnel.

Professional schools could train emergency physicians. Medical schools with the modular concept, such as Michigan State's, would be particularly qualified to train the emergency physician, especially those individuals who had progressed through the career ladder.

Discussion

Higher education is uniquely qualified to make meaningful contributions to and have an impact on the development and improvement of emergency medical services. Institutional lethargy appears to be the greatest single obstacle in the realization of the role of higher education in emergency medical services.

Emergency medical service is a developing concept. As such, much conflict and controversy are connected with emergency medical services. Institutions of higher education prefer to avoid discussion and disputes. However, if these institutions were to participate in the development of emergency medical services, perhaps they could minimize controversy surrounding the evolution of emergency medical services. They could supply guidance and leadership to supplement that presently being provided.

Recommendations

Higher educational institutions should expand their participation in the development of emergency medical services. Their leadership and experience could minimize the

amount of time required for emergency medical services to reach maturity. They could also accelerate the implementation of improved emergency medical services. Within institutions of higher education, the resources exist in the various disciplines to facilitate implementation of the concept.

Further research into and development of the role of higher education in emergency medical services should continue. Emergency medical services councils and others responsible for the development of emergency medical services should investigate the role higher education could play in the development of such services in their areas. They should actively seek the participation of administrators of educational institutions within their vicinity in developing emergency medical services for that locality. Operating authorities, such as cities and counties, should contact higher educational institutions within their area and establish dialogue with them to enhance the knowledge each has of the other's capabilities and needs in the area of emergency medical services.

Administrators of higher educational institutions should actively seek out emergency medical services systems operators and participate in emergency medical services councils, making themselves aware of the needs of emergency medical services in their areas and those to which they could uniquely respond. These administrators must then play

an aggressive part in the institution's response to the needs of the emergency medical services community. If traditional higher educational institutions do not meet the needs of emergency medical services, other institutions will--possibly hospitals or facilities offering proprietary educational programs.

The dialogue presently existing between academia and emergency medical services must be expanded. In addition, deliberate plans of action must be formulated and implemented to integrate the efforts to implement emergency medical services systems. Dynamic leadership must be evidenced by both academicians and practitioners if integration is to be achieved.

Sufficient funds are now available to support academic involvement in emergency medical services. These funds could provide the stimulus for development of training and educational components in higher education to meet the needs of emergency medical services. Once these programs are established in institutions of higher education, they could become self-supporting.

APPENDICES

APPENDIX A

HIGHWAY SAFETY ACT OF 1966

APPENDIX A

HIGHWAY SAFETY ACT OF 1966

An Act

To provide for a coordinated national highway safety program through financial assistance to the States to accelerate highway traffic safety programs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Title I - Highway Safety

Sec. 101. Title 23, United States Code, is hereby amended by adding at the end thereof a new chapter:

"Chapter 4. - Highway Safety

Sec. 401. - Authority of the Secretary.
Sec. 402. - Highway Safety Programs.
Sec. 403. - Highway safety research and development.
Sec. 404. - National Highway Safety Advisory Committee

401. - Authority of the Secretary. "The Secretary is authorized and directed to assist and cooperate with other Federal departments and agencies, State and local governments, private industry, and other interested parties, to increase highway safety.

402. - Highway safety programs. "(a) Each State shall have a highway safety program approved by the Secretary, designed to reduce traffic accidents and deaths, injuries, and property damage resulting therefrom. Such programs shall be in accordance with uniform standards promulgated by the Secretary. Such uniform standards shall be expressed in terms of performance criteria. Such uniform standards shall be promulgated by the Secretary so as to improve driver performance (including, but not limited to, driver education, driver testing to determine

proficiency to operate motor vehicles, driver examinations (both physical and mental) and driver licensing) and to improve pedestrian performance. In addition such uniform standards shall include, but not be limited to, provisions for an effective record system of accidents (including injuries and deaths resulting therefrom), accident investigations to determine the probable causes of accidents, injuries, and deaths, vehicle registration, operation, and inspection, highway design and maintenance (including lighting, markings, and surface treatment), traffic control, vehicle codes and laws, surveillance of traffic for detection and correction of high or potentially high accident locations, and emergency services. Such standards as are applicable to State highway safety programs shall, to the extent determined appropriate by the Secretary, be applicable to federally administered areas where a Federal department or agency controls the highways or supervises traffic operations. The Secretary shall be authorized to amend or waive standards on a temporary basis for the purpose of evaluating new or different highway safety programs instituted on an experimental, pilot, or demonstration basis by one or more States, where the Secretary finds that the public interest would be served by such amendment or waiver.

"(b) (1) The Secretary shall not approve any State highway safety program under this section which does not --

"(A) provide that the Governor of the State shall be responsible for the administration of the program.

"(B) authorize political subdivisions of such State to carry out local highway safety programs within their jurisdiction as a part of the State highway safety program if such local highway safety programs are approved by the Governor and are in accordance with the uniform standards of the Secretary promulgated under this section.

"(C) provide that at least 40 per centum of all Federal funds apportioned under this section to such State for any fiscal year will be expended by the political subdivisions of such State in carrying out local highway safety programs authorized in accordance with subparagraph (B) of this paragraph.

"(D) provide that the aggregate expenditure of funds of the State and political subdivisions thereof, exclusive of Federal funds, for highway safety programs will be maintained at a level which does not fall below the average level of such expenditures for its last two full fiscal years preceding the date of enactment of this section.

"(E) provide for comprehensive driver training programs, including (1) the initiation of a State program for driver education in the school systems or for a significant expansion and improvement of such a program already in existence, to be administered by appropriate school officials under the supervision of the Governor as set forth in subparagraph (A) of this paragraph; (2) the training of qualified school instructors and their certification; (3) appropriate regulation of other driver training schools, including licensing of the schools and certification of their instructors; (4) adult driver training programs, and programs for the retraining of selected drivers; and (5) adequate research, development and procurement of practice driving facilities, simulators, and other similar teaching aids for both school and other driver training use.

"(2) The Secretary is authorized to waive the requirement of subparagraph (C) of paragraph (1) of this subsection, in whole or in part, for a fiscal year for any State whenever he determines that there is an insufficient number of local highway safety programs to justify the expenditure in such State of such percentage of Federal funds during such fiscal year.

"(c) Funds authorized to be appropriated to carry out this section shall be used to aid the States to conduct the highway safety programs approved in accordance with subsection (a), shall be subject to a deduction not to exceed 5 per centum for the necessary costs of administering the provisions of this section, and the remainder shall be apportioned among the several States. For the fiscal years ending June 30, 1967, June 30, 1968, and June 30, 1969, such funds shall be apportioned 75 per centum on the basis of population and 25 per centum as the Secretary in his administrative discretion may deem appropriate and thereafter such funds shall be apportioned as Congress, by law enacted hereafter, shall provide. On or before January 1, 1969, the Secretary shall report to Congress his recommendations with respect to a nondiscretionary formula for apportionment of funds authorized to carry out this section for the fiscal year ending June 30, 1970, and fiscal years thereafter. After December 31, 1968, the Secretary shall not apportion any funds under this subsection to any State which is not implementing a highway safety program approved by the Secretary in accordance with this section. Federal aid highway funds apportioned on or after January 1, 1969, to any State which is not implementing a highway safety program approved by the Secretary in accordance with this section shall be reduced by amounts equal to 10 per centum of the amounts which would otherwise be apportioned to such State under section 104 of this title, until such time as such State is implementing an approved highway safety program.

Whenever he determines it to be in the public interest, the Secretary may suspend, for such periods as he deems necessary, the application of the preceding sentence to a State. Any amount which is withheld from apportionment to any State under this section shall be reapportioned to the other States in accordance with the applicable provisions of law.

"(d) All provisions of chapter 1 of this title that are applicable to Federal aid primary highway funds other than provisions relating to the apportionment formula and provisions limiting the expenditure of such funds to the Federal aid systems, shall apply to the highway safety funds authorized to be appropriated to carry out this section, except as determined by the Secretary to be inconsistent with this section. In applying such provisions of chapter 1 in carrying out this section the term 'State highway department' as used in such provisions shall mean the Governor of a State for the purposes of this section.

"(e) Uniform standards promulgated by the Secretary to carry out this section shall be developed in cooperation with the States, their political subdivisions, appropriate Federal departments and agencies, and such other public and prive organizations as the Secretary deems appropriate.

"(f) The Secretary may make arrangements with other Federal departments and agencies for assistance in the preparation of uniform standards for the highway safety programs contemplated by subsection (a) and in the administration of such programs. Such departments and agencies are directed to cooperate in such preparation and administration, on a reimbursable basis.

"(g) Nothing in this section authorizes the appropriation or expenditure of funds for (1) highway construction, maintenance, or design (other than design of safety features of highways to be incorporated into standards) or (2) any purpose for which funds are authorized by section 403 of this title.

403. - Highway safety research and development. The Secretary is authorized to use funds appropriated to carry out this section to carry out safety research which he is authorized to conduct by subsection (a) of section 307 of this title. In addition, the Secretary may use the funds appropriated to carry out this section, either independently or in cooperation with other Federal departments or agencies, for (1) grants to State or local agencies, institutions, and individuals for training or education of highway safety personnel, (2) research fellowships

in highway safety, (3) development of improved accident investigation procedures, (4) emergency service plans, (5) demonstration projects, and (6) related activities which are deemed by the Secretary to be necessary to carry out the purposes of this section.

404. - National Highway Safety Advisory Committee.
"(a) (1) There is established in the Department of Commerce a National Highway Safety Advisory Committee, composed of the Secretary or an officer of the Department appointed by him, who shall be chairman, the Federal Highway Administrator, and twenty-nine members appointed by the President, no more than four of whom shall be Federal officers or employees. The appointed members, having due regard for the purposes of this chapter, shall be selected from among representatives of various State and local governments, including State legislatures, of public and private interests contributing to, affected by, or concerned with highway safety, and of other public and private agencies, organizations, or groups demonstrating an active interest in highway safety, as well as research scientists and other individuals who are expert in this field.

"(2) (A) Each member appointed by the President shall hold office for a term of three years, except that (i) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term, and (ii) the terms of office of members first taking office after the date of enactment of this section shall expires as follows: ten at the end of one year after such date, ten at the end of two years after such date, and nine at the end of three years after such date, as designated by the President at the time of appointment, and (iii) the term of any member shall be extended until the date on which the successor's appointment is effective. None of the members appointed by the President other than Federal officers or employees shall be eligible for reappointment within one year following the end of his preceding term.

"(B) Members of the Committee who are not officers or employees of the United States shall, while attending meetings or conferences of such Committee or otherwise engaged in the business of such Committee, be entitled to receive compensation at a rate fixed by the Secretary, but not exceeding $100 per diem, including traveltime, and while away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized in section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b-2) for persons in Government service employed intermittently. Payments under this section shall

not render members of the Committee employees or officials of the United States for any purpose.

"(b) The National Highway Safety Advisory Committee shall advise, consult with, and make recommendations to, the Secretary on matters relating to the activities and functions of the Department in the field of highway safety. The Committee is authorized (1) to review research projects or programs submitted to or recommended by it in the field of highway safety and recommend to the Secretary, for prosecution under this title, any such projects which it believes show promise of making valuable contributions to human knowledge with respect to the cause and prevention of highway accidents; and (2) to review, prior to issuance, standards proposed to be issued by order of the Secretary under the provisions of section 402 (a) of this title and to make recommendations thereon. Such recommendations shall be published in connection with the Secretary's determination or order.

"(c) The National Highway Safety Advisory Committee shall meet from time to time as the Secretary shall direct, but at least once each year.

"(d) The Secretary shall provide to the National Highway Safety Committee from among the personnel and facilities of the Department of Commerce such staff and facilities as are necessary to carry out the functions of such Committee."

Sec. 102. (a) Sections 135 and 313 of title 23 of the United States Code are hereby repealed.

(b) (1) The analysis of chapter 1 of title 23, United States Code, is hereby amended by deleting: "135. Highway safety programs."

(2) The analysis of chapter 3 of title 23, United States Code, is hereby amended by deleting: "313. Highway Safety conference."

(3) There is hereby added at the end of the table of chapters at the beginning of title 23, United States Code, the following: "4. Highway safety..... 401."

Sec. 103. Section 307 of title 23, United States Code, is amended (1) by inserting in subsection (a) thereof immediately after "section 104 of this title" the following: ", funds authorized to carry out section 403 of this title," and (2) by adding at the end of such section the following new subsection:

"(d) As used in this section the term 'safety' includes, but is not limited to, highway safety systems, research, and development relating to vehicle, highway, and driver characteristics, accident investigations, communications, emergency medical care, and transportation of the injured."

Sec. 104. For the purpose of carrying out section 402 of title 23, United States Code, there is hereby authorized to be appropriated the sum of $67,000,000 for the fiscal year ending June 30, 1967; $100,000,000 for the fiscal year ending June 30, 1968; and $25,000,000 for the fiscal year ending June 30, 1969.

Sec. 106. All facts contained in any report of any Federal department or agency or any officer, employee, or agent thereof, relating to any highway traffic accident or the investigation thereof conducted pursuant to chapter 4 of title 23 of the United States Code shall be available for use in any civil, criminal, or other judicial proceeding arising out of such accident, and any such officer, employee, or agent may be required to testify in such proceedings as to the facts developed in such investigation. Any such report shall be made available to the public in a manner which does not identify individuals. All completed reports on research projects, demonstration projects, and other related activities, conducted under sections 307 and 403 of title 23, United State Code, shall be made available to the public in a manner which does not identify individuals.

Title II -- Administration and Reporting

Sec. 201. The Secretary shall carry out the provisions of the Highway Safety Act of 1966 (including chapter 4 of title 23 of the United States Code) through a National Highway Safety Agency (hereinafter referred to as the "Agency"), which he shall establish in the Department of Commerce. The Agency shall be headed by an Administrator who shall be appointed by the President, by and with the advice and consent of the Senate, who shall be compensated at the rate prescribed for level V of the Federal Executive Salary Schedule established by the Federal Executive Salary Act of 1964. The Administrator shall be a citizen of the United States, and shall be appointed with due regard for his fitness to discharge efficiently the powers and the duties delegated to him. The Administrator shall have no pecuniary interest in or own any stock in or bonds of any enterprise involved in (1) manufacturing motor vehicles or motor vehicle equipment, or (2) constructing highways, nor shall he engage in any other busines, vocation, or employment.

The Administrator shall perform such duties as are delegated to him by the Secretary. On highway matters the Administrator shall consult with the Federal Highway Administrator. The President is authorized to carry out the provisions of the National Traffic and Motor Vehicle Safety Act of 1966 through the Agency and Administrator authorized by this section.

Sec. 202. (a) The Secretary shall prepare and submit to the President for transmittal to the Congress on March 1 of each year a comprehensive report on the administration of the Highway Safety Act of 1966 (including chapter 4 of title 23 of the United States Code) for the preceding calendar year. Such report should include but not be restricted to (1) a thorough statistical compilation of the accidents and injuries occurring in such year; (2) a list of all safety standards issued or in effect in such year; (3) the scope of observance of applicable Federal standards; (4) a statement of enforcement actions including judicial decisions, settlements, or pending litigation during the year; (5) a summary of all current research grants and contracts together with a description of the problems to be considered by such grants and contracts; (6) an analysis and evaluation of completed research activities and technological progress achieved during such year together with the relevant policy recommendations flowing therefrom; (7) the effectiveness of State Highway safety programs (including local highway safety programs) and (8) the extent to which technical information was being disseminated to the scientific community and consumer-oriented material was made available to the motoring public.

(b) The annual report shall also contain such recommendations for additional legislation as the Secretary deems necessary to promote cooperation among the several States in the improvement of highway safety and to strengthen the national highway safety program.

Sec. 203. The Secretary of Commerce shall report to Congress, not later than July 1, 1967, all standards to be initially applied in carrying out section 402 of title 23 of the United States Code.

Sec. 204. The Secretary of Commerce shall make a thorough and complete study of the relationship between the consumption of alcohol and its effect upon highway safety and drivers of motor vehicles, in consultation with such other government and private agencies as may be necessary. Such study shall cover review and evaluation of State and local laws and enforcement methods and procedures relating to driving under the influence of alcohol, State and local programs for the treatment of alcoholism, and such other

aspects of this overall problem as may be useful. The results of this study shall be reported to the Congress by the Secretary on or before July 1, 1967, and shall include recommendations for legislation if warranted.

Sec. 205. The Federal Highway Administrator and any other officer who may subsequent to the date of enactment of this Act become the operating head of the Bureau of Public Roads shall receive compensation at the rate prescribed for level IV of the Federal Executive Salary Schedule established by the Federal Executive Salary Act of 1964.

Sec. 206. Section 105 of title 23, United States Code, is hereby amended by adding the following subsection at the end thereof: "(e) In approving programs for projects on the Federal-aid systems pursuant to chapter 1 of this title, the Secretary shall give priority to those projects which incorporate improved standards and features with safety benefits."

Sec. 207. In order to provide the basis for evaluating the continuing programs authorized by this Act, and to furnish the Congress with the information necessary for authorization of appropriations for fiscal years beginning after June 30, 1969, the Secretary, in cooperation with the Governors or the appropriate State highway safety agencies, shall make a detailed estimate of the cost of carrying out the provisions of this Act. The Secretary shall submit such detailed estimate and recommendations for Federal, State, and local matching funds to the Congress not later than January 10, 1968.

Sec. 208. This Act may be cited as the "Highway Safety Act of 1966."

Approved September 9, 1966, 1:11 p.m.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 1700 accompanying H. R. 13290 (Comm. on Public Works) and No. 1920 (Comm. of Conference)
SENATE REPORT No. 1302 (Comm. on Public Works).
CONGRESSIONAL RECORD, Vol. 112 (1966):
June 24: Considered and passed Senate.
June 27: Reconsidered and passed Senate.
Aug. 18: Considered and passed House, amended, in lieu of H. R. 13290.
Aug. 31: House agreed to conference report.
Sept. 1: Senate adopted conference report.

APPENDIX B

HIGHWAY SAFETY PROGRAM STANDARD 4.4.11

APPENDIX B

HIGHWAY SAFETY PROGRAM
STANDARD 4.4.11

EMERGENCY MEDICAL SERVICES

Introduction

Many of those injured in highway accidents die needlessly or are permanently disabled because they do not receive prompt and proper emergency medical care. Few areas of the United States now have adequate emergency services. In most areas, there has been inadequate planning of emergency logistics, communications and transportation facilities and present services are inadequately managed. Ambulance operators, *drivers and attendants are commonly not required to be expert in first aid, nor are they required in most parts of the country to carry adequate equipment in their vehicles. Hospitals and ambulances seldom have radio or other direct communications links either to each other or to police, radio communication systems. Helicopters are rarely employed, and landing pads are present at only a small number of hospitals, chiefly along our coasts for the use of the Coast Guard. It is imperative that highway and other emergency services be improved throughout the Nation.

Background

The Highway Safety Act reflects the importance of emergency services by requiring that the highway safety program standards include coverage of emergency services.

When accidents occur, it is essential that every available resource be mobilized to save lives, lessen the severity of injuries, protect property, restore movement of traffic. An essential part of the State safety program should be the development of an emergency facilities system. This will require the advice and

*Public, private or voluntary purveyors of ambulance service.

services of experts and personnel in medicine, law, engineering, communication and law enforcement, at a minimum.

Report No. 1700, House of Representatives
89th Congress, 2d Session,
July 15, 1966, p. 19

Purpose

To provide an emergency care system that will:

I. Provide quick identification and response to accidents.
II. Sustain and prolong life through proper first aid measures, both at the scene and in transit.
III. Provide the coordination, transportation, and communications necessary to bring the injured and definitive medical care together in the shortest practicable time, without simultaneously creating additional hazards.

Standard

Each State, in cooperation with its local political subdivisions, shall have a program to ensure that persons involved in highway accidents receive prompt emergency medical care under the range of emergency conditions encountered. The program shall provide, as a minimum, that:

I. There are training, licensing, and related requirements (as appropriate) for ambulance and rescue vehicle operators, attendants, drivers, and dispatchers.

II. There are requirements for types and numbers of vehicles including supplies and equipment to be carried.

III. There are requirements for the operation and coordination of ambulances and other emergency care systems.

IV. There are first aid training programs and refresher courses for emergency service personnel, and the general public is encouraged to take first aid courses.

V. There are criteria for the use of two-way communications.

VI. There are procedures for summoning and dispatching aid.

VII. There is an up-to-date, comprehensive plan for emergency medical services, including:

A. Facilities and equipment
B. Definition of areas of responsibility
C. Agreements for mutual support
D. Communications systems

VIII. This program shall be periodically evaluated by the State and the National Highway Safety Bureau shall be provided with an evaluation summary.

APPENDIX C

JOB DESCRIPTION, EMERGENCY MEDICAL TECHNICIAN-AMBULANCE

APPENDIX C

JOB DESCRIPTION EMERGENCY MEDICAL TECHNICIAN -- AMBULANCE

Work Requirements

Responds to emergency calls to provide efficient and immediate care to the critically ill and injured, and transports the patient to a medical facility.

After receiving the call from the dispatcher, drives ambulance to address or location given, using the most expeditious route, depending on traffic and weather conditions. Observes traffic ordinances and regulations concerning emergency vehicle operation.

Upon arrival at the scene of accident or illness, parks the ambulance in a safe location to avoid an accident. In the absence of police, enlists the assistance of persons available to create a safe traffic movement, such as the placement of road flares, removal of debris, and redirection of traffic for the protection of the injured and those assisting in the care of the injured.

Determines the nature and extent of illness or injury and establishes priority for required emergency care. Renders emergency care, such as opening and maintaining an airway, giving positive pressure ventilation, cardiac resuscitation, controlling of hemmorrhage, treatment of shock, immobilization of fractures, bandaging, assisting in childbirth, management of mentally disturbed patients, and initial care of poison and burn patients. Administer drugs, including intravenous fluids, as directed by a physician.

Reassures patients and bystanders by working in a confident, efficient manner, Avoids mishandling and undue haste while working expeditiously. Searches for medical identification emblem as

a clue in providing emergency care.

Where patients must be extricated from entrapment, assesses the extent of injury and gives all possible emergency care and protection to the entrapped patient and uses the prescribed techniques and appliances for removing the patient safely. Radios the dispatcher for additional help or special rescue and/or utility services, if needed. Provides light rescue service if the ambulance has not been accompanied by a specialized unit. After extrication, provides additional care in sorting of the injured in accordance with standard emergency procedures.

Complies with regulations on the handling of the deceased, notifies authorities, and arranges for protection of property and evidence at scene.

Assists in lifting stretcher, placing in ambulance and seeing that patient and stretcher are secured and that emergency care, if necessary, is continued.

From the knowledge of the condition of the patient and the extent of injuries and the relative locations and staffing of emergency hospital facilities, determines the most appropriate facility to which the patient will be transported, unless otherwise directed by the dispatcher or a physician. Reports directly to the emergency department or control center the nature and extent of injuries, the number being transported, and the destination to assure prompt medical care on delivery. For serious cases, may ask for additional advice from the hospital physician or emergency department.

Constantly observes patient enroute to emergency facility, administers additional care as indicated or directed by physician.

Identifies diagnostic signs which may require radio communications with a medical facility for advice and for notification that special professional services and assistance be immediately available upon arrival at the medical facility.

Assists in lifting and carrying the patient out of the ambulance and into the emergency department.

Reports verbally and in writing his observation and care of patient at the emergency scene and in transit, to the emergency department staff for record and diagnostic purposes. Upon request, provides assistance to the emergency department staff.

After each trip, replaces used linens, blankets and other supplies, sends supplies for sterilization, makes careful check of all equipment so that the ambulance is ready for the next run. Maintains ambulance in efficient operating condition. Ensures that the ambulance is clean and washed and kept neat and in an orderly condition. In accordance with local or state regulations, decontaminates the interior of the vehicle after transport of victim with contagious infection or radiation exposure. Determines that the vehicle is in proper operating condition by checking gas, oil, water in battery and radiator, and tire pressure. Maintains familiarity with specialized equipment items used by the ambulance service.

NOTE: Seniority and responsibility should be determined by the one responsible for employment and surveillance of personnel. Attendants and drivers should be equally trained in each other's duties and responsibilities so that they may function, interchangeably or independently in caring for multiple casualties.

Education, Training & Experience

A high school education or equivalency qualification is considered minimal. Must be 18 years of age or older.

Minimum training shall be that prescribed in the basic training program for emergency medical technicians-ambulance of the Department of Transportation and the Public Health Service, or equivalency.

Has practical experience in the care and use of emergency equipment commonly accepted and employed, such as suction machines, oxygen delivery systems (installed and portable), backboards, fracture kits, emergency medical care kits, obstetrical kits, intravenous kits, stretchers of various types, light rescue tools, and basic automobile mechanics. Has a basic understanding of sanitizing and disinfecting procedures. Has knowledge of safety and security measures.

Acquires, through critiques and conferences with emergency department personnel, constructive criticism of care rendered and instruction in advances in patient care and in new or improved equipment.

Acquires a thorough knowledge of the territory within his service area, and the traffic ordinances and laws concerning the emergency care and transportation of the sick and injured. Has necessary driver and professional licenses as required by law.

Special Characteristics

Aptitudes -- Motor coordination in administering emergency care of the critically ill and injured, in lifting and carrying patients, and in driving the ambulance.

Manual dexterity and physical coordination in carrying, lifting, extricating, climbing, hoisting, and other similar maneuvers in a manner not detrimental to the patient, fellow workers, or self.

Facility to give and receive verbal and written directions and instruction.

Interests & Temperaments

- A pleasant personality
- Leadership ability; firm, yet courteous
- Good judgment under stress
- Clean and neat in appearance
- Good moral character
- Emotional stability and psychological adaptability

Physical Demands

Normal good health.

Ability to lift and carry up to 100 pounds.

Visual color discrimination in examining patients and determining by appearance diagnostic signs that require immediate detection and proper action, as well as to distinguish traffic signs and lights.

Both far and near visual acuity necessary for driving and for examining the patient (correction by lenses permitted).

APPENDIX D

EMERGENCY MEDICAL SERVICES SYSTEMS ACT OF 1973

APPENDIX D

EMERGENCY MEDICAL SERVICES SYSTEMS ACT OF 1973

An Act

To amend the Public Health Service Act to provide assistance and encouragement for the development of comprehensive area emergency medical services systems.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Short Title

Section 1. This Act may be cited as the "Emergency Medical Services Systems Act of 1973."

Emergency Medical Services Systems

Sec. 2. (a) The Public Health Service Act is amended by adding at the end thereof the following new title:

"TITLE XII -- EMERGENCY MEDICAL SERVICES SYSTEMS

"Definitions

"Sec. 1201. For purposes of this title:

"(1) The term 'emergency medical services system' means a system which provides for the arrangement of personnel, facilities, and equipment for the effective and coordinated delivery in an appropriate geographical area of health care services under emergency conditions (occurring either as a result of the patient's condition or of natural disasters or similar situations) and which is administered by a public or nonprofit private entity which has the authority and the resources to provide effective administration of the system.

"(2) The term 'State' includes the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Trust Territory of the Pacific Islands.

"(3) The term 'modernization' means the alteration, major repair (to the extent permitted by regulations), remodeling, and renovation of existing buildings (including initial equipment thereof), and replacement of obsolete, built-in (as determined in accordance with regulations) equipment of existing buildings.

"(4) The term 'section 314 (a) State health planning agency' means the agency of a State which administers or supervises the administration of a State's health planning functions under a State plan approved under section 314 (a).

"(5) The term 'section 314 (b) areawide health planning agency' means a public or nonprofit private agency or organization which has developed a comprehensive regional, metropolitan, or other local area plan or plans referred to in section 314 (b), and the term 'section 314 (b) plan' means a comprehensive regional, metropolitan, or other local area plan or plans referred to in section 314 (b).

"Grants and Contracts for Feasibility Studies and Planning

"Sec. 1202. (a) The Secretary may make grants to and enter into contracts with eligible entities (as defined in section 1206 (a) for projects which include both (1) studying the feasibility of establishing (through expansion or improvement of existing services or otherwise) and operating an emergency medical services system, and (2) planning the establishment and operation of such a system.

"(b) If the Secretary makes a grant or enters into a contract under this section for a study and planning project respecting an emergency medical services system for a particular geographical area, the Secretary may not make any other grant or enter into any other contract under this section for such project, and he may not make a grant or enter into a contract under this section for any other study and planning project respecting an emergency medical services system for the same area or for an area which includes (in whole or substantial part) such area.

"(c) Reports of the results of any study and planning project assisted under this section shall be submitted to the Secretary and the Interagency Committee on Emergency Medical Services at such

intervals as the Secretary may prescribe, and a final report of such results shall be submitted to the Secretary and such Committee not later than one year from the date the grant was made or the contract entered into, as the case may be.

"(d) An application for a grant or contract under this section shall --

"(1) demonstrate to the satisfaction of the Secretary the need of the area for which the study and planning will be done for an emergency medical services system;

"(2) contain assurances satisfactory to the Secretary that the applicant is qualified to plan an emergency medical services system for such area; and

"(3) contain assurances satisfactory to the Secretary that the planning will be conducted in cooperation (A) with each section 314 (b) areawide health planning agency whose section 314 (b) plan covers (in whole or in part) such area, and (b) with any emergency medical services council or other entity responsible for review and evaluation of the provision of emergency medical services in such area.

"(e) The amount of any grant under this section shall be determined by the Secretary.

"Grants and Contracts for Establishing and Initial Operation

"Sec. 1203. (a) The Secretary may make grants to and enter into contracts with eligible entities (as defined in section 1206 (a)) for the establishment and initial operation of emergency medical services systems.

"(b) Special consideration shall be given to applications for grants and contracts for systems which will coordinate with statewide emergency medical services system.

"(c) (1) Grants and contracts under this section may be used for the modernization of facilities for emergency medical services systems and other costs of establishment and initial operation.

"(2) Each grant or contract under this section shall be made for costs of establishment and operation in the year for which the grant or contract is made. If a grant or contract is made under this section for a system, the Secretary may make one additional grant

or contract for that system if he determines, after a review of the first nine months' activities of the applicant carried out under the first grant or contract, that the applicant is satisfactorily progressing in the establishment and operation of the system in accordance with the plan contained in his application (pursuant to section 1206 (b) (4) for the first grant or contract.

"(3) No grant or contract may be made under this section for the fiscal year ending June 30, 1976, to an entity which did not receive a grant or contract under this section for the preceding fiscal year.

"(4) Subject to section 1206 (f) --

"(A) the amount of the first grant or contract under this section for an emergency medical services system may not exceed (i) 50 per centum of the establishment and operation costs (as determined pursuant to regulations of the Secretary) of the system for the year for which the grant or contract is made, or (ii) in the case of applications which demonstrate an exceptional need for financial assistance, 75 per centum of such costs for such year; and

"(B) the amount of the second grant or contract under this section for a system may not exceed (i) 25 per centum of the establishment and operation costs (as determined pursuant to regulations of the Secretary) of the system for the year for which the grant or contract is made, or (ii) in the case of applications which demonstrate an exceptional need for financial assistance, 50 per centum of such costs for such year.

"(5) In considering applications which demonstrate exceptional need for financial assistance, the Secretary shall give special consideration to applications submitted for emergency medical services systems for rural areas (as defined in regulations of the Secretary).

"Grants and Contracts for Expansion and Improvement

"Sec. 1204. (a) The Secretary may make grants to and enter into contracts with eligible entities (as defined in section 1206 (a)) for projects for the expansion and improvement of emergency medical services systems, including the acquisition of equipment and facilities, the modernization of facilities, and other projects to expand and improve such systems.

"(b) Subject to section 1206 (f), the amount of any grant or contract under this section for a project shall not exceed (i) 50 per centum of the cost of that project (as determined pursuant to regulations of the Secretary), or (ii) in the case of applications which demonstrate an exceptional need for financial assistance, 75 per centum of such costs.

"Grants and Contracts for Research

"Sec. 1205. (a) The Secretary may make grants to public or private nonprofit entities, and enter into contracts with private entities and individuals, for the support of research in emergency medical techniques, methods, devices, and delivery. The Secretary shall give special consideration to applications for grants or contracts for research relating to the delivery of emergency medical services in rural areas.

"(b) No grant may be made or contract entered into under this section for amounts in excess of $35,000 unless the application therefor has been recommended for approval by an appropriate peer review panel designated or established by the Secretary. Any application for a grant or contract under this section shall be submitted in such form and manner, and contain such information, as the Secretary shall prescribe in regulations.

"(c) The recipient of a grant or contract under this section shall make such reports to the Secretary as the Secretary may require.

"General Provisions Respecting Grants and Contracts

"Sec. 1206. (a) For purposes of sections 1202, 1203, and 1204, the term 'eligible entity' means --

"(1) a State,

"(2) a unit of general local government,

"(3) a public entity administering a compact or other regional arrangement or consortium, or

"(4) any other public entity and any nonprofit private entity.

"(b) (1) No grant or contract may be made under this title unless an application therefor has been submitted to, and approved by, the Secretary.

"(2) In considering applications submitted under this title, the Secretary shall give priority to applications submitted by the entities described in clauses (1), (2), and (3) of subsection (a).

"(3) No application for a grant or contract under section 1202 may be approved unless --

"(B) in the case of an application submitted by a public entity administering a compact or other regional arrangement or consortium, the compact or other regional arrangement or consortium includes each unit of general local government of each standard metropolitan statistical area (as determined by the Office of Management and Budget) located (in whole or in part) in the service area of the emergency medical services system for which the application is submitted;

"(C) in the case of an application submitted by an entity described in clause (4) of subsection (a), such entity has provided a copy of its application to each entity described in clauses (1), (2), and (3) of such subsection which is located (in whole or in part) in the service area of the emergency medical services system for which the application is submitted and has provided each such entity a reasonable opportunity to submit to the Secretary comments on the application;

"(D) the --

"(i) section 314 (a) State health planning agency of each State in which the service area of the emergency medical services system for which the application is submitted will be located, and

"(ii) section 314 (b) areawide health planning agency (if any) whose section 314 (b) plan covers (in whole or in part) the service of such system,

have had not less than thirty days (measured from the date a copy of the application was submitted to the agency by the applicant) in which to comment on the application;

"(E) the applicant agrees to maintain such records and make such reports to the Secretary as the Secretary determines are necessary to carry out the provisions of this title; and

"(F) the application is submitted in such form and such manner and contains such information (including specification of applicable provisions of law or regulations which restrict the full utilization of the training and skills of health professions and allied and other health personnel in the provision of health care services in such a system) as the Secretary shall prescribe in regulations.

"(4) (A) An application for a grant or contract under section 1203 or 1204 may not be approved by the Secretary unless (i) the application meets the requirements of subparagraphs (B) through (F) of paragraph (3), and (ii) except as provided in (B) (ii), the applicant (I) demonstrates to the satisfaction of the Secretary that the emergency medical services system for which the application is submitted will, within the period specified in subparagraph (B) (i), meet each of the emergency medical services system requirements specified in subparagraph (C), and (II) provides in the application a plan satisfactory to the Secretary for the system to meet each such requirement within such period.

"(B) (i) The period within which an emergency medical services system must meet each of the requirements specified in subparagraph (A) is the period of the grant or contract for which application is made; except that if the applicant demonstrates to the satisfaction of the Secretary the inability of the applicant's emergency medical services system to meet one or more of such requirements within such period, the period (or periods) within which the system must meet such requirement (or requirements) is such period (or periods) as the Secretary may require.

"(ii) If an applicant submits an application for a grant or contract under section 1203 or 1204 and demonstrates to the satisfaction of the Secretary the inability of the system for which the application is submitted to meet one or more of the requirements specified in subparagraph (C) within any specific period of time, the demonstration and plan prerequisites prescribed by clause (ii) of subparagraph (A) shall not apply with respect to such requirement (or requirements) and the applicant shall provide in his application a plan, satisfactory to the Secretary, for achieving appropriate alternatives to such requirement (or requirements).

"(C) An emergency medical services system shall --

"(i) include an adequate number of health professions, allied health professions, and other health personnel with appropriate training and experience;

(ii) provide for its personnel appropriate training (including clinical training) and continuing education programs which (I) are coordinated with other programs in the system's service area which provide similar training and education, and (II) emphasize recruitment and necessary training of veterans of the Armed Forces with military training and experience in health care fields and of appropriate public safety personnel in such area;

(iii) join the personnel, facilities, and equipment of the system by a central communications system so that requests for emergency health care services will be handled by a communications facility which (I) utilizes emergency medical telephonic screening, (II) utilizes or, within such period as the Secretary prescribes will utilize, the universal emergency telephone number 911, and (III) will have direct communication connections and interconnections with the personnel, facilities, and equipment of the system and with other appropriate emergency medical services systems;

"(iv) include an adequate number of necessary ground, air, and water vehicles and other transportation facilities to meet the individual characteristics of the system's service area --

"(I) which vehicles and facilities meet appropriate standards relating to location, design, performance, and equipment, and

"(II) the operators and other personnel for which vehicles and facilities meet appropriate training and experience requirements;

"(v) include an adequate number of easily accessible emergency medical services facilities which are collectively capable of providing services on a continuous basis, which have appropriate nonduplicative and categorized capabilities, which meet appropriate standards relating to capacity, location, personnel, and equipment, and which are coordinated with other health care facilities of the system;

"(vi) provide access (including appropriate transportation) to specialized critical medical care units in the system's service area, or, if there are no such units or an inadequate number of them in such area, provide access to such units in neighboring areas if access to such units is feasible in terms of time and distance;

"(vii) provide for the effective utilization of the appropriate personnel, facilities, and equipment of each public safety agency providing emergency services in the system's service area;

"(viii) be organized in a manner that provides persons who reside in the system's service area and who have no professional

training or financial interest in the provision of health care with an adequate opportunity to participate in the making of policy for the system;

"(ix) provide, without prior inquiry as to ability to pay, necessary emergency medical services to all patients requiring such services;

"(x) provide for transfer of patients to facilities and programs which offer such followup care and rehabilitation as is necessary to effect the maximum recovery of the patient;

"(xi) provide for a standardized patient recordkeeping system meeting appropriate standards established by the Secretary, which records shall cover the treatment of the patient from initial entry into the system through his discharge from it, and shall be consistent with ensuing patient records used in followup care and rehabilitation of the patient;

"(xii) provide programs of public education and information in the system's service area (taking into account the needs of visitors to, as well as residents of, that area to know or be able to learn immediately the means of obtaining emergency medical services) which programs stress the general dissemination of information regarding appropriate methods of medical self-help and first-aid and regarding the availability of first-aid training programs in the area;

"(xiii) provide for (I) periodic, comprehensive, and independent review and evaluation of the extent and quality of the emergency health care services provided in the system's service area, and (II) submission to the Secretary of the reports of each such review and evaluation;

"(xiv) have a plan to assure that the system will be capable of providing emergency medical services in the system's service area during mass casualties, natural disasters, or national emergencies; and

"(xv) provide for the establishment of appropriate arrangements with emergency medical services systems or similar entities serving neighboring areas for the provision of emergency medical services on a reciprocal basis where access to such services would be more appropriate and effective in terms of the services available, time, and distance.

The Secretary shall by regulations prescribe standards and criteria for the requirements prescribed by this subparagraph. In prescribing such standards and criteria, the Secretary shall consider relevant standards and criteria prescribed by other public agencies and by private organizations.

"(5) The Secretary shall provide technical assistance, as appropriate, to eligible entities as necessary for the purpose of their preparing applications or otherwise qualifying for or carrying out grants or contracts under sections 1202, 1203, or 1204, with special consideration for applicants in rural areas.

"(c) Payments under grants and contracts under this title may be made in advance or by way of reimbursement and in such installments and on such conditions as the Secretary determines will mot effectively carry out this title.

"(d) Contracts may be entered into under this title without regard to sections 3648 and 3709 of the Revised Statutes (31 U.S.C. 529; 41 U.S.C. 5).

"(e) No funds appropriated under any provision of this Act other than section 1207 or title VII may be used to make a new grant or contract in any fiscal year for a purpose for which a grant or contract is authorized by this title unless (1) all the funds authorized to be appropriated by section 1207 for such fiscal year have been appropriated and made available for obligation in such fiscal year, and (2) such new grant or contract is made in accordance with the requirements of this title that would be applicable to such grant or contract if it was made under this title. For purposes of this subsection, the term 'new grant or contract' means a grant or contract for a program or project for which an application was first submitted after the date of the enactment of the Act which makes the first appropriations under the authorizations contained in section 1207.

"(f) (1) In determining the amount of any grant or contract under section 1203 or 1204, the Secretary shall take into consideration the amount of funds available to the applicant from Federal grant or contract programs under laws other than this Act for any activity which the applicant proposes to undertake in connection with the establishment and operation or expansion and improvement of an emergency medical services system and for which the Secretary may authorize the use of funds under a grant or contract under sections 1203 and 1204.

"(2) The Secretary may not authorize the recipient of a grant or contract under section 1203 or 1204 to use funds under such grant

or contract for any training program in connection with an emergency medical services system unless the applicant filed an application (as appropriate) under title VII or VIII for a grant or contract for such program and such application was not approved or was approved but for which no or inadequate funds were made available under such title.

"Authorization of Appropriations

"Sec. 1207. (a) (1) For the purpose of making payments pursuant to grants and contracts under sections 1202, 1203, and 1204, there are authorized to be appropriated $30,000,000 for the fiscal year ending June 30, 1974, and $60,000,000 for the fiscal year ending June 30, 1975; and for the purpose of making payments pursuant to grants and contracts under sections 1203 and 1204 for the fiscal year ending June 30, 1976, there are authorized to be appropriated $70,000,000.

"(2) Of the sums appropriated under paragraph (1) for any fiscal year, not less than 20 per centum shall be made available for grants and contracts under this title for such fiscal year for emergency medical services systems which serve or will serve rural areas (as defined in regulations of the Secretary under section 1203 (c) (5).

"(3) Of the sums appropriated under paragraph (1) for the fiscal year ending June 30, 1974, or the succeeding fiscal year --

"(A) 15 per centum of such sums for each such fiscal year shall be made available only for grants and contracts under section 1202 (relating to feasibility studies and planning) for such fiscal year;

"(B) 60 per centum of such sums for each such fiscal year shall be made available only for grants and contracts under section 1203 (relating to establishment and initial operation) for such fiscal year; and

"(C) 25 per centum of such sums for each such fiscal year shall be made available only for grants and contracts under section 1204 (relating to expansion and improvement) for such fiscal year.

"(4) Of the sums appropriated under paragraph (1) for the fiscal year ending June 30, 1976 --

"(A) 75 per centum of such sums shall be made available only for grants and contracts under section 1203 for such fiscal year, and

"(B) 25 per centum of such sums shall be made available only for grants and contracts under section 1204 for such fiscal year.

"(b) For the purpose of making payments pursuant to grants and contracts under section 1205 (relating to research), there are authorized to be appropriated $5,000,000 for the fiscal year ending June 30, 1975, and for each of the next two fiscal years.

"Administration

"Sec. 1208. The Secretary shall administer the program of grants and contracts authorized by this title through an identifiable administrative unit within the Department of Health, Education, and Welfare. Such unit shall also be responsible for collecting, analyzing, cataloging, and disseminating all data useful in the development and operation of emergency medical services systems, including data derived from reviews and evaluations of emergency medical services systems assisted under section 1203 and 1204.

"Interagency Committee on Emergency Medical Services

"Sec. 1209. (a) The Secretary shall establish and Interagency Committee on Emergency Medical Services. The Committee shall evaluate the adequacy and technical soundness of all Federal programs and activities which relate to emergency medical services and provide for the communication and exchange of information necessary to maintain the coordination and effectiveness of such programs and activities, and shall make recommendations to the Secretary respecting the administration of the program of grants and contracts under this title (including the making of regulations for such program).

"(b) The Secretary or his designee shall serve as Chairman of the Committee, the membership of which shall include (1) appropriate scientific, medical, or technical representation from the Department of Transportation, the Department of Justice, the Department of Defense, the Veterans' Administration, the National Science Foundation, the Federal Communications Commission, the

National Academy of Sciences, and such other Federal agencies and offices (including appropriate agencies and offices of the Department of Health, Education, and Welfare), as the Secretary determines administer programs directly affecting the functions or responsibilities of emergency medical services systems, and (2) five individuals from the general public appointed by the President from individuals who by virtue of their training or experience are particularly qualified to participate in the performance of the Committee's functions. The Committee shall meet at the call of the Chairman, but not less often than four times a year.

"(c) Each appointed member of the Committee shall be appointed for a term of four years, except that --

"(1) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term; and

"(2) of the members first appointed, two shall be appointed for a term of four years, two shall be appointed for a term of three years, and one shall be appointed for a term of one year, as designated by the President at the time of appointment.

Appointed members may serve after the expiration of their terms until their successors have taken office.

"(d) Appointed members of the Committee shall receive for each day they are engaged in the performance of the functions of the Committee compensation at rates not to exceed the daily equivalent of the annual rate in effect for grade GS-18 of the General Schedule, including traveltime; and all members, while so serving away from their homes or regular places of business, may be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as such expenses are authorized by section 5703 of title 5, United States Code, for persons in the Government service employed intermittently.

"(e) The Secretary shall make available to the Committee such staff, information (including copies of reports of reviews and evaluations of emergency medical services systems assisted under section 1203 or 1204), and other assistance as it may require to carry out its activities effectively.

"Annual Report

"Sec. 1210. The Secretary shall prepare and submit annually to the Congress a report on the administration of this title. Each report shall include an evaluation of the adequacy of the provision of emergency medical services in the United States during the period covered by the report, and evaluation of the extent to which the needs for such services are being adequately met through assistance provided under this title, and his recommendations for such legislation as he determines is required to provide emergency medical services at a level adequate to meet such needs. The first report under this section shall be submitted not later than September 30, 1974, and shall cover the fiscal year ending June 30, 1974."

(b) (1) Section 1 of the Public Health Service Act is amended by striking out "titles I to XI" and inserting in lieu thereof "titles I to XII."

(2) The Act of July 1, 1944 (58 Stat. 682), as amended, is further amended by renumbering title XII (as in effect prior to the date of enactment of this Act) as title XIII, and by renumbering sections 1201 through 1214 (as in effect prior to such date), and references thereto, as sections 1301 through 1314, respectively.

Training Assistance

Sec. 3. (a) Part E of title VII of the Public Health Service Act is amended by inserting after section 775 the following new section:

"Training in Emergency
Medical Services

"Sec. 776. (a) The Secretary may make grants to and enter into contracts with schools of medicine, dentistry, osteopathy, and nursing, training centers for allied health professions, and other appropriate educational entities to assist in meeting the cost of training programs in the techniques and methods of providing emergency medical services (including the skills required in connection with the provision of ambulance service), especially training programs affording clinical experience in emergency medical services systems receiving assistance under title XII of this Act.

"(b) No grant or contract may be made or entered into under this section unless (1) the applicant is a public or nonprofit private entity, and (2) an application therefor has been submitted to, and

approved by, the Secretary, Such application shall be in such form, submitted in such manner, and contain such information, as the Secretary shall by regulation prescribe.

"(c) The amount of any grant or contract under this section shall be determined by the Secretary. Payments under grants and contracts under this section may be made in advance or by way of reimbursement and at such intervals and on such conditions as the Secretary finds necessary. Grantees and contractees under this section shall make such reports at such intervals, and containing such information, as the Secretary may require.

"(d) Contracts may be entered into under this section without regard to sections 3648 and 3709 of the Revised Statutes (31 U.S.C. 529; 41 U.S.C. 5).

"(e) For the purpose of making payments pursuant to grants and contracts under this section, there are authorized to be appropriated $10,000,000 for the fiscal year ending June 30, 1974."

(b) Section 772 (a) of such Act (42 U.S.C. 295f-2 (a) is amended --

(1) by striking out "or" at the end of paragraph (12),

(2) by striking out the period at the end of paragraph (13) and inserting in lieu thereof "; or", and

(3) by inserting after paragraph (13) the following new paragraph:

"(14) establish and operate programs in the interdisciplinary training of health personnel for the provision of emergency medical services, with particular emphasis on the establishment and operation of training programs affording clinical experience in emergency medical services systems receiving assistance under title XII of this Act."

(c) Section 774 (a) (1) (D) of such Act (42 U.S.C. 295f-4 (a) (1) (D)) is amended by inserting "(including emergency medical services)" after "services" each time it appears.

Study

Sec. 4. The Secretary of Health, Education, and Welfare shall conduct a study to determine the legal barriers to the effective delivery of medical care under emergency conditions. The study shall include consideration of the need for a uniform conflict of laws rule prescribing the law applicable of the provision of emergency medical

services to persons in the course of travels on interstate common carriers. Within twelve months of the date of the enactment of this Act, the Secretary shall report to the Congress the results of such study and recommendations for such legislation as may be necessary to overcome such barriers and provide such rule.

Approved November 6, 1974.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 93-601 accompanying H.R. 10956 (Comm. on Inter-state and Foreign Commerce).
SENATE REPORT No. 93-397 (Comm. on Labor and Public Welfare).
CONGRESSIONAL RECORD, Vol. 119 (1973);
Sept. 19, considered and passed Senate.
Oct. 25, considered and passed House, amended, in lieu of H.R. 10956
Oct. 30, Senate agreed to House amendment with amendments.
Oct. 31, House concurred in Senate amendments.

APPENDIX E

ADVANCED EMERGENCY MEDICAL TECHNICIAN PRACTICES ACT

APPENDIX E

"ADVANCED EMERGENCY MEDICAL TECHNICIAN PRACTICES ACT

State of Michigan Act. No. 275
Public Acts of 1974

A bill to provide advanced mobile emergency care service using advanced emergency medical technicians; to certify and regulate advanced emergency medical technicians and to prescribe their powers and duties; to prescribe the power and duties of the department of public health; to limit liability; and to prescribe penalties.

The People of the State of Michigan Enact:

Sec. 1. This act shall be known and may be cited as the "advanced emergency medical technician practices act".

Sec. 2. As used in this act:

(a) "Advanced emergency medical technician" means a person trained and certified as described herein, whose primary responsibility is to provide emergency care to patients or trauma victims before hospitalization.

(b) "Advanced mobile emergency care service" means a service which has at least 1 advanced emergency medical technician and a driver on duty 24 hours a day, 7 days a week, for each advanced emergency vehicle available for service. The service shall be provided only in cooperation with a hospital. A vehicle responding to an emergency call shall be equipped so that electrocardiogram data may be obtained from the patient at the scene of the emergency and transmitted electronically to the cooperating hospital, and so that verbal communication may be maintained directly between the scene of the emergency and the licensed physician or registered nurse designated by the physician and the hospital.

(c) "Department" means the department of public health.

(d) "Director" means the director of public health.

(e) "Local governmental unit" means a city, county, township, or village.

Sec. 3. The department shall establish a program certifying advanced emergency medical technicians and shall review and approve advanced emergency medical technician training courses after consultation with an advisory council appointed by the director. These courses, as a minimum, shall include those skills putlined in the courses provided in section 4 (a), and shall be conducted under the direction of a licensed physician. Criteria for approval of the courses and credentials of course instructors shall be kept on file by the department and be made available for public review and inspection.

Sec. 4. The department shall issue an advanced emergency medical technician certificate to an applicant who meets all the following requirements:

(a) Has successfully completed the emergency medical technician ambulance course and the advanced emergency medical technician ambulance course prescribed by the national highway traffic safety administration, U. S. Department of Transportation, or the United States department of health, education, and welfare, or an equivalent course approved by the department.

(b) Has passed a written examination, administered by the department, which assesses the applicant's knowledge of advanced emergency medical procedures and has passed a practical examination, administered by the department, which demonstrates skill to perform the functions and duties described in this act.

(c) Participates in a program of ongoing education approved by the department.

Sec. 5. (1) An advanced emergency medical technician may render rescue and first aid services, and in conjunction with a cooperating hospital may perform the following life saving techniques: all phases of cardiopulmonary resuscitation, cardiac monitoring, defibrillation, airway or gastric intubation, relief of pneumothorax, and the administration of appropriate drugs and intravenous fluids.

(2) These procedures shall be performed by the advanced emergency medical technician, in each individual case, pursuant to the written authorization, the verbal authorization, or the

transmitted authorization through a direct communication device of a licensed physician or a registered nurse designated by the physician.

(3) If communications fail during an emergency situation, the advanced emergency medical technician may perform any of the above if in his judgment the life of the patient is in immediate danger. A detailed report citing the causes of the communication failure and an outline of the procedures employed by the advanced emergency medical technician shall be forwarded to the department within 24 hours.

Sec. 6. An act or omission of an advanced emergency medical technician done or omitted in good faith while rendering advanced mobile emergency care to a patient or trauma victim shall not impose liability upon the advanced emergency medical technician, the authorizing physician, the hospital, or the officers, members of the staff, nurses, or other employees of the hospital or the local governmental unit if the advanced mobile emergency care service is rendered in connection with an emergency, and in good faith, and under the direction of a licensed physician or registered nurse designated by the physician unless the act or omission was a result of gross negligence or wilful misconduct.

Sec. 7. The department shall approve advanced mobile emergency care services. The department shall periodically review records of training and performance, assessing the quality of service being rendered, and shall establish and publish a set of guidelines for the operation of an advanced mobile emergency care service.

Sec. 8. (1) The department shall promulgate rules to implement this act in consultation with the advisory council pursuant to Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Michigan Compiled Laws. "Nothing in this act or rules adopted thereunder shall be construed to authorize any medical treatment or transportation to a hospital of a person who objects thereto on religious grounds."

(2) The rules shall include training and ongoing education requirements, certification requirements, renewal and revocation procedures, record keeping requirements, credentials of course instructors, and standards for service evaluation and cooperating hospital programs.

Sec. 9. (1) A person performing the functions and duties of an advanced emergency medical technician on or before the

effective date of this act shall be considered certified for the purposes of this act until the department establishes an examination pursuant to subsection (2), if the person:

(a) Has successfully completed the emergency medical technician ambulance course of 80 hours prescribed by the national highway traffic safety administration or an equivalent course approved by the department.

(b) Has completed a course of study under the direction of a licensed physician, including all phases of cardiopulmonary resuscitation, airway or gastric intubation, the use of appropriate communication devices, telemetered and defibrillation equipment, and the administration of appropriate drugs and intravenous solutions to successfully carry out the above described techniques. The course shall include those techniques outlined in the advanced training program for emergency medical technicians -- ambulance prescribed by the United States department of transportation and the U. S. department of health, education, and welfare.

(c) Was examined and certified to provide advanced mobile emergency care by a cooperating hospital or appropriate local governmental unit. The department shall be notified of such individuals not more than 30 days following the effective date of this act.

(2) A person considered certified under this section shall be required to take the examination established by the department when the examination becomes available and shall be issued a regular certificate upon successful completion of the examination.

Sec. 10. (1) An agency, public or private, shall not advertise or disseminate information leading the public to believe that the agency provides an advanced mobile emergency care service unless that agency does in fact provide advanced mobile emergency care service as defined in this act and has been approved by the department. An agency may advertise only for those vehicles operating on a continual basis of 24 hours per day, 7 days per week.

(2) A person shall not represent himself as an advanced emergency medical technician unless or until certified by the department or qualified pursuant to section 9 and only during such time as the certificate is in effect.

Sec. 11. A local governmental unit may establish an ordinance regulating the operation of an advanced mobile emergency care service, if the standards and procedures established under the

ordinance are not in conflict with or less stringent than those required under this act or the rules promulgated under this act.

Sec. 12. A person or agency who violates this act or the rules promulgated pursuant to this act is guilty of a misdemeanor.

"Sec. 13. Nothing in this act shall be construed to require that all mobile emergency service agencies provide advanced mobile emergency care service."

APPENDIX F

LANSING COMMUNITY COLLEGE ONE-YEAR CERTIFICATE PROGRAM

APPENDIX F

LANSING COMMUNITY COLLEGE ONE YEAR CERTIFICATE PROGRAM

Program Description

A. General Program Goals

1. Background and Overview. In response to a series of conferences with the Tri-County Emergency Services Council, the Department of Health Careers, Lansing Community College implemented a basic 80 hour course entitled "Emergency/Ambulance Techniques" beginning Fall Term 1972 and again during Winter and Spring Terms.

This course had been conducted previously by the Council's Training Committee utilizing volunteer instructors.

In line with the Tri-County Council's over-all plan to establish a coordinated emergency services program for the tri-county area, the College is developing a three-term program which essentially expands the current one-term course, and provides basic support courses such as Anatomy-Physiology, Communication Skills, Technical Report Writing, etc.

2. Program Objective. The principle objective is to prepare the student to function effectively in emergency situations at the site, enroute to definitive care, or in an organized emergency ward or unit in a hospital.

The program will provide -

1. New career opportunities for high school graduates

2. Opportunities for those currently employed as ambulance technicians or emergency room personnel to up-date and extend knowledge and skills.

Peformance Objectives. Upon completion of the program the student will be able to -

1. Function effectively in an organized emergency services delivery system.

2. Function effectively at the site of an emergency, operate life support systems enroute to definitive treatment and in emergency wards or units in hospitals.

3. Recognize the nature, extent, and type of injury observed.

4. Implement specific emergency treatment measures independently, or under the direction of a physician responding to telemetry or radio information.

5. Apply splints, tourniquets, emergency dressings, provide oxygen, and other emergency procedures.

6. Recognize the need for cardio-pulmonary resuscitation, and use life support equipment in an emergency vehicle when necessary.

7. Administer emergency medications as directed by a physician or nurse.

8. Perform extrication, pole and water rescue, defensive driving and other procedures pertinent to effective emergency services.

B. List of Occupations for Which Graduates Would Qualify -

1. Emergency Medical Services Technician

Private or FireDepartment Ambulance Driver-Technician 07.0907

354.878-010 First Aid Attendant
355.878-010 Ambulance Attendant
355.878-026 Emergency Entrance Attendant

C. General Classroom and Laboratory Experiences

The course will include lectures, laboratory demonstration and practice on campus, scheduled experiences in the emergency rooms, intensive care units, coronary care units, labor and delivery units of cooperating hospitals and agencies.

Swimming pools will be used for demonstration and practice in water rescue. Other resources will be sought in the community

as the emergency services course sequence is developed in detail.

The completed course would qualify the graduate to write the certification examination conducted by the National Registry for Emergency Medical Technicians and may use the designation Certified Emergency Services Technician.

D. Proposed Course Sequence

FALL TERM		CREDITS
ANT 201	Anatomy & Physiology	5
TEC 101	Technical Report Writing	3
EST 100	Introd. to Emerg. Services	4
BUS 207	Medical Terminology	2
EST 101	Emergency Care Equipment	3
		17

WINTER TERM		CREDITS
ANT 202	Anatomy & Physiology	5
PSY 151	Psychology of Personal Adjustment	3
EST 102	Emergency Care Principles & Techniques	8 (5-6)
HC 114	Physical Assessment	3
		19

SPRING TERM		CREDITS
CHC 102	Pharmacology	6
EST 103	Advanced Emergency Care Techniques	8 (4-8)
CHC 120	Medical Communication & Telemetry	2
		16

Preliminary discussions have been held with representatives from Michigan State University (serving on the Tri-County Council) regarding the possible articulation of this program with a suggested program to prepare Instructor Personnel for Emergency Services.

NEW OCCUPATIONAL PROGRAM

Emergency Services Technician

U.S.O.E., Program Code 07.0907

A. Specialty Study

EST 100	Introduction to Emergency Services	4 Credit Hours	50 Contact Hours
EST 101	Emergency Care Equipment and Techniques I	3 Credit Hours	40 Contact Hours
EST 102	Emergency Care Principles and Techniques II	8 Credit Hours	110 Contact Hours
EST 103	Advanced Emergency Care Techniques III	8 Credit Hours	120 Contact Hours
CHC 102	Pharmacology	6 Credit Hours	60 Contact Hours
HC 114	Physical Assessment	3 Credit Hours	30 Contact Hours
CHC 120	Medical Communication and Telemety Tech.	2 Credit Hours	20 Contact Hours

B. Supportive Study

ANT 201	Anatomy and Physiology	5 Credit Hours	60 Contact Hours
ANT 202	Anatomy and Physiology	5 Credit Hours	60 Contact Hours
TEC 201	Technical Report Writing	3 Credit Hours	30 Contact Hours *
BUS 207	Medical Terminology	2 Credit Hours	20 Contact Hours *

C. General Education

PSY 151	Psychology of Personal Adjustment	3 Credit Hours	30 Contact Hours

*Approved for Vocational Reimbursement

APPENDIX G

COURSE IN EMERGENCY CARDIOPULMONARY CARE

APPENDIX G

COURSE IN EMERGENCY CARDIO-PULMONARY CARE

Paramedical personnel who enter the course have had the Ohio Trade and Industrial Service course in Emergency Victim Care and considerable general service experience. Individuals completing and receiving accreditation in the course of acute cardiopulmonary care must have demonstrated understanding of the following:

1. Physiology of the normal and abnormal heart and circulation.

2. Pathology of the heart.

3. Myocardial infarction.

4. Electrocardiography with emphasis on arrhythmias and myocardial infarction.

5. Oxygen and inhalation therapy.

6. Cardiopulmonary resuscitation.

7. The pharmacology and use of the drugs lidocaine, atropine, bicarbonate, and isoproterenol.

8. The therapeutic approach to the patient with:

   a. Shortness of breath

   b. Chest pain.

   c. Cardiac arrest.

   d. Shock.

To accomplish this, the course is composed as follows:

1.	General Physiology with emphasis on the Cardio-Pulmonary System	3 hrs.
2.	Anatomy and Pathology of Heart	6 hrs.
3.	EKG and Arrhythmias (correlating patient symptoms & treatment)	14 hrs.
4.	0_2 Therapy and Intubation	4 hrs.
5.	CPR	3 hrs.
6.	Drugs and Treatment	7 hrs.
7.	Monitors and Defibrillators (basic understanding of operations and electronics)	2 hrs.
8.	Pacemakers	2 hrs.
9.	Therapeutic approach to Coronary Symptoms	6 hrs.
10.	Laboratory Sessions, Dog Lab, Autopsy, Nursing Arts	7 hrs.
11.	Clinical Experience	8 hrs.
12.	Testing	2 hrs.
	Total	64 hrs.

APPENDIX H

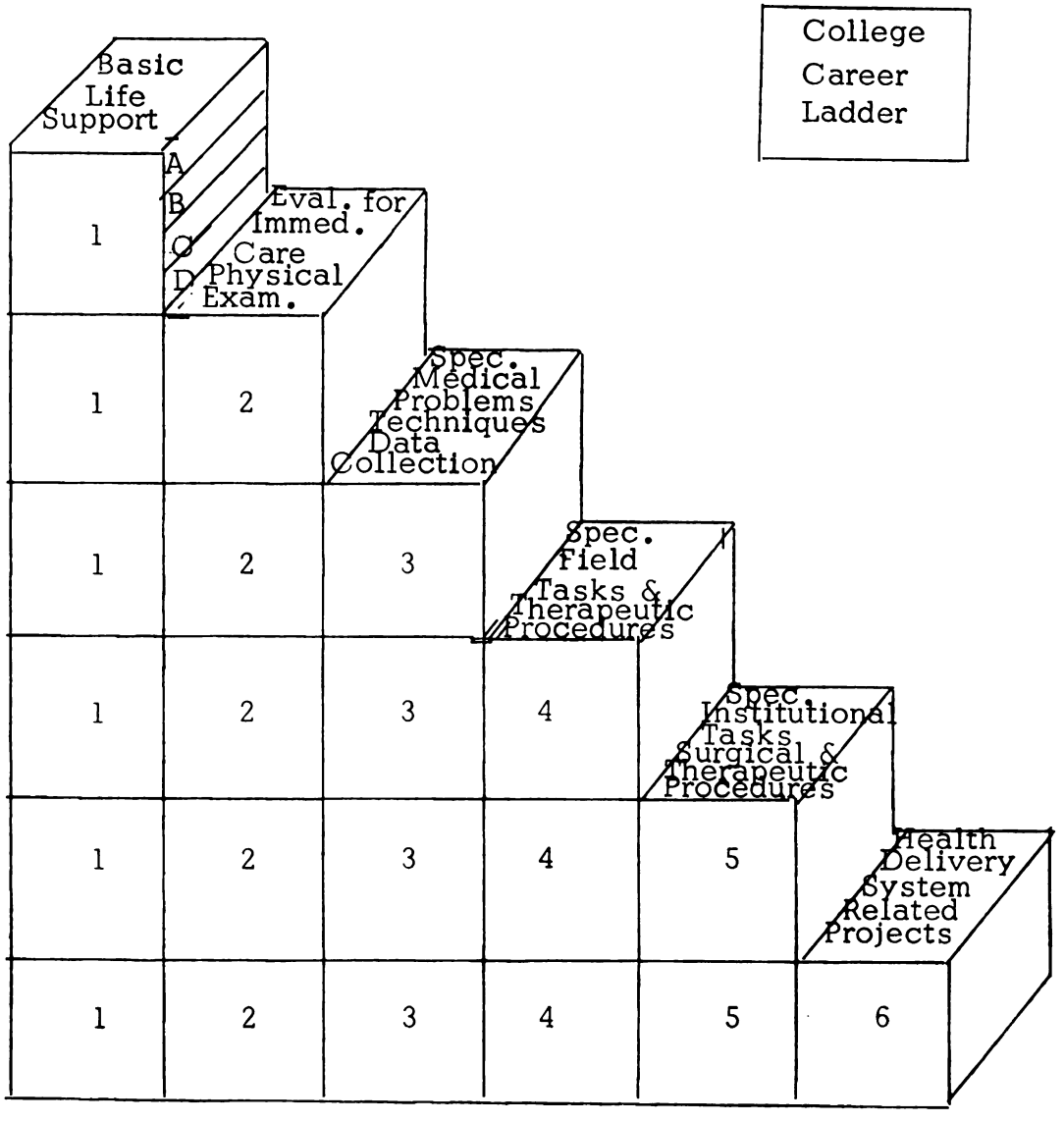
A MODULAR PLAN FOR EMERGENCY MEDICAL CARE TRAINING

A MODULAR PLAN FOR EMERGENCY MEDICAL CARE TRAINING ----------

Basic Suggested Human Resource Utilization

GENERAL PUBLIC	A. General Public	Common Core Basic Medical Services
Airline Flight Personnel, School Bus Drivers, Public School Personnel, Sports & Recreation Personnel, Families of High Risk Patients	B. Public Service Domain	
Ambulance Drivers & Attendants, Lifeguards, Law Enforcement Personnel, Fireman, Nursing Attendants 1st. Yr. Medical School Students	Level I	
Paramedics, Mountain & Rural Rescue Personnel, Licensed Vocational Nurses, R.N.'s, Other Allied Health Personnel Who Deal in Emergencies, 2nd. Yr. Medical School Students	Level II	
Emergency Medical Technician (in Hospital - Extra Hospital Nurses, Emergency Room, Acute & Critical Care, Coronary Care, Midwives, etc., 3rd. Yr. Medical School Students	Level III	
Physician's Assistant Nurse Practitioners, Emergency, Pediatric & Ob - Gyn 4th. Yr. Medical School Students	Level IV	

Advanced



APPENDIX I

CRITERIA FOR EMERGENCY AID PROGRAM

CONTRACT WITH HOSPITALS

APPENDIX I

CRITERIA FOR EMERGENCY AID PROGRAM CONTRACT WITH HOSPITALS

Department of Health Services
County of Los Angeles

Hospitals to be included in the Emergency Aid Program (EAP) will be evaluated in terms of the criteria for a model medical emergency service.

The criteria and survey sheet are to be used together for contractual purposes:

a) The evaluation of a hospital will concern itself to the major extent with the quality of services provided.

b) Items in the criteria with one (1) star are provisions for Basic Service-the minimum requirement for an EAP contract.

c) Items with two (2) stars indicate additional criteria necessary to qualify as a Comprehensive (Regional) Emergency Service. These criteria will also be evaluated in comparing applicants and present providers for assigning EAP contracts.

d) Some of the information required in the survey form is designed to illuminate the future development of emergency medical standards in the County/City. Thus, items which are not required at this time may become requirements in the foreseeable future. It is further suggested that hospitals desiring to retain EAP contracts will recognize the evolutionary character of the survey.

e) In the case of similar hospitals in the same geographic areas meeting the criteria for basic emergency service, the EAP survey team will present evidence for award of an EAP contract to the Los Angeles County Committee on Emergency Medical Care for their recommendation to the Board of Supervisors. The EAP survey team recommendations will be forwarded to the Committee

only after public hearings have been conducted in the community. In the case of hospital inspections within the City of Los Angeles, recommendations will be made to the Los Angeles City Medical Advisory Council for their review and approval.

f) The County and City of Los Angeles recognize that the geographic location and the emergency needs dictated by the demographic nature of the area under study will be taken into account in the final selection of EAP facilities.

g) As training in emergency medicine permits advanced degrees of competency in this field and availability of trained personnel, criteria for staff training and experience will undoubtedly be raised with respect to designation of an emergency service as to basic requirements. At any time, emergency services will be rated comparatively with respect to their respective staff qualifications as well as their total capabilities.

h) A current listing of all physicians employed in the emergency department (full and/or part time) must be maintained by hospitals participating in the EAP.

Hospital - Support Capabilities and Location

A. Hospital shall be a general medical-surgical facility having 150 or more beds and equipped with a CCU/ICU.

B. Staff by type and qualification.

	IMMEDIATELY AVAILABLE 24 HRS. PER DAY	AVAILABLE WITHIN 30 MINUTES
1. Physicians (Full time staff or senior resident)		
a. Anesthesiologist	**	*
b. Internist	**	*
c. General Surgeon	**	*
d. Internist-Cardiologist		*
e. Neurosurgeon		*
f. Obstetrician-Gynecologist	**	*
g. Orthopedic Surgeon		*
h. Opthamologist		**
i. Oral Surgeon		**
j. Otolaryngologist (ENT)		**
k. Plastic Surgeon		**
l. Psychiatrist	**	*
m. Radiologist	**	*
n. Thoracic Surgeon		*
o. Urologist		*
p. Pathologist		*
q. Pediatrician	**	*

Facilities

1. Cardiac Care Unit *
2. Intensive Care Unit *
3. Infant Care Unit **
4. Delivery Room **
5. Major Burn Unit
6. Decompression Unit
7. Nuclear Medicine Unit **
8. Outpatient Clinics
9. Respiratory Therapy Dept.
10. Physical Therapy Unit *
11. Psychiatric Emergency Service **
12. Ophtalmic Care Unit **
13. Hyperbaric Unit
14. Cardiac By-Pass **
15. Hemodialysis
16. Blood Storage *
17. Blood Bank **
18. Radiography Department *
19. Clinical Laboratory *
20. Pharmacy *
21. Major Surgery *
22. Recovery Room *
23. Neurologic Surgery **
24. Obstetric/Gynecology Unit **
25. Orthopedic Department **
26. Pediatric Department **
27. Urologic Care Department **
28. Communicable Disease Isolation
29. Radiation Decontamination Unit

Location

1. The hospital, during peak traffic hours, shall be within:

    a. 15 minutes by surface transport of 80% of the population to be served,

    b. 20 minutes of the next 15%, and

    c. 30 minutes of the remaining 5%.

2. The hospital shall be located close to main highway areterials and/or freeways, approachable from any direction and free of barriers to access such as railroads, rivers, hilly terrain, freeways, etc. Alternate access shall be available but shall not increase the previously stated transport times by more than 50%.

3. Sufficient population and number of cases by type to justify service provided. The populations served by each hospital should not be overlapping.

E. Accredited by:

1. Joint Commission on Accreditation of Hospitals

Emergency Room Facilities

A. Emergency department must be open 24 hours per day, 7 days per week.

B. The emergency department must:

1. Be physically attached to the hospital.

2. Have one emergency area (about 100 square feet) per 500 patient visits per month.

3. Have a waiting (reception) area.

4. Have a doctors' overnight room.

5. Have a suitable utility (work) room.

6. Maintain a distinct nursing and clerical area.

7. Have direct ambulance access to the emergency room with the ambulance entrance well identified and illuminated at night.

8. Have a police and media room.

C. The emergency department must have the following support services available 24 hours per day in a Comprehensive (Regional) Service Hospital and on a priority basis within 15 minutes call for a Basic Service Hospital:

1. X-ray

2. Laboratory and blood bank

3. Operating room

4. Respiratory therapy

Required Policies and Procedures

A. The emergency department must accept all emergency patients for initial care independent of financial status or insurance coverage.

B. A standardized patient log must be maintained.

C. The emergency department must maintain a written operations manual describing the administrative procedures used by the hospital.

D. Policy statements issued by the governing board of the hospital which pertain to the operation of the emergency department must be easily accessible to all personnel.

E. An Emergency Department Committee must meet on a regularly scheduled basis and consist of representatives of the:

1. Medical Staff

2. Nursing Service

3. Hospital Administration

4. X-ray Service

5. Laboratory Service

6. Ambulance Service

F. A medical record must be prepared for every patient treated in the emergency department. Patient records must be complete and accessible and should reflect pertinent history, physical findings, diagnostic reports and treatment. A copy of the record must accompany the patient when and if transferred to another facility.

1. Patient records should be retained according to the recommended schedule published by the California Hospital Association in the Employer Tax and License Guide.

G. There must be provision for the management of disturbed patients.

H. The hospital must provide services for, or the directed disposition of, unscheduled non-emergency patients.

I. The emergency department shall have the capability of managing at least the following conditions:

1. Control of major external hemorrhage.

2. Primary care and closure of wounds.

3. Administration of intravenous drugs, fluids, and blood.

4. Immobilization of fractures.

5. Cardiopulmonary resuscitation.

6. Management of life threatening cardiac dysrhythmias.

7. Endotracheal intubation and ventilation.

8. Tracheostomy

9. Aspiration - Joint

10. Aspiration - Abdomen

11. Aspiration - Chest

12. Decompression of pleural space.

13. Decompression of pericardial space.

14. Treatment of poisonings, including gastric lavage.

15. Initial decontamination of noxious elements.

J. The emergency department must have textbooks, monograms, or other reference material available covering:

1. Burns

2. Emergency medical care

3. Poison control (including telephone number of nearest Poison Control Center)

4. Public Health Regulations

5. Radiation exposure

6. Infectious diseases

Standards for Personnel

A. A physician must be on duty, physically present in the emergency department and with no other responsibilities, 24 hours per day, 7 days per week.

B. A nurse (RN or LVN) and a clerk must be on duty in the emergency department 24 hours per day, 7 days per week.

C. No personnel working in the emergency department may be on duty for more than 24 hours without a continuous 6-hour rest period between work shifts.

D. All physicians working in the emergency department must qualify under one of the following categories:

1. Current residency in:

   a. Surgery or surgical subspecialty

   b. Medicine or medical subspecialty

   c. OB-GYN or Pediatrics

2. Completion of clinical internship within last two years excluding straight internships in Psychiatry, Pathology, and Radiology.

3. Completion of 48 hours in pertinent post-graduate annual work.

4. Board eligible or certified in:

a. Pediatrics

b. OB-GYN

c. Medicine

d. Surgery

5. Emergency room experience (minimum of one year full time).

E. All personnel employed in direct patient care in the emergency department must be certified to the minimum level of EMT-I.

Supplies and Personnel

A. The following must be available in the emergency department:

1. Fixed oxygen supply

2. Ventilation equipment with bag-valve-mask unit

   a. Pediatric and adult

3. Mechanical ventilator

4. Tracheal intubation equipment (including laryngyscope)

   a. Pediatric and adult

5. Cardioscope and/or electrocardiograph

6. External syncronous cardiac defibrillator

7. Essential emergency drugs, well labeled and accessible

8. Venous infusion and injection equipment

9. Venous cut-down tray

10. Sterile tracheostomy equipment

11. Thoracotomy equipment and tray

12. Pleural and pericardial draining equipment

13. Gastric lavage equipment

14. Poison antidotes

15. Restraints (hard and soft)

16. Minor surgery and casting

17. Emergency delivery kit

B. Available in the hospital:

1. External cardiac pacemaker

2. Central venous catherization equipment

Communications

A. The HEAR Radio System must be installed and be operational. There must be an extension to the emergency department.

Highway and Directional Signs

A. Adequately distributed signs on adjacent freeways and surface streets indicating direction and level of service.

B. "EMERGENCY DEPARTMENT: signs on the hospital grounds.

1. Illuminated during hours of darkness.

Disaster Plan

A. There must be a disaster plan including the emergency department.

B. The disaster plan must be posted and/or copies must be readily available to the emergency department staff.

C. The disaster plan must cover the management of mass casualties.

D. The disaster plan must be tested annually in conjunction with adjacent hospitals.

Training

A. Hospitals participating as base facilities in the Paramedic Telemetry Programs must provide a minimum of 8 hours annual inservice education to paramedics and other hospital paramedical personnel.

Criteria for E.A.P. Survey Team

The survey team evaluating hospitals requesting Emergency Aid Program contracts or that are being re-evaluated for cause shall have a minimum of four members. They shall be selected from the following categories and no single agency shall represent a majority of the inspection team. Two of the team shall be physicians.

A. Emergency Aid Program Administrative Office:

1. Director of the Emergency Aid Program or his designee.

2. A physician working with the Emergency Aid Program.

B. A member of, or advisor to, the Los Angeles County Committee on Emergency Medical Care.

C. Staff member of the Los Angeles County Committee on Emergency Medical Care.

D. A physician representing the Los Angeles County Hospitals Emergency Departments.

E. An official designee of the City of Los Angeles (when hospitals being inspected are in the City boundaries of Los Angeles or serve areas immediately adjacent to those boundaries).

F. A physician representing the Los Angeles County Medical Association.

APPENDIX J

REQUIREMENTS FOR THE MASTER OF PUBLIC ADMINISTRATION DEGREE (M.P.A.) IN EMERGENCY MEDICAL SERVICES

APPENDIX J

REQUIREMENTS FOR THE MASTER OF PUBLIC ADMINISTRATION DEGREE (M.P.A.) IN EMERGENCY MEDICAL SERVICES

Introduction

The program of studies leading to this degree is designed for persons already in or preparing to enter one of the many branches of the public service. The objective of the program is to provide the breadth of perspective and depth of background essential to those engaged in or contemplating a career in governmental or related kinds of work. The needs of specialization are recognized, but within the context of a basic understanding of political, economic, and social processes.

Admission

A bachelor's degree from a recognized educational institution is required. In addition, prospective students must take the verbal and quantitative portions of the Graduate Record Examination plus the GRE advanced test in political science or an alternative relevant to the student's field of specialization.

Undergraduate Prerequisites

Those who have not completed the equivalent of four quarter hours in statistics or six quarter hours in accounting or whose work experience has not developed equivalent competence in these subjects may be required to take the appropriate course work. Also, PLS 415, Advanced Seminar in Policy and Bureaucracy may be required as a prerequisite unless waived by the student's program guidance committee. Credits obtained in these courses shall not count toward the degree. Prerequisite courses must be made up within the first two terms of the student's matriculation.

Requirements for the MPA Degree

The requirements for the MPA, described below, consist of a common core, related electives, field experience practicum, and a field of application. In each case, the student's faculty Guidance Committee will assess the adequacy of prior preparation and experience to determine the precise program to be followed in accordance with these guidelines.

Common Core

a. Required Courses

		Credits
PLS 800 a, b	Proseminar in Political Theory and Research Methods	8
PLS 810	Proseminar in Public Administration	4
PLS 894	Field Experience Practicum	12 *
PLS 911	Theories of Administrative Organization	4
PLS 914	Comparative Public Administration	4
PLS 990	Seminar (variable topics in public administration)	5
	sub-total	25-37

*Approval of the Guidance Committee is required prior to undertaking particular field internship arrangements to ensure that the program's purposes will be implemented. The Guidance Committee may waive this requirement, in part or in whole, for those with appropriate prior experience.

b. Additional Required Course: Choose one of the following. (Not to be taken in same political science field as the student's applied area)

		Credits
PLS 921	Judicial Systems	4
PLS 931	Political Groups and Movements	4
PLS 932	Legislative Process	4
PLS 933	Political Parties	4
PLS 941	Metropolitan Area Government and Politics	4
PLS 942	Federalism and Intergovernmental Relations	4
PLS 943	Community Decision Making	4
PLS 973	American Political Thought	4
	sub-total	4

c. Additional Required Course: Choose one of the following (or an alternative course in budgeting and program evaluation, acceptable to the Guidance Committee).

		Credits
PAM 406	Public Expenditures: Theory and Policy	4
AEC 811	Public Program Analysis (3 + 1 from AEC 882)	4
LIR 817	Methods of Program Evaluation	4
	sub-total	4

Related Electives

Credits
12

Twelve credits of courses bearing a logical relationship to each other and to the student's program must be earned in one or more of the following Department or Schools: Agricultural Economics, Anthropology, Communications, Criminal Justice, Economics, History, Labor and Industrial Relations, Philosophy, Psychology, Social Work, Sociology or Urban Planning.

Field of Application

Credits
9-15

Nine (9) to 15 credits must be earned in courses directly related to the student's present or prospective career. Of these 15, as many as 9 may be earned as thesis credits rather than as course credits if the student elects to follow Plan A*, in which case no credit is allowed for courses numbered under 800. The 15 credits of field of application courses can be reduced to 12 or 9 if, in the judgment of the Guidance Committee, the student's work experience is acceptable as the equivalent of course work.

Courses making up the field of application (or the thesis subject) are chosen in consultation with a faculty advisor and must be approved by the Guidance Committee. Illustrative fields of application might be: International relations, foreign political institutions, state and local government, political organization and behavior,

public law, public finance, urban planning, social work, police administration, civil engineering, resource development, etc. In general, the field of application is chosen from an area in which the University offers graduate work, or by combining relevant portions of such area.

The following is an overview of the Plan B* program's components:

	Credits
I. Prerequisites (determined by guidance committee)	0
II. Common Core and Internship	33-45
III. Multi-Disciplinary Related Electives	12
IV. Applied Area (in cooperation with related departments and schools)	9-15
Total	54-72

A. Comparative and Developmental Administration
B. Judicial Administration
C. Natural Resources and Agricultural Administration
D. Organization and Management Training for Public Service
E. Policy Planning, Analysis and Evaluation
F. Public Health Administration
G. State and Intergovernmental Administration
H. Urban Administration

A Plan A thesis is an available option (with permission of committee). Thesis credits (9) for an appropriate topic count towards the Field of Application requirement.

Examinations

Candidates for the degree of Master of Public Administration must pass two examinations: a written examination in the field of public administration and an oral examination covering public administration, the related elective, and the field of application and/or the thesis, if Plan A has been followed. A candidate may be

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*Plan A programs require a master's thesis; Plan B programs do not entail a master's thesis.

permitted to take either of these examinations a second time when, in the judgment of the examining committee, this is warranted, but no candidate is allowed to repeat them more than once.

Other Requirements

Residence, transfer credits, and the time limited for the degree are in accordance with all-University regulations.

Academic Standards

Academic standards are the same as those for the Master of Arts in Political Science. In addition, no credit will be allowed for courses number below 400, and no more than 12 credits will be allowed for courses number below 800. An average grade of 3.0 must be maintained and all courses taken must be counted in the calculation of the average.

Guidance and Examination Committees

During the student's first quarter of studies, a Guidance Committee of three is appointed by the Graduate Advisor of the Department of Political Science. This committee includes the student's major professor as chairman and usually one other member selected from faculty members affiliated with the Department's Public Administration Program. The Guidance Committee, with the addition of appropriate representatives from other fields when necessary, also serves as the student's examining committee.

Final interpretation necessary for the application of the above requirements will be made by the Department and the Dean of the College.

This is the Michigan State University, Department of Political Science Master's Degree Program in Public Administration.

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