

TEXAS EMS & TRAUMA SYSTEMS

2010



DEVELOPED BY

GOVERNOR'S EMS & TRAUMA ADVISORY COUNCIL

Reference Material

March 2002

TABLE OF CONTENTS

[Preface](#)

[Introduction](#)

[History of Texas EMS / Trauma Development](#)

[Vision and Mission Statements](#)

[Assumptions Taken from National EMS Agenda](#)

[Potential Key Areas](#)

[Appendices](#)

Preface

While a large portion of this document is taken directly from the “National EMS Agenda for the Future” and the Iowa EMS Strategic Plan, the issues outlined in those documents are of similar (if not exact) nature as those of EMS in Texas and attempts have been made to address each from a Texas perspective. Information from surveys sent to EMS Providers, First Responders, Hospitals and EMS Medical Directors along with input from the 6 Public Hearings held across the State were also used in the creation of this draft.

The Contents herein are intended to serve as a guiding reference from which the Governor’s EMS and Trauma Advisory Council “GETAC” may draw in the drafting of the Texas EMS Plan.

Discussion of EMS in any particular sequence, as in the text of this document, is not a statement regarding their relative importance.

[Back](#)

Introduction

From a beginning of 326 certified individuals certified in 1970, EMS has grown into a major component of the health care system with 48,599 individuals, 728 Ambulance services with 3,300 vehicles and approximately 175 designate Trauma Facilities in Texas in 2002. The Structure of EMS in Texas is as diverse as the State's geography. Systems range from rural/frontier volunteer organizations to large paid systems in the urban areas of the state with the majority of transfers between facilities conducted by private non-emergency services that must meet the same licensing requirements as EMS systems conducting 911 calls.

Lack of operational funding, personnel shortages, extended transport distances and hospital diversions are only a few of the challenges that face Texas EMS.

[Back](#)

A Brief History of Emergency Medical Services and Trauma in Texas

From the mid 1930s through 1970, emergency ambulance service in Texas was provided primarily by funeral homes. The hearse was designed to transport a human body, albeit deceased, in a horizontal position and the mortuary staff were accustomed to handling bodies. It became simply a matter of convenience and economy that funeral homes began to provide ambulance service for the ill and injured.

Ambulance operators were not regulated until the Texas Legislature passed Vernon's Annotated Civil Statute 4590b in 1947, which required emergency ambulances to be permitted and to carry a minimum amount of first aid equipment, a traction splint and oxygen. The law also required the ambulance personnel to have theoretical or practical knowledge of first aid as certified by the American Red Cross.

In 1965, the Texas Department of Health created the "Disaster Health and Medical Services Program" with Charles King as the Director. When the National Highway Safety Act of 1966 set forth criteria for adoption and effectuation by all states and local governments which focused on the quality of emergency care for persons injured on the highway, the department charged the program with the implementation of those criteria.

Several events converging in the late 1960s initiated the decline of the funeral home ambulance service and the advent of the modern EMS provider. Significant advances in trauma research, resulting from the Vietnam War, proved that well-trained non-physicians could save lives; the American College of Surgeons jointly with the American Academy of Orthopedic Surgeons, acting on a federal grant, developed an 80-hour comprehensive emergency prehospital training program called the Emergency Medical Technician (EMT) course for ambulance attendants; negative publicity associated with the potential conflicting interests of funeral home-provided ambulance service began to escalate; new federal laws governing the pay of ambulance attendants made it difficult for the funeral home provider to make a profit; and competition among private ambulance operators in the metropolitan areas was out of control with squads racing their rivals to scenes of accidents with little regard for public safety. As an economic consequence of these developments, funeral homes began to pass the responsibility for ambulance service to city fire departments, hospitals, private and volunteer ambulance operators, and county government operated services. Between 1969 and 1976, funeral home ambulance services dropped from 73% to 33% of the total services covering the state.

In 1970 the Disaster Health and Medical Services Program was changed to the "Civil Defense and Traffic Safety Program" and the program developed a 24 hour Emergency Care Attendant (ECA) course. Program employees conducted the first of these ECA courses along with the first basic EMT class across the state. About this time the Disaster Health and Medical Services Program also began to conduct ambulance inspections. From a total of 317 ECAs and 9 EMTs in 1970, the program rapidly expanded and by 1976 there were 2,491 ECAs, 2,606 EMTs, and 459 EMT-Paramedics certified by the department along with almost 1,300 ambulances that department staff inspected. Program staff also expanded from 47 in 1970 to 110 in 1976. It was apparent that staff could not meet the training demand and the program staff began to conduct Train the Trainer programs.

In 1973, the Texas Legislature enacted VACS 4447o in accordance with a federal mandate, which created the EMS Division within the Texas Department of Health and provided for the development of a coordinated EMS system in Texas. The department established guidelines for training, staffing, vehicles and equipment, but compliance was voluntary and unenforceable.

During the 1970s, the State Health Department created Public Health Regions across Texas and EMS Program staff were placed in these regional offices.

Chapter 4447o was amended in 1983 by the 68th Legislature mandating minimum requirements for training, certification, staffing, vehicle design, equipment standards, and licensing of ambulance operators. The provision for minimum staffing required two persons, trained for 40 hours and certified as Emergency Care Attendants, for each ambulance. Standards for higher levels of certification were also established including EMT, EMT- Intermediate, and Paramedic. The National Standard Curricula guidelines for each training program were adopted and requirements for maintenance of certification at each level were specified. Chapter 4447o also created the Bureau of Emergency Management which was charged with the implementation and enforcement of the new Act. The EMS Act was re-codified in 1987 as Chapter 773 of the Texas Health and Safety Code and in the code was amended in 1997 to require the licensing of Paramedics.

By the mid to late 1980s the issue of trauma care had grown and the Texas legislature wanted trauma care resources to be available to every citizen. The Omnibus Rural Health Care Rescue Act, passed in 1989, directed the Bureau of Emergency Management of the Texas Department of Health to develop and implement a statewide emergency medical services (EMS) and trauma care system, designate trauma facilities, and develop a trauma registry to monitor the system and provide statewide cost and epidemiological statistics. No funding was provided for this endeavor at that time.

The Texas Board of Health adopted rules for implementation of the trauma system in January 1992. These rules divided the state into twenty-two regions called trauma service areas (TSAs), provided for the formation of a regional advisory council (RAC) in each region to develop and implement a regional trauma system plan, delineated the trauma facility designation process, and provided for the development of a state trauma registry.

During the 76th legislative session, four million dollars was appropriated to a newly established EMS/Trauma System fund. Rules, which were adopted in April 1998, include requirements for EMS and hospital participation in regional trauma system development, development of regional system plans, and submission of data to the state registry. These funds were disbursed to EMS providers and RACs to promote system development, with a small percentage earmarked for uncompensated hospital trauma care.

The recently 77th legislature increased state funding for EMS/trauma system development by \$6 million per year. Additionally, \$1 million per year was appropriated for uncompensated tertiary care provided to out-of-county or out-of-service-area patients provided by designated trauma facilities. It should be noted, however, that this funding only begins to address the problem of uncompensated trauma care, which is estimated at over \$300 million a year.

Today, of the 728 EMS providers in Texas, 50 % are municipal operations, 20 % are private enterprises, 12 % are hospital-affiliated services and the rest are county, emergency service district, non-profit associations and volunteer organizations. There are currently still two funeral homes in Texas providing emergency ambulance service. Currently, the 71 Bureau and Regional staff certify, regulate, license and provide technical to 48,599 individuals, 728 Ambulance services with 3,300 vehicles and approximately 175 designate Trauma Facilities in Texas.

Summary of EMS Regulatory History

- 1947 VACS 4490-b mandated minimum standards and permitting for emergency ambulance operators.
- 1966 National Highway Safety Act set forth criteria to improve quality of care for persons injured in highway accidents.
- 1973 VACS 4447-o provided for the development of a coordinated EMS system in accordance with the federal EMS Act of 1973.
- 1983 VACS 4447-o amended to mandate minimum requirements for training, staffing, vehicles, equipment and licensing of EMS providers.
- 1987 VACS 4447-o re-codified to Chapter 773, Texas Health and Safety Code.
- 1989 The Omnibus Rural Health Care Rescue Act, directed the Bureau of Emergency Management of the Texas Department of Health to develop and implement a statewide emergency medical services (EMS) and trauma care system
- 1993 Chapter 773 amended to allow the Texas Board of Health to determine criteria for personnel re-certification.
- 1997 Chapter 773 amended to create Licensed Paramedics.
- 1999 Chapter 773 amended to create a Governor-appointed advisory council, to change late fee structures, and provide a certification process and immunity for emergency medical dispatchers.

[Back](#)

Vision Statement

Draft

Texas EMS of the future will be community-based health management that is fully integrated with the overall health care system. It will have the ability to identify and modify illness and injury risks, provide acute illness and injury care and follow-up, and contribute to treatment of chronic conditions and community health monitoring. This new entity will be developed from redistribution of existing health care resources and will be integrated with other health care providers and public health and public safety agencies. It will improve community health and result in more appropriate use of acute health care resources. EMS will serve as the public emergency medical safety net.

Texas EMS has and will continue to raise the standards for community health care by implementing innovative techniques and systems to deliver the emergency care that is needed by the entire population.

[Back](#)

ASSUMPTIONS

DRAFT

(Borrowed from the National EMS Agenda for the Future)

Implicit within this document are assumptions about the nature of the future and the environment in which Texas EMS will exist. These assumptions are:

- EMS represents the intersection of public safety, public health, and health care systems. A combination of the principles and resources of each is employed by EMS systems.
- The public expects that EMS will continue. EMS is viewed as a standard, valuable community resource that must always be in place. The public has come to expect an EMS response when it is faced with a perceived out-of-facility medical emergency. EMS will continue to exist in some form. The complexion of EMS is subject to change dramatically in some aspects. Nevertheless, continued expectations for service by the public and its chosen leaders will ensure that, in some form, EMS will continue to exist and serve the emergency medical needs of communities.
- EMS will continue to be diverse at the local level. Heterogeneity among EMS systems is often a reflection of the diversity in the communities they serve. Guiding principles are applicable to all EMS systems. However, the methods for applying such principles and the ability to reach specific process benchmarks will continue to be influenced by the nature of communities and the resources they possess.
- As a component of health care systems, EMS will be influenced significantly by their continuing evolution. The U.S. health care system is undergoing constant evolution, which seems more rapid now than ever. Recent changes have occurred in terms of regional systems' organization and finance. An increasing proportion of the U.S. population is participating in health plans (e.g., managed care) that compel patients to seek specific medical care providers and place a greater emphasis on prevention and health maintenance. In many cases, both insurers and health care providers have established regional networks (e.g., managed care organizations) to enhance efficiency and reduce costs. Such changes will continue to occur and affect EMS health care delivery roles and logistical considerations.
- There currently is a lack of information regarding EMS systems and outcomes. Despite many years of experience, we continue to lack adequate information regarding how EMS systems influence patient outcomes for most medical conditions, and how they affect the overall health of the communities they serve. Emergency medical services-related research usually has focused on one disease or operations issue, and often is conducted in only one EMS system. The conclusions drawn may not be valid or applicable in other EMS systems.

- It will be necessary to continue to make some EMS system-related decisions on the basis of limited information. The current relative lack of knowledge regarding system and outcome relationships sometimes forces necessary decisions to be made with insufficient information. The time and resources required to complete the research necessary to produce such knowledge may be extensive. Therefore, unless progress is to be held hostage, in many cases, the need to make decisions will continue to precede the availability of all the information that might affect them.
- The media will continue to influence the public's perception of EMS. To date, the media has been the primary means for the public to develop awareness of EMS. Except for the few community members whom the EMS system contacts each year, the bulk of public perception regarding EMS-related issues will continue to be derived from television programs (fictional and documentary) and occasional news accounts.
- Federal and State financial resources will be decreasing. The appropriation of federal funding had a significant impact on initial EMS development. In an era of governmental fiscal restraint it is likely that federal funding for EMS activities will continue to decrease. Financial support for EMS systems will be, to an increasing extent, derived from unfound or undeveloped sources.
- To make good decisions, public policy makers must be well-informed about EMS issues. Attempts have been initiated to educate public policy makers regarding important EMS-related issues. These efforts will continue, and will include plans to educate members of the United States Congress and other federal, state and local officials able to effect public policy that improves community emergency health care.

[Back](#)

POTENTIAL KEY AREAS

The following key areas are included for review by GETAC in developing the Strategic Plan for EMS in Texas.

KEY AREA I: HEALTH CARE SERVICES

- Integration of EMS into Health Care
- Clinical Care
- Communication Systems/ Public Access
- Public Education
- Prevention

KEY AREA II: HUMAN RESOURCES

- Personnel
- Medical Direction
- Education Systems

KEY AREA III: EMS RESEARCH

- Information Systems
- Evaluation

KEY AREA IV: LEGISLATION and REGULATON

KEY AREA V : SYSTEM FINANCE

It should be noted that many of the sub categories cross over into other areas. As example, “Public Education” is essential in all of the above categories.

KEY AREA I HEALTH CARE SERVICES:

INTEGRATION OF EMS INTO HEALTH CARE SERVICES

Integration of health care services helps to ensure that the care provided by EMS does not occur in isolation, and that positive effects are enhanced by linkage with other community health resources and integration within the health care system.

WHERE WE ARE:

In Texas, EMS provides out-of-facility medical care to those with perceived urgent needs. It is a component of the overall health care system. EMS delivers treatment as part of, or in combination with, systematic approaches intended to attenuate morbidity and mortality for specific patient subpopulations.

As a component of the health care delivery system, EMS addresses all possible injuries and illnesses, and treats all ages. It is a component of, and is also comprised by, systems intended to provide care for specific diseases and population segments. Contemporary EMS systems were created to meet the immediate needs of the acutely ill and injured; to provide “stabilization” and transportation. EMS, in general, meets these objectives in relative isolation from other health care and community resources. EMS personnel and referral to social services agencies have published reports regarding public health surveillance. However, most EMS systems are disconnected from other community resources, except perhaps other public safety agencies, and are not involved in the business of ensuring follow-up by social service agencies or other community agencies/resources potentially able to intervene when patients need support. Thus, the potential positive effects of EMS, in terms of improved health for individual patients and the community, remain unrealized.

EMS providers, in general, do not provide or ensure medical follow-up for patients who are not transported. Failure to obtain such care in a timely fashion may be an issue responsible for sub optimal patient outcomes and litigation involving EMS systems and personnel. Lack of integration with other health care providers limits the ability of EMS to coordinate aftercare for its patients.

Except for familiarity with medical direction facilities and emergency departments, EMS personnel in general, do not have substantial working knowledge of the practices of other community health care providers and the policies of regional health care organizations. Thus, they are unable to integrate their care with sources for patients’ continuing health care.

WHERE WE WANT TO BE

For its patients and the community as a whole, EMS provides care and service that is integrated with other health care providers and community health resources. Thus, EMS patients are assured that their care is considered part of a complete health care program, connected to sources for continuous and/or follow-up care, and linked to other potentially beneficial health resources.

Out-of-facility care is considered to be an integral component of the health care system. The attributes or elements of out-of-facility care are shared by the other health care components. Each EMS attribute applies to all groups of potential EMS patients, addressing the needs of all community members. Furthermore, the borders among patient groups, system attributes, and health care components are shared among all components of the Health Care System.

EMS focuses on out-of-facility care and, at the same time, it supports efforts to implement cost-effective community health care. Out-of-facility care is a component of the comprehensive health care system, and EMS shares structural and process elements common to all health care system components. Furthermore, EMS is a resource for community health care delivery.

EMS maintains liaisons, including systems for communication with other community resources, such as other public safety agencies, departments of public health, social service agencies and organizations, health care provider networks, community health educators, and others. This enables EMS to be proactive in affecting people's long-term health by relaying information regarding potentially unhealthy situations (e.g., potential for injury), and providing referrals to agencies with a vested interest in maintaining the health of their clients. Multiple dispositions are possible when a call is received at a public safety answering point; additional multiple dispositions are available following patient evaluation by EMS personnel. EMS is a community health resource, able to initiate important follow-up care for patients, whether or not they are transported to a health care facility.

EMS is integrated with other health care providers, including health care provider organizations and networks, and primary care physicians. As a health care provider, EMS, with medical direction, facilitates access for its patients to appropriate sources of medical care. Integration ensures that EMS patients receive appropriate follow-up medical care, and that the episodic care provided by EMS is considered a component of each patient's medical history that affects the plan for continuing health care.

EMS integrates with other health system components to improve its care for the entire community, including children, the elderly, those who are chronically dependent on medical devices, and others. This ensures that the population is better served, and that the special needs of specific patients are addressed adequately.

Efforts to improve EMS care for specific segments of the population recognize the need for, and advocate implementation of, system enhancements that benefit the entire population. These efforts often include attention to functional system design, health care personnel education, and equipment and facility resources.

HOW TO GET THERE:

EMS must expand its public health role and develop ongoing relationships with community public health and social services resources. Such relationships should result in systems of communication that enable referrals and subsequent follow-up by those agencies. Relationships should benefit all parties by improved understanding of factors contributing to issues being addressed. Reports of the effectiveness of these relationships should be disseminated.

EMS must become involved in the business of community health monitoring, including participation in data collection and transmittal to appropriate community and health care agencies. Long-term effects of such efforts must be widely reported.

EMS systems must seek to become integrated with other health care providers and provider organizations and networks. Integration should benefit patients by enhancing and maintaining the continuum of care. Communications systems, including confidential transmittal of patient-related data, should be developed. These should explore the utility of continuing communications technological advances. Mutually acceptable clinical guidelines regarding patient treatment and transport also must be developed.

Health care provider organizations and networks must incorporate EMS within their structures to deliver quality health care. They must not impede the community's immediate access to EMS when a perceived emergency exists.

EMS medical direction must be cognizant of the special medical needs of all population segments and, through continuous processes, ensure that EMS is integrated with health care delivery systems striving to optimally meet these needs. An EMS physician, collaborating with other community physicians (including pediatricians, surgeons, family practitioners, internists, emergency physicians, and others) and health care professionals (including nurses, nurse practitioners, physician's assistants, paramedics, administrators, and others), should ultimately be responsible and have authority for EMS medical direction and, in partnerships with system administrators, effect system improvements.

EMS must incorporate health systems that address the special needs of all population segments served (e.g., pediatric, geriatric, medical device-dependent; and other patients in urban, suburban, rural, and frontier areas). Such systems or plans should include education, system design, and resource components. They must be developed with input from members of the community. Groups unable to represent themselves, such as children, must be represented by others who are familiar with their needs.

Emergency medical services leaders must continue to identify issues of interest to policy makers to address specific aspects of EMS, and improve the system as a whole. Attention paid to EMS components should be done with consideration of the entire system.

Research and pilot projects should be conducted with regard to expanded services that may be provided by EMS. Efforts to enhance services should focus foremost on improving those currently delivered by EMS, and might also lead to services that enable patients to seek follow-up care in a less urgent manner and/or facility. These projects should address objective meaningful patient outcomes, EMS staffing requirements, personnel education issues, quality evaluations, legal issues, and cost-effectiveness. They must also include logistical evaluations such as the ongoing capabilities of EMS to respond to critical emergencies (e.g., cardiac arrests). These studies must precede widespread adoption of such practices and results should be disseminated and subjected to scrutiny.

HEALTH CARE SERVICES:

- Expand the role of EMS in public health
- Involve EMS in community health monitoring activities
- Integrate EMS with other health care providers and provider networks
- Incorporate EMS within health care networks' structure to deliver quality care
- Be cognizant of the special needs of the entire population
- Incorporate health systems within EMS that address the special needs of all segments of the population

CLINICAL CARE

Texas EMS has evolved significantly over the past 30 years. To some extent it has capitalized on the availability of new pharmacologic agents and technology, developed means to deliver life-saving care faster (e.g., lay-person CPR, use of automatic external defibrillators by lesser trained personnel, dispatch life support, and others), and begun to systematically address the particular needs of specific groups of patients. EMS provides care to those with perceived emergency needs and, when indicated, provides transportation to, from, and between health care facilities. Mobility and immediate availability to the entire population distinguish EMS from other components of the health care system. EMS systems vary remarkably with regard to the sophistication of out-of-facility care they provide and the tools they utilize. Variation exists due to availability of local resources, and the functional needs and expectations of communities. The scope of EMS care differs immensely among between localities. The interventions paramedics may perform, the equipment available to them, and the medications they carry varies greatly. Variation exists due to the availability of local resources, and the functional needs and expectations of communities.

The care delivered by EMS makes intuitive sense, in that it is similar to emergency department care —sooner. However, with the exception of a few clinical situations (e.g., cardiac arrest, certain trauma), the effects of EMS care are not adequately known. In some areas, EMS clinical care variations may be the result of adapting to meet the health care needs of communities. For the most part, regardless of its sophistication, EMS clinical care is intended to get patients to a hospital. For those EMS providers who seek payment for their services, payment usually is based on the patient transport and retrospective determination of medical necessity.

Patient transport is mostly effected by ground ambulances. Ambulances are equipped and staffed to provide care ranging from non-invasive monitoring and support (BLS) to sophisticated interventions and pharmacotherapy (ALS – MICU) during transport. Essential equipment for ambulances, including minimum guidelines for “ALS” and pediatric equipment and medications, has been defined. Other modes of transportation (e.g., helicopter, fixed wing aircraft, boat, and others) also are often used.

While technically non-emergency transfers of patients between facilities does not fall under current law, the majority of these providers seek licensure in order to receive compensation from Medicare, Medicaid, and other insurance agencies. Even though there are distinct differences between these secondary patient transport systems and the 911 systems, there is no difference in the licensure process.

WHERE WE WANT TO BE

EMS provides a defined baseline of clinical care and services in all communities. Expansion of care and services occurs in response to community health care needs and availability of resources.

Out-of-facility EMS clinical care is optimal for patients’ circumstances, so that it positively impacts patient outcomes. In some cases, the care that is provided is intended to avoid the patient’s need for immediate transport to a hospital. The effects of EMS care, in terms of outcomes, for specific conditions are continuously evaluated. This helps facilitate appropriate distribution of health care resources, including equipment, personnel, and education.

Therapeutic technology and pharmaceutical advances are evaluated in terms of their impact on patient outcomes and appropriateness for EMS use (e.g., portable, effective, information-adding, and others) prior to their deployment. EMS clinical care evolves as new diagnostic and therapeutic tools become available, but those that do not provide demonstrable benefit are not used.

As much as possible, transportation modalities are allocated according to patients’ conditions so that resources are not over utilized. The composition and expertise of transport teams matches the needs of complex patients undergoing secondary transport.

Transport of individuals not requiring sophisticated equipment or supervision does not consume those resources that could be made available elsewhere.

Patient transport activities are integrated with the total health care system. EMS is capable of facilitating access to hospital emergency departments and other health care sources designated by medical direction in consideration of patients' providers of continuous care. Requisite for such facilitation is working knowledge of and agreements with other health care partners.

Staffing patterns, in terms of available skills and expertise, for interfacility or secondary transports result from an understanding of potential care required for specific types of patients. The authority and responsibility for medical direction during such transports is clear.

EMS clinical care and transportation systems are networked. Providers of non-acute, acute, specialty, and air medical transport are closely linked so that communications are smooth and patient transfers, including accompanying data, appear seamless. Communications within networks allow instantaneous assessment of the availability and locations of out-of-facility clinical care and transportation resources

HOW TO GET THERE

EMS organizations and those responsible for EMS structures, processes, and outcomes must commit to a common definition of what constitutes baseline out-of-facility community EMS care. Such a definition should address, for example, minimum personnel qualifications and resources/equipment available to them.

EMS should work with state and national organizations and associations to help determine its role in enhancing identification and treatment of various clinical conditions (e.g., myocardial infarction). EMS clinical care must be subjected to ongoing evaluation to determine its impact on patient outcomes. New services and treatments should be implemented only after their effects have been demonstrated. Furthermore, changes in clinical care should be justifiable based on community health care needs.

Research and pilot projects must be conducted to determine the effects of patient outcomes after specific care and transport via various modalities. This should include investigations regarding the relative effects of ground and air transport on patients with a variety of conditions. The cost effectiveness and relative safety of transport should be addressed.

Research must be conducted and published regarding treatments that can be administered safely during transport by various personnel configurations. Such projects should include interfacility/ secondary transfers, when patients are being moved to a different level of care or to access providers responsible for ongoing care.

Task analyses must be conducted to determine the needs for availability of specific skills and expertise during transport of various types of patients. Such analyses should determine optimal personnel configurations for interfacility/ secondary patient transfers.

Local and state EMS lead agencies should facilitate development of arrangements that render delineation of medical direction authority and responsibility unambiguous during interfacility/ secondary patient transfers. EMS medical directors should strive to reach consensus among physicians (e.g., on-line medical direction providers, trauma surgeons, cardiologists, pediatricians, and others including referring and receiving physicians) regarding their roles during interfacility transfers.

The Bureau of Emergency Management should work with other State's Lead EMS Agencies to insure that the Health Care Finance Administration (HCFA), and others responsible for establishing policy with regard to EMS payment, eliminate patient transport as a requirement for compensating EMS systems. Patient assessment and care delivered, regardless of whether or not transport occurred, must be recognized and compensated appropriately. Additionally, the cost of system preparedness (e.g., readiness costs) should be recognized. Alternative models for determining rates of reimbursement must be developed.

EMS systems should seek to establish proactive relationships with other providers (e.g., primary care providers, managed care organizations, health clinics) within the health care delivery system. Such relationships should seek to establish understanding of the perspectives of all providers, and to develop mutual policies that enhance the delivery of efficient care to patients. Reports of the effects of these relationships must be disseminated.

EMS systems must establish regional collaborative networks with all potential transportation resources. Networks should include clarification of medical direction roles during primary and secondary patient transport. State and local EMS authorities should facilitate establishment of such networks.

CLINICAL CARE:

- Commit to a common definition of what constitutes baseline community EMS care-
- Subject EMS clinical care to ongoing evaluation to determine its impact on patient outcomes
- Employ new care techniques and technology only after shown to be effective
- Conduct task analyses to determine appropriate staff configurations during secondary patient- transfers
- Eliminate patient transport as a criterion for compensating EMS systems-
- Establish proactive relationships between EMS and other health care providers

COMMUNICATION SYSTEMS/ PUBLIC ACCESS

The single most important piece of information provided during an emergency call is the location of the person(s) requiring help. Even though the State has made great strides, many areas of Texas still lack adequate 911 addresses.

Across the State, most people access EMS by telephone. Currently, approximately 25% of the State geography is covered by 9-1-1, making it available to 25% of the population. At many 9-1-1 communication centers, call-takers are automatically provided with the caller's telephone number and location; automatic number identity (ANI); and automatic location identity (ALI). Such systems are known as enhanced 9-1-1 or 9-1-1E.

Within public safety answering points (PSAP), calls for EMS are answered by personnel with greatly varying levels of education, experience, ability to provide potentially life-saving instructions via telephone, and medical direction. While Emergency Medical Dispatchers (EMDs) have been advocated as essential personnel at all EMS dispatching centers a vast number of the State's EMS Systems are dispatched by local law enforcement agencies with no direct connection to EMS where dispatching EMS is a secondary function.

Once EMS units are dispatched, they frequently are isolated from other emergency services, impeding abilities to coordinate appropriate actions. The spectrum of communications equipment currently in use is broad, ranging from antiquated radios to mobile data terminals mounted inside the emergency vehicles. Cellular telephones also are commonly used. They provide an alternative to busy radio frequencies, enhance communication system coverage with cellular-satellite technology, enable data transfer (e.g., 12 lead ECG), and provide for more privacy than routine radio communications.

From a communications perspective, EMS personnel are, for the most part, isolated from the rest of the health care delivery system. They rarely have access to meaningful medical history data (e.g., medications, previous illnesses, results of previous evaluations/diagnostic tests, and others) about their patients that might enable implementation of efficient decisions. Many EMS systems employ on-line medical direction (direct medical control) as part of their overall medical direction. However, communications often are via crowded VHF frequencies, and are easily monitored. Therefore, potentially confidential information cannot be securely transmitted. Additionally, terrain and limitations of the communications system, including cellular telephone systems, may limit the ability to obtain on-line medical direction at all.

WHERE WE WANT TO BE:

Implementation of 9-1-1 is state wide. From any land-line telephone in Texas, a caller can dial 9-1-1, or push an emergency icon, in order to contact the appropriate PSAP for his/her location. In a mobile society, this facilitates timely access to emergency services regardless of location and familiarity with local telephone number requirements. Furthermore, potential barriers to emergency services access are decreased for children, elderly, mentally disabled, foreign visitors, and others with special needs.

Alternative access to 9-1-1 is made available to individuals unable to pay for telephone services where they routinely exist. In cases where the routine spectrum of telephone services is not provided because of an inability to pay, limited service that merely enables emergency services access via 9-1-1 is nevertheless made available. This helps facilitate access to emergency medical care for the financially disadvantaged, members of society who also are often medically disadvantaged.

Cellular telephones uniformly provide a means of accessing EMS via 9-1-1. Cellular telephones are in widespread use, and may provide a convenient means of accessing emergency services, especially from vehicles, in areas within a "cell" but where a land-line telephone is not readily available. To facilitate timely access by cellular telephone users, "9-1-1" is available wherever the cellular telephone might be in service. Cellular telephone technology (e.g., link to a global positioning system) ensures that all emergency calls are routed to the appropriate communications center.

Every call for emergency services is automatically accompanied by location identifying information. Within metropolitan areas, unique location address codes suffice. For all calls originating from roadways, rural, frontier, backcountry, and wilderness areas, exact locations derived from a geographic information system are provided. This acknowledges location identifiers as the most important information obtained by emergency call recipients and that techniques for accurately enhancing information transfer facilitates timely access to emergency services. Such mechanisms also attenuate barriers to access that might otherwise be experienced by children and others who have difficulty defining their locations.

Systems for accessing EMS and other emergency services employ communications technology advances that reduce barriers to access imposed by geography, age of the caller, specific disabilities, language, and other phenomena. Such systems include mechanisms for computerized automatic PSAP notification in cases of motor vehicle and other types of crashes, utilize personal status monitors and communications devices, instantaneously translate languages, provide the ability to electronically visualize callers (e.g., interactive video communications processes), and incorporate computers to receive and transmit data between the caller, call recipient, EMS provider, other public safety agencies, and other health care services.

EMS communications systems incorporate other public service agencies. Such agencies include departments of public health, social services, and others able to address unhealthy or undesirable circumstances identified by EMS personnel while caring for their patients.

EMS communications systems ensure reliable availability of on-line medical direction and enable transmission of relevant real-time patient data to a receiving medical facility. Such capabilities potentially may allow medical decisions of greater complexity to be made in the field, permit a greater degree of preparation at the receiving facility, enhance EMS system data collection, and facilitate commencement of patients' medical records earlier in the course of their injuries/illnesses.

Communications networks are geographically integrated and based on functional need to enable routine and reliable communications among EMS, fire, law enforcement, and other public safety agencies. This facilitates coordinated responses during both routine and large scale operations, and effects optimal utilization of resources on a large geographic basis. Issues related to disaster preparedness are addressed.

Communications networks for EMS do not stand alone, but EMS is a full partner in the communications system. EMS has the ability to impact network design and function in order to better serve its patients' needs. In some areas, this includes utilization of AVL technology and development of interactive video communications between the public, EMS, fire, law enforcement, other public safety agencies, and other health care providers.

HOW TO GET THERE:

Organizations with an interest in EMS and all with responsibility for EMS structures, processes, and outcomes must continue to encourage implementation of 9-1-1 in all areas. When necessary, resolution of political disputes delaying 9-1-1 implementation must be facilitated.

Local governments and public utility commissions must ensure that those who cannot afford telephone service are nevertheless able to immediately access emergency services. For example, they might compel provision of minimum telephone service that only enables 9-1-1 calls, facilitate strategic placement of public telephones, provide cable calling systems, or develop other services that facilitate access to emergency care.

Utility companies (e.g., telephone, cable) and governmental authorities must continue initiatives to assign unique geographic location codes or addresses to all telephone numbers, and implement systems to continuously and reliably update such information.

Technology should be employed so that data derived from geographic information systems is automatically supplied to the PSAP regardless of where a call originates. Communication centers must prepare themselves to receive and utilize such information.

Cellular telephone service companies and 9-1-1 PSAPs must engage in cooperative ventures to develop the necessary funding and technology to achieve implementation of cellular 9-1-1 service. Within “cells,” 9-1-1 calls should receive priority so that delays are not experienced due to other cellular activity. Calls from cellular telephones should be locatable with a geographic information system to facilitate linkage with the appropriate PSAP and provide timely response of emergency services to the correct location.

Communications centers, EMS providers, and other public safety agencies must continue to evaluate the appropriateness of communications technology advances which may enhance system access and benefit the efficiency of emergency medical care. Pilot projects that exploit technological advances must be conducted, and the results of such projects must be made public.

Research and pilot projects must be conducted to assess the effectiveness, including patient out-comes, of various personnel and resource attributes for EMS dispatching. Results of these projects should be made available so that the roles of such personnel within an evolving health care and EMS system can be optimized.

Standards for emergency medical dispatching must be promulgated and updated by public safety communications and other EMS interested organizations, and be commensurate with system needs. In some cases, state legislation will be appropriate in order to ensure that EMDs obtain the education, experience, and resources necessary to perform their intended tasks safely and effectively.

EMS access points must improve their abilities to triage calls, providing linkage with other community health resources, so that the system’s response is tailored to patients’ needs. Such efforts should incorporate the input of community members and community health care providers and resources.

Calls for emergency medical care are received by personnel with the requisite combination of education, experience, and resources necessary to enable optimal query of the caller, make determination of the most appropriate resources to be mobilized, and implement an effective course of action. The EMS response is appropriate, optimal care is delivered, and utilization of resources is efficient. All callers to EMS are provided dispatch life support by qualified and credentialed personnel. This entails pre-arrival life saving instructions via protocol and with medical direction.

EMS communications networks incorporate other providers of medical care. Such networks enable the EMS system to receive and transmit patient-related information from and to other providers responsible for patients’ continuous care. These networks employ useful technological advances, such as transmission of computerized records to maintain confidentiality, so that EMS personnel may make improved decisions with regard to patient care, follow-up care, and transport destination (if necessary). Such communication networks facilitate integration of EMS with other health care services.

Communications centers and health care providers must commit to cooperative ventures aimed at improving the exchange of confidential patient-related data, in a timely manner. Such efforts must be accompanied by integration of practices and policies so that optimal patient care is achieved.

Research and pilot projects should be conducted to determine the benefits of real-time patient data transfer (e.g., via cellular communications, satellite, interactive video, and others) relative to its costs. As advancing technology is explored, the results of such projects must be made public.

Funds must be appropriated on state, and regional levels to further develop and update communications systems that are geographically integrated and functionally based. Texas must continue to develop statewide EMS communications plans.

EMS systems should collaborate with private interests to effect shared purchasing of communications technology, developing economies of scale. Such pooling of resources will provide an increased ability to explore potential uses of technologic communications advances.

COMMUNICATION SYSTEMS / PUBLIC ACCESS:

- Develop uniform cellular 9-1-1 service that reliably routes calls to the appropriate PSAP-
- Implement Enhanced 9-1-1 Service Statewide
- Provide emergency telephone service for those who cannot otherwise afford routine telephone services
- Ensure that all calls to a PSAP, regardless of their origins, are automatically accompanied by unique location-identifying information
- Enhance the ability of EMS systems to triage calls, and provide resource allocation that is tailored to patients' needs.
- Assess the effectiveness of various personnel and resource attributes for EMS dispatching
- Receive all calls for EMS using personnel with the requisite combination of education, experience, and resources to optimally query the caller, make determination of the most appropriate resources to be mobilized, and implement an effective course of action
- Promulgate and update standards for EMS dispatching
- Develop cooperative ventures between communications centers and health providers to integrate communications processes and enable rapid patient-related information exchange
- Evaluate and employ technologies that attenuate potential barriers to EMS access-
- Determine the benefits of real-time patient data transfer
- Appropriate, state, and regional funds to further develop and update geographically integrated and functionally-based EMS communications networks-
- Facilitate exploration of potential uses of advancing communications technology by EMS
- Collaboration with private interests to effect shared purchasing of communication technology

PUBLIC EDUCATION

WHERE WE ARE:

Public education, as a component of health promotion, is a responsibility of every health care provider and institution including EMS. It is an effort to provide a combination of learning experiences designed to facilitate voluntary actions leading to health.

Public education is an essential activity for every EMS system. Yet, as a tool for providing public education, Texas EMS is woefully underdeveloped. A great deal of what the public knows about its EMS system and about dealing with medical emergencies originates from the media, including television programs intended for entertainment and not education. The media does not prepare the public to evaluate or ensure the quality of EMS.

Education, with all its various dimensions, is the linchpin for health promotion. As a component of health promotion, education facilitates development of knowledge, skills, and motivation that lead to reduction of behavioral risks and more active involvement of people in community affairs. This includes greater participation in effecting health and social policy and advocacy for improved health systems. Public education is often a focus of other public safety divisions. Examples include fire service campaigns regarding the importance of smoke detectors, and police educational efforts regarding impaired driving, traffic and highway safety, and personal safety. In general, EMS has not optimally engaged itself in providing education that improves community health through prevention, early identification, and treatment.

Certainly there are examples of EMS public education initiatives. In some areas EMS-C funds have been utilized to develop programs regarding childhood illness and injury. Additionally, numerous EMS systems have assumed a leadership role in disseminating CPR and “bystander care” education to the public along with the implementation of the “Shattered Dreams” and other similar programs.

However, planned and evaluated EMS public education initiatives remain sporadic. This is despite the interest and role of EMS in improving community health, its stature and visibility within the community, and its potential ability to educate individual patients and family members during periods of care and follow-up.

WHERE WE WANT TO BE:

Public education is acknowledged as an essential ongoing activity of EMS. Such programs support the role of EMS to improve community health and provide valuable information regarding prevention of injuries and illnesses, appropriate access and utilization of EMS and other health care services, and bystander care. It realizes the advantages of EMS as a community-based resource with broad expertise and capacity for contributing to community health monitoring and education dissemination.

EMS and public education programs address the needs of all members of the community. This includes school-age children, adults, senior citizens, and other members of the community with special needs.

EMS systems educate the public as consumers. The importance of the public's knowledge of EMS-related issues, including funding, level of care provided, equipment, and system expectations and standards is acknowledged. Purchasers of health care services, whether individual, corporate, or public, are well-informed about EMS issues, including evaluating and ensuring optimal EMS.

EMS systems explore innovative techniques to conduct their public education missions. These include, among others, follow-up visits to patients and their families, exploration of new technologies (e.g., computers, worldwide web), and media formats.

HOW TO GET THERE:

EMS should collaborate with other community resources and agencies to determine public education needs. Such assessments will enable development of education programs with specific objectives appropriate for the community.

EMS must engage in continuous public education. Such efforts should focus on areas of prevention, early identification and health care service access, and initial treatment.

EMS must educate the public as consumers. Targets for such efforts should include at-large community members, other members of the health care system, policy makers, lawmakers, and health care service purchasers.

EMS must explore new techniques and technologies to effect public education. Efforts should be made to reach the broadest possible population in the community.

An evaluation process must scrutinize public education efforts. Such evaluation helps ensure that program objectives are being met and provides guidance for program modification.

PUBLIC EDUCATION:

- Acknowledge public education as a critical activity for EMS
- Collaborate with other community resources and agencies to determine public education needs
- Engage in continuous public education programs
- Educate the public as consumers
- Explore new techniques and technologies for implementing public education
- Evaluate public education initiatives

PREVENTION

In this era, injury prevention has taken on a new dimension for both improving the State's health and truly controlling health care costs. In the U.S. injury is the third leading cause of death and disability in all age groups and accounts for more years of potential life lost (YPLL) than any other health problem.

Prevention provides an opportunity to realize significant reductions in human morbidity and mortality—all with a manageable investment. Engaging in prevention activities is the responsibility of every health care practitioner, including those involved with the provision of EMS.

EMS is not commonly linked to the public's prevention consciousness while other public safety services have demonstrated their effectiveness at public education and prevention activities,. These include fire service efforts to effect engineering, enforcement, and education that decrease the number of fires and fire-related burns and deaths. Police departments have implemented deliberate efforts to decrease traffic-related injuries and deaths through aggressive enforcement of impaired driving laws along with increased enforcement of Seat Belt requirements.

WHERE WE WANT TO BE:

EMS systems and providers are continuously engaged in injury and illness prevention programs. Prevention efforts are based on regional need; they address identified community injury and illness problems.

EMS systems develop and maintain prevention-oriented environments for their providers, individually and collectively. An atmosphere of safety and well- being, established through EMS system initiatives, provides the foundation for EMS prevention efforts within the community.

EMS providers receive education regarding prevention principles (e.g., engineering, enforcement, education, economics). They develop and maintain an understanding of how prevention activities relate to themselves (e.g., while performing EMS-related duties and at other times) and to their outreach efforts.

EMS systems continuously enhance their abilities to document and analyze circumstances contributing to injuries and illnesses. This information is provided to other health care and community resources able to help evaluate and attenuate injury and illness risk factors for individual patients and the community as a whole.

HOW TO GET THERE:

Emergency medical services providers/systems must collaborate with other community agencies and health care providers which possess expertise and interest in injury and illness prevention (e.g., other public safety agencies, safety councils, public health departments, health care provider groups, colleges and universities). The intent of such collaboration is to identify appropriate targets for prevention activities and share the tasks of implementation.

EMS systems should support the Safe Communities and Safe America concepts. For the sake of the health of the communities they serve, EMS systems must identify their potential roles within partnerships to reduce preventable injuries and illnesses.

EMS providers and systems must advocate for legislation that potentially results in injury and illness prevention (e.g., through engineering improvements, enhanced enforcement, better education, and economic incentives). This advocacy acknowledges the fiduciary responsibility that EMS has for its communities' health, in recognition of the high costs of preventable injuries and illnesses. Such costs are not only monetary, but include lost productivity and the human suffering that affects individual patients and the entire community.

Prevention begins at home. Protecting the well-being of the workforce is a logical step toward the development and implementation of prevention initiatives within the community.

EMS education core contents must include the principles of prevention and its role in improving individual and community health. Such education will better enable EMS to fulfill its prevention role as a health care and public safety provider.

EMS must continue to improve its ability to document illness and injury circumstances and convey this information to others. These efforts capitalize on the unique position of EMS providers to observe illness and injury scenes, and to identify potential contributing factors within the community.

PREVENTION:

- Collaborate with community agencies and health care providers with expertise and interest in illness and injury prevention-
- Support the Safe Communities concept
- Advocate for legislation that potentially results in injury and illness prevention
- Develop and maintain a prevention-oriented atmosphere within EMS systems
- Include the principles of prevention and its role in improving community health as part of EMS education core contents
- Improve the ability of EMS to document injury and illness circumstances

KEY AREA II HUMAN RESOURCES

PERSONNEL:

The task of providing quality EMS care requires qualified, competent, and compassionate people. The human resource, comprised of a dedicated team of individuals with complimentary skills and expertise, is the most valuable asset to EMS patients.

WHERE WE ARE:

Many people with greatly diverse backgrounds contribute to the efficient operations of EMS systems. In addition to citizen bystanders, these include public safety communicators and emergency medical dispatchers, first responders, emergency medical technicians (EMTs) of various certification levels, nurses, physicians, firefighters, law enforcement officers, other public safety officials, administrative personnel, and others. Among local EMS systems, specific contributions by different categories of personnel may vary significantly.

Paramedics and other levels of EMTs provide the vast majority of out-of-hospital EMS care. There are approximately 48,599 CERTIFIED EMS personnel in Texas. Much of the State's EMS is provided by volunteers with diverse occupational backgrounds. They serve more than 25% of the population. The economic value of their contribution is immeasurable. However, for many possible reasons, the number of EMS volunteer organizations is decreasing.

Many other groups of health care workers also collaborate to effect the patient care provided by EMS. They include physicians (emergency physicians, family practitioners, pediatricians, surgeons, cardiologists, and others), nurses with various areas of special expertise, nurse practitioners, physician's assistants, respiratory therapists, and others.

Their roles may involve EMS personnel education, system planning, evaluation, research and/or direct provision of care.

Perennial EMS personnel-related issues include the difficulties of recruitment and retention. Occupational risks, sub optimal recognition, and inadequate compensation contribute to these problems. Both volunteer and career (i.e, paid personnel) systems are affected.

While volunteers provide EMS Coverage for a large area of the State, over the last several years these systems have begun to decline. Small rural/frontier communities are finding it more and more difficult to recruit and retain personnel. While there are several factors contributing to this problem, one of the most significant is the lack of an adequate population base. These areas are facing an aging population with a large segment of the younger population moving to areas where they can find a better economic future. Many of those remaining simply do not have the time to volunteer for EMS service. To put it simply, those that can or will, usually are or have been involved in EMS and those that haven't, for one reason or another, normally will not / cannot participate.

EMS personnel experience stressors and risks that are unique to other health care workers and, no doubt, to other public safety workers. Among these stressors is exposure to highly traumatic events or experiences. Emergency personnel are at least twice as likely as the general population to suffer from post traumatic stress disorders. However, there is a paucity of literature describing systematic approaches intended to further understand the spectrum of EMS workforce stressors. Instead, most descriptions of EMS personnel stress and subsequent “burnout” are anecdotal.

Exposure to bloodborne pathogens is a significant risk for EMS personnel. Exposure to HIV and hepatitis viruses are the greatest concerns. Other work related injuries also are common. EMS personnel, especially those in urban areas, are subject to assault. Back injury is the single largest category of occupational injuries, and frequent mechanisms of injury include lifting, falling, assaults, and motor vehicle crashes.

EMS workers often suffer from lack of full recognition as members of the health care delivery system. They frequently lack a satisfactory career ladder

Among EMS systems, the numbers and types of personnel who staff EMS vehicles vary greatly. Evaluations, in terms of numbers and combined levels of education and experience to provide specific services/ interventions, have not been systematically performed and reported.

WHERE WE WANT TO BE

People attracted to EMS service are among society's best, and desire to contribute to their community's health. The composition of the EMS workforce reflects the diversity of the population it serves. The workforce receives compensation, financial or otherwise, that supports its needs and is comparable to other positions with similar responsibilities and occupational risks.

A career ladder exists for EMS personnel, and it includes established connections to parallel fields. EMS personnel may use accumulated knowledge and skills in a variety of EMS-related positions, and neither advancing age or disability prevent EMS providers from using their education and expertise in meaningful ways.

There is an understanding of the occupational issues, including both physical and psychological, unique to EMS workers. All EMS personnel receive available immunizations against worrisome communicable diseases, appropriate protective clothing and equipment, and pertinent education. They also have ready access to counseling when needed. The value of supporting the well-being of the workforce is recognized, and workforce diversity is considered during the design of strategies to address occupational issues.

EMS personnel are prepared to provide the level of service and care expected of them by the population served. Preparation includes physical resources, adequate personnel resources, and requisite knowledge and skills. This helps ensure that the quality of care provided meets an acceptable community standard.

EMS personnel are readily recognized as members of the health care delivery team. This is congruent with recognition of the role EMS plays in providing out-of-facility care to the population, and its function as an initial treatment provider and facilitator of access to further care at times of acute injury or illness.

Health care workers with special competency in EMS are readily identifiable. This includes physicians, nurses, administrators, and others whose practices involve EMS. Recognition of special competency helps ensure quality of knowledge and expertise for health care workers who are sought to affect EMS and its ability to provide quality care for its patients.

Provider skills and patient care interventions are evaluated continuously to determine which skills and interventions positively impact EMS patient outcomes. This ensures that providers are appropriately educated and distributed within EMS systems so that they are able to deliver optimal care to the population.

EMS In Rural/Frontier areas of the State is integrated into / combined with other available health related agencies.

HOW TO GET THERE

Adequate preparation, in terms of both knowledge and skills acquisition, must precede changes in the expectations of services to be provided by EMS personnel. EMS systems administrators, managers and medical directors are responsible for ensuring such preparation. Requisite knowledge and skills should be estimated *a priori* and continuously evaluated.

Those responsible for EMS structures, processes and outcomes, including EMS education, must adopt the principles of the *National Emergency Medical Services Education and Practice Blueprint*. This will provide greater uniformity among EMS workers and enhance recognition of their expertise and roles within health care.

Texas along with other States must work together to develop a system of reciprocity for credentialing EMS professionals who relocate from one state to another (e.g., the National Registry of Emergency Medical Technicians). Although states have specific criteria for authorizing EMS providers to practice, it is not acceptable to require professionals to repeat education that has already been acquired. This will ensure that EMS providers may take advantage of professional opportunities to which they are otherwise entitled

EMS systems should develop relationships with academic institutions. This will facilitate access to resources necessary to conduct occupational health studies and provide education opportunities for personnel. Education opportunities sought should include recognized management course work for EMS system managers/administrators.

Researchers in EMS systems should collaborate to conduct occupational health studies regarding EMS personnel designed to yield an improved understanding of occupational hazards for EMS workers and strategies for minimizing them.

EMS systems must become affiliated with or implement a system for critical incident stress management. The potential effects of overwhelmingly tragic events on EMS workers cannot be ignored, and must be addressed to the greatest extent possible.

EMS must be developed as a subspecialty for physicians, nurses, and other health care professionals with an EMS focus. This will facilitate recognition of health care professionals with special competency in EMS.

The Bureau of Emergency Management along with local EMS Communities should work towards legislation that would mandate EMS as an “Essential Service”.

Pilot programs should be developed and implemented in Rural/Frontier Counties that combine/integrate EMS into other Health Care agencies such as County, Community and Rural Health Clinics. Not only would such combined resources insure 24/7 coverage for EMS and provide additional health resources to often-limited communities, it would also provide for stable income for EMS personnel and potentially provide a career ladder where individuals could move into other health related professions.

PERSONNEL:

- Ensure that alterations in expectations of EMS personnel to provide health care services are preceded by adequate preparation
- Adopt the principles of the National EMS Education and Practice Blueprint-
- Develop a system for reciprocity of EMS provider credentials-
- Develop collaborative relationships between EMS systems and academic institutions
- Conduct EMS occupational health research
- Provide a system for critical incident stress management
- Work towards a legislation that would make EMS an Essential Service
- Develop/implement Pilot Programs to integrate EMS into other Health Agencies

MEDICAL DIRECTION:

Medical direction involves granting authority and accepting responsibility for the care provided by EMS, and includes participation in all aspects of EMS to ensure maintenance of accepted standards of medical practice. Quality medical direction is an essential process to provide optimal care for EMS patients. It helps to ensure the appropriate delivery of population-based medical care to those with perceived urgent needs.

WHERE WE ARE:

Physicians affiliated with EMS systems serve at varying extents, from informal system medical advisors to full-time medical directors and system administrators. *Unfortunately in Texas, a large number of Medical Directors serve only as informal advisors to EMS Systems and participate only in a limited basis in the medical oversight of the system they serve.*

Emergency physicians provide the majority of on-line medical direction, referring to the moment-to-moment contemporaneous medical supervision of EMS personnel caring for patients in the field. It occurs via radio or telephone On-line medical direction may emanate from a central communications facility or one or more designated hospitals or other health care facilities. In the majority of cases on-line medical direction does not result in orders for care beyond what has been directed via protocol, but such communication is nevertheless felt to be helpful by EMS personnel.

Medical direction activities that do not involve contemporaneous direction of EMS personnel in the field include development and timely revision of protocols and medical standing orders, implementation and maintenance of quality improvement systems, personnel education, development and monitoring of communications protocols, attention to the health and wellness of personnel, and addressing equipment and legislative issues. Such activities are critical for ensuring optimal EMS.

The medical director's role is to provide medical leadership for EMS. Those who serve as medical directors are charged with ultimate responsibility for the quality of care delivered by EMS, must have the authority to effect changes that positively affect quality, and champion the value of EMS within the remainder of the health care system. The medical director has authority over EMS medical care regardless of providers' credentials. He or she is responsible for coordinating with other community physicians to ensure that their patients' issues and needs are understood and adequately addressed by the system.

Medical directors evolve from several medical disciplines. In some areas, emergency physicians provide the majority of medical direction. However, not all emergency physicians are EMS physicians, nor are all EMS physicians emergency physicians.

WHERE WE WANT TO BE

All EMS providers and activities have the benefit of qualified medical direction. This is true regardless of the level of service provided, and helps ensure that EMS is delivering appropriate and quality health services that meet the needs of individual patients and the entire population.

The effects of on-line medical direction are understood, including identification of situations that are significantly influenced by on-line medical direction, and the effects of various personnel providing it. This helps ensure that on-line medical direction is available and obtained for those situations when it is likely to have a positive effect for EMS patients.

Medical direction is provided by qualified credentialed physicians with special competency in EMS. Recognition of competency, by virtue of acquisition of knowledge and skills relevant to the delivery of EMS care and administration of EMS systems as population-based health care systems, is available in the form of subspecialty certification for physicians, nurses and administrators. This helps ensure that knowledgeable and qualified individuals provide medical direction, which ultimately affects the care provided to patients in the community.

Texas has an EMS Medical Director who is an EMS physician. This helps ensure appropriate medical direction for states' EMS systems. It acknowledges EMS as a component of the health care system serving patients' needs and requiring physician leadership..

Resources available to the medical director(s) are commensurate with the responsibilities and size of the population served. This ensures that resources (e.g., personnel, equipment, funding, and others) are sufficient to carry out the responsibilities and authorities incumbent upon the medical director and medical direction staff. The cost of such resources is included with those of system preparedness.

EMS medical directors, in consultation with other medical direction participants, are responsible for determining EMS systems' practice parameters. They maintain authority for all care provided by EMS, and they have responsibility for granting clinical privileges to EMS providers. The medical director ensures that EMS providers are prepared, in terms of education and skills, to deliver the system's patient care.

Medical direction provides leadership for EMS systems and personnel. The medical director ensures collaboration between EMS and other health care partners, and actively seeks contributions from other community physicians so that the interests and needs of the entire population served (e.g., children, senior citizens, and others with special health care needs) are addressed. EMS medical directors are in a position to positively influence systems and the care delivered through their knowledge of the complexities of EMS, the spectrum of issues related to population-based care, the occupational health concerns of EMS personnel, the optimal care for the spectrum of EMS patients, and the principles of clinical research.

HOW TO GET THERE

EMS systems must ensure that medical direction is appropriated sufficient resources to justify its accountability to the systems, communities, and patients served. The cost of such resources should be included with those of system preparedness.

All individuals who provide on-line or off-line medical direction must be appropriately credentialed. This should be accomplished, in part, through formal orientation to the principles of medical direction and specific characteristics of local EMS systems.

EMS physicians and researchers must conduct investigations of adequate quality to elucidate the effects of on-line medical direction. Effects studied should address objective, relevant patient outcomes and systems costs.

Interested organizations must continue their work to develop the basis for EMS as a physician subspecialty. Such work should include encouragement of institutions to develop resources necessary to implement EMS fellowships, so that the number of qualified EMS physicians will grow.

EMS authorities and systems should designate a physician(s) responsible for overall medical direction within the jurisdiction. Such an appointment should be made with the intent of facilitating uniformity of medical oversight policies and practices throughout the jurisdiction. Additionally, medical director(s) should be charged with the responsibility of, and accountable for, collaborating with other community physicians to ensure the best possible care for the population.

Texas should appoint a statewide EMS medical director who ultimately will be responsible for statewide EMS medical direction, providing leadership and guidance for the state's EMS system that is based on sound medical practice.

MEDICAL DIRECTION:

- Appropriate sufficient resources for EMS medical direction
- Require appropriate credentials for all those who provide medical direction
- Develop collaborative relationships between EMS systems and academic institutions
- Develop EMS a physician subspecialty certification-
- Appoint State EMS medical directors

EDUCATION SYSTEMS:

As EMS care in Texas continues to evolve and become more sophisticated, the need for high quality education for EMS personnel increases. Education programs must meet the needs of new providers and of seasoned professionals, who have a need to maintain skills and familiarity with advancing technology and the scientific basis of their practice.

WHERE WE ARE:

Currently, EMS education programs primarily prepare those who are interested in certification in EMS at four levels (Emergency Care Attendant, Emergency Medical Technician , Emergency Medical Technician-Intermediate, and Emergency Medical Technician-Paramedic). Curricula developed by the U.S. Department of Transportation (DOT) provide the bases for education of first responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics. Settings for EMS education include hospitals, community colleges, universities, technical centers, private institutions, and Fire and EMS departments.

Standardized brief educational programs, with specific objectives that address treatment of segments of the population, also have been developed. They include courses in cardiac, trauma, and pediatric life support. Such programs are frequently incorporated into, or used to supplement, EMS education plans. However, there have not been systematic analyses of the suitability of EMS education with regard to expectations for EMS personnel to provide a spectrum of public safety and health care services. Additionally, issues related to knowledge and skill degradation have not been addressed extensively. While some EMS providers seek further educational opportunities, others, for various reasons, do not wish to do so.

Advanced training opportunities for many rural EMS systems is limited to distances to major training centers in more urban areas.

WHERE WE WANT TO BE

EMS education employs sound educational principles and sets up a program of lifelong learning for EMS professionals. It provides the tools necessary for EMS providers to serve identified health care needs of the population. Education is based on research and employs adult learning techniques. It is conducted by qualified instructors.

Educational objectives for EMS providers are congruent with the expectations of health and public safety services to be provided by them. This ensures that acquired knowledge and skills are those that adequately prepare providers to meet expectations for personnel of their stature.

Education programs are based on the national core contents for providers at various levels. Core contents provide infrastructure for programs, which might be augmented as appropriate for local circumstances (e.g., wilderness rescue). They provide national direction and standardization of education curricula, which facilitates recognition by credentialing agencies while allowing adequate opportunity for customization as indicated by local necessity.

Higher level EMS education programs are affiliated with academic institutions. EMS education that is academically-based facilitates further development of EMS as a professional discipline. It increases the availability of educational opportunities that acknowledge previous EMS educational/ academic achievements, provides more academic degree opportunities for EMS personnel, augments the management skills among EMS professionals, and protects the value of personal and societal resources invested in education.

Interdisciplinary and bridging programs provide avenues for EMS providers to enhance their credentials or transition to other health care roles, and for other health care professionals to acquire EMS field provider credentials. They facilitate adaptation of the work force as community health care needs, and the role of EMS, evolve.

Institutions of higher learning recognize EMS education as an achievement worthy of academic credit. They welcome affiliations with EMS education programs, and assist them to strengthen the academic basis of EMS education.

Adequate training at all levels is available to all EMS systems.

HOW TO GET THERE

Any change in the vision of EMS should prompt an analysis of new tasks required by that vision, providing the basis for determining the education needs of the EMS workforce. Alterations of EMS education core contents should then follow accordingly.

EMS education researchers must investigate curricula adequacy and alternative education techniques. Such investigations should be designed to provide improved understanding of the education that is optimal for serving various EMS roles. The results of such investigations should be widely disseminated.

Objectives of education programs must be updated sufficiently and frequently so that the needs of EMS patients are met. Modifications should ensure that objectives serve the current needs of EMS patients and the personnel who care for them, so community standards of practice can be achieved. Higher level EMS education programs must incorporate learning objectives regarding research, quality improvement, and management. The scientific basis of EMS practice, basic principles of clinical research, the importance of ongoing EMS research, and the principles of quality improvement and management should be included.

All EMS education must be conducted with the benefit of qualified medical direction. The physician medical director(s) should be involved in education program planning, presentation, and evaluation, including evaluation of faculty, and participants.

Providers of EMS education should seek to establish relationships with academic institutions (e.g., colleges, universities, academic medical centers). Such relationships should enhance the academic basis of EMS education and facilitate recognition of advanced level EMS education as an accomplishment worthy of academic credit.

EMS education providers and academic institutions should develop innovative solutions that address cultural variation, rural circumstances, and travel and time constraints. These should include programs that incorporate, for example, distance learning and advancing technology. Reports of such programs should be made widely available. In some cases, these institutions should develop their own EMS education programs that offer academic credit.

EMS educators must develop bridging and transitioning programs. These programs should offer mechanisms for EMS providers to enhance their credentials or transition to new health care roles. They should also provide other health care personnel the ability to transition to out-of-hospital EMS roles.

EDUCATION SYSTEMS:

- Ensure adequacy of EMS education programs
- Update education core content objectives frequently enough so that they reflect patient EMS- health care needs
- Incorporate research, quality improvement, and management learning objectives in higher level EMS education
- Conduct EMS education with medical direction
- Seek accreditation for EMS education programs
- Establish innovative and collaborative relationships between EMS education programs and academic- institutions
- Recognize EMS education as an academic achievement
- Develop bridging and transition programs-
- Include EMS-related objectives in all health professions' education
- Develop/Implement innovative methods of insuring access to training in all areas of Texas

KEY AREA III RESEARCH

EMS has evolved rapidly over the past 30 years despite slow progress in developing EMS-related research. System changes frequently prompt research efforts to prove they make a difference, instead of the more appropriate sequence of using research findings as a basis for EMS improvements.

WHERE WE ARE:

Researchers at a small number of medical schools have generated most of what is known about EMS, generally in mid-sized cities, that have ongoing relationships with municipal EMS systems. The volume of EMS research is low and the quality often pales in comparison with other medical research.

Most published EMS research is component-based, focusing on a single intervention or health problem, and rarely addressing the inherent complexities of EMS systems. With few exceptions, there has been little emphasis on systems analysis. Development of the “chain of survival” concept for cardiac emergencies provides the best evidence of completed systems research. Trauma-related research comprises the only other EMS research emphasis. However, study methods have not been as extensively developed, and experimental designs often limit abilities to compare studies and reach meaningful conclusions. Other clinical conditions have not been scientifically studied with a systems approach. Component-based analyses often lead to conclusions that are incorrect, or at least cannot be supported, when they are considered in the context of the entire EMS system. Thus, in many cases, our poor understanding of systems research models has led to the development of wrong assumptions with regard to EMS care.

Currently there are five major impediments to the development of quality EMS research:

- inadequate funding
- lack of integrated information systems that provide for meaningful linkage with patient out-comes
- paucity of academic research institutions with long-term commitments to EMS systems research
- overly restrictive informed consent interpretations
- lack of education and appreciation by EMS personnel regarding the importance of EMS research

Without dramatic progress on these five fronts, there will not be a significant increase in the quantity of well-done, meaningful EMS research.

Significant barriers to collecting relevant, meaningful, and accurate EMS data exist. EMS data often are not collected in a rigorous fashion that allows academic evaluation. Linkage with hospital and other data sets, which is required to determine EMS effectiveness, is difficult and infrequently accomplished.

A State agenda for EMS-related research does not exist, and there is no central source for EMS research funding. Overall, financial support for EMS-related research is inadequate to address the many systems issues requiring study.

Overly restrictive informed consent interpretations create additional barriers to conducting EMS research. They do not consider the clinical and environmental circumstances of field EMS investigations, and impede institutional review board approval of meaningful resuscitation research and other field trials.

EMS education curricula does not include adequate research-related objectives. Thus, very few EMS personnel, including system administrators and managers, have a sufficient baseline understanding and appreciation of the critical role of EMS research. Unlike most other clinical fields, its own practitioners, relying instead on others, often conduct EMS research without significant participation.

The rationale for many routine EMS interventions is based on in-hospital studies, and not on scientific investigation of their out-of-hospital effectiveness. The effectiveness of most EMS interventions and of EMS systems, in general, has not been well established with outcome criteria. Furthermore, the outcome criterion most studied is death, which, although important, is not pertinent to most EMS clinical situations. The essential nature of quality EMS research is recognized. A sufficient volume of quality research is undertaken to determine the effectiveness of EMS system design and specific interventions.

WHERE WE WANT TO BE

EMS evolves with a scientific basis. Adequate investigations of EMS interventions/treatments and system designs occur before they are advocated as EMS standards. The efficacy, effectiveness and cost-effectiveness of such interventions and system designs are determined. This includes the identification of patients who are appropriate for transport, and evaluation of the effects of alternative dispositions for patients when they are not transported to health care facilities.

As much as possible, EMS research employs systems analysis models. These models use multidisciplinary approaches to answer complex questions. They consider many issues that impact a system to help ensure that findings are accurate within the context of multifaceted EMS systems.

The Texas Department of Health in conjunction with the Bureau of Emergency Management is committed to EMS-related research and participates in providing EMS-related research funding.

Integrated information systems provide linkages between EMS and other public safety services and health care providers. They facilitate the data collection necessary to determine EMS effectiveness.

Several academic centers have long-term commitments to EMS research. They serve as a nucleus of activity that involves many EMS systems with different characteristics and all personnel levels, including field providers, managers, administrators, nurses, and physicians.

Informed consent rules account for the clinical and environmental circumstances of EMS research. They enable credible resuscitation and other out-of-facility investigations to be conducted.

EMS personnel of all levels and credentials appreciate the role of EMS research in terms of creating a scientific basis for EMS patient care. All individuals with some responsibility for EMS structure, process, and/or outcomes are involved, to some extent, with EMS research.

EMS research examines multiple outcome criteria. Thus, it is pertinent to most EMS clinical situations, which do not involve a likelihood of death.

HOW TO GET THERE

Public and private organizations responsible for EMS structures, processes, and/or outcomes must collaborate to establish a national EMS research agenda. They should determine general research goals and assist with development of research funding sources.

The major impediments to EMS research must be addressed:

- State policy makers must allocate funds for a major EMS systems research thrust.
- Integrated information systems must be developed to provide linkage between EMS and various public safety services and other health care providers to facilitate the data collection that is necessary to determine EMS effectiveness.
- Academic institutions and medical schools must consider making long-term commitments to EMS-related research. They should support EMS-interested faculty members, collaborate with EMS systems, and involve EMS personnel of all levels in conducting credible systems research.

- The Department of Health and Human Services and the Food and Drug Administration must continue to revise their interpretations of informed consent rules so that they enable credible resuscitation and other out-of-facility research to be conducted. Informed consent interpretations should account for the clinical and environmental circumstances inherent in conducting EMS research.
- All individuals with some responsibility for EMS structures, processes, and outcomes must be involved in and/or support quality EMS systems research. They must recognize the need for quality information that demonstrates the effects of EMS for the patient population served, and provides the scientific basis for EMS patient care.
- EMS must be designated as a subspecialty for physicians and other health professionals. The development of well-trained EMS researchers must be an integral component of the EMS subspecialty, just as it is in other subspecialties. Those with sub-specialty credentials should be integrally involved in advancing the knowledge base of EMS.
- EMS field providers and managers, as part of their routine education, must learn the importance and principles of conducting EMS-related systems research. The objectives need not be to develop EMS researchers, but to help personnel understand the research that is being conducted and enable them to participate and be supportive.
- EMS researchers must enhance the quality of published research. Study methods should employ systems analysis methods and meaningful outcome criteria, and determine cost-effectiveness. Research meetings should include forums to educate those wanting to improve their research skills
- EMS systems, medical schools, other academic institutions, and private foundations must develop collaborative relationships. Such relationships should facilitate implementation of significant EMS research projects required to determine, among other things, efficacy, effectiveness and cost-effectiveness.
- The Bureau of Emergency Management must evolve from being primarily regulatory to providing technical assistance. It should be involved in promoting public health services research, and facilitating the development of relationships and resources necessary for such studies

EMS RESEARCH:

- Allocate federal and state funds for a major EMS systems research thrust
- Develop information systems that provide linkage between various public safety services and other health care providers
- Develop academic institutional commitments to EMS-related research
- Develop involvement and/or support of EMS research by all those responsible for EMS structure, processes, and/or outcomes
- Designate EMS as a physician subspecialty, and a subspecialty for other health professions
- Include research related objectives in the education processes of EMS providers and managers

- Interpret informed consent rules to allow for the clinical and environmental circumstances inherent in conducting credible EMS research
- Enhance the quality of published EMS research
- Develop collaborative relationships between EMS systems, medical schools, other academic institutions, and private foundations

INFORMATION SYSTEMS:

Systems for data collection and information management have developed slowly within EMS. Several recent initiatives have focused on the development of improved techniques for collecting EMS-related data. The Trauma Care Systems Planning and Development Act of 1990 emphasized the need for collection of data for the evaluation of emergency care for serious injuries.

WHERE WE ARE:

While the Bureau of Emergency Management is working with other State agencies to develop a centralized data system, currently there is no centralized system (database) in Texas, that relates to the current practice of EMS. The data required to completely describe an EMS event exists in separate disparate locations. These include EMS agencies, emergency departments, hospital medical records, other public safety agencies, and vital statistics offices. In most cases, meaningful linkages between such sites are nonexistent.

The purpose of collecting EMS data is to evaluate the emergency medical care of individuals with illnesses and injuries in an effort to improve access and reduce morbidity and mortality. The lack of organized information systems that produce data which are valid, reliable, and accurate is a significant barrier to coordinating EMS system evaluation, including outcomes analyses. Lack of information systems that are integrated with EMS and other health care providers and community resources severely limits the ability to share useful data. Patient-related data are not shared to allow EMS care to be part of a continuum, accounting for past care and considered during future care. Furthermore, within EMS agencies themselves, data systems generally do not provide readily accessible information about previous EMS patient contact and care.

Research efforts are hindered by underdeveloped information systems. In general, the data derived from an information system may be inadequate for research purposes. However, it is extremely useful for hypothesis generation and may require only minimal supplementation.

WHERE WE WANT TO BE:

EMS systems share integrated information systems with other health care providers, including provider networks, and other public safety agencies. These systems enable EMS to access patient-related data necessary to optimize care (e.g., clinical care, transport disposition and destinations, arrangements for follow-up, and others). They provide mechanisms for EMS to use data, and the ability to transmit useful information to other health care providers and community resources that are part of patients' continuums of care.

EMS information systems incorporate uniform data elements. These are derived from the uniform prehospital data set and use standard definitions. This enables evaluation across multiple EMS systems. Information systems support data collection for continuous EMS evaluation and for EMS-related research. Generated data are of sufficient validity, reliability, and accuracy. The data necessary to describe entire EMS events are available within information systems that link multiple source databases.

HOW TO GET THERE:

EMS must adopt uniform data elements and definitions, and incorporate these into information systems. Such efforts should be directed toward realizing a degree of commonality that facilitates multisystem evaluations and collaborative research.

EMS must develop mechanisms to generate and transmit data that are valid, reliable, and accurate. These factors should be considered during the design and enhancement of information systems. Periodic evaluation should focus on these aspects of data integrity.

EMS must develop and refine information systems that describe entire EMS events. They should link multisource databases so that patient outcomes can be determined following EMS treatment. They should readily support ongoing systems evaluation and EMS-related research. This is necessary if the cost-effectiveness of EMS is to be determined.

EMS should collaborate with other health care providers and community resources to develop integrated information systems. Such efforts should provide each participant with patient-related data that potentially affects the continuum of care, facilitates access for patients to appropriate care and attention, enhances clinical care decision making, and facilitates follow-up care.

Information system users must provide feedback to those who generate data. Feedback should include, but be not limited to, results of evaluations and research.

The Bureau of Emergency Management along with other State Agencies should continue to promote the centralized collection of data for all EMS calls (both emergent and non emergent).

INFORMATION SYSTEMS:

- Adopt uniform data elements and definitions and incorporate them into information systems
- Develop mechanisms to generate and transmit data that are valid, reliable, and accurate
- Develop information systems that are able to describe an entire EMS event
- Develop integrated information systems with other health care providers, public safety agencies, and community resources
- Provide feedback to those who generate data
- Work towards collection of data on all EMS calls in Texas

EVALUATION:

EMS systems evaluation and EMS research both rely on information systems as sources of data. However, research although very important, is an optional activity for every system. Furthermore, research seeks to enhance the knowledge base by answering new questions. On the other hand, continuous evaluation is essential for every EMS system, and it should be a pervasive part of the environment. It seeks to determine the outcome changes that occur with application of new knowledge and system alterations.

WHERE WE ARE:

While the majority of EMS Systems in Texas have processes in place to for system evaluation, often times these processes are inadequate due to the lack of reliable data. Numerous Rural/Frontier Systems have only a minimal “Quality Improvement “ programs in place that only reviews only a few key components of their operation. Even systems where more comprehensive programs exist often fail to follow-up on patient outcomes.

WHERE WE WANT TO BE:

Continuous comprehensive evaluation of EMS assesses all aspects of the system. Such evaluations include structural, process (i.e., key points in EMS processes), and outcome measures, and are undertaken with consideration of confidentiality issues. Evaluation is integral to quality improvement systems that continuously measure, maintain, and improve the efficiency of EMS. These system analyses help determine optimal design and effect enhancements to meet individual patient and community health care needs.

Evaluation involves many clinical conditions. Thus, the value of EMS is determined relative to the medical needs of an expanded portion of the population served.

Other outcomes, in addition to death, are utilized to determine the effects of EMS. These include disease, disability, discomfort, dissatisfaction, and destitution. This enables appreciation of the complete spectrum of EMS effects for the community.

The cost-effectiveness of EMS is evaluated. This includes the cost-effectiveness of system preparedness (e.g., maintaining a state of readiness that is suitable to the mission) and the cost-effectiveness relative to various illness/injury conditions and to specific treatments. This helps determine the value related to EMS as a continued health care expenditure.

Public satisfaction and consumer input is a focus of EMS evaluation. The interests of consumers are acknowledged as paramount. This helps to ensure that EMS is adequately meeting the expectations of the population it serves.

HOW TO GET THERE:

EMS system administrators and researchers must develop valid models for EMS evaluations. Such models should include structural, process, and outcome features. Furthermore, outcomes should be objective and relevant to EMS care.

Models must be standardized and EMS system evaluations should incorporate multiple outcome categories. Evaluations must seek to determine system effects for several outcome determinants if the full impact of EMS is to be appreciated.

EMS system administrators and researchers must determine the cost-effectiveness of EMS. This should include analyses relative to specific illnesses and injuries, specific interventions, and system preparedness.

EMS evaluation processes must incorporate consumer input. Such input may be sought in various forms (e.g., follow-up, surveys, focus groups, layperson representation in evaluation councils, and others) and should determine if patient and community needs and expectations are being met by the EMS system.

Work to implement a system of collections that gathers information on all EMS calls and follows patients throughout the system.

EVALUATION:

- Develop valid models for EMS evaluations
- Evaluate EMS effects for multiple medical conditions
- Determine EMS effects for multiple outcome- categories
- Determine EMS cost-effectiveness
- Incorporate consumer input in evaluation processes
- *Implement a centralized comprehensive data collection system*

KEY AREA IV LEGISLATION AND REGULATION:

Issues relating to legislation, and its resulting regulations, are central to the provision of EMS in the public's behalf. Legislation and regulations affect EMS funding, system designs, research, and EMS personnel credentialing and scope of practice.

WHERE WE ARE:

Texas has legislation that provides a statutory basis for EMS activities and programs. . State and regional authorities responsible for implementing regulations, are, in general, extensively involved in personnel licensing, training program certification, EMS provider licensing, and record keeping. However, comprehensive enabling EMS legislation for development of a statewide EMS system is lacking.

In some cases, local governments also have passed ordinances to delineate EMS standards for their communities. These may relate to system components or define process standards.

WHERE WE WANT TO BE

The Bureau of Emergency Management is adequately funded to ensure its effectiveness. Enabling legislation allows flexibility; the ability to adapt and be responsive to the health care and public safety environment. It is a facilitator, a clearinghouse for information, a developer of guidelines, and a promoter and educator. This helps ensure that statewide EMS system development occurs and continues, that its development and oversight are efficient, and that EMS of acceptable quality is available to the entire population.

Legislation provides a broad template that allows local medical directors to determine the specific parameters of practice for their EMS systems and to conduct credible research and pilot projects. This ensures substantial uniformity within state, but provides the degree of flexibility necessary to ensure that EMS systems, given their resources, are able to optimally meet the health care needs of their communities. Justification for practice parameters are required, as is maintaining minimum quality standards.

In addition to regulating EMS, The Bureau and Regions provide technical assistance to EMS systems. They provide coordination and geographic integration among local EMS systems, and provide technical expertise that may not be available within individual systems. They facilitate credible EMS research and innovative pilot projects.

The Bureau has the authority and means to ensure the reliable availability of EMS to the entire population. Such authority is exercised to act on the public's behalf when eventualities occur, such as potential changes in the health care system or EMS structural or financial circumstances, and threaten its quality or availability to the entire population.

HOW TO GET THERE:

Collectively, those responsible for EMS must convince State legislators to sufficiently fund the Bureau of Emergency Management.

The Bureau must work to pass, and periodically review, enabling legislation that supports innovation and integration,

While retaining responsibility for licensing, the Bureau must enhance its abilities to provide facilitation and technical assistance to local EMS systems.

The Bureau should establish and fund the position of State EMS Medical Director, delineate the authority of all EMS medical directors within the state, and establish qualifications for various medical director positions in the state. Medical directors, within broad guidelines, should be responsible for determining the parameters of EMS practice within their systems.

The Bureau must be authorized to act on the public's behalf in cases of threats to the availability of quality EMS to the entire population. Actions should ensure that some segments of the population are not underserved, or denied immediate access to EMS due to socioeconomic or other factors.

The Bureau should work to pass legislation that provides protection from liability for EMS field and medical direction personnel when dealing with unexpected and/or unusual situations falling outside the realm of current protocols. These should include provisions for in-depth review of such cases, and not alter liability for grossly negligent conduct

LEGISLATION AND REGULATION:

- Sufficiently fund the Bureau of Emergency Management
- Pass and periodically review enabling legislation that supports innovation and integration,
- Enhance abilities to provide technical assistance
- Establish and fund the position of State EMS Medical Director
- Act on the public's behalf in cases of threats to the availability of quality EMS to the entire population
- Implement laws that provide protection from liability for EMS field and medical direction personnel when dealing with unusual situations

KEY AREA V. SYSTEM FINANCE

Emergency medical services systems, similar to all public and private organizations, must be financially viable. In an environment of constant economic flux, it is critical to continuously strive for a solid financial foundation.

WHERE WE ARE:

While the exact figures are not known, the cost of EMS in Texas runs into the millions each year. Such expense includes the costs of all the infrastructure and activities required to provide service. For example, communications systems, vehicle/equipment acquisition and maintenance, personnel training and continuing education, first response and ambulance operations, medical direction, and licensing and regulation activities all contribute to EMS costs. Also, process (e.g., response time) standards and staffing requirements greatly influence these costs. In total, the combined costs of all EMS components and activities, the overall cost of EMS, is equivalent to the cost of preparedness, and it is greatly affected by community requirements.

In Texas, EMS systems are funded by a combination of public and/or private funds. Primary revenue streams include governmental subsidy via tax dollars, subscription revenue, and fees generated by providing service.

Fee for service revenue comes from five main sources: Medicare, Medicaid, private insurance companies, private paying patients, and special service contracts. Of these, Medicare, Medicaid, and private insurance company revenues are probably the most important. Rates of payment, in general, are based on customary charges and the prevailing charge in the area. However, rules vary significantly among insurance carriers, and payment can be affected by what neighboring systems charge.

Those EMS systems relying on third party payors for significant revenue must, in general, provide transportation in order to charge for their services. In other words, if the EMS system provides treatment, but does not actually transport a person to a hospital, third party payors are not obliged to pay for the service provided. Furthermore, payment is often based on the level of care required during transport. It ignores that more advanced resources may have been initially required by the patient, based on the first available information, but that less advanced resources were required for transport

Treatment followed by transport (by the EMS system) to a hospital is not always necessary or the most efficient means of delivering needed care. However, current EMS financial incentives may not be aligned with efforts of the health care system as a whole to optimize out-of-facility care and enhance health care efficiency. With current payment policies, decreasing the percentage of transports per patient assessed or treated results in decreased EMS system revenue, reduced operating margin, and impaired ability to shift costs.

The primary determinants of EMS cost relate to system preparedness, or the cost of maintaining the resources necessary to meet a benchmark for emergency response. On the other hand, the primary determinant of payment (one source of revenue) is patient transport. Thus, the driving forces for cost and payment are not aligned.

In some cases health care insurers or providers stipulate to their subscriber patients that authorization must precede utilization of EMS. Refusal to pay EMS for services provided may be based on lack of preauthorization or claims that the patient condition did not represent an emergency. Furthermore, regional health care providers (e.g., managed care organizations) frequently require their patients to seek care at specific facilities. EMS systems are then requested to provide transport to locations that are not always geographically convenient. Accommodation of these requests may require additional resources, with their associated costs, to be deployed by EMS systems.

WHERE WE WANT TO BE

In as much as EMS is a component of the health care delivery system, and provides health care services, it is consistently funded by mechanisms that fund other aspects of the system. These mechanisms are proactive and recognize the value of treatment that is provided without transport. Transport is not a prerequisite for funding. Payment for EMS is preparedness-based (i.e., the cost of maintaining a suitable state of readiness), and depends on service area size and complexity, utilization, and pre-determined quality standards (i.e., staffing, level of care, response time, and others). This provides EMS with financial incentives that encourage, as appropriate, provision and/or direction of EMS patients to efficient care or other resources. It links finance to value, as determined by community consumers, and aligns cost and payment drivers.

The continued development of EMS systems on regional and state-wide bases is facilitated by local, regional, and State Government. Sufficient funds are allocated to ensure EMS preparedness, including its first response functions.

HOW TO GET THERE

EMS systems must continually determine and improve their cost-effectiveness and evaluate trends within the health care system as a whole. Evaluations should enable optimization of financial resources to provide improved care.

EMS systems must develop proactive relationships with health care insurers and other providers. Such relationships should include implementing pilot projects that determine ways for EMS and other health care organizations to collaborate to increase the efficiency of patient care delivery. These could address such issues as patient and system outcomes when patients are not transported to an emergency department.

Health care insurers and provider organizations must compensate EMS as a component of the health care system caring for their clients/subscribers/ members/ patients/consumers. Model formulas for use among these entities should be developed. Criteria for payment, that are preparedness-based, do not necessarily require patient transport, and are not volume driven, must be developed between EMS systems and insurers/provider organizations.

Health care insurers/provider organizations must allow immediate access to EMS for their patients who believe that a medical emergency exists. They must recognize an emergency medical condition as a medical condition, with a sudden onset, that manifests itself by symptoms of sufficient severity, such that a prudent layperson, possessing an average knowledge of health and medicine, could reasonably expect the absence of immediate medical attention to result in placing the person's health in serious jeopardy. Such a condition should serve as sufficient cause to access EMS.

Governmental agencies responsible for health care finance policy must incorporate divisions that address issues relevant to EMS. Such issues should include reimbursement for services when transport does not occur, and development of preparedness-based or other alternative, proactive criteria for EMS reimbursement/finance.

Local and state governments must commit to funding agencies primarily responsible for facilitating coordinated EMS development and evolution. Such funding should be from stable sources that enable future planning to occur. It should provide resources for infrastructure development, EMS evaluation and research, and pilot project implementation.

SYSTEM FINANCE:

- Collaborate with other health care providers and insurers to enhance patient care efficiency
- Develop proactive financial relationships between EMS, other health care providers, and health care insurers/provider organizations
- Compensate EMS on the basis of a preparedness- based model, reducing volume-related incentives and realizing the cost of an emergency safety net
- Provide immediate access to EMS for emergency medical conditions
- Address EMS relevant issues within governmental health care finance policy-
- Commit local and state attention and funds to continue EMS infrastructure

Back

Appendices

This page left blank at this time. Appendices will be added to the actual plan.

Back