

This plan was developed by the **Connecticut EMS Advisory Board Planning Committee** in conjunction with the planning section of the **State Office of Emergency Medical Services**. This document will be updated periodically and your suggestions and comments are welcome. Please forward them to:

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AUTHORITY

Section 19a-177(a) With the advice of an advisory committee on emergency medical services and with the benefit of the meetings, held pursuant to subsection (b) of section 19a-184, develop and annually update a state-wide plan for the coordinated delivery of emergency medical services, which plan shall take into account the needs of the emergency medical services councils. The plan shall contain: (1) Specific goals for the delivery of such emergency medical services; (2) a time frame for achievement of such goals; (3) cost data and alternative funding sources for the development of such goals; and (4) performance standards for the evaluation of such goals;

DEDICATION

This plan is dedicated to the many courageous men and women who selflessly serve the public by providing high level emergency medical care to the sick and injured. This care is delivered by trained members of the public safety and medical community who display an unwavering commitment to their fellow citizens.

MISSION STATEMENT

The mission of the Emergency Medical Service program in Connecticut is to minimize the time between the occurrence of a sudden serious illness or injury and the provision of definitive care at the scene, during transport and at the destination hospital.

INTRODUCTION

Connecticut is a state that has the potential to be a national leader in the development of a comprehensive statewide Emergency Medical Services (EMS) system. Its small geographic size, wealth of medical and educational resources, highest per capita income in the nation and highly trained and motivated EMS professionals are significant ingredients to help make this a reality. Challenges to be faced include a state with urban areas that are experiencing severe economic depression, extremely high rates of violent crime and alarmingly high rates of communicable diseases. Additionally, local political factors, disparate forms of local EMS system funding, lack of county government, and the rural nature of the outlying areas of the state will require creative yet practical solutions in order to bring the finest emergency medical care to our citizens.

With the decline of federal EMS system initiative support, state and regional entities have attempted to steer the development of EMS with diminished resources and funding. Much of the progress in EMS has resulted from the dedicated (often uncompensated) efforts of many individuals and organizations who have recognized need and initiated change. While all these efforts are very commendable, the overall effort has all too often been fragmented and inefficient.

Significant progress in the organizational restructuring of the system has been made since the release of the 1991 National Highway Traffic Safety Administration (NHTSA) assessment of Connecticut's EMS system. An important change has been the formation of the Connecticut EMS Advisory Board with a comprehensive and active committee structure.

This plan is intended to serve as the framework for EMS system development. As its separate objectives are accomplished, the plan will help link the numerous program efforts together into one coordinated statewide EMS system. Fundamental to this end is the development of uniform statewide standards whenever possible.

While the Department of Public Health believes that the provision of paramedic services to unserved areas in the state is in the public interest, the Department recognizes that the design and implementation of pre-hospital coverage is affected by local and regional variables. Rather than imposing some arbitrary date by which paramedic services must be provided throughout the state, the Department intends to work with local and regional elected officials, EMS providers, and other affected entities including hospitals and the Regional EMS Councils, in the development of area-appropriate pre-hospital coverage plans.

Virtually all of the goals and objective contained in this document will cost money to initiate and sustain. It is unrealistic to believe that significant improvements to the EMS system can be accomplished without adequate funding.

HISTORY

It is generally agreed that the development of modern emergency medical services began with the publication of a document entitled "Accidental Death and Disability: The Neglected Disease in Modern Society." Published by the National Academy of Sciences and the National Research Council in 1966, this study provided staggering statistics which called attention to the drastic deficiencies in prehospital medical care in America. For example, accidents were the leading cause of death between 1 and 44 years of age. Documentation showed that the care provided was frequently nothing more than rapid, horizontal transportation of a patient to the hospital by untrained and ill equipped personnel. Also in 1966, the Congress passed the "National Highway Traffic Safety Act". This legislation required that states conform to national highway safety standards established by the Department of Transportation and addressed the inadequacy of the nation's delivery of medical care to injury victims. The Connecticut Ambulance Commission, created in 1967, issued regulations requiring that all ambulance drivers and attendants who worked for commercial firms, complete a 28-hour training course in First Aid. With a minuscule budget and no supporting staff, enforcement was virtually impossible.

The first detailed study documenting the condition of emergency medical services in Connecticut began in 1970. A comprehensive accounting of all facets of prehospital care was conducted by the newly formed Yale Trauma Program. It was readily apparent from reading the study that unlike police and fire services, no one had assumed responsibility for the coordination and development of a "systems approach" to basic prehospital and emergency department care. Aware that little had been done statewide in this field, a group of concerned citizens, through the leadership provided by the Yale Trauma Program, formed an ad hoc Committee on EMS. A year after its inception, the ad hoc committee assumed a leadership role when the Governor officially designated it as the Connecticut Advisory Committee on Emergency Medical Services.

Beginning in the mid 1970's and ending in the early 1980's, the Department of Health Education and Welfare provided financial and technical assistance to the various states for the initiation and improvement of regional EMS systems. The Emergency Medical Services System Act of 1973, described an EMS system having 15 components: manpower, training, communications, transportation, facilities, critical care units, public safety agencies, consumer participation, access to care, transfer of patients, standardized patient record keeping, public information and education, evaluation, disaster linkages and mutual aid agreements. Grantees were expected to build EMS systems addressing each of the 15 components. The Department of Transportation participated by funding the development of training curriculum for first responders, emergency medical technicians and EMT-Paramedics. The DOT also provided matching funds for EMS training, communications equipment and in some areas ambulance vehicles. The Federal Communications Commission developed new rules and made available new UHF radio spectrum for EMS communications. The General Services Administration developed totally new specifications for ambulance vehicles that resulted in a switch from the hearse type ambulance to a truck chassis and box of varying configurations. Strong pressure was exerted by the government to have grant recipients designate trauma centers and categorize hospital facilities according to federal standards. This was met by great opposition on the part of many hospitals and physicians.

The next decade saw a significant increase in the number of EMS provider services moving to more advanced levels of care. One result was the availability of paramedic level service to over 70% of the population in this state. Connecticut became the third state in the nation to implement statewide enhanced 9-1-1 telephone service. The formation of the first aeromedical helicopter service in Connecticut provided rapid scene response of sophisticated trauma oriented caregivers and also provided rapid interhospital transfer capability of critically injured patients.

The Office of Emergency Medical Services, the Regional EMS Councils and especially the providers of pre-hospital and hospital based EMS have continually attempted to respond to the ever expanding needs of the citizens of Connecticut relative to the availability and delivery of emergency medical services. Many components of the EMS system were developed during the federal grant period. Over the past few years, limited financial resources have impacted the effectiveness of both the state and regional EMS operations.

Progress has been made in accomplishing some of the most important recommendations of the 1991 NHTSA assessment of Connecticut's EMS system. They include the hiring of a State OEMS Director, formation of the Connecticut EMS Advisory Board, establishment of specialized task oriented subcommittees, adoption of trauma regulations and the development of a new State EMS Plan.

MODEL EMS RESPONSE SYSTEM

The “Model EMS Response System” has been developed to assist the reader of this plan in understanding what constitutes a coordinated and comprehensive emergency medical response system. Each of the components should be addressed appropriately in order to achieve maximum effectiveness from the EMS system.

PREVENTION

Prevention is a “response” to the fact that many medical emergencies are indeed preventable. The two most prominent medical emergencies in the United States are traumatic injury and sudden cardiac death. Traumatic injury is the leading cause of death between the ages of 1 and 44 years and heart disease is the leading killer of Americans overall. Injury is a preventable public health problem. A reduction in mortality and morbidity can be accomplished through coordinated public information/education and prevention programs. One of the most important concepts is to make the public aware of the magnitude and wide ranging impact traumatic injury has on the population. Common approaches to addressing injury prevention include: a) persuasion programs designed to alter behavior or guide decision making (e.g. drunk driving campaigns, seatbelt education, gun safety programs); b) enacting laws to protect the individual (seatbelt law, motorcycle helmet law, child bicycle helmet law); and c) providing environmental protection devices (e.g. smoke detectors, air bags, anti-lock braking systems). Public information and education programs should be available that address substance abuse, particularly involving alcohol. With the tremendous increase in youth violence, programs providing conflict resolution education are needed to help mitigate potentially volatile situations.

Cardiovascular disease, with its resulting debilitation and sudden cardiac death, can benefit from similar approaches to prevention activities. This should include the promotion of smoking cessation programs, exercise programs, proper diet and weight control.

CITIZEN RECOGNITION AND ACTION

Through public information and education programs, the general population must know several factors with regard to the EMS System. First, they must know what the system is and must appreciate what the system is not. EMS is a system to deliver fast and effective medical care in emergency situations. It is not a replacement for primary care. It should be used when an individual believes that a time critical, potentially life-threatening health crisis has occurred. Time is often a critical factor in EMS response. This is especially true in cardiac and traumatic injury situations. At least 25% of the public should be trained in “bystander EMS” which includes the recognition of life threatening injuries and illness, the ability to perform CPR, control hemorrhage, and understand when not to move a patient unnecessarily. In a study recently published by the National Heart, Lung, and Blood Institute, it was identified that patients who experience symptoms and signs of an acute myocardial infarction often delay seeking proper and timely treatment. As a result, their mortality rate is significantly higher than those patients who received prompt treatment. The population should be educated to recognize the symptoms of cardiac distress, not to hesitate or second guess, and to immediately access the enhanced 9-1-1 system. Family members of patients with a cardiac history should especially be encouraged to learn CPR. The public should also take advantage of the significant resources of the Poison Control Center.

NOTIFICATION

Rapid citizen access to emergency care is greatly facilitated by the statewide availability of an enhanced 9-1-1 (E 9-1-1) system that immediately pinpoints the address and telephone number of the calling party on a computer screen at the appropriate public safety answering point (PSAP). This service is available free of charge to all cellular telephone users and is also "coin free" from all pay station telephones. To further improve emergency response and maximize E 9-1-1 effectiveness, the population should be instructed on when, as well as when not to use E 9-1-1. Communities should ensure that all streets are clearly identifiable by responding emergency services and that all businesses and residences are properly numbered.

DISPATCH

In order to realize the maximum effectiveness of the statewide E 9-1-1 system, the public safety answering point should be designated so that minimal time is lost between the receipt of the call and the dispatch of emergency medical help to the incident location. Agencies that dispatch emergency medical service resources should be staffed by properly trained emergency medical dispatchers (EMDs). EMDs perform medically appropriate interrogation in order to determine the best utilization of emergency personnel and equipment. Prearrival instructions are provided by EMDs to callers based on established protocols. Trained EMDs can effectively guide untrained callers how to do CPR over the telephone and as a result, significantly increase the number of bystanders who will actually initiate the procedure prior to EMS arrival on the scene. Other fundamental lifesaving techniques such as the Heimlich maneuver or simply instructing callers to tilt the victims head to open an airway, can be done by trained EMDs. The EMD programs must incorporate medical review and continuous quality improvement. Another benefit of proper EMS dispatch is to limit red light and siren response to only those situations that warrant it.

SCENE CARE

Because successful intervention in many types of medical emergencies is time critical, it is important to get trained help to the patient as soon as safely possible. This is usually accomplished through the use of first responders. Although any certified level of EMS provider (including Paramedic) can be a first responder, it is most frequently police or fire personnel who are trained and certified at least to the Medical Response Technician (MRT) level who fulfill this role. In addition to providing basic life saving skills, first responders should respond as a part of an organized system, trained and equipped to provide early defibrillation through the use of an automatic external defibrillator (AED) and subject to quality assurance by medical authority of every AED use. Multiple clinical studies have conclusively shown that the earlier defibrillation is performed, the greater the likelihood of survival. Although CPR is beneficial, resuscitation is most successful if defibrillation is instituted within 4-6 minutes. As a general rule, first responders should arrive at life-threatening calls within 4 minutes from the time of dispatch. There should be sufficient first responder units strategically deployed to ensure a rapid response to all life-threatening calls.

The BLS ambulance is dispatched simultaneously with the first responders and is usually staffed by two Emergency Medical Technicians (EMTs). EMTs possess a higher level of training and use more advanced equipment. EMTs must respond as part of an organized system. They proceed with a more definitive patient assessment, continue with initial patient treatment if appropriate and begin to prepare the patient for transport. Recommended response time is 6-8 minutes. A member of the ambulance crew should contact the proper facility by radio so that patient information can be transmitted to the destination hospital and medical direction given. EMS communication centers (CMED/RCCs) shall provide the communication coordination between the field providers and hospital medical direction. All communications should be recorded.

Depending on the configuration of the EMS response system, ambulances may be staffed by personnel who are certified at the EMT-Intermediate (EMT-I) level. EMT-Is are allowed to administer IV fluids, place advanced airways, and apply MAST trousers under medical direction.

Paramedic level service is the next highest level of field EMS care and operates under medical control. Paramedics provide advanced life support care for various medical emergencies. Skills include endotracheal intubation, IV therapy, ability to administer medications, manual cardiac defibrillation, cardiac pacing, etc. With proper training, equipment, and medical direction, paramedics should be able to transmit patient assessment data to the hospital and, perhaps, administer thrombolytic therapy to cardiac patients in the field. Paramedic service should be available to all citizens when needed and should arrive at the patient's side in a life threatening emergency within 8-12 minutes of the onset of the emergency. This plan recognizes that geographic, environmental and other site-specific variables may present impediments to the realization of the time frames set forth above.

Existing BLS providers should be encouraged to upgrade their service to paramedic level or develop other means of providing paramedic level service within their primary service area (PSA). To ensure compliance with the above, primary service areas (PSAs) should be formally assigned for all response levels and for all communities. A standard record should be made for the care of each patient and should include information starting with the receipt of the call, assessment and treatment, through delivery to the appropriate facility.

A statewide data system should have the ability to track the patient through ultimate discharge from the system, including in-patient care and rehabilitation and should additionally be able to link multiple databases which provide EMS related information. It must provide feedback to all levels of the EMS system for educational, quality assurance and reliability purposes.

TRANSPORTATION AND CARE EN ROUTE TO HOSPITAL

Transportation of a patient is usually by ground ambulance. Depending on the exact configuration of the local EMS system, a paramedic unit may intercept with a BLS unit, if medically necessary, en route to a medical facility. Aeromedical EMS service, with its rapid transport and sophisticated medical care capability is summoned if needed according to established protocol. All transportation should be directed to the facility that has the capability for providing the care necessary in accordance with the patients condition. This determination is made based on written protocol and/or from medical control via radio. In most cases, the patient destination is the nearest emergency medical facility. All determinations of patient destination should be in compliance with established guidelines and subject to peer review.

The reader should understand that an emergency medical response system can be configured in a number of ways as long as it meets medical and regulatory requirements. For example, it could be possible in a densely populated urban environment to have an ambulance staffed by paramedics, function as the first responder, deliver basic and advanced scene care, and also be the transporting unit to the emergency medical facility.

FACILITIES

All emergency facilities should be categorized in accordance with their capabilities in the area of emergency and critical care medicine. This would include the categorization of all acute care general hospitals and free-standing emergency care facilities. All emergency departments should have the capability to initially treat all patients according to accepted standards. Physician and nursing personnel staffing these facilities should have specialized emergency medical training in advanced cardiac, trauma and pediatric life support. In addition, all facilities should have the proper equipment necessary to provide for the basic emergency care and advanced resuscitative needs of both the pediatric and adult patient. Daily inventories should be kept of critical areas, including ICU and CCU, so that patients can be directed to where critical care capability exists at any given time. Specific specialty care centers that treat cases such as burns, pediatric, TBI, etc., should be designated so that the two to four percent of the patient population requiring the sophistication of a specialty care center will have such availability.

MEDICAL DIRECTION

Medical direction should be provided for all prehospital care levels. All prehospital care at both the basic and advanced level rendered by first responders, basic level and advanced level ambulance services should be in conformance with written state medical guidelines. Standardization of all elements related to medical direction should allow pre-hospital personnel certified by the state to function statewide regardless of their sponsor hospital, provider service affiliation, or location of original training program. The person providing on-line medical direction should be specifically responsible for directing patients to appropriate facilities based on the assessment by field personnel and by the use of approved guidelines.

Each first responder, basic, advanced and paramedic provider should have off-line medical direction who should be responsible for ongoing medical evaluation of the performance of EMS personnel under their control. This should include, but not be limited to, post-event medical audits of patients treated, identification of educational or technological weak areas, and the implementation of corrective measures. Based on the evaluation, a feedback mechanism will be used so that the individuals and providers of prehospital emergency care can be kept up-to-date and corrective measures instituted according to statewide standards. A tracking system should be in place at the state level that allows for the identification of individuals who have had their medical direction privileges removed.

INTERFACILITY TRANSFER

Few hospitals have the capability of handling the medical problems of all patients. Critical patients requiring transfer to specialty care centers must be handled appropriately according to standard guidelines. The transferring facility must communicate with the receiving facility and ensure that it is able to accept the patient and provide the necessary care. Transfer of patients should not involve a decrease in the ability to deliver medical care during the transport. This may require the mobilization of a specialized transport team.

REHABILITATION

Rehabilitative care is frequently critical to achieving optimal patient outcomes. Rehabilitative services include rehabilitation medical consults, physical therapy, occupational therapy, and speech/language/therapy. Family education, involvement, and support, as well as peer support, is a fundamental component of rehabilitation.

ADMINISTRATIVE STRUCTURE

Commissioner of Health

The Commissioner of Health has the overall authority and responsibility for the EMS system in Connecticut.

The Bureau of Regulatory Services

The Bureau of Regulatory Services is responsible for the administration and oversight of the Office of Emergency Services.

The Office of Emergency Medical Services

The OEMS is responsible to the Commissioner for the coordination, administration, and enforcement of the state's EMS statutes, regulations, programs and policies.

Connecticut Emergency Medical Services Advisory Board

The EMS Advisory Board, utilizing its committees, serves as an advocate for EMS system development. The Board advises the Commissioner on EMS issues and through its committees develops and recommends system-wide programs, policies and guidelines for approval by the Commissioner.

Connecticut EMS Medical Advisory Committee

The Connecticut EMS Medical Advisory Committee is a standing committee of the Advisory Board and is responsible for developing medical guidelines, medically related performance standards and addressing other medical issues.

Council of Regional Chairpersons

The Council of Regional Chairpersons (CORC) serves as an advocate for the Regional Councils. CORC serves to provide coordination of the Regional EMS Councils and meets with the Director of the OEMS to discuss EMS issues.

Regional EMS Councils

The Regional EMS Councils serve as an authorized extension of the State in performing delegated state functions, and implementing state policy and programs at the regional and local level. As the regional planning agencies, they develop regional implementation plans which compliment the State Plan. In addition, Regional Councils provide technical assistance, educational opportunities and serve as a voice for the local communities concerning all EMS issues.

Sponsor Hospitals

Sponsor Hospitals provide on-line and off-line medical direction of mobile intensive care services and their personnel. They maintain staff and educational activities mandated by regulations.

ROLES & RESPONSIBILITIES

COMMISSIONER OF HEALTH

The Commissioner of Health has overall authority and responsibility for the EMS System in Connecticut.

- Sets EMS policy and priorities
- Seeks and utilizes input from broad-based groups of providers and consumers, including comprehensive physician input.
- Reports regularly to the Advisory Board on the status of the EMS system
- Promulgates regulations
- Reports to the Governor and Legislature regarding the EMS system

OFFICE OF EMERGENCY MEDICAL SERVICES

The Office of Emergency Medical Services is responsible to the Commissioner for the coordination, administration, and enforcement of the state's EMS statutes, regulations, programs and policies.

- Coordinates, monitors, and evaluates the EMS system
- Develops state EMS plan in conjunction with EMS Advisory Board and Regional EMS Councils
- Reviews regional status reports and coordinates regional plan implementation
- Approves and oversees regional work contracts
- Provides technical assistance, consultation and training as needed to regional staff to facilitate regional plan implementation
- Works with the Advisory Board and Regional Councils to develop statewide programs and standards for the EMS system.
- Coordinates with the EMS Advisory Board and the Regional Councils in developing and implementing an EMS data system that collects data from patient entry into the system through discharge from the health care system and feeds back data to the EMS providers and Regional Councils for quality assurance purposes on a timely basis

- Approves and coordinates pilot programs
- Develops regulations in conjunction with the EMS Advisory Board and Regional Councils and provides written interpretations of those regulations
- Develops operational standards with written policies and procedures
- Provides staffing to the EMS Advisory Board and Committees
- Contracts with Medical Director to oversee medical accountability issues
- Licenses and certifies personnel, provider organizations, facilities and approves sponsor hospital designations
- Enforces regulations, investigates complaints and takes appropriate action
- Collects inventory data and provides data to regional offices annually or more often as required
- Sets rates for licensed and certified providers
- Approves training standards
- Inspects all regulated vehicles for compliance with federal and state standards
- Categorizes medical facilities based on treatment capabilities
- Coordinates the collection of inventory data by the Regional Councils and provides compiled summary reports
- Develops criteria for the establishment of Primary Services Area (PSA) boundaries, MIC services and EMSI authorization
- In conjunction with the State Office of Emergency Telecommunications, plans, coordinates and oversees the EMS communications system
- Meets regularly with Regional Councils and CORC to facilitate system development, implementation and evaluation

CONNECTICUT EMERGENCY MEDICAL SERVICES ADVISORY BOARD

The EMS Advisory Board, utilizing its committees, serves as an advocate for EMS system development. The Board advises the Commissioner on EMS issues and develop programs and standards for the EMS system for approval by the Commissioner.

- Recommends EMS priorities
- Prepares and recommends a long term plan for the State of Connecticut
- Reviews and recommends EMS regulations and statutes
- Develops and recommends system wide protocols, guidelines and standards
- Make recommendations on the state EMS budget
- Develops and makes policy recommendations on EMS training programs
- Develops and recommends a statewide communications plan, provides for the statewide coordination of CMEDS/RCC's with accompanying standards for operational procedures, reporting and evaluation
- Develops and presents recommendations for statewide protocols and policies for mass casualty planning
- Develops and recommends a coordinated data collection system that can properly monitor the EMS system.
- Develops and recommends a public information and education effort to prevent injury and increase knowledge of the EMS system for use at the local, regional and statewide level
- Studies, recommends, and advocates dedicated funding sources to insure future stability of the EMS system
- Studies and makes recommendations on other EMS issues as necessary

CONNECTICUT EMS MEDICAL ADVISORY COMMITTEE

The Connecticut EMS Medical Advisory Committee is representative of the pertinent statewide physician community and other emergency medical practitioners. It provides both the Advisory Board and the Commissioner with advice regarding medical policy for EMS system.

- Provides the other committees of the Advisory Board with advice and comment regarding the medical aspects of their projects. The Medical Advisory Committee provides comment in a timely manner
- The Medical Advisory Committee shall also have the option to report directly to the Commissioner regarding medically related concerns which have not, in the Committee's opinion, been satisfactorily addressed by the Advisory Board
- The OEMS Medical Director, who serves as co-chair of the State Medical Advisory Committee, coordinates the flow of medical issues between the EMS Committees, State EMS Advisory Board, and the Regional EMS Medical Advisory Committee

COUNCIL OF REGIONAL CHAIRPERSONS

The Council of Regional Chairperson (CORC) serves as an advocate for EMS system development. CORC serves to provide coordination of the Regional EMS Councils.

- Meets regularly as a group
- Discusses planning, coordination and implementation of the statewide emergency medical services system and meets with the Director of OEMS to determine direction for EMS issues

REGIONAL EMS COUNCILS

The Regional EMS Councils serve as an authorized extension of the state in implementing and evaluating state policy and programs at the regional and local level. They develop regional plans in conformance with State EMS Plan, coordinate and evaluate the delivery of EMS, and serve as a voice for the local communities in recommending continued development of the EMS system.

- Provide representatives to the EMS Advisory Board and its committees (also staff as needed and available)
- Meet regularly with OEMS Director and OEMS staff
- Review and make recommendations regarding EMS statutes and regulations
- Direct regional staff in carrying out implementation plan

- Foster close working relationship with all EMS providers
- Work with OEMS to ensure implementation of operational policies and programs at the regional and local levels
- Evaluate system effectiveness within their regions
- Conduct regional needs assessments
- Coordinate regional availability of training programs
- Conduct pilot programs
- Assist OEMS in conducting written and practical exams and approving training programs according to statewide standards
- Work with local providers to conduct prevention activities and develop consumer participation in the EMS system
- Foster public education regarding all aspects of EMS
- Implement the State approved Public Information, Education and Relations (PIER) program at the regional level and encourage and facilitate implementation at the local level
- Review and make recommendations on PSA assignments, need for service applications, mobile intensive care and EMS-I applications. Clearly define geographic boundaries for PSAs
- Assist in the collection of local and regional data
- Provide staff and support for all regional committees and provide liaison between the regional committees and the State EMS Advisory Board

SPONSOR HOSPITALS

MIC activities shall be subject to medical direction by Sponsor Hospitals.

- Oversee MIC personnel who function under the supervision and direction of a physician at the sponsor hospital from which they are receiving medical direction
- MIC services shall be under the control of the Medical Director, or his or her authorized designee
- Appoint an emergency department staff person as liaison to MIC personnel
- Maintain two-way radio communications interface with the capability to provide prehospital medical direction
- Appoint an MIC Medical Director who shall be responsible for appropriateness of operating protocols, medical supervision and training of MIC personnel, review of MIC medical performance and quality assurance

EMERGENCY MEDICAL SERVICES RESPONSE

BACKGROUND & CURRENT STATUS

There are 192 ambulance companies in the state, deploying 660 ambulances. There is one hospital-based air ambulance service which operates two helicopters. The ambulance service for a Connecticut city or town may be provided by a volunteer organization, a municipal public safety department, hospital, private non-profit agency, or a commercial ambulance company. These services are either certified or licensed by the state in accordance with C.G.S. Section 19a-180.

Currently, there are 109 Basic (EMT) ambulance services, 32 MIC-Intermediate services, and 50 MIC-Paramedic services. Basic services must provide at least one MRT and one EMT, MIC-Intermediate services must provide at least one EMT and one EMT-Intermediate, and MIC-Paramedic services must provide at least one EMT and one EMT-Paramedic.

Existing EMS regulations establish basic ambulance design and equipment standards and additional equipment requirements for MIC ambulances. All ambulances must meet federal KKK-A-1822 standards. EMS regulations specify certain exceptions from the federal standard and allow acceptable equipment substitutions. EMS regulations also require annual OEMS inspection of all ambulances (including air ambulances) to ensure compliance with regulatory standards.

The regulations call for a primary service area responder (PSAR) for each category of EMS service (i.e. First Responder, BLS Ambulance, MIC-Paramedic). Regulatory criteria for the assignment of a PSAR include:

- Size of population to be served
- Effect of proposed PSAR assignment on other area EMS providers
- Geographic locations of the proposed PSAR provider
- Proposed PSAR's response time record
- Proposed PSAR's activation time record
- PSAR's level of OEMS certification or licensure
- Recommendation of the Regional EMS Council
- Recommendation of municipal chief elected official
- Other factors deemed relevant by OEMS

Currently, there is a BLS ambulance responder in all PSA's throughout the state. There is an assigned First Responder PSAR in 50% of the PSA's and an assigned MIC-Paramedic PSAR in 60% of the PSA's. There are active first responder services in Connecticut towns that have not gone through the PSA application process. This is because regulations, in the past, have not always been strictly enforced.

No statewide EMS system performance data are available. System changes are generally made based on anecdotal information.

The past DPH Commissioner established an ad-hoc Paramedic Task Force and charged it with developing a deployment methodology to establish an assigned MIC-Paramedic PSAR for each PSA in Connecticut. The study has been completed and the results submitted to the Commissioner.

GOAL – *All citizens will receive appropriate emergency medical care within the time parameters established in the “Model EMS Response” section of the plan for life threatening, time critical emergencies.*

Objective #1 – In accordance with Section 19a-179-4 of existing EMS regulations and the cooperative model of paramedic coverage plan development discussed in the introduction of this plan, and with consideration of the components of the “model EMS response” section of this plan, assign Primary Service Responders, where none presently exist, for the First Responder and Paramedic levels. Review existing PSA assignments for conformance with the “model EMS response”.

Objective #2 – Integrate automatic/semi-automatic defibrillation into all first responder and basic ambulance response services with accompanying medical quality assurance and supervision.

Objective #3 – Each community shall develop a local plan based on the “Model EMS Response” section of the State Plan.

Objective #4 – Evaluate the perceived problem of inappropriate use of emergency medical service resources. Make recommendations on alternate forms of transportation for non-urgent patients.

Objective #5 – Develop a comprehensive prehospital manual that will provide approved guidelines for field treatment, communications and transportation.

Objective #6 – Develop urban, suburban and rural model approaches to the planning and delivery of EMS in Connecticut.

HUMAN RESOURCES, EDUCATION & TRAINING

Background & Current Status

The oversight of training courses and certification of prehospital personnel is a primary function of the OEMS and is an area of ongoing emphasis. According to state statute, all emergency responder services and their personnel must be certified by the DPH/OEMS. The OEMS utilizes (with some modification) the National Standard Curricula as developed by the U.S. Department of Transportation as the basis of the training of Medical Response Technician (MRT), Emergency Medical Technician (EMT), Emergency Medical Technician-Intermediate (EMT-I) and Emergency Medical Technician-Paramedic (EMT-P). The number of currently certified personnel in each of the four levels are:

MRT – 5,365	(42+ hours training program, usually function as first responders)
EMT – 11,947	(120+ hour training program, minimum certification level required to work in the rear compartment of a basic ambulance)
EMT-I - 1,257	(60+ hour training program in addition to EMT. Able to administer IV fluids, utilize advanced airway care, apply MAST)
EMT-P – 1,001	(600+ hour comprehensive training program, highest level of field EMS personnel)

Note: *Enhancements to the MRT, EMT, and EMT-I levels such as the use of automatic defibrillators, epi-pen, etc. are MIC procedures and are “authorized” separately after review and approval by the Regional EMS Council, OEMS MIC Coordinator and the Director of OEMS. Training courses in these enhancements are done at the local level through the authority of the medical director. They are not reviewed or certified by the OEMS training section.*

EMS staffing shortages were identified as a serious problem in the late 80's and early 90's. Ambulance services (primarily volunteer) brought their concerns to OEMS and the regional EMS Councils about the difficulty of properly staffing their ambulances. Many factors contributed to the EMS staffing problem including stress, conflict with work and family activity, hazards of the EMS environment, initial training and recertification requirements, failure to meet personal and professional expectations, pay, etc.

A dramatic increase recently in the number of people trained and certified appears to have adequately mitigated this problem for commercial and municipal providers. Some volunteer services are still suffering from staffing shortages during daytime hours. The resolution to this problem for some services has been to hire daytime help and not necessarily continue to train unlimited numbers of personnel. The OEMS training section developed several programs (CONCERT and MRT-EMT Upgrade) to improve the recertification and upgrade process.

In order to bring standardization and consistency to the training programs, a move was made in the late 1980's to utilize state institutions of higher education to administrate EMS educational training programs. This effort has been successful but has met some opposition by those who wish to continue providing independent MRT and EMT courses at the local level. In FY 1994-95, approximately 575 initial and refresher training courses were held across the state, for all levels of personnel certification. In 1995 the OEMS began a phase-in process to authorize the Regional EMS Councils to approve EMS training programs based on State-approved guidelines. Presently all certification levels recognized and offered by the State OEMS are for pre-hospital EMS providers only.

Exams are administered for initial certification as follows:

MRT	State approved and/or provided written exam administered by course instructor or regional EMS office designee
EMT	State administered written and practical examination
EMT-I	Written exam administered by instructor, practical by educational institution, sponsor hospital or OEMS by request
EMT-P	Written exam administered by state, practical exam administered by educational institution or sponsor hospital

Recertification is required for all levels. MRTs and EMTs must recertify every two years except that after the third recertification they are only required to recertify every three years. Both the EMT-I and EMT-P are required to recertify every two years. Recertification exams are conducted by the course instructor with the exception of the written paramedic recertification exam which is administered by the state. Because of limited resources, only a small percentage of the initial training and recertification courses are audited by the state. If a written complaint is received by OEMS regarding a training course, a member of the training section will make an unannounced audit and if a problem exists, appropriate measures will be taken to rectify the problem.

There has been a recent increase in programs initiated by field providers and some emergency department physicians to provide early cardiac defibrillation. These programs have given additional training to MRTs and EMTs in when and how to use automatic defibrillators and encourage rapid deployment of both equipment and personnel to patients experiencing cardiac symptoms or in cardiac arrest. This enhanced capability is included as part of the new EMT-B training course. The national DOT First Responder curriculum is currently being revised and will also include automatic defibrillation.

The most significant change in the past twenty years in the area of EMS training has been the 1994 introduction of the new "Emergency Medical Technician-Basic: National Standard Curriculum," sponsored by the Department of Transportation. The new assessment-based curriculum will result in a change to course design, training, textbooks, and exams. Perhaps the most significant revision is the shift from diagnosis-based to assessment-based treatment. The new curriculum has received endorsement from virtually all national EMS related organizations. Two transition to EMT-B pilot programs are now in place and the results will be studied to determine what modifications need to be made. Re-training will be required for over 400+ EMS instructors.

In general, the training coordination and certification activities of OEMS and the Regional EMS offices are limited to prehospital EMS providers. No centralized source of information exists on the numbers, training and credentialing of emergency department and specialty care personnel (physician, nurse, and other health care professionals).

In addition to its administrative functions, the OEMS education and training section sponsors what is considered to be the largest state EMS educational conference in the nation. Each year over 1000 people attend the conference which features over sixty-five different sessions on EMS related topics.

GOAL – *All EMS training programs will conform to uniform national and statewide standards. Training programs will be available to ensure an approved proficiency level for every class of EMS personnel (citizen CPR, dispatchers, MRT, EMT, Paramedics, emergency nurse, through to medical director.)*

Objective #1 – Complete the integration of the new DOT EMT-B curriculum into the initial and refresher training programs.

Objective #2 – Include early defibrillation training in all MRT, EMT, EMT-I, initial and refresher courses.

Objective #3 – Streamline the administrative functions of the OEMS training section. Introduce new technologies such as voice mail service, enhanced computerization for testing, test results distribution, certification verification and database maintenance.

Objective #4 – Develop a standardized operating procedures manual for the OEMS Training Section. Include in this manual:

- ◆ Training requirements for all certification levels
- ◆ Practical/Written testing process
- ◆ A quality improvement program for EMS training programs

Objective #5 – Develop a procedure for assimilating regional council staff into appropriate training administration functions.

Objective #6 – In conformance with the trauma regulations, integrate prehospital field triage training into the basic EMT curriculum.

Objective #7 – Implement an emergency vehicle operators training program.

Objective #8 – Annually conduct a statewide EMS educational conference.

Objective #9 – Develop and maintain effective and efficient procedures for the dissemination of training information, policies and procedures to the regional councils and EMS providers.

COMMUNICATIONS

Background & Current Status

PUBLIC ACCESS

Connecticut is the third state in the nation to have a statewide E 9-1-1 system. The statewide network was completed in 1989 and has provided a high level of technical performance and reliability. Special features of the E 9-1-1 system include automatic number identification (ANI) and automatic location identification (ALI). Both features are visually displayed at the public safety answering point (PSAP) on each E 9-1-1 call. With this system, emergency assistance can be dispatched to the callers address even if the caller cannot speak or hangs-up abruptly.

E 9-1-1 service is available toll free from all telephones including public as well as cellular telephones. Although E 9-1-1 can be accessed by a cellular telephone, the features of ANI and ALI are presently not available to these callers. Several national public safety organizations are petitioning the Federal Communications Commission (FCC) to require ANI and ALI capability on all cellular E 9-1-1 calls. Accommodations are made in the system to accept all calls from the deaf and hearing impaired (per ADA requirements). Failsafe mechanisms are built into the statewide E 9-1-1- system. If an individual PSAP fails, calls are automatically routed to a designated alternate PSAP.

Citizens with special needs can submit a form to their local PSAP requesting that identification as to their special condition be displayed on the PSAP screen each time 9-1-1 is dialed from their telephone. This will then alert public safety responders to take special appropriate action when responding to the call.

An effective educational campaign was implemented statewide to introduce the system to the public and interstate highway signs have been erected to alert travelers that E 9-1-1 service is available statewide for police, fire, and medical emergencies.

DISPATCH AND COORDINATION

Connecticut has a population of 3.2 million and 109 separate PSAPs to process E 9-1-1 calls for help. Since the inception of E 9-1-1, limited movement towards the consolidation of emergency communications centers in the state has occurred. The existence of so many separate public safety dispatch centers has hindered the implementation of the "model EMS system" approach to comprehensive emergency communication. Since January 1, 1990, all newly hired personnel who directly handle emergency calls from the public must successfully complete a state mandated public safety telecommunicator training course sponsored by the Office of Statewide Emergency Telecommunications (OSET). Although the course offers detailed instruction on the fundamentals of public safety telecommunications, it does not include a comprehensive emergency medical dispatch (EMD) training component. EMD is one of the "missing links" in the chain of survival for citizens needing emergency medical care. EMD must be approached as a critical system element offered to all emergency callers, 24 hours a day, 365 days a year and not on a sporadic basis. A major part of EMD includes proper systematized interrogation, which has four important purposes:

1. Provides the emergency dispatcher with the information needed to make a correct decision regarding initial unit response, including type of EMS Personnel required and use of lights and sirens.
2. Enables the emergency dispatcher to determine the presence of conditions requiring giving prearrival instructions to the caller.
3. Enables the emergency dispatcher to provide EMS responders with information for the planning of, and preparation for, on scene care.
4. Assists in ensuring the safety of the patient, the responders, the caller, and other bystanders.

All of the above must be based on a medically approved emergency medical dispatch priority reference system. As of this date, very few PSAPs in Connecticut have implemented an EMD program even though the public perception and expectation is that EMD is already routinely provided to E 9-1-1 callers.

MEDICAL DIRECTION COMMUNICATIONS

On-line medical direction between EMS field personnel and the hospital is done via the statewide UHF MED radio system. In some instances, the telephone at the patients residence or even in some cases a cellular telephone is used. Most calls from the field go by UHF MED radio to one of thirteen Emergency Medical Communications Centers EMCC (also sometimes referred to as CMED/RCCs) and are then patched via dedicated circuits to an emergency medical facility. Each emergency medical facility is equipped with a radio remote control unit that provides the interface into this prehospital to hospital communications system. Hospital to hospital communications is also possible. All calls are monitored and taperecorded by the EMCC. If a more serious call is received while a patch is in progress, the EMCC telecommunicator can intervene an ongoing patch and alert the hospital of the more serious call. If appropriate, the first patch can be properly terminated and placed on stand-by. The second, more serious call, is then immediately patched into the hospital. At the conclusion of the critical patch, the first, less serious one is reconnected to the hospital.

The UHF MED radio infrastructure is approximately twenty years old. The existing hardware has functioned reliably but from a technological perspective, it is antiquated and not efficient in the utilization of available radio spectrum. Several of the EMCCs have made long range plans to purchase equipment that is compatible with future Federal Communication Commission requirements.

GOAL – *Develop a technologically effective and comprehensive communications network to facilitate rapid access to care and provide the communications pathways between the field and the emergency medical facility necessary to enhance on-line medical direction.*

Objective #1 – Require that all EMS providers communicate over the statewide EMS communications system.

Objective #2 – Develop a State EMS Communications Plan that will provide updated coordination, standards and operating procedures for the statewide EMS communications system. The plan will promote the implementation of recently approved EMS communications concept paper as the basis for the replacement of the existing communications system.

Objective #3 – Support the efforts of the State E 9-1-1 Commission and the OSET in updating the capabilities of the statewide E 9-1-1 system and provide technical assistance as requested. Provide representation on the 9-1-1 Legislative Task Force.

Objective #4 – Adopt comprehensive Emergency Medical Dispatch standards and promulgate regulations to ensure their implementation statewide.

Objective #5 - Develop a comprehensive Emergency Medical Dispatch training curriculum for inclusion in the OSET Public Safety Telecommunicator Course.

Objective #6 – Ensure proper funding for existing EMCCs.

Objective #7 – Annually update the State EMS Communications Plan.

Objective #8 – In conjunction with the State Medical Advisory Committee, develop the communications portion of the Medical Directors course.

Objective #9 – Develop a system of performance review to ensure compliance with standards for all emergency medical communications.

Objective #10 – Maintain a statewide EMS communications committee with representation from the EMCCs.

EMS FOR CHILDREN

BACKGROUND AND CURRENT STATUS

The problem of childhood injury and illness is immense. Nationally, more than 20,000 children under 19 years of age die each year as a result of accidental injury. Each year, more children age 1-14 die from unintentional injuries than from all childhood diseases combined. For each child that is killed, approximately 7 are permanently disabled. Childhood illnesses resulting from respiratory, circulatory or neurologic crises account for a significant percentage of hospital admissions.

Although children represent approximately 30 percent of the visits to emergency departments annually, they have not received a commensurate level of attention as the EMS system has developed over the past two decades. The overall effect has been that the level of preparedness of healthcare personnel (both pre-hospital and hospital) and healthcare facilities for childhood emergencies has been less than satisfactory. Historically, EMS capabilities for pediatric patients have not been targeted for enhancement but rather have benefited only from the general improvements to the EMS system overall. This approach has ignored the fact that children are more than simply "little adults" but are, in fact, a special population with unique EMS needs. Important anatomic, physiologic, and developmental differences exist between children and adults: children are smaller and proportioned differently; normal respiratory rates, heart rates, and blood pressure differ; characteristic changes in vital signs that signal deterioration in adults may not occur in children. Children's physiologic, emotional, and behavioral development affect their responses to medical care and their risk of injury and illness. As a result, children often require different medical equipment and techniques to diagnose and treat their illnesses.

On a system-wide level in Connecticut, there has been a lack of effort to develop comprehensive programs specific to EMS for children. Enhanced EMS capabilities that have occurred have been the result of local efforts, creating an imbalance in the level of service available to pediatric patients statewide. In Connecticut, the Academy of Pediatrics began to address these issues by creating a focus group in 1993 to review pediatric emergency care and how the various issues could be dealt with. A product of the focus group was the development of a formal EMS for Children (EMS-C) Committee in 1994 which serves as a standing committee of the EMS Advisory Board. Pre-hospital and hospital subcommittees have subsequently been formed. The current committee represents a wealth of experience and knowledge regarding both EMS and childhood issues and needs.

In 1994, the OEMS applied for and received federal grant funding to assist in the enhancement of the EMS system to provide optimal care to children. The goal of the grant is to review current statewide pediatric capability and produce a plan to develop comprehensive care for children.

GOAL – *Optimize the level of emergency care for children within the existing structure of the statewide EMS system.*

Objective #1 – Develop a comprehensive 5 year plan that will address the needs of children within the EMS system.

Objective #2 – In conjunction with the Advisory Board Funding Committee, explore and develop funding sources for continued implementation of the EMS-C plan.

Objective #3 – Develop or adopt training and equipment standards for both pre-hospital and hospital providers.

Objective #4 – In conjunction with the PEIR committee, develop and implement a program to address childhood injury prevention, accessing the emergency medical system, and bystander care while waiting for EMS.

MEDICAL DIRECTION

Background & Current Status

EMS is a system that involves medical practice as delegated by physicians to non-physician medical providers who manage patients outside the traditional confines of a physicians office or hospital facility. Enabling legislation, developed in 1975, requires medical accountability of the ALS-EMS provider. Every prehospital service that performs a skill beyond those normally performed at the basic EMT level is required, as a condition of its designation, to have a sponsor hospital and a medical director. This sponsorship commits institutional resources and responsibility for off-line and on-line medical direction. First responders and BLS services presently do not come under medical direction unless they are authorized to perform an advanced level skill such as defibrillation.

OFF-LINE MEDICAL DIRECTION

Off-line medical direction is the medical oversight of the aspects of EMS usually not involving active patient care such as quality assurance, ongoing education, performance evaluation and problem management. Off-line medical direction can also incorporate protocols or standing orders that can be used by field personnel when on-line medical direction is not required or available.

Medical directors are chosen by their respective hospitals and are often the directors of the emergency department. Many medical directors are board certified or eligible in emergency medicine, but there are presently no statewide standards or requirements.

Prehospital policies, procedures, and guidelines are governed, in most cases, by the directives of the Regional Medical Advisory Committee. Historically, these prehospital policies, procedures, and guidelines have not been standardized between the state's five EMS regions. An initial step towards statewide standardization has been achieved by the adoption of "Standardized Adult and Pediatric Advanced Life Support Treatment Guidelines." These guidelines were developed by the Connecticut EMS Advisory Board's Medical Advisory Committee and have been endorsed by each Regional Medical Advisory Committee.

The ALS guidelines also provide a mechanism for modifying ALS treatment protocols on a statewide basis. Sponsor hospital medical directors may submit proposed modifications to their respective Regional Medical Advisory Committee who in turn forwards its recommendation to the State Medical Advisory Committee (SMAC). The SMAC reviews recommended modifications on an annual basis and determines which ones should be forwarded to the DPH Commissioner. OEMS will promulgate any modifications approved by the Commissioner.

Recently adopted statewide trauma system regulations established statewide standards for the prehospital identification and transportation of trauma patients. Through the use of a “Field Triage Protocol”, prehospital providers and/or physicians providing on-line medical direction will determine, in a standardized way throughout the state, which patients must be directly transported to a designated Level I or Level II trauma facility.

Medical review of pre-hospital performance is generally conducted by sponsor hospital EMS coordinators through the review of pre-hospital patient care forms. For the most part, this is done individually at each sponsor hospital. Some movement is being made towards regional QA. There is no coordinated statewide evaluation of data.

ON-LINE MEDICAL DIRECTION

On-line medical direction is usually provided by on-duty emergency department physicians or their authorized emergency department designee. There are no defined statewide requirements which an emergency physician must meet in order to provide on-line medical direction.

All ambulances are required to have UHF MED radios, which have the capability of contacting any hospital in the state, with the exception of one small 80 bed facility. Advanced level providers are generally required to contact on-line medical direction at their sponsor hospital to receive orders. EMTs are only required to contact on-line medical direction in certain circumstances involving advanced care or for specific types of trauma calls. Although not encouraged, on-line medical direction is sometimes conducted over conventional or cellular telephone when necessary.

Immediate medical direction of active care varies significantly around the state and is dependent on which physician or designee happens to be on duty at the particular hospital when a call is received. Many physicians know the appropriate guidelines and are familiar with the ALS providers making the call. Many others, however, are unfamiliar with the guidelines and may never have had direct contact with the ALS provider whom they are directing.

The Connecticut College of Emergency Physicians (CCEP) periodically sponsors a seminar on EMS base station radio technology and recommended operational procedures for those giving and receiving on-line medical control.

OEMS has contracted with CCEP to develop and deliver an educational module for physicians and nurses providing on-line medical direction as it related to the implementation of the trauma regulations. The new statewide trauma system regulations stipulate that when the estimated transport time of the major trauma patient exceeds twenty minutes, on-line medical direction must be contacted to determine the patient’s destination. The regulations also specify that on-line medical direction will be responsible for determining patient destination based on patient history and status.

GOAL – *Ensure that emergency medical care is rendered consistent with standards of quality medical practice via the involvement of physicians in the design, implementation, management and provision of emergency care.*

Objective #1 – Revise existing EMS regulations to reflect the American College of Emergency Physicians (ACEP) definition of medical direction.

Objective #2 – Develop statewide guidelines for medical directors and the provision of medical direction. Support the development of a training program and a handbook for medical directors.

Objective #3 – Develop criteria for evaluation of sponsor hospitals.

Objective #4 – Maintain, monitor and modify where appropriate, statewide guidelines and standing orders under which prehospital care providers function.

Objective #5 – Require the provision of medical direction for all OEMS certified prehospital personnel including MRT and EMT basic personnel.

Objective #6 – Require accreditation of all advanced EMS training institutions to national standards.

Objective #7 – Develop or adopt medical protocols for priority emergency medical dispatch (EMD) with pre-arrival instructions. Study mechanisms for the medical direction of EMD activity.

Objective #8 – Establish criteria for determining patient destination regardless of payor source or method of system access.

Objective #9 – Develop a process to insure the proper utilization of E 9-1-1 in conjunction with managed care providers.

Objective #10 – Study the need for and appropriateness of expanding the role of EMS providers in the field.

FACILITIES

Background & Current Status

Connecticut is fortunate in having a significant number (32) of acute care general hospitals with emergency departments providing 24 hour service that are well distributed across the state. In addition, there are three satellite emergency care facilities which are affiliated with general hospitals but not open twenty-four hours. Virtually all hospitals serve as "sponsor" hospitals to various types of prehospital providers. Although basic information regarding hospital capability and capacity is known, there is limited information as to the capabilities of these hospitals to function appropriately and efficiently as an integrated component of a comprehensive EMS system. Although it is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility, patient destination is still frequently chosen based on the recommendation of prehospital EMS personnel or the patient's personal choice.

Over the past decade, a process was developed that identified which hospitals were capable of receiving patients transported by aeromedical helicopter. In addition several hospitals were verified as Level I and Level II trauma centers by the American College of Surgeons-Committee on Trauma (ACS-COT). New trauma regulations that took effect October, 1995, require all general hospitals to participate in the statewide trauma system as set forth in Sections 19-177-1 through 19a-177-9 of the regulations. Hospitals may seek designation as a Level I, II, III, or IV trauma facility.

The DPH has the responsibility for, but has not yet implemented, a system to categorize the capabilities of all health care facilities that receive patients from the prehospital setting. There is a need to disseminate information to EMS providers regarding the capabilities of the facilities so that primary and secondary transport decisions can be made. There is a need to develop and implement prehospital triage and destination policies, as well as guidelines for specialty care patients (such as cardiac, burns, spinal cord injuries, pediatric emergencies, etc.), based on the functional assessment of facilities. Criteria to guide the interfacility transport of specialty care patients are also needed.

GOAL – *Ensure that an adequate number of designated emergency medical facilities and specialty care centers are accessible to patients needing such care.*

Objective #1 – Evaluate all general hospital emergency facilities, satellite emergency facilities and rehabilitation facilities according to their capability to provide care based on accepted standards.

Objective #2 – Develop standards for triage and transfer of specialty patients to designated facilities (cardiac, burns, pediatric, neonate, spinal cord etc.) according to national recognized standards.

Objective #3 – Monitor facility adherence to established standards for the objectives listed above.

TRAUMA SYSTEM

Background & Current Status

Traumatic injury is the leading cause of death in children and young adults. For each traumatic death, there are at least two cases of permanent disability. Victims in this age group experience the highest loss of years of productive life and incur the highest costs for continuing long-term disability.

In the mid-1980's, some physicians and other interested persons began discussions about the care of patients with multi-system injuries. In fact, there have been many forums over the years in which the need for a trauma system has been articulated. They include: the Helicopter Destination Committee, the Trauma Network Committee, the State Medical Advisory Committee, the NHTSA Development of Trauma Workshop and the NHTSA evaluation of Connecticut's EMS system. It was recognized by all these groups that the major problem in providing improved care for the injured patient in Connecticut was the lack of a defined system of care for the critically injured. Patients whose injuries were considered to be life-threatening were frequently being taken to the nearest hospital, rather than to a hospital with surgeons and surgical support services (i.e. anesthesiology, laboratory, x-ray) in-house on a twenty-four hour basis.

Concurrent with the above activity, movement to improve trauma care was made at different hospitals across the state. Three hospitals (Hartford Hospital, Yale-New Haven Hospital, and St. Francis Hospital & Medical Center) sought and received verification as level one trauma facilities. Hartford Hospital began an aeromedical service for scene response to critically injured patients and for rapid interfacility transport of these patients when necessary. Training in basic and advanced trauma life support also became available to prehospital and hospital personnel during this period of time.

In 1991, a team from the NHTSA assessed emergency medical services in Connecticut. The team made several major recommendations regarding trauma care:

1. Develop and implement a statewide system of trauma care.
2. Develop and implement a trauma patient transportation and destination plan.
3. Designate trauma centers at all levels.
4. Collect and integrate patient outcome data with prehospital, emergency department, hospital, and trauma data.
5. Complete and implement a trauma system plan over the next three years.

In 1992, a NHTSA panel was invited to deliver the "Development of a Trauma Program" to a select group of medical and political leaders. At that program it was stated by the panel that Connecticut has an abundance of tangible resources but their distribution has not been planned and was a result of "provider want" rather than "consumer need." In fact, there appeared to be excesses of resources in some areas.

Also in 1992, Commissioner Addiss, embarked on a campaign to improve EMS in Connecticut. She announced her intent to promulgate regulations creating a trauma system, naming Dr. Lenworth Jacobs, Chairman, of a newly created Commissioner's Committee on Trauma (CCT), charged with developing those regulations. Due to its public health importance, the creation of this committee preceded the creation of the Statewide EMS Advisory Board and a strengthened Medical Advisory Committee, which were launched in October, 1992.

In May of 1993, the CCT completed work on the regulations. The Committee's membership included representative from the Connecticut Hospital Association, the regional EMS councils, surgeons, emergency physicians, emergency nurses, paramedics, and rehabilitation specialists. On June 9, 1993, the CCT's draft was approved by the Connecticut Emergency Medical Services Advisory Board and sent to the Commissioner with comments.

In 1993, the OEMS applied for and received federal grant funding to assist in the development of a five year trauma system plan. The plan will address the designation of trauma facilities, the field triage of trauma patients, development of a state trauma registry, the linking of trauma registry data to other relevant data bases, and will provide for trauma education for pre-hospital and hospital providers.

Over the past year, a trauma coordinator was hired, the draft regulations were approved by the EMS advisory board and reviewed by the Attorney General's Office. The draft regulations were approved by the Regulations Review Committee of the State Legislature and took effect October 1, 1995.

GOAL – *Develop an organized system of trauma care statewide and implement the necessary components (as defined by ACS-COT and DHHS) in order to insure that the trauma system performance is both cost effective, cost efficient, and provides an appropriate level of care to patients with major injuries.*

Objective #1 – Develop, have approved and publish a state trauma plan. Implement the plan.

Objective #2 – Educate prehospital and hospital care providers regarding the system, policies, procedures and protocols.

Objective #3 – Designate trauma facilities at various levels.

Objective #4 – After analysis of data, disseminate reports that measure trauma system performance and cost.

DATA & EVALUATION

Background & Current Status

Probably the most significant deficiency of the statewide EMS system in Connecticut is the lack of a uniform data collection system and a process for evaluating system performance. Connecticut General Statute (Section 19a-176) establishes the DPH as the state agency “responsible for the planning, coordination, and administration of a state-wide emergency medical care service system.” The DPH Commissioner is authorized to “Develop or cause to be developed a data collection system which shall include a method of uniform patient record keeping which will follow a patient from initial entry into the emergency medical service system through discharge from the emergency room.” (Section 19a-177-g).

A comprehensive evaluation program is needed to effectively plan and implement a statewide system. The statewide EMS system should be able to state definitively what impact has been made on the patients served by the system. To date, we have no mechanism to evaluate the effectiveness of the services and the appropriateness of care provided victims of medical or trauma related emergencies.

The OEMS has distributed a state EMS run form that was developed almost two decades ago. The state run form is not widely used. Each EMS service, usually in cooperation with its sponsoring hospital, determines which run form it will use and what additional data beyond the minimum data set it chooses to collect. These multiple forms are inter- and intra-regionally incompatible, making it virtually impossible to collect and evaluate data on EMS system performance. Many of the sponsoring hospitals collect a significant amount of data from the services they sponsor. However, these data may not give a complete picture of EMS in the region since there is no requirement for other sponsoring hospitals in the region to pool the data. Until all data related to the provisions of prehospital, emergency, and specialty care with outcome results are collected and evaluated in a meaningful way, it will be impossible to determine the effectiveness of the system and to develop an effective Quality Assurance (QA) program.

Note: A revised state run form reflecting the addition of all trauma system data elements has been developed and published by OEMS and is available to EMS providers free of charge.

In response to the tremendous need for a data system, the EMS Advisory Board Data Committee develop the “Connecticut EMS Management Information System Plan”. This document was approved by the EMS Advisory Board at its December, 1994 meeting. This plan will integrate the national Uniform EMS Data Set recently approved by NHTSA. An important feature of the proposed system will be the ability of each EMS service to generate their own performance reports.

GOAL – *A functional system for collecting data and evaluating system components will be designed and instituted to ensure the ongoing quality and integrity of the EMS system*

Objective #1 – Hire a full time data systems manager. In conjunction with the Data Committee, the data systems manager will develop an RFP to hire a consultant with proven success in designing and implementing statewide EMS data systems. Data systems manager will maintain the ongoing operation of the data system.

Objective #2 – Develop a system that is generic enough so as to allow linkages to other related databases and one that is “user friendly” so as to facilitate rapid integration into the daily operations of the EMS system.

Objective #3 – Successfully pilot test the data system and get approval from the EMS Advisory Board before formal acceptance and implementation.

Objective #4 – In conjunction with the Advisory Board funding committee, explore sources of long-term funding for the EMS data system.

Objective #5 - Periodically evaluate data system performance and make appropriate changes where necessary.

Objective #6 – Disseminate reports that address EMS system performance based on the results of the EMS data system.

FUNDING

Background & Current Status

There is no dedicated funding source for the development, implementation, and maintenance of Connecticut's EMS System. Consequently, EMS funding depends on general tax revenues and is subject to the fluctuations of that source. A source of dedicated funding must be established. There is precedence in other states for dedicated funding mechanisms for EMS. These mechanisms usually involve a surcharge of \$1.00 - \$2.00, specifically earmarked for EMS and are added to:

- Motor Vehicle Registration Fees,
- Traffic Violation Fees,
- Civil Penalty Fines,
- Tobacco/Alcohol Taxes,
- Parcel Taxes, or
- Drivers License Fees

Legislation was introduced in the 1993 session of the General Assembly to provide for increased funding for EMS. That proposal, "A Dollar for Life", was to have initially raised \$1.3 million dollars a year by assessing \$1.00 for each two-year car registration, eventually rising to \$1.00 per year. Funding was to be used to enhance EMS administration, bolster regional offices, and provide community EMS grants.

The Dollar for Life initiative was not acted on in the 1994 legislative session.

GOAL – *Establish a stable source of funding for EMS system development.*

Objective #1 – Continue to promote "A Dollar for Life" as a dedicated funding source.

Objective #2 – Provide financial assistance to specific EMS project areas that have already developed an implementation plan approved by the EMS Advisory Board, such as communications, data and public information and education.

PUBLIC INFORMATION, EDUCATION & RELATIONS

Background & Current Status

Public information, education and relations (PIER) are important components of any organization, but for an EMS system it is essential. As previously mentioned in the plan, education about injury prevention is absolutely critical, especially when considering injury is the leading cause of death between the ages of 1 and 44. The public must know when and how to access the EMS system and what to do until help arrives. The population must also be educated in when not to activate the system. Another value of PIER is the side benefit of helping to recruit new personnel to join the EMS work force.

Probably the single most significant factor to impact EMS PIER has been the nationally televised show "Rescue 9-1-1". Each week, the various aspects of the EMS response system are brought into the homes of millions of viewers. The show has not only presented EMS in a positive light but has provided the information needs described in the first paragraph to an extremely large audience.

Operating with very limited budgets over the years, varying levels of EMS PIER activity has occurred across the state. Activities have included a study on the public perception and use of EMS, Don't Guess Call EMS brochures, EMS coloring books for children, technical newsletters, and various community outreach activities promoted by many EMS services. The statewide availability of Enhanced 9-1-1 has been well publicized by signage along the interstate highways and via a prominent display on the inside cover of every telephone book. Other agencies such as the Red Cross, American Heart Association, MADD, SADD, Governor's Highway Safety Office, Safe Kids Campaign, and others work to get EMS related messages across to the public.

The PIER committee of the EMS Advisory Board recently developed and distributed a comprehensive EMS PIER resource manual for each EMS provider organization. A PIER program presentation was made before each of the five regional EMS councils and at the annual State EMS Conference. The PIER committee has recently submitted a proposal to the Advisory Board for the development and statewide distribution of a quality EMS Newsletter.

GOAL – *The general public and EMS providers will receive information and education programs concerning all aspects of the EMS system.*

Objective #1 – Develop a comprehensive EMS newsletter that will inform and educate EMS services, various healthcare related organizations, and public safety agencies about relevant and timely EMS topics and issues occurring at the regional, state and national levels.

Objective #2 – Build networks and coalitions with other agencies, organizations and individuals who share a common interest in promoting information on emergency access, safety, prevention and emergency medical care.

Objective #3 – Develop and distribute public information and education materials to hospitals, schools, civic agencies, private organizations and EMS services for use in educating the public about prevention, injuries and illness, EMS access, and what-to-do until the ambulance arrives.

Objective #4 – Ensure the appropriation of funding to support the public information, education, and relations programs identified by the PIER committee and recommended to the EMS Advisory Board and the Commissioner.

Objective #5 – Develop a statewide EMS computer bulletin board system that will provide on-line EMS information to members of the EMS community and the general public.

Objective #6 – Inform the public of the need for citizen CPR training and its critical function in the cardiac "chain of survival".

MASS CASUALTY CARE

Background & Current Status

The problems EMS services encountered responding in a coordinated way to a large-scale mass casualty incident was brought to the forefront following a tornado that struck a wide area in Windsor, Windsor Locks, and Suffield, Connecticut in 1979, killing three and injuring more than 200 people. Problems resulted, not because of a lack of concerned emergency responders, but because of ineffective emergency communications and inadequate mass casualty care planning and training. The way in which EMS services responded to mass casualty incidents at that time varied significantly across the state. Analysis of field operations after the tornado identified three strategic issues leading to inadequate patient care in the field:

1. Lack of written mutual aid agreements
2. A single step triage process as taught in the EMT course
3. Lack of training and experience in command and control of operations with large groups of emergency responders.

It became clear that solutions to the above issues would affect not only EMS providers in Connecticut but also those in surrounding states. The New England Council for EMS, Inc. accepted the role for developing programs to improve responses to mass casualty events.

In New England, a mass casualty care incident definition has been standardized and is described as “any event where the number of patients exceeds the ability of the normal EMS response system to adequately care for the patients in the field.” Written, preplanned mutual aid agreements, a multiple series of triage steps, and skills in managing subordinates have been identified as the core ingredients for an effective mass casualty care operation. Local planning guidelines, training curricula and evaluation methodologies have been developed by the New England Council to provide standardized resources to states and communities that choose to adopt them.

The Mass Casualty Care Committee of the EMS Advisory Board was charged with the task of developing recommendations for a comprehensive statewide prehospital program leading to universal capabilities for responding to mass casualty incidents. These recommendations were prepared and approved by the Board in June, 1993, and were subsequently approved by the Commissioner in November, 1993. As a result, the Committee has been providing oversight and technical support to OEMS as the program is implemented.

GOAL – *All patients in Connecticut who are injured in an event at which five or more others are also injured will receive optimal emergency medical care at the scene, during transportation and at the hospital.*

Objective #1 – Eighty percent (80%) compliance in drills and actual field operations using all appropriate mass casualty protocols and guidelines as established by the New England Council for EMS and Connecticut guidelines approved by the Commissioner of Public Health.

Objective #2 – Ninety percent (90%) subordination of all scene EMS operations to a formally established incident command system.

Objective #3 – Presence of the following planning components within eighty percent (80%) of all Connecticut communities in which drills and actual mass casualty events occur:

- a. Written and approved local mass casualty response plan.
- b. Written mutual aid protocols as part of this plan.

Objective #4 – Eighty percent (80%) of all personnel who are assigned a primary or organizational role at all drills and actual MCI events will be trained in the Triage and Mass Casualty Scene Management course and in field evolutions. Ninety percent (90%) of all personnel who are assigned a secondary or support role will be trained in an overview course in mass casualty scene management.

Objective #5 – Evaluation of all drills and MC events will be done using formal evaluation guidelines, leading to effective feedback of information to personnel at the local, regional and state level creating change when indicated.

Objective #6 – Regulations will be drafted pending introduction to the legislative Regulatory Review Committee to mandate full compliance for all of the above stated objectives.

Note: In all events, local responders hold accountability and have all required authorities for appropriate mass casualty operations. For developing the required resources, the primary focus for conducting programs is defined for each of the above objective in parentheses.

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APPENDICES

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THE MODEL EMS RESPONSE SYSTEM & RURAL, SUBURBAN & URBAN EMS

Background

In January, 1997, the Connecticut Department of Public Health in conjunction with the State EMS Advisory Board, published the State EMS Plan. This document provided a comprehensive outline for EMS system development. The first part of the plan included a section entitled "Model EMS Response System". The Model EMS Response System was presented as a benchmark against which local EMS systems could compare themselves. The Model EMS Response system was based on a variety of nationally recognized EMS standards and represents an optimal configuration. Certain medical emergencies are extremely time critical and involve rapid and sometimes irreversible physiological deterioration. They include but are not limited to: cardiac arrest, respiratory arrest, severe uncontrolled hemorrhage, and severe anaphylactic shock. Fortunately the preceding medical conditions represent a rather small percentage of the total number of pre-hospital medical incidents but time cannot be ignored as an important aspect of EMS.

Concern arose that all EMS services would in fact be measured against the model standard. Because of this concern and also because of the recognition that there are impediments towards attainment of the model system in rural setting (and sometimes in the suburban, and urban setting) a request was made that an addendum to the existing planning document be developed.

This addendum will address rural, suburban and urban EMS. We will attempt to explore the current status of the three and suggest possible ways to improve the delivery of emergency care to the patient with special attention towards decreasing the time between the onset of a medical emergency and the delivery of care to the patient.

Although there are no uniform standards for determining what constitutes rural, suburban, and urban, based on a review of literature on the topic and by using existing population density statistics we have come up with the following:

Rural Setting – A town with a population density under 500 per square mile.

Suburban Setting – A town with a population density of 500 to 1000 per square mile.

Urban Setting – A town or city with a population density of over 1,000 per square mile.

RURAL EMS

Because the average U.S. resident requires ambulance service at least twice in his or her lifetime, well organized emergency medical services are essential components of the medical care system. Delays in receiving emergency care in sparsely populated areas puts more rural Americans at risk of permanent injury or death than those who reside in urban areas. Therefore, the development of effective EMS systems is crucial to the health care of rural Americans (U.S. Congress. Office of Technology Assessment, 1990).

CONCERNS

1. Generally speaking, areas with low population density and low call volume seem to be unable at this time to support a full-time paid EMS response system.
2. Low population density also results in a smaller pool of people from which to recruit volunteer EMS personnel.
3. Large geographical areas with secondary roadways are often difficult to navigate and hinder response time.
4. Inclement weather and hilly terrain further delays response time.
5. In many rural areas, you simply cannot safely get from Point **A** to Point **B** in the Model EMS Response System recommended time of 8 minutes or less.
6. Not all rural communities utilize "First Responders".
7. Volunteer EMS personnel living in rural areas frequently work in suburban or urban centers and thus are not available to serve their home community during the weekday hours.
8. EMS dispatchers sometimes send out notification alerts to EMS personnel multiple times before getting a crew to respond on an emergency call. If the dispatcher cannot get a crew, they must resort to using mutual-aid from a surrounding community to cover the 9-1-1 call. This greatly delays EMS response.
9. Not all rural communities have formal arrangements for direct or intercept Paramedic coverage.
10. EMS volunteer personnel are often difficult to recruit and retain due to the time commitment and skill maintenance requirements of EMS. They must attend EMS initial education and training courses at night and on weekends as well as attend recertification and continuing education courses in order to receive and maintain state certification. All of the above is in addition to the hours they actually spend on duty. This is uncompensated time not spent with their families or in pursuing career development. Attrition in some services is high.
11. Because of the low volume of calls, skill deterioration can be a concern.

POSSIBLE SOLUTIONS

1. In order to minimize response time to a medical emergency, the local EMS system could develop "Quick Squads" consisting of properly equipped (including AED) first responders who respond directly to the scene of an emergency. Quick Squad members could be part of a scheduled, organized EMS response and could also subsequently serve as part of the ambulance crew when the patient is transported to the hospital.
2. The proper utilization of "Supplemental First Responders" should be encouraged whenever possible so as to improve response to medical emergencies.
3. Train as many people as possible in "Bystander EMS" which includes basic first-aid, CPR and citizen AED.
4. Implement EMD (Emergency Medical Dispatch) so that emergency medical care instructions can be given immediately to the person calling 9-1-1. Additionally the dispatcher can interrogate the caller so that the most appropriate response can be sent to the emergency medical incident in the safest possible manner.
5. Develop **written** mutual-aid agreements with surrounding communities.
6. As holder of a PSA, recognize the responsibility to be ready to respond to the first call for service. A written shift schedule of crew members should be prepared weekly or monthly to ensure adequate staffing of the ambulance.
7. The State Department of Public Health in conjunction with the Regional EMS Councils should offer education and training programs on EMS management, recruitment and retention.
8. The State should develop and fund a grants program to assist EMS services that can demonstrate a need and who provide a creative solution leading to improved response times and better patient care.
9. Communities should consider incentive programs such as property tax relief, tuition reimbursement, pension plans etc. as a mechanism to encourage citizens to volunteer.
10. Communities should consider joining together in a coordinated approach to pool their resources so as to maximize their response capabilities ie: multi-town EMS. Instead of focusing on conventional town boundary lines, a more dynamic allocation of resources based on proximity to an EMS incident should be developed.
11. Hire paid personnel to staff EMS units if no other personnel are available.
12. Develop an EMS plan for each community. Use the State EMS Plan and the Local EMS System Checklist as a guide.
13. Increase funding for EMS.

SUBURBAN EMS

Unlike rural communities, most of the suburban towns in Connecticut have full-time paid police and/or fire departments. Population density is greater and although many of the problems of the rural community exist in suburban areas, the severity is usually not as great.

CONCERNS

1. As described above, many of the suburban communities have full-time paid police departments and in some cases full-time fire departments, but many do not have a designated EMS First Responder. The First Responder is a critical element of the cardiac "chain of survival" and equally important in other medically life threatening situations.
2. Although many suburban communities have direct or intercept Paramedic service, the effectiveness of ALS is severely diminished because they don't have designated First Responders equipped with automatic defibrillators and other basic life-saving equipment.
3. Less than 10% of the communities in Connecticut have Emergency Medical Dispatch.
4. Community boundary lines are strictly observed and there is reluctance to coordinate or share public safety resources. This often results in delayed response and increased cost.
5. In some suburban communities that have a volunteer ambulance, staffing is a problem.

POSSIBLE SOLUTIONS

1. Designate a First Responder (with AED) and a Paramedic ALS Service for each community.
2. If the community utilizes a volunteer ambulance and staffing for the ambulance is inadequate, consider hiring personnel, contract with a commercial service or form a multi-town EMS system.
3. Utilize incentive programs to aid volunteer recruitment efforts.
4. Implement EMD (Emergency Medical Dispatch) so that emergency medical care instructions can be given immediately to the person calling 9-1-1. Additionally the dispatcher can interrogate the caller so that the most appropriate response can be sent to the emergency medical incident in the safest possible manner.
5. Where practical and where it would prove effective, train people in Bystander EMS.
6. Develop written mutual-aid agreements with surrounding communities.
7. State funded grants programs should be developed to assist communities in improving response times and quality of care.

8. Communities should study the feasibility of coordinating existing EMS resources and forming multi-town systems if it would result in improved response times and quality of care to the patient.
9. Develop an EMS plan for each community. Use the State EMS Plan and the Local EMS System Checklist as a guide.
10. Increase funding for EMS.

URBAN

Virtually all urban areas have full-time municipal police and fire departments. EMS is provided in a myriad of ways. Municipal fire department, municipal fire department with commercial ambulance, commercial ambulance, hospital based, and non-profit/quasi-municipal.

CONCERNS

1. Dense traffic congestion and high rise buildings are but some of the impediments to prompt EMS response.
2. Many urban areas do not have designated First Responders.
3. Few urban areas utilize Emergency Medical Dispatch.
4. A high volume of inappropriate 9-1-1 calls and non-emergency type calls tie up valuable EMS resources. This often leads to a less than optimal response for critical medical emergencies.
5. Municipal contracts with EMS providers are often vague or non-existent.
6. Funding falls far short of what is allocated to other branches of public safety.

POSSIBLE SOLUTIONS

1. Designate a First Responder (with AED).
2. Implement EMD (Emergency Medical Dispatch) so that emergency medical care instructions can be given immediately to the person calling 9-1-1. Additionally the dispatcher can interrogate the caller so that the most appropriate response can be sent to the emergency medical incident in the safest possible manner.
3. Where particle, encourage Bystander EMS and citizen AED use.
4. In large building complexes and high rises, encourage the use of in-house Supplemental First Responders.
5. Develop a comprehensive contract for EMS services to ensure that a high level of patient care is consistently delivered and that the parameters of the contract are met.
6. Develop written mutual-aid agreements with surrounding communities.
9. Develop an EMS plan. Use the State EMS Plan and the Local EMS System Checklist as a guide.
10. Increase funding for EMS.