STATE OF CONNECTICUT

A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

June 6-8, 2000

National Highway Traffic
Safety Administration
Technical Assistance Team

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BACKGROUND

Injury is the leading cause of death for persons in the age group one through 44 as well as the most common cause of hospitalizations for persons under the age of 40. The financial costs of injuries are staggering: injuries cost billions of dollars in health care and social support resources. In 1990, for example, the lifetime costs of all injuries were estimated at $215 billion annually. These estimates do not include the emotional burden resulting from the loss of a child or loved one, or the toll of severe disability on the injured person and his or her family. Each year nearly 50,000 people lose their lives on our nation's roads, and approximately 70 percent of those fatalities occur on rural highways. The National Highway Traffic Safety Administration (NHTSA) is charged with reducing accidental injury on the nation's highways. NHTSA has determined that it can best use its limited resources if its efforts are focused on assisting States with the development of integrated emergency medical services (EMS) programs that include comprehensive systems of trauma care.

To accomplish this goal, in 1988 NHTSA developed a Technical Assistance Team (TAT) approach that permitted States to utilize highway safety funds to support the technical evaluation of existing and proposed emergency medical services programs. Following the implementation of the Assessment Program NHTSA developed a Reassessment Program to assist those States in measuring their progress since the original assessment. The Program remains a tool for states to use in evaluating their Statewide EMS programs. The Reassessment Program follows the same logistical process, and uses the same ten component areas with updated standards. The standards now reflect current EMS philosophy and allow for the evolution into a comprehensive and integrated health management system, as identified in the 1996 *EMS Agenda for the Future*. NHTSA serves as a facilitator by assembling a team of technical experts who demonstrate expertise in emergency medical services development and implementation. These experts demonstrate leadership and expertise through involvement in national organizations committed to the improvement of emergency medical services throughout the country. Selection of the Technical Assistance Team is also based on experience in special areas identified by the requesting State. Examples of specialized expertise include experience in the development of legislative proposals, data gathering systems, and trauma systems. Experience in similar geographic and demographic situations, such as rural areas, coupled with knowledge in providing emergency medical services in urban populations is essential.

The Connecticut Department of Public Health in concert with the Connecticut Division of Highway Safety requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the Connecticut Statewide EMS program. NHTSA developed a format whereby the DPH staff coordinated comprehensive briefings on the EMS system.

The Technical Assessment Team (TAT) assembled in Hartford, Connecticut, on June 6-8, 2000. For the first day and a half, more than fifty-six presenters from the

Connecticut EMS system, provided in-depth briefings on EMS and trauma care, and reviewed the progress since the 1991 Assessment. Topics for review and discussion included the following:

General Emergency Medical Services Overview of System Components

- Regulation and Policy
- Resource Management
- Human Resources and Training
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information, Education and Prevention
- Medical Direction
- Evaluation

The forum of presentation and discussion allowed the TAT the opportunity to ask questions regarding the status of the EMS system, clarify any issues identified in the briefing materials provided earlier, measure progress, identify barriers to change, and develop a clear understanding of how emergency medical services function throughout Connecticut. The team spent considerable time with each presenter so that they could review the status for each topic.

Following the briefings by presenters from the Connecticut Department of Public Health, public and private sector partners, and members of the medical community, the TAT sequestered to evaluate the current EMS system as presented and to develop a set of recommendations for system improvements.

When reviewing this report, please note that the TAT focused on major areas for system improvement. Unlike the state's initial assessment which contained many operational recommendations, several of which were identified as a priority, this report offers fewer, yet broader, recommendations that the team believes to be critical for continued system improvement.

The statements made in this report are based on the input received. Preestablished standards and the combined experience of the team members were applied to the information gathered. All team members agree with the recommendations as presented.

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ACKNOWLEDGMENTS

The Technical Assistance Team (TAT) would like to acknowledge the Connecticut Department of Public Health, the Office of Emergency Medical Services and the Connecticut Department of Transportation, Division of Highway Safety Office, for their support in conducting this assessment.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Connecticut. Each presenter was responsive to the questions posed by the TAT which aided the reviewers in their evaluation. Individual handouts and supporting material provided by many presenters during the briefing session were comprehensive and very helpful to the team.

Special recognition and thanks should be made regarding the extraordinary efforts taken by Cynthia Denne, Chief Bureau of Regulatory Services, and all the staff of DPH, and the briefing participants for their well prepared and forthright presentations. In addition, the Team applauds the extraordinary, well-organized, and comprehensive briefing material sent to the members in preparation for the reassessment.

Special thanks also Joxel Garcia, MD, MBA, Commissioner of Public Health, and Susan Maloney, Governor's Representative, Department of Transportation, Division of Highway Safety, for their support of this process.

INTRODUCTION

Connecticut is a unique state. It has a relative wealth of medical resources, small geographic size and friendly, but fiercely independent, people. The municipal, rather than county form of government, disparity of population distribution and proud independence makes the delivery of Emergency Medical Services a rather complex undertaking.

Since the first TAT visit in 1991 the Connecticut EMS program has undergone some traumatic times. The Office was downsized in the mid 1990's and the position of EMS Director was abolished. The regulatory functions of EMS were assigned to the Division of Regulatory Services within the Department of Public Health. The EMS community struggled with the complex issues facing them without clear leadership from the state.

In May of 1999, Dr. Joxel Garcia was appointed the Commissioner of the Department of Public Health. Dr. Garcia brought to the position a sense of urgency, a vision, and strong leadership. Under his direction, significant progress has been made in assessing the problems facing EMS. In February of 2000, Dr. Garcia announced his plan for the revitalization of the Office of EMS and the EMS system in Connecticut.

In just over a year since Dr. Garcia's appointment as Commissioner of Public Health, significant EMS legislation has been passed. The position of Director of the Office of Emergency Medical Services (OEMS) has been reestablished and filled, and the OEMS has been elevated in importance within the Department of Public Health and reports directly to the Office of the Commissioner. Funding for EMS is being increased and the number of FTEs in the OEMS has been increased from eight to thirteen. The EMS Advisory Board and EMS Medical Advisory Committee are active. The five regional EMS councils have clear roles and responsibilities and a consensus process has been established to ensure broad input into policy and regulation development.

Through Dr. Garcia's leadership, the stage has been set for significant improvements to take place in the Connecticut EMS System. While that stage has been set, the dedicated men and women involved in EMS throughout Connecticut will have to actively engage in the process to assure that the initiatives begun will be implemented.

CONNECTICUT EMERGENCY MEDICAL SERVICES (CEMS)

On June 6-8, 2000, the TAT revisited the ten essential components of an optimal EMS system that were used in the *1991 State of Connecticut: An Assessment of Emergency Medical Services*. These components provided an evaluation or quality assurance report based on 1991 standards. While examining each component, the current TAT identified key EMS issues, reviewed the State's progress since the original report, assessed its status, and used the 1997 Reassessment Standards as a basis for recommendations for EMS system improvement.

A. REGULATION AND POLICY

Standard

To provide a quality, effective system of emergency medical care, each EMS system must have in place comprehensive enabling legislation with provision for a lead EMS agency. This agency has the authority to plan and implement an effective EMS system, and to promulgate appropriate rules and regulations for each recognized component of the EMS system (authority for statewide coordination; standardized treatment, transport, communication and evaluation, including licensure of out-of-hospital services and establishment of medical control; designation of specialty care centers; PIER programs). There is a consistent, established funding source to adequately support the activities of the lead agency and other essential resources which are necessary to carry out the legislative mandate. The lead agency operates under a single, clear management structure for planning and policy setting, but strives to achieve consensus among EMS constituency groups in formulating public policy, procedures and protocols. The role of any local/regional EMS agencies or councils who are charged with implementing EMS policies is clearly established, as well as their relationship to the lead agency. Supportive management elements for planning and developing effective statewide EMS systems include the presence of a formal state EMS Medical Director, a Medical Advisory Committee for review of EMS medical care issues and state EMS Advisory Committee (or Board). The EMS Advisory Committee has a clear mission, specified authority and representative membership from all disciplines involved in the implementation of EMS systems.

Progress on Meeting 1991 Recommendations

- The Connecticut Office of EMS has been unable to streamline the regulatory process once community input is received. While the Office of EMS can complete its requirements in a timely fashion, all regulations must go through other state agencies and the legislature prior to being promulgated and enacted. The Office is unable to control the time frame other agencies follow.

- Trauma System regulations were enacted in October of 1995. Regulations governing Do Not Resuscitate (DNR) Orders were enacted in 1996. The TAT

was advised that the Division of Health Systems Regulations, in conjunction with input from the various EMS system participants, is in the process of developing revisions to the EMS regulations and is in the process of addressing additional areas of regulation, e.g., communications, air medical, etc.

- A consistent, statewide set of policies, procedures and protocols for each set of regulations has not been developed.

- A statewide EMS Advisory Board has been reestablished.

- A State EMS Medical Advisory Committee has been established.

- The OEMS has been elevated to a stature that reports directly to the Office of the Commissioner.

- The position of EMS Director has been reinstated.

- The roles and responsibilities of the Regional Councils have been clearly defined and a performance contract for the councils has been initiated.

Status

On February 3, 2000, Dr. Joxel Garcia, Commissioner of Public Health, unveiled his plan for the revitalization of the Office of Emergency Medical Services (OEMS). Commissioner Garcia should be commended for his vision and leadership in reestablishing and filling the position of OEMS Director. Commissioner Garcia has elevated the OEMS to a stature that reports directly to the Office of the Commissioner and OEMS staff positions have been increased from eight to thirteen. The elevation of OEMS within the Department of Public Health more accurately reflects the scope of influence EMS has on the health status of the residents of Connecticut.

The Department of Public Health is the lead EMS agency in Connecticut. The functions of EMS are divided between the Office of EMS and the Division of Health Systems Regulations. Since 1997, the Division of Health Systems Regulation has been responsible for regulatory oversight of EMS. The Office of EMS is responsible for program development activities such as public education and information, planning, regional council oversight, administering the EMS equipment and local system development grant program, providing staff support to the advisory board and system development activities.

The structure that Connecticut's Department of Public Health, has in place to function as the lead EMS agency is rather unique when compared to other state systems. However, with the personal commitment and leadership provided by Dr. Garcia, it appears that it will be a successful model for Connecticut.

There has been a flurry of new legislation addressing EMS issues as a result of Dr. Garcia's efforts. Most of the requirements contained in the legislation are just now being implemented. While the legislation appears favorable, it is too early to tell if its impact will be as positive as expected.

The State EMS Advisory Board and Medical Advisory Committee are active and functioning and the five Regional Councils have clearly defined roles and responsibilities. There is an EMSC committee that is a standing committee of the State EMS Advisory Board. The Commissioner has established a consensus process for the development of EMS regulations and policy that ensures broad input.

Information provided to the TAT indicated that the EMS budget was projected to increase 35% by 2001. The DPH is responsible for ambulance rate setting and Certificate of Need (CON). Additionally, the state recently passed legislation that requires each of the 169 municipalities to develop a local EMS plan.

There is an internal EMS Committee, composed of the Bureau of Regulatory Services, Bureau of Community Health, Office of Policy, Planning & Evaluation and chaired by the Executive Assistant of the Office of the Commissioner, that will provide resources and advice to the EMS Director. It was reported that the committee will be advisory only and the EMS Director will report to the Office of the Commissioner.

Recommendations

The DPH should:

- **Assure stable, ongoing funding for OEMS to carry out its mission and implement its programs;**

- Complete the implementation of the regulatory work currently in progress;

- Review, revise and implement the State EMS Plan;

- **Ensure that the OEMS Director reports directly to the Office of the Commissioner;**

- **Eliminate the rate setting and CON requirements for EMS in law and regulation;**

- Ensure that appropriate standards of quality are in place prior to issuing organization licenses or PSAs.

B. RESOURCE MANAGEMENT

Standard

Central coordination and current knowledge (identification and categorization) of system resources is essential to maintain a coordinated response and appropriate resource utilization within an effective EMS system. A comprehensive State EMS plan exists which is based on a statewide resource assessment and updated as necessary to guide EMS system activities. A central statewide data collection (or management information) system is in place that can properly monitor the utilization of EMS resources; data is available for timely determination of the exact quantity, quality, distribution and utilization of resources. The lead agency is adequately staffed to carry out central coordination activities and technical assistance. There is a program to support recruitment and retention of EMS personnel, including volunteers.

Progress on Meeting 1991 Recommendations

- A comprehensive statewide EMS plan was developed in 1997 and updated in 1999.

- Legislation regarding data reporting requirements has recently been passed, but development of a statewide data collection and evaluation system has yet to be accomplished.

Status

Connecticut has a statewide EMS plan that addresses both adult and pediatric emergency care. The plan was updated as recently as 1999. In light of new legislation and other structural changes within the Department of Public Health, the plan should be reviewed for any necessary updates. In addition to the statewide plan, the Department receives an annual work plan as a contractual deliverable from each of the state's five regions. These groups provide the functional link between state and local levels for technical assistance and program development. A new legislative requirement calls for the development of local EMS plans. This is a unique and interesting approach for involving local officials in assuring the quality of their EMS delivery.

In 1997, the Department of Public Health downsized the Office of EMS, eliminated the Director's position, and assigned EMS regulatory activities to the Division of Health Systems Regulations within the Bureau of Regulatory Services. Commissioner Garcia has recently re-established the position of OEMS Director, and elevated the status of the OEMS within the Department. Structurally, the Department remains with regulatory functions separate from planning, development and other technical assistance programs. This structure appears logical and is a step toward integrating EMS throughout the framework of the state's overall public health efforts. The planned areas of program emphasis for the newly reorganized Office of EMS are:

Services to EMS providers;
Community services (e.g., EMSC and Injury Prevention);

Planning and Consultation;
EMS system evaluation.

The Department historically has set rates for ambulance services and operated the State's EMS Certificate of Need program. Information was provided to suggest that these programs are cumbersome and have not been particularly effective.

While basic demographic data about system resources is collected and known, several presenters spoke about the need for additional data and the utilization of that information for planning and decision making. Despite this lack of a comprehensive EMS information system, CT has made good progress in several areas of EMS system development. A statewide trauma system is partially complete. Air medical coverage is available on a statewide basis. The Department has authority to identify and designate primary service areas (PSAs) for all types of EMS providers and there is currently coverage of all communities with at least basic level ambulance service.

Connecticut faces challenges in the development of a consistent and comprehensive EMS system due in part to a tradition of strong local government that exists throughout New England. The lack of viable county level government has made regionalization of service delivery and other programs difficult. While the model of 169 individual communities planning their EMS delivery is a strong example of local involvement, it clearly does not support the concept of resource sharing and economies of scale. Many ambulance services are small, predominantly volunteer corps. It was reported that service management is an issue of concern in some areas.

Recommendations

The DPH should:

- **Review, revise and implement the statewide EMS plan in light of recent legislative changes and a new Office of EMS structure within the Department of Public Health;**

- Continue integration of EMS within the public health system. Assure preservation of the traditional role of EMS for emergency response, and acknowledge its evolving role in community health improvement;

- **Complete planned initiatives to develop a comprehensive statewide EMS data system capable of supporting planning, management and evaluation;**

- **Eliminate the Certificate of Need and rate setting processes for EMS. As part of this change, develop quality standards for the licensing of services;**

- Promote regionalization at all levels of the EMS system to reduce duplication and increase operating efficiencies;

- Partner at the Department level with the Governor's Highway Safety Office, the CT Hospital Association and other agencies to facilitate progress in areas of mutual interest or concern.

C. HUMAN RESOURCES AND TRAINING

Standard

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the State. The State EMS lead agency has a mechanism to assess current manpower needs and establish a comprehensive plan for stable and consistent EMS training programs with effective local and regional support. At a minimum, all transporting out-of-hospital emergency medical care personnel are trained to the EMT-Basic level, and out-of-hospital training programs utilize a standardized curriculum for each level of EMS personnel (including EMS dispatchers). EMS training programs and instructors are routinely monitored, instructors meet certain requirements, the curriculum is standardized throughout the State, and valid and reliable testing procedures are utilized. In addition, the State lead agency has standardized, consistent policies and procedures for certification (and re-certification) of personnel, including standards for basic and advanced level providers, as well as instructor certification. The lead agency ensures that EMS personnel have access to specialty courses such as ACLS, PALS, BTLS, PHTLS, ATLS, etc., and a system of critical incident stress management has been implemented.

Progress on Meeting 1991 Recommendations

- Educational programs, with the exception of EMT-I, utilize National Standard Curricula. All but two paramedic programs are housed in post-secondary educational institutions;

- Two certified EMS providers (EMT and MRT) are now required as the minimum crew for a certified or licensed ambulances. The state has not yet committed to a minimum crew level of two EMTs, due to the implications in rural, mostly volunteer, areas of the state;

- Certification and recertification procedures have been streamlined;

- The MRT program has been continually expanded throughout the state and is used by law enforcement and fire department personnel;

- The availability of specialty education programs (PHTLS, ACLS, PALS) appears to be sufficient and there is an ongoing emphasis to develop EMD training programs throughout the state with the involvement of physician medical directors in both educational and program oversight roles.

Status

The Connecticut EMS System is undergoing massive changes regarding Human Resources and Training issues. The Connecticut Department of Public Health has

reorganized the Office of EMS and added emphasis to the certification and licensure of EMS personnel. There were no concerns expressed about the reorganization and testimony to the TAT indicated this regulatory function of the Department of Public Health had adequately incorporated EMS professionals. There was evidence that the course application process had been streamlined, a course availability section of the Department's website is improving access to courses, investigation backlogs have been cleared up and sufficient personnel are available in this division to continue certification, licensure and related activities.

Training programs are being conducted through the community college system, hospitals, public safety training academies, local EMS agencies, and by individual instructors. There was some indication that these programs, while being approved and monitored, are not being delivered in a consistent manner. Quality assurance activities for educational programs appear inconsistent. Regional Coordinators survey students for course satisfaction and follow-up with students and instructors when appropriate. Biennial on-site reviews are conducted. EMT-Basic courses vary with the addition of modules for AED, PASG, Epi Pen administration and alternative airway devices. These variable requirements were noted as a deterrent to volunteerism.

There is an effort to develop a course sponsorship accreditation process which could address some of these inconsistencies. This effort is meeting some resistance. In line with the *EMS Educational Agenda for the Future*, the Department utilizes a national testing agency to verify competency before licensure or certification, although not for every certification level. Physician Medical Direction is required for all training program levels except MRT. However, MRT utilizing the AED module does require medical direction.

Lastly, there is interest in identifying barriers to EMT training for potential volunteers and developing methods to provide incentives, recruitment and retention programs and other methods to maintain the EMS workforce.

Recommendations

The DPH should:

- **Standardize training for all levels of providers based on National Standard Curricula;**

- **Implement educational program accreditation to improve the quality of course offerings;**

- Implement national level testing for <u>all</u> levels of certification and licensure;

- Identify actual personnel and training needs. Establish plans to ensure an adequate EMS workforce;

- **Ensure physician medical direction at <u>all</u> levels of education and training;**
- Strengthen the methods of verifying and monitoring the quality of instruction;
- **Implement the Emergency Medical Dispatch program initiative statewide.**

D. TRANSPORTATION

Standard

Safe, reliable ambulance transportation is a critical component of an effective EMS system. The transportation component of the State EMS plan includes provisions for uniform coverage, including a protocol for air medical dispatch and a mutual aid plan. This plan is based on a current, formal needs assessment of transportation resources, including the placement and deployment of all out-of-hospital emergency medical care transport services. There is an identified ambulance placement or response unit strategy, based on patient need and optimal response times. The lead agency has a mechanism for routine evaluation of transport services and the need for modifications, upgrades or improvements based on changes in the environment (i.e., population density). Statewide, uniform standards exist for inspection and licensure of all modes of transport (ground, air, water) as well as minimum care levels for all transport services (minimum staffing and credentialing). All out-of-hospital emergency medical care transport services are subject to routine, standardized inspections, as well as unannounced "spot checks" to maintain a constant state of readiness throughout the State. There is a program for the training and certification of emergency vehicle operators.

Progress on Meeting 1991 Recommendations

- The Division of Regulatory Services informed the TAT that they had sufficient vehicle inspection personnel to ensure that the minimum requirements for inspections and unannounced site visits were met.

- A patient transportation and destination plan based on patient needs and referral patterns has not been developed.

- The expansion of ALS services continues.

- A committee reviewed the recommendation to allow municipalities and volunteers to charge for non-emergency transport. The committee believed it would be premature to allow for this type of charge since there was no data on the number of non-emergency transports.

Status

Air medical service is provided statewide and air medical regulations are currently being developed. Ground ambulances are available statewide but there is no specific "Transportation" component of the State EMS plan.
The state conducts announced and unannounced ambulance inspections. All ambulances carry appropriate pediatric equipment. Ambulances generally transport to the closest facility except for trauma. There are 192 ambulance companies serving 169 municipalities.

Critical Care Transport is not regulated by the state. Most critical care transports are provided by commercial ambulance services.

All transported patients can only be delivered to a hospital. There is no provision for a "no response" decision. Priority dispatch is consistently available throughout the state. In addition, there is no provision of a field decision of "no transport required." Not all volunteer agencies charge for service.

Recommendations

The DPH should:

- Proceed with implementation of the statewide EMD program;
- **Encourage all ambulance services to bill for services;**
- Promote regionalization of transport services to reduce duplication and increase operating efficiency;
- **Develop and implement Critical Care Transport Standards;**
- **Investigate alternatives to the requirement to transport all patients to a hospital.**

E. FACILITIES

Standard

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. The lead agency has a system for categorizing the functional capabilities of all individual health care facilities that receive patients from the out-of-hospital emergency medical care setting. This determination should be free of political considerations, is updated on an annual basis and encompasses both stabilization and definitive care. There is a process for verification of the categorizations (i.e., on-site review). This information is disseminated to EMS providers so that the capabilities of the facilities are known in advance and appropriate primary and secondary transport decisions can be made. The lead agency also develops and implements out-of-hospital emergency medical care triage and destination policies, as well as protocols for specialty care patients (such as severe trauma, burns, spinal cord injuries and pediatric emergencies) based on the functional assessment of facilities. Criteria are identified to guide interfacility transport of specialty care patients to the appropriate facilities. Diversion policies are developed and utilized to match system resources with patient needs; standards are clearly identified for placing a facility on bypass or diverting an ambulance to another facility. The lead agency has a method for monitoring if patients are directed to appropriate facilities.

Progress on Meeting 1991 Recommendations:

- Two pediatric centers, one burn center and a hyperbaric oxygen center have been recognized as specialty centers;

- A process for designation and de-designation of trauma centers has been developed and implemented;

- Triage criteria to trauma centers have been developed and incorporated into regulatory language;

- Interhospital transfer criteria for the trauma patient are generally referred to in regulation.

Status

There are 31 general acute care hospitals in the State. In addition, there are five satellite emergency care facilities which have no inpatient care capabilities but are formally affiliated with an acute care hospital. No information on the number and location of facilities providing rehabilitation services was provided.

With the exception of pediatric centers (2), burn resources(1) and hyperbaric oxygen resources, there has been no significant evaluation of acute care hospitals or their satellite facilities with regard to their capability to provide the appropriate level of care to the appropriate patient. Further, there appears to be no plan to do so with the intent to subsequently disseminate the information to prehospital personnel for their use in making appropriate triage and destination decisions. This was recommended in the 1991 report, but not felt to be a priority by any presenter.

In the area of trauma, a process of designation and de-designation of trauma centers has been developed. Fourteen Connecticut hospitals and one Massachusetts hospital have been designated as trauma centers ranging from Level I-III using the ACS verification process. This appears to be an open designation policy with no consideration of resource distribution, volume considerations or need. The de-designation process has been successfully employed on one occasion. It is not clear how the Division of Health Systems Regulatory Services will play a role in these processes under the new organizational structure of the DPH. A system of monitoring compliance with the verification criteria on a continuing basis between ACS verification visits does not seem to be in place although it is mentioned in statute.

Triage or destination criteria exist only for trauma patients, and only in regulatory language. There was no evidence presented documenting that they are uniformly operational in practice. Likewise, the intent to monitor noncompliance with destination criteria (as well as interhospital transfer) for trauma patients is only evident in regulatory language but not in current practice.

With regard to pediatric patients, recommendations based on the Emergency Department Approved for Pediatric (EDAP) guidelines are being promulgated but have not been implemented. There are no clearly identifiable written destination criteria for acutely ill children. It appears that most facility initiatives and accomplishments related to the pediatric population are limited to the specific area of trauma.

Diversion criteria and practices appear to be variable by region. Notification and dissemination of hospital diversion status to prehospital providers via CMED is exemplary as is monitoring and tracking of such situations.

Recommendations

The DPH should:

- **Clearly define capabilities and commitment of all acute care facilities, including satellites, for all types of patients initially presenting to prehospital providers so that appropriate destination points can be determined;**

- Clearly define the capabilities and commitment of all facilities offering rehab services so that optimal post-acute care can be ensured;

- **Develop triage and destination policies for all types of patients (both from the scene and interhospital) particularly those with critical care needs and/or needing other special resources. These policies should be implemented in a timely fashion along with a system for monitoring and improving performance and outcome;**

- Implement a statewide EDAP recognition process;

- **Establish consistent statewide hospital diversion policies;**

F. COMMUNICATIONS

Standard

A reliable communications system is an essential component of an overall EMS system. The lead agency is responsible for central coordination of EMS communications (or works closely with another single agency that performs this function) and the state EMS plan contains a component for comprehensive EMS communications. The public can access the EMS system with a single, universal emergency phone number, such as 9-1-1 (or preferably Enhanced 9-1-1), and the communications system provides for prioritized dispatch. There is a common, statewide radio system that allows for direct communication among all providers (dispatch to ambulance communication, ambulance to ambulance, ambulance to hospital, and hospital to hospital communications) to ensure that receiving facilities are ready and able to accept patients. Minimum standards for dispatch centers are established, including protocols to ensure uniform dispatch and standards for dispatcher training and certification. There is an established mechanism for monitoring the quality of the communication system, including the age and reliability of equipment.

Progress on Meeting 1991 Recommendations:

- No specific communications plan has been developed, but there is a communications section in the statewide EMS plan and a communications system concept paper.

- Coordination of the CMEDs has not been formally implemented. On an informal basis, the CMEDs appear to cooperate and share some operational procedures.

- The review of alternatives for upgrading or replacing the radio system appears to be ongoing and is described in the communications system concept paper.

Status

Connecticut is well served by a state of the art Enhanced 9-1-1 system for emergency services access. This is a second generation system recently implemented to replace the state's original E-9-1-1 system which was among the earliest in the nation.

Emergency communications are managed by 108 different Public Safety Answering Points (PSAPs) that either dispatch local public safety agencies or pass calls to secondary dispatch centers. Thirteen CMEDs coordinate EMS communications from pre-hospital agencies to the hospitals. In the near future, the CMEDs will receive a per capita subsidy for the services they provide.

The state has a standardized telecommunicator course leading to certification. Formal Emergency Medical Dispatch (EMD) programs have not been fully implemented

although recent legislation requires EMD to be phased in over the next few years. As part of this phase-in, medical direction for EMD programs will also be implemented.

New legislation requires the PSAPs to submit several basic data elements to the Office of EMS. Similar to other EMS operations in CT, the PSAPs are highly decentralized and do not enjoy the operating efficiencies generally associated with large volume centers. A state program exists to encourage PSAP consolidation which provides grant funding as an incentive. Despite this inducement, little interest in consolidation has been generated.

The most significant threat to the integrity of EMS communications is an aging UHF radio system. This system has good statewide coverage and has accommodated the basic needs for voice communications for many years. Much of the current infrastructure is 20 or more years old and it is becoming increasingly difficult to find replacement parts. The system is frequently congested, sometimes by users in adjacent states. A complete upgrade or replacement of the system is estimated to cost in the tens of millions of dollars.

Recommendations

The DPH should:

- **Develop a state communications plan including the identification of funding resources to update or replace the existing UHF radio system;**

- Promote the consolidation of PSAPs as part of a broad effort to decrease costs while improving the efficiency and quality of services through regionalization;

- Promote and facilitate the implementation of EMD with medical direction as required in legislation.

G. PUBLIC INFORMATION, EDUCATION AND PREVENTION

Standard

To effectively serve the public, each State must develop and implement an EMS public information and education (PI&E) program. The PI&E component of the State EMS plan ensures that consistent, structured PI&E programs are in place that enhance the public's knowledge of the EMS system, support appropriate EMS system access, demonstrate essential self-help and appropriate bystander care actions, and encourage injury prevention. The PI&E plan is based on a needs assessment of the population to be served and an identification of actual or potential problem areas (i.e., demographics and health status variable, public perceptions and knowledge of EMS, type and scope of existing PI&E programs). There is an established mechanism for the provision of appropriate and timely release of information on EMS-related events, issues and public relations (damage control). The lead agency dedicates staffing and funding for these programs, which are directed at both the general public and EMS providers. The lead agency enlists the cooperation of other public service agencies in the development and distribution of these programs, and serves as an advocate for legislation that potentially results in injury/illness prevention.

Progress on Meeting 1991 Recommendations

- Some examples were given of coalition building to address EMS issues with participation from a broad array of stakeholders. These agencies, organizations and individuals have been seeking additional funding from NHTSA, CDC, private foundations and others to further this interest.

- The newly revised State EMS Plan identifies a number of goals and objectives related to PI&E, demonstrating the Department's commitment to improve the efforts in this area.

Status

The current status of activity in the Public Information and Education component has been reported in written and oral presentations. There is significant activity reported with an emphasis on Safe Kids, EMS Week, PIER Training, EMS displays, and various publications and efforts to "get the word out" about the EMS System. There is evidence of a significant commitment throughout the Department to support these activities. Most apparently, sponsorship by the state's EMSC program, the Department's Communications Director, the Division of Health Education and Intervention, and numerous other stakeholders were mentioned. The State EMS Plan provides for a number of PI & E goals and objectives which continue to demonstrate the aforementioned commitment. The DPH Injury Prevention Program is obviously a strong partner in contributing to the EMS PI & E program. Actual budgetary needs related to the program were unclear.

Recommendations

The DPH should:

- **Strengthen the partnerships that promote PI& E activities through formal coalition building with other agencies with mutual interests in injury prevention and wellness;**

- **Develop a PI & E plan to include activities, responsible parties, budget lines and funding sources with an evaluation of outcomes;**

- Develop local EMS System capacity for PI & E activities through the continued use of the NHTSA PIER training program;

- Support "Safe Communities" programs in conjunction with the Office of Highway Safety and other key stakeholders;

- **As EMS Data becomes available, use it to establish injury prevention, wellness and PI & E intervention program initiatives.**

H. MEDICAL DIRECTION

Standard

EMS is a medical care system that involves medical practice as delegated by physicians to non-physician providers who manage patient care outside the traditional confines of office or hospital. As befits this delegation of authority, the system ensures that physicians are involved in all aspects of the patient care system. The role of the State EMS Medical Director is clearly defined, with legislative authority and responsibility for EMS system standards, protocols and evaluation of patient care. A comprehensive system of medical direction for all out-of-hospital emergency medical care providers (including BLS) is utilized to evaluate the provision of medical care as it relates to patient outcome, appropriateness of training programs and medical direction. There are standards for the training and monitoring of direct medical control physicians, and statewide, standardized treatment protocols. There is a mechanism for concurrent and retrospective review of out-of-hospital emergency medical care, including indicators for optimal system performance. Physicians are consistently involved and provide leadership at all levels of quality improvement programs (local, regional, state).

Progress on Meeting 1991 Recommendations

- Responsibilities of the State EMS Medical Director are outlined in the State Medical Director's contract with the DPH. Based on testimony, it appears that the State EMS Medical Director has been given authority commensurate with those responsibilities.

- Medical Advisory Committees have been established in the state, both at the regional and state levels, and are both functioning actively.

- System medical directors and on-line medical directors are physicians staffing the emergency departments of the sponsoring hospitals.

- A radio communications course has been offered in the past for on-line medical directors.

- Emergency Medical Dispatch programs are inconsistently available throughout the state. PA 00-151 mandates the statewide development of those programs. Testimony before the TAT indicated that medical oversight activities for those EMD programs will occur as they are developed. There is no specific reference in the legislation for that medical oversight.

- Medical direction of Quality Improvement (QI) activities for all levels of prehospital providers, including effected MRT and EMT-Basic, occurs through the quality improvement activities conducted by the sponsoring hospitals.

- Levels of performance, standardized training programs and certification levels for EMTs performing invasive procedures have been defined.

- Education and practice standards are reviewed regularly and updated annually by the Regional and State EMS Advisory Committees with active input from emergency physicians and others involved in the provision of clinical prehospital care.

Status

Physicians are involved in all aspects of the EMS patient care system in Connecticut. The State Medical Director is surgery-trained but evolved his practice into emergency medicine and EMS activities. He has been the state medical director for several years. The roles and responsibilities of this 0.4 FTE position are outlined contractually, but are not included in legislation. There is no formal delineation of the State Medical Director's authority.

All prehospital agencies utilizing any advanced or invasive care are required to have medical direction through a sponsoring hospital. Although this requirement covers most prehospital agencies in the state, there are some MRT organizations which do not have a requirement for medical direction. Each sponsoring hospital has identified an EMS Medical Director for the agencies that it supports. That medical director is typically the Medical Director for the Emergency Department, although, in some instances, EMS Medical Director duties have been delegated to other physicians. The specific roles, responsibilities, and authority of the medical director are not currently defined as they relate to medical oversight of agencies and to EMD programs. Although there is limited immunity offered in legislation for EMS personnel, this limited immunity does not extend to those providing medical direction. Reimbursement for medical directors is generally provided by their sponsoring hospital in the form of administrative compensation or a decrease in clinical ED responsibilities. Some commercial ambulance companies do provide monetary compensation either to the medical director or the sponsoring hospital.

Sponsoring hospitals are making a valuable contribution to medical direction in the state. Each sponsoring hospital has identified an EMS Coordinator (MIC Coordinator) to support and amplify the capabilities of the medical director. On-line and off-line medical directors have been educated for that role via emergency medicine residency training, base station training programs and on-the-job education. A base station training program has been sporadically offered and attended. Monitoring of medical direction physicians apparently is conducted by the sponsoring hospital. The CMED system enables the provision of on-line medical direction.

Statewide BLS, ALS and pediatric patient care guidelines have been developed and are regularly reviewed by the regional and state Advisory Committees. Local variations to those guidelines do occur. A guideline based on the Department of Children and

Families process for reporting suspected abuse and neglect was developed by the EMSC program and distributed to local EMS agencies.

Each sponsoring hospital performs quality improvement activities for its agencies based on programs and criteria which each establishes independently. There are no statewide guidelines for those quality improvement programs and no regular or consistent reporting to the state. The lack of data within the EMS system impedes extensive QI activities. It is unclear the extent to which medical directors are involved in the QI process.

Recommendations

The DPH should:

- **Require that medical direction be provided for all levels of prehospital personnel and agencies regardless of whether they are providing basic or advanced level care. This applies to both educational and clinical care activities;**

- **Establish a legislated mechanism for limited liability protection for those individuals providing medical direction consistent with the limited liability protection available for EMS personnel;**

- **Enhance the regulations regarding the roles, responsibilities and authority for the medical director, including activities such as credentialing, quality improvement, withholding medical oversight, and due process;**

- Develop a consistent, formalized training process for physicians and non- physicians involved in medical oversight. This training may include training programs and reference handbooks;

- **Establish statewide protocols for all levels of prehospital providers;**

- Consistent with position statements of the American College of Emergency Physicians (ACEP) and the National Association of EMS Physicians (NAEMSP), as new state, regional and local EMS medical directors are identified, it is desirable that they board certified emergency physicians with special interest in EMS.

I. TRAUMA SYSTEMS

Standard

To provide a quality, effective system of trauma care, each State must have in place a fully functional EMS system; trauma care components must be clearly integrated with the overall EMS system. Enabling legislation should be in place for the development and implementation of the trauma care component of the EMS system. This should include trauma center designation (using ACS-COT, ACEP, APSA-COT and/or other national standards as guidelines), triage and transfer guidelines for trauma patients, data collection and trauma registry definitions and mechanisms, mandatory autopsies and quality improvement for trauma patients. Information and trends from the trauma registry should be reflected in PIER and injury prevention programs. Rehabilitation is an essential component of any statewide trauma system and hence these services should also be considered as part of the designation process. The statewide trauma system (or trauma system plan) reflects the essential elements of the Model Trauma Care System Plan.

Progress on Meeting 1991 Recommendations

- Recent enabling legislation for a Trauma System was enacted.

- There has been noteworthy progress in implementation of a Trauma System particularly with regard to trauma center designation.

- The Department has added the effective equivalent of at least one FTE for data management, registry development, and trauma system development.

Status

Trauma care in the state takes place within a functional EMS system. Trauma care components are becoming more clearly and integrally related to the overall EMS system through a growing combination of regulation, consensus and cooperation at the local, regional and state levels.

Reportedly, there is a distinct trauma system plan which reflects the essential elements of the Model Trauma Care System Plan. However, this document was not provided for review. From an organizational standpoint, there has been a significant addition of resources and FTEs to the DPH/OEMS. There is now demonstrated interest and expertise as well as an organizational philosophy which embraces the broad continuum of trauma care from the prevention through return to society within the context of a larger EMS and overall health care system.

There appears to be a strong and active state trauma committee. The reported accomplishments of this committee and its subcommittees include a survey of statewide trauma care and a catalogue of the available prevention programs throughout the state. Neither of these documents were provided for review. The state and regional EMS

Advisory Committees appear to be appropriately involved in addressing trauma systems issues as part of the EMS system.

Prevention activities throughout the state appear to be myriad. However, there appears to be no direct, coordinated, data driven program or plan for trauma related PI & E and injury prevention statewide or locally. Within the DPH and OEMS, there are multiple individuals and divisions involved with these activities but no clearly identifiable person responsible for directing, coordinating and cataloguing these efforts. Further, there is no apparent plan for evaluation of prevention projects. The reporting relationship within the DPH for those individuals involved in prevention and education programs is unclear.

There are prehospital and interhospital triage and transfer criteria for trauma patients which are noted in system legislation. These have not been uniformly utilized, monitored or evaluated as of yet. There are regulations or standards for critical care interhospital transport. Criteria for requesting air medical transport from trauma scenes are extremely variable. Distribution of air medical transport services appear to be appropriate.

Legislative authority has been granted to DPH as the trauma center designating agency. Designation at Levels I - III is granted based on verification of capability by the American College of Surgeons. This appears to be an open designation process. A de-designation process does exist and apparently functions well as it has been successfully employed on one occasion. Currently, fourteen Connecticut hospitals and one Massachusetts hospital have been designated. There appears to be commitment even on the part of hospitals not seeking trauma center designation, as witnessed by their willingness to collect and submit data on injured patients to a cental repository. The Connecticut Hospital Association supports trauma system development. It has committed a significant amount of resources to data acquisition and analysis in an attempt to provide information on trauma care.

While the role of acute care hospitals within the system is clear, the role of satellite facilities and institutions providing rehabilitation services is not. The services, capabilities, commitment and data captured at these facilities with regard to the trauma patient are not evident. The discipline of rehabilitation medicine is reportedly represented in the Advisory Board and Regional Council structure.

Availability of trauma specific education for providers across all disciplines appears adequate, with the Connecticut Trauma Conference being one example. There was mention of PHTLS, ATLS, PALS and TNCC.
The trauma registry is not currently a useful tool for system monitoring and improvement. There are multiple registry software products being used at the trauma centers throughout the state. Technical support for these data systems from the vendors, as well as the institutions, is variable. The process of training registrars is not clear. Data elements have been selected for acquisition and are noted in the trauma system legislation. A trauma data dictionary has been created. There is a clear definition of the trauma patient. The elements captured by non trauma centers was not elucidated. An independent review of the trauma registry has been conducted by a consultant. Findings and recommendations are being evaluated.

There are plans for release of an RFP for development and implementation of a statewide trauma data system. How this will relate to the EMS information system and an injury registry has not been determined. Several divisions of the DPH, as well as other state agencies, are currently, or soon to be involved, in the process of trauma information system management. The housing and responsibility for managing the trauma registry is not clear. There is information from a reported preventable death study which may serve as a needs assessment in trauma care.

Recommendations

The DPH should:

- **Expeditiously resolve trauma registry issues related to:**
  - **ownership,**
  - **content (elements/software),**
  - **dedicated funding,**
  - **maintenance,**
  - **users,**
  - **local/regional flexibility for collection and analysis,**
  - **integration with other data systems,**
  - **QI of the registry (completeness/accuracy),**
  - **training of trauma registrars,**
  - **dissemination of information;**

- Define the role of satellite facilities and institutions offering rehab services;

- **Assure legislative protection for the confidentiality and non-discoverability of all data and the QI process;**

- **Identify and secure dedicated funding to support trauma systems improvement;**

- Support replication of the preventable death study after further implementation of the trauma system;

- **Request an ACS Trauma System Evaluation after implementation of the recommendations.**

J. EVALUATION

Standard

A comprehensive evaluation program is needed to effectively plan, implement and monitor a statewide EMS system. The EMS system is responsible for evaluating the effectiveness of services provided victims of medical or trauma related emergencies, therefore the EMS agency should be able to state definitively what impact has been made on the patients served by the system. A uniform, statewide out-of-hospital data collection system exists that captures the minimum data necessary to measure compliance with standards (i.e., a mandatory, uniform EMS run report form or a minimum set of data that is provided to the state); data are consistently and routinely provided to the lead agency by all EMS providers and the lead agency performs routine analysis of this data. Preestablished standards, criteria and outcome parameters are used to evaluate resource utilization, scope of services, effectiveness of policies and procedures, and patient outcome. A comprehensive, medically directed, statewide quality improvement program is established to assess and evaluate patient care, including a review of process (how EMS system components are functioning) and outcome. The quality improvement program should include an assessment of how the system is currently functioning according to the performance standards, identification of system improvements that are needed to exceed the standards and a mechanism to measure the impact of the improvements once implemented. Patient outcome data is collected and integrated with health system, emergency department and trauma system data; optimally there is linkage to data bases outside of EMS (such as crash reports, FARS, trauma registry, medical examiner reports and discharge data) to fully evaluate quality of care. The evaluation process is educational and quality improvement/system evaluation findings are disseminated to out-of-hospital emergency medical care providers. The lead agency ensures that all quality improvement activities have legislative confidentiality protection and are non-discoverable.

Progress on Meeting 1991 Recommendations

- The OEMS has developed a statewide EMS plan that reflects the standards of care to be provided. This plan includes protocols, policies and procedures.

- The state is in the process of developing a standard record keeping system that contains the minimum data set necessary for measurement of compliance with patient care clinical standards.

- A previous recommendation existed to mandate the use of a state standard prehospital patient record. The current TAT feels that a common prehospital data set as opposed to a standard patient record, is a more appropriate recommendation.

- Legislation (PA 00-151) has recently been passed which required the Department to develop an EMS data collection system by October 2001 that will follow a patient

from initial entry into the EMS system through arrival at the emergency department.

- Some patient outcome data is being collected in the state, primarily via the CODES project, although that data does not include prehospital information.

- Trauma data has historically been collected and housed at the Connecticut Hospital Association. That database is currently not active. The CHA also houses 20 years of in-patient hospital information.

- Because of the limitation of useful data, evaluation has not occurred to allow changes in policy, procedures and protocols based on that information.

Status

Many individuals providing testimony to the TAT indicated that data collection and evaluation is the most significant issue that must be addressed by the EMS system. It is generally acknowledged that there is a lack of effective data collection which prohibits any meaningful system or organization evaluation in an effort to support the impact of the EMS system on patient care. There is some data collected by individual agencies, sponsor hospitals, trauma centers, and regional councils but this information cannot be integrated. Individual trauma center registry information and E-codes are available from hospitals. The Connecticut Hospital Association is to be commended for the support that it has given for the state trauma registry and for the collection of 20 years of hospital in-patient data.

Public Act 00-151 has recently been passed and requires the Department to develop an EMS data collection system by October 2001 that will follow a patient from initial entry into the EMS system through arrival at the emergency department. The Department is approaching data collection by a phase-in process. Information will be required of PSAPs and ambulance agencies by October 2001. First response agencies are required to comply with this legislation by October 2006. The reporting that is required in this legislation is relatively rudimentary.

In reviewing the information associated with the evaluation process, it appears that the participants still need to complete the preliminary evaluation process step of determining specifically what outcome information is desired from the process (e.g., What questions do you want answered?) Until that decision can be made, the system cannot effectively design an appropriate evaluation program. This concept applies to both the general prehospital data collection, hospital discharge data and the data obtained from the trauma registry. It does appear that the local, regional and state EMS plans are starting to build performance measures that will assist in the effective development of an evaluation process. It is evident that there are inter-system incompatibilities among the trauma registries currently being utilized in the state. There are also questions regarding the available funding mechanism for the development and maintenance of the data collection and evaluation process. Although hospital peer-review quality improvement information is protected from discoverability, the same

protection does not seem to apply to prehospital peer-review quality improvement activities.

There is broad support across the EMS community for the development of the proposed data collection and evaluation process. The Office of the Chief Medical Examiner has also expressed support for this process. Information from that office is critical to the appropriate evaluation of the EMS system.

Recommendations

The DPH should:

- **Define the desired outcome and output of the evaluation process;**
- **Phase in implementation of an EMS system evaluation plan based on identified priorities;**
- **Establish the time line and identified budget for implementation of all of the components of the evaluation plan in more detail;**
- **Within the Office of EMS, identify an EMS information specialist (e.g., data czar) with responsibility for overall coordination of the evaluation program;**
- **Provide protection from discoverability for peer review EMS quality improvement information.**

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ORGANIZATIONS/APPOINTMENTS

North Carolina, Office of Emergency Medical Services
Director, 1985-1999.
National Association of State EMS Directors (NASEMSD)
Past President.
Executive Committee, various committee chairs, NASEMSD.
National Association of Governor's Highway Safety Representatives
Liaison 1990-1991.
National Association of EMS Physicians
Liaison.
Management Team, EMS Clearinghouse, NASEMSD 1986-1991.
National Association of State EMS Training Coordinators
Past Member Board of Directors.
North Carolina Division, American Trauma Society, Board of Directors.
North Carolina Governor's Task Force on Injury Prevention and Control.
North Carolina Medical Society Disaster and EMS Committee.
North Carolina Medical Society Bioethics Subcommittee, Advisor
ASTM F.30 Committee on Emergency Medical Services.
National EMS Alliance (NEMSA),
Initial Coordinating Committee Chairman
EMS Agenda for the Future
Steering Committee
EMS for Children program site visit States of Hawaii, Virgin Islands, Minnesota, Maine, Oregon, and Florida.
DOT/NHTSA, Emergency Medical Services Assessment Program, Technical Assistance Team, Member, States of Louisiana, Arizona, Florida, Idaho, Kansas, Kentucky, New Jersey, Virginia, Vermont and West Virginia.
EMS Reassessment Program, Technical Assistance Team, Member, States of Minnesota and Alaska.
Board of Directors, National Registry EMTs 1996-1999.
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ORGANIZATIONS/APPOINTMENTS

US Department of Transportation, "Development of Trauma Systems" Seminars
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Critical Illness and Trauma Foundation,
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National Board of Medical Examiners
  Diplomate
American Board of Surgery
  Diplomate
American College of Surgeons
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American Association for the Surgery of Trauma
American Trauma Society
Pan American Trauma Society
Society of Critical Care Medicine
Society of University Surgeons
The University of Washington Harkins Surgical Society
National Association of EMS Physicians
American Public Health Association
Eastern Association for the Surgery of Trauma
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APPOINTMENTS/ORGANIZATIONS

National Registry of EMTs, EMT-Paramedic
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Basic Trauma Life Support, International,
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WV Basic Trauma Life Support,
Past Affiliate Faculty
WV Advanced Cardiac Life Support,
Affiliate Faculty,
Marshall University Community College
Part-time Faculty, Emergency Medical Technology Program
National Association of State EMS Directors
Treasurer
Finance Committee, Chair
National Rural Health Association, Chair, Ad Hoc Subcommittee for Rural/Frontier EMS
Centers for Disease Control and Prevention Grant,
Principal Investigator, Fatality Assessment and Control Evaluation Program,
National Research Council, Transportation Research Board, Strategic Highway Safety Plan,
Atlantic EMS Council
Member
National Registry of EMTs
Board of Directors
Standards and Examinations Committee
Practice Analysis Committee
Oral station development Committee
National Rural EMS Leadership Conference
EMS Agenda for the Future
National Leaders Conference
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Member
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ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors
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Past Treasurer/Chairman, Finance Committee
Executive Committee
Past Member Clearinghouse Management Committee
New England Council for EMS
Executive Committee
Fletcher Allen Health Care
Disaster Committee
Vermont Trauma System Development Committee
Co-Chair
EMS Agenda for the Future
Co-Chair
EMS Agenda for the Future Implementation Guide Committee Member
Vermont State Firefighters Association
Essex Rescue, EMT-I Captain
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DOT/NHTSA EMS Assessment Program, Technical Assistance Team, Member, States of Delaware, Texas, and North Dakota. EMS Reassessment Program, Member States of Alaska and Colorado.

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National Highway Traffic Safety Administration
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Former Director, Office of Emergency Medical Services
Virginia Department of Health
(1976 to March 1996)

ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors (1979-1996)
Past President
Past Chairman, Government Affairs Committee
National Association of EMS Physicians
Member
American Medical Association,
Commission on Emergency Medical Services (Former)
American Trauma Society
Founding Member, Past Speaker House of Delegates
ASTM Committee F.30 on Emergency Medical Services
Institute of Medicine/National Research Council
Pediatric EMS Study Committee, Member
Committee Studying Use of Heimlich Maneuver on Near Drowning Victims, Member
World Association on Disaster and Emergency Medicine
Executive Committee, Former Member
Editorial Reviewer for *Prehospital and Disaster Medicine*