

# An Assessment of the Maine EMS System



Submitted to:  
State of Maine  
Department of Public Safety  
Maine Emergency Medical Services

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# 1. ACKNOWLEDGEMENTS

The EMSSTAR Group would like to acknowledge and thank the State of Maine EMS system representatives, including hospital, fire, EMS, representatives, for their support in conducting this assessment. The team would like to thank the presenters and those we interviewed for being candid and open regarding the status of emergency medical services in their areas. All presenters were responsive to questions posed by the Technical Assessment Team, which benefited the members in the evaluation process.

Special recognition is given to Jay Bradshaw, Director Maine EMS for his assistance with the pre-site planning and on-site assessment. We would also like to recognize the excellent briefing Material prepared by Maine EMS for The EMSSTAR Group. Their hard work in planning for the team's visit was apparent by the excellent participation by the various representatives of the system.

## 2. EXECUTIVE SUMMARY

The challenges faced by the EMS system in Maine are as daunting as the magnificent ocean that rumbles at her shores and the vast wilderness that rises up her back. Like the legend of survival through a gregarious storm, the history of Maine's EMS system bears the honors of many noteworthy achievements. The easternmost state was one of the first to develop a statewide patient care reporting system and one of the first to develop standardized statewide EMS patient care protocols. Maine's EMS community has significantly contributed to the EMS body of knowledge through widely accepted research efforts, and it has produced research studies that are relied upon across the nation. It is home to some of the nation's most respected medical and administrative EMS luminaries.

Yet at this point in time, Maine's EMS system finds itself at a critical juncture. Both its direct service providers, the ambulance services and first response agencies, and the supporting state and regional infrastructure, find themselves stretched paper thin. Although struggling valiantly to provide the level of service necessary to sustain the quality of life throughout the state, the system is in danger of collapse as a result of under-funding over a period of many years. From trying to "do more with less," the Maine EMS system now is in the unenviable position of having to "do less with less," at a time when its role as the health care safety net for many Mainers is growing. This growth is driven by pressures on the state and national health care systems, reduction in payments for ambulance transportation by governmental health care programs, an influx of immigrants with significant health care needs, and the post-911 demands of homeland security.

In its efforts to continue to deliver services in the face of clearly insufficient revenues, the state system, through its regional councils, has developed an alterative funding stream that often distracts from, rather than enhancing, the work of local EMS providers and educational institutions. A complex system of dues, assessments, and fees imposed by the regional councils on local providers is perceived as both unnecessary and unfair. The state EMS office has shifted a significant portion of its regulatory role to the privately owned regional councils, which in turn have implemented these obligations in ways that vary throughout the state.

Yet the future of the Maine EMS system is bright, just as the sun shines first on its shores before any other state in the nation every day. It will require much work to re-align the structures and processes of the system to assure efficiency and equity. The three most significant priorities are:

- ◆ The Legislature must identify and enact a dedicated, stable, and sufficient funding source providing the necessary dollars to support the essential elements of the system.
- ◆ The regulatory and system support functions must be separated, with the state EMS office executing the regulatory aspects of its legislative mandate.
- ◆ Mainers must be provided with sufficient information about their EMS system such that they are able to understand the relationship of an intact EMS system to their quality of life, in order that decisions about levels of system support and other public policy issues can be made on an informed basis.

The EMSSTAR Group Assessment Team is confident in the ability of the people of the state of Maine to rise to these challenges.

### 3. BACKGROUND

In an effort to examine the delivery of EMS services in Maine, the Department of Public Safety, EMS sought the assistance of The EMSSTAR Group to review the current delivery of EMS in the State, with special emphasis on the state regional interface in delivering those services. This is a bold and progressive step in seeking assistance to analyze and determine a better way of delivering EMS services in the State of Maine.

The EMSSTAR Group, LLC (EMSSTAR), a progressive and innovative firm specializing in emergency medical services system development, integration, and evaluation, was selected to conduct the review. The firm brings extensive experience in national and international system development with governmental agencies at the federal, state, county, and local level, and also with public and private service providers. Experience with the legislative process, and with regulatory, technical assistance, and funding authorities within federal and state government provides unparalleled support. Because of recent experience with national projects that attempt to evaluate the effectiveness of emergency services and chart and “create” the future of EMS within the health care system, EMSSTAR is exceptionally prepared to provide guidance in progressive system design planning and development.

EMSSTAR used the expert panel approach to problem solving in conducting the assessment and in doing so formulated a team of national experts in the field of EMS. Team members have experience in various delivery types and are active practitioners in their home systems. The team members have experience in paid, volunteer, combination volunteer/paid, private, third service, government, rural, urban, and high performance systems in various parts of the country.

The EMSSTAR Team visited Maine July 15-17, 2004 and conducted an analysis and benchmarking of the Maine EMS delivery systems. Prior to arriving in Maine, EMS stakeholders throughout the state who were unable to attend one of the briefing sessions were invited to send comments and suggestions for system improvements directly to The EMSSTAR Group. This process generated more than 40 written comments. During the site visit, the Team traveled to Portland, Bangor and Augusta and received testimony from more than forty-one stakeholders from the Maine EMS system, including local paid and volunteer fire and EMS agencies, hospital staff, Regional Coordinators, fire chiefs, medical directors, service chiefs, Board Members and other system participants. The forum of presentation and discussion allowed the EMSSTAR team the opportunity to ask questions regarding the status of the EMS system, clarify any issues identified in the briefing materials provided earlier, and develop a clear understanding of how emergency medical services function throughout the State. The team spent time with each presenter so that

they could review the status for each topic. Following the briefings by presenters the Team sequestered to evaluate the current EMS system as presented and to develop a set of recommendations for system improvements.

Topics for review and discussion included the following general emergency medical Services System Components:

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



## 4. SYSTEM COMPONENTS

### 4.1. REGULATION AND POLICY

#### 4.1.1. 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 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). Authorizes state and local EMS lead agencies to act on the public's behalf in cases of threats to the availability of quality EMS to the entire population. There is a consistent, established funding source to adequately support the activities of the lead agency and other essential resources necessary to carry out the legislative mandate, and other EMS system improvements. The agency operates under a single, clear management structure for planning and policy setting, but strives to achieve consensus among EMS and other health related 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 an effective EMS system include the presence of a formal EMS Medical Director, a Medical Advisory Committee for review of EMS medical care issues and an 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.

#### 4.1.2. STATUS

Broad legislation and Rules, both of which are regularly updated, direct the Maine Emergency Medical Services (EMS) system functions. The statement of purpose is comprehensive and acknowledges the vital concern of the legislature about the performance of the EMS system. Unfortunately, a consistent, dedicated funding source has not been established. Over time, and through diversion of increasing amounts of general funds to the regional councils, the capacity of the Department of Public Safety EMS Bureau ("Maine EMS") has been severely diminished to the point where neither Maine EMS nor the regional councils are adequately funded to execute their legislative mandate.

The Emergency Medical Services' Board ("the Board") has been established in accordance with the EMS Act and meets regularly. The Medical Direction and Practices Board (MDPB), a subcommittee of the Board, is also active and productive. The MDPB has complied with the mission set forth in the Maine EMS Act through the development and implementation of the Maine EMS Prehospital Treatment Protocols, which is an enviable state level resource.

The Board's authority and the backbone of representative membership are clearly delineated. The assessment team identified that some EMS system participants question "extraneous" member categories regularly, especially where EMS providers do not enjoy a reciprocal seat on that discipline's professional board. Additionally, the team heard concerns about whether members truly represent the interests of the discipline/seat they hold, versus the interests of the state EMS system. The absence of term limits on this and other boards (e.g., the MDPB, regional councils, etc.) clearly causes unease and does not appear to have a solution pending.

Board and MDPB members are not fully oriented to their role and authority, and are not clearly emancipated from the fiscal and political interests of their individual affiliations.

Progressive cuts to the state EMS budget have left the state office at minimal staffing levels, decimating their ability to effectively execute their regulatory roles, and potentially compromising the public's health and safety.

This has caused undue reliance on the regions, including assignment or adoption of tasks beyond the content of both law and Rules. Even the scope of work associated with the state EMS contract does not represent the breadth of actual work managed by the regional councils, listing far fewer responsibilities than are accomplished. Conversely, actual activities of the regional councils consistently include workloads that are the cornerstone of EMS regulation that the EMS Act and Rules cite as the state's responsibility. Although regional councils and their staff create a mechanism for needs identification and consensus building within regions, the management structure and workflows appear convoluted between state and regional offices. Mechanisms and procedures within and among regions are not clearly established other than core policy documents related to selected central functions such as education and examinations.

The current duties of the regional councils exceed that as established by the contract with state EMS and the EMS Act and Rules. Other workloads, such as fundraising, may interfere with staff availability and may compromise regional staff's ability to perform required tasks. Overall, these activities distract the regional staff and councils from the core mission of executing duties on behalf of state EMS.

The other dilemma as a result of inadequate state funding is the regions resorting to other charges to outside parties (e.g., for community CPR courses) and assessments (fees)

charged to local EMS agencies. This may be improper, especially where the assessment is associated with the same tasks for which the state pays through the contract. Furthermore, this assessment and fee structure varies widely from agency to agency and region to region, which is not equitable to the local EMS agencies.

Another troubling variation was that of policies and procedures among regions.

This is an odd dichotomy: a state that embraces the concept of universal protocols for its EMS providers that does not exact common standardized procedures in its EMS regional offices.

For reasons that are not clear, regional staff are involved in (or are perceived to be involved in) the investigation processes contrary to the clear charge of these duties to the Board and its staff.

There is not a clear line between the exercise of the regulatory activities of state government and those process adopted in the service portfolio of the regional offices. Some procedures mimic a regulatory process, leading some local EMS providers to perceive that the regional office could interfere with or obstruct effective EMS system functions. The assessment team was very disturbed by the frequency of individuals and agency representatives reporting fear of reprisal, consequences for challenging the status quo, and discriminatory scrutiny by the region for raising these concerns.

### 4.1.3. RECOMMENDATIONS

- ◆ Develop a consensus based policy to promulgate term limits, representation, conflict of interest, and other parliamentary matters for both the Board of EMS and the Medical Direction and Practices Board.
- ◆ Establish a stable, dedicated funding source for the state EMS system that reflects the state's commitment to protecting the health & safety of Mainers in accordance with the statement of intent associated with the Maine EMS Act.
- ◆ Pursue an increased appropriation and sufficient FTEs for the state EMS office to execute the existing regulatory mandates of the EMS Act and EMS regulations expected of the Board and state EMS office.
- ◆ Structure the EMS office with subordinate programs in alignment with the major regulatory functions outlined in the EMS Act and rules: licensure of EMS personnel, licensure of EMS agencies, examination oversight, trauma care system, and investigation and discipline of EMS personnel.

- ◆ Modify the EMS Act to repeal the portions of the section on regional councils associated with advising the board on licensure of EMS agencies, examinations of EMS personnel, and certification and decertification of EMS personnel
- ◆ Actively contract with regional councils for activities related to coordination of regional medical direction, technical assistance for local EMS agency quality improvement plans, coordination of EMS training programs upon request of local EMS agencies, and continued conduct of regional council meetings to assure representation of the EMS community and needs.
- ◆ Clearly define the roles of the regional councils and staff and establish quantitative reporting requirements and performance accountability.
- ◆ Allow the number, boundaries, and office location for regions to evolve based on the changing needs of the local EMS system and take advantage of the annual opportunity to invite new approaches.
- ◆ Encourage regional councils to expand their role as the focal point for EMS system support and development.

## 4.2. RESOURCE MANAGEMENT

### 4.2.1. 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 EMS plan exists which is based on a local resource assessment and updated as necessary to guide EMS system activities. A central 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, and attention is given to increased resource demand for disaster situations. The lead agency is adequately staffed to carry out central coordination activities and there is a program to support recruitment and retention of EMS personnel, including volunteers.

### 4.2.2. STATUS

Maine EMS serves as the coordinating agency for the system. Maine EMS works through six regional councils, whose annual contract and funding requires each regional council to perform certain functions. Roles and responsibilities of the regional councils are addressed in Maine Emergency Medical Services Act of 1982.

There is no known statewide EMS Plan. Even though the Maine EMS Act mandates that certain duties and responsibilities be carried out, there is no document that outlines how those duties are completed, or what will be accomplished over a period of time.

There is a statewide data collection system. Multiple agencies commented about the data collection tools, and indicated they are receiving periodic reports for each agency. Many comments were made about the lag time from the submittal of reports until data is received from Maine EMS. In most cases, there is a four to six month time frame to receive the information. Agencies are able to utilize the data for a retrospective analysis of their performance, but they lack the flexibility to utilize the data collection system for system performance decisions.

There is currently a plan to migrate to an electronic data collection system. This system will utilize a combination of web and client based software. This project is being completed through funding from a variety of sources including the Maine Bureau of Highway Safety, Office of Public Health Emergency Preparedness, Emergency Medical Services for

Children, and MEMS. Once completed the data collection system will be more of a real time collection of data. Funding for this project is being completed with grant funding and there appear to be general funds for ongoing expenses.

During the interview process, several agencies voiced a concern about being able to recruit and retain quality EMS providers. Even though the number of advanced life support providers has risen, it continues to be difficult to meet the demand that is present for this level of training. Some interviewees discussed the disheartening feeling of having to depend on out of state applicants in order to obtain the necessary skill sets for job openings. There is no statewide effort in place to recruit or to retain personnel, including volunteers.

Maine EMS is not adequately staffed. The Maine EMS Act includes a statement of purpose that outlines duties and responsibilities that are to be fulfilled by the central agency. The current staffing levels are not adequate to meet these statutory mandates. This has resulted in a lack of consistency as more of the operations of the central agency have been delegated to the six regional councils.

Air medical flight teams are unable to operate on ground units when weather prevents mobile air units from transporting patients. This appears to create a situation that taxes the ground transport system, whereas, the ability for air medical flight to move to ground transport units during inclement weather may alleviate the need to take ground units out of service for inter-facility transfers. Other examples were given where registered nurses had difficulty in gaining the necessary approvals to provide levels of care for which they have been trained for, and routinely administer in the hospital setting.

There is no mutual aid plan in place; however, there is a mutual aid template that is available for agencies to adopt for their use with other agencies. The lack of depth in any area of the state would appear to make the use of mutual aid agreements critical to the ongoing delivery of EMS. Interviewees indicated that adjoining agencies provided back up service as required, regardless of formal mutual aid agreements.

### 4.2.3. RECOMMENDATIONS

- ◆ Establish an EMS plan and state mobilization disaster plan to guide the future of emergency service delivery in the State of Maine.
- ◆ Create a mutual aid plan that encompasses all EMS agencies and obtain signed mutual aid agreements.

- ◆ Accelerate the implementation of the electronic data collection system that utilizes the revised NHTSA EMS data set.
- ◆ Educate EMS providers about the capabilities of the data collection system and the customized reports and information that can be obtained from Maine EMS.
- ◆ Assure continued funding for the electronic data collection system that is not dependent on grant funding.
- ◆ Explore means to integrate the data collection system with other public safety and health data systems.
- ◆ Implement a resource management system that can monitor available EMS resources on a contemporary basis in the State of Maine.
- ◆ Develop and implement a statewide recruitment and retention programs in cooperation with and the assistance of the Regional Councils.
- ◆ Encourage regional councils to expand their role as the focal point for EMS system support and development.
- ◆ Remove barriers that prevent registered nurses, physician's assistants (PA) and flight crews who possess appropriate credentials from functioning in the prehospital environment and effectively serving as a part of the EMS System.

## 4.3. HUMAN RESOURCES AND TRAINING

### 4.3.1. STANDARD

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the area. The agency has a mechanism to assess current personnel 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 pre-hospital training programs utilize a standardized curriculum for each level of EMT personnel (including EMS dispatchers), and consistent with the National EMS Education and Practice Blueprint. EMS training programs and instructors are routinely monitored, instructors meet certain requirements, functioning medical directors are in-place, the curriculum is standardized throughout the State, a system of reciprocity for credentialing is in place, and valid and reliable testing procedures are utilized. In addition, the 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, BTLIS, PHTLS, ATLS, etc. and a system of critical incident stress management has been implemented.

### 4.3.2. STATUS

The human resources component of the Maine EMS system is complex and constantly changing. Larger municipalities typically rely on career EMS personnel to deliver services, with smaller jurisdictions utilizing combinations of career and volunteer personnel or paid-per-call personnel, while more rural areas are served primarily by volunteers. The system as a whole has been enjoying an increase in the number of provider personnel and a greater number of advanced life support services, attributed to the recent increased availability of advanced life support training programs.

There has been no organized assessment of current personnel need nor is there a comprehensive plan to meet those needs. Recruitment of personnel appears to be solely a local responsibility, as does the identification of the need for particular training programs.

State regulations require that the person attending the patient in an ambulance be trained at least to the EMT-Basic level, and standardized curricula for the training of EMS personnel across the state are utilized, most of which are consistent with National Standard Curricula. There is no statewide standard for the training of dispatchers who handle EMS calls.



Instructor/Coordinators are credentialed in accordance with state rules. At the present time, credentialed instructors wishing to offer pre-service or in-service EMS education must make application for approval to the regional council serving the area in which the course will be offered. Approval may require payment of a fee, or may require the payment of an organizational assessment to the regional council. These fees and approval requirements are inconsistent across the several regions. Requirements for approval of EMS training courses, logistical requirements, and costs for course approval vary widely from region to region.

Providers report limited availability of paramedic training programs, as well as access requirements that impede the ability of agencies to recruit and train sufficient personnel. They also report wide variations in the availability of, access to, and cost of EMS courses within and between regions. The level of medical director or physician involvement in EMS education is unclear, and opportunities for clinical training of EMS providers are limited due to low call volumes and other hospital-based training programs.

After completion of a pre-service educational program, the student will participate in written and practical examinations administered by the regional council. National Registry examinations are used at the First Responder and EMT-Basic level, while EMT-Intermediate and EMT-Paramedics are examined using state-developed tests. Certification test results are evaluated within and across regions.

Inter-state reciprocity options exist at all levels. The state provides recognition based on National Registry and other state's credentials or by individual evaluation of applicants who are not nationally registered.

The state EMS agency has specific policies and procedures for credentialing of personnel. However, procedures have not been uniformly defined so that they are applied consistently at the regional level.

There are no baccalaureate level programs in EMS, and associate level programs are only sporadically available. Providers and regional representatives indicate that the state system and institutions of higher education are not significantly involved in the delivery of EMS education.

Regardless of the nature of the academic preparation or setting of a proposed educational program, the instructor/coordinator must apply for approval of each individual course, and pay fees to the regional council even though no value is added by this process. These requirements would remain even for academic institutions accredited by regional collegiate accrediting bodies and national EMS accrediting agencies. There is no system of institutional or organizational accreditation for on-going delivery of pre-service or continuing education programs. Larger agencies with designated training staff that are able to meet

internal training needs using their own resources object to paying dues or fees to regions to support programs and services that they do not need.

Several providers expressed disappointment at the recent removal of requirements for certain external EMS or specialty certifications. It appeared to the team that a communications gap between Maine EMS and the provider community impeded provider understanding of the rationale for this change. EMS specialty courses (ACLS, PALS, PHTLS, etc.) appear to be available within the state. However, access may be limited, particularly with respect to rural providers.

There is a statutory mandate for ambulance vehicle operator training. However, the deadline for compliance has been pushed back several times for a variety of reasons related to funding and a monitoring mechanism.

There is a statewide critical incident stress management program available to EMS providers. This is an important component of a system to facilitate retention of EMS personnel who might otherwise leave the profession due to critical incident stress.

The health care community of the state is to be commended for the development of a statewide hospital-based video-conference capability in hospitals around the state. This capability, which is extraordinarily economical, is used by EMS providers to facilitate remote participation in meetings, conferences, and other functions.

The state has enacted an EMS-specific line-of-duty death benefit. This is an important measure, for which those responsible should be commended.

### 4.3.3. RECOMMENDATIONS

- ◆ Remove the requirement for regional approval of initial training programs and place this function at the state level.
- ◆ Develop and implement a process for institutional and agency approval for on-going course delivery modeled after contemporary accreditation processes that precludes the requirement for individual course approval.
- ◆ Repeal the rule requiring pre-approval of continuing education programs. Replace it with a rule requiring documentation of course content and student participation that can be reviewed after the fact by Maine EMS.

- ◆ In cooperation with other state agencies, develop a plan to assure that EMD training is required for all personnel answering 9-1-1 EMS calls.
- ◆ Explore alternative resources and partnerships to accelerate compliance with the AVOC requirement.
- ◆ Encourage increased utilization of the hospital-based video conferencing network to facilitate increased opportunities for distance education for EMS providers.

## 4.4. TRANSPORTATION

### 4.4.1. STANDARD

Safe, reliable ambulance transportation is a critical component of an effective EMS system. The transportation component of the local EMS plan includes provisions for uniform coverage, including a protocol for air medical dispatch, rendezvous and a mutual aid plan. This plan is based on an ongoing, formal 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 agency has a mechanism for modification, upgrades or improvements based on changes in the environment (i.e. population density). The agency maintains emergency vehicles in a constant state of readiness through routine maintenance, inspections and inventory control. The agency assures emergency vehicle operator competency.

### 4.4.2. STATUS

EMS agencies are distributed throughout the populated areas of the state. There is no formal needs assessment of transportation resources. There is no known common methodology to determine the location of EMS agencies. Each EMS agency locates their stations based on self determination and community desires for rapid EMS response. There is no risk analysis process to determine the best location based on the number of responses in coordination with the greatest amount of area served.

The interviews did not indicate any concerns or critical issues with response times. It appears to be understood that due to the rural nature of Maine, extended response times are often the case. There has not been any formal evaluation of extended response times. Maine EMS rules require that transporting EMS agencies maintain an annual average response time of less than 20 minutes. It is unknown if this standard is being met. Although collected and distributed to all EMS chiefs and regional offices, there is no indication that response times are routinely being evaluated as a part of the electronic data collection system.

Air medical transportation is available through rotor and fixed wing medical units. There are two helicopters and three fixed wing locations in the state. There are protocols in place for the use of air medical units; however, five of the six regions have an open policy for the dispatch of air units, and the sixth region requires approval by on-line medical control prior to requesting air medical resources.

There are no standards for marine EMS transport vehicles. Marine transports occur utilizing a variety of vessels that are not licensed as EMS transport vehicles. It was noted that when an emergency occurs on an island or in a port, that public and private vessels are immediately summoned to assist in transporting a patient. However, none of the identified vessels have patient or EMS provider restraint systems, nor are they stocked with appropriate EMS equipment. The infrequency of this type of incident and wide geographical areas over which a water emergency may occur seems to explain why this safety issue has not been addressed. However, the dangerous nature of these incidents would dictate that appropriate plans be in place for agencies that routinely respond to water related emergencies.

The condition of EMS vehicles appears to be good throughout the state. Interviewees reported that vehicles are adequate in number and are adequately maintained and in good condition. One agency reported that their vehicle had high mileage and was in need of cosmetic repair, but there was no indication of a negative impact on the routine delivery of service.

Maine EMS inspects units on a periodic and announced basis. Units must meet minimum state requirements for condition, inventory, and serviceability.

Positive comments were received from all areas in the state commending Maine EMS for an effective inspection process that assures patient and provider safety.

There is a requirement in the Rules that requires an ambulance vehicle operator's course (AVOC) to be completed by anyone that routinely operates an ambulance; however, due to the lack of funding and a tracking system, the implementation of this requirement has been postponed three times. The AVOC requirement is currently not scheduled to be implemented until 2007.

#### 4.4.3. RECOMMENDATIONS

- ◆ Develop a strategy and a program to analyze the response times statewide and distribute the information to each agency.
- ◆ Revise the rules and regulations to eliminate the 20 minutes annual average response time. In its place, require all EMS agencies to develop a stated response goal using contemporary methodology (i.e. fractile response times) based on a specific needs assessment for their response area. This report should be reviewed during the annual licensure renewal process.

- ◆ Establish criteria for marine EMS transport units.
- ◆ Modify the Maine EMS Prehospital Treatment Protocols to authorize all EMS providers statewide to request air medical transport units without online medical direction.
- ◆ Implement the Ambulance Vehicle Operators Course (AVOC) training requirement without any further postponements of the effective date

## 4.5. FACILITIES

### 4.5.1. STANDARD

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. The 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 that are consistent with state regulation/policy/rule. 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, poison, 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, and assures that this takes place.

### 4.5.2. STATUS

Thirty-nine hospitals are available as destinations for patients treated and transported in the Maine EMS system. Hospitals actively participate in regional EMS councils, many of which have also designated nurses as quality improvement points of contact.

Critical Access Hospital (CAH) designation is gaining popularity in rural areas. A potential ramification facing the EMS system is the need to transfer patients out of CAHs sooner with less patient stabilization than may have occurred previously and the demand this will place on the EMS system.

The only form of facility designation is for trauma: regional trauma centers and trauma system participating hospitals.

Diversion is an emerging issue, and associated diversion policies have not been developed. In southern Maine a notification system has been implemented in order to provide advanced notice to EMS agencies about hospitals' status.

Critical interfacility transfers necessitated the establishment of a critical care transport program and associated training standard. Concerns were expressed about the incremental modification of the training and pharmaceutical armament, as well as the transition to listing classes of medications instead of specific drugs.

This places a burden on the individual ALS agencies to provide the new knowledge and skills to their providers.

Maine EMS regulations require the EMS agencies whose personnel administer medications to stock their drug boxes through a hospital, or have an alternative plan that has been approved by Maine EMS. While this appears to have some advantages of economy and convenience for the ambulance services, those services that transport to two or more facilities actually carry two different drug boxes to facilitate replacement of medications used on emergency responses.

Maine EMS has no method for monitoring the appropriateness of destination selection for primary or secondary transport.

Every hospital and many rural clinics have access to a common video teleconferencing system. Maine is to be commended for this remarkable accomplishment, which provides unique communication and educational opportunities not often found in a state with such geographic challenges.

### 4.5.3. RECOMMENDATIONS

- ◆ Conduct a needs analysis of sending facilities to identify the staffing and scope of practice expectations for patients requiring interfacility transport.
- ◆ Perform a comprehensive review of the Paramedic Interfacility Transport Module and revise the content based on the needs analysis findings.
- ◆ Conduct a review of destination selection criteria utilized by EMS personnel.
- ◆ In conjunction with the design of the electronic EMS reporting system, implement a method of assessing the rationale for destination selection made by EMS personnel for all transports.
- ◆ Convene a Pharmacy subcommittee of the Board to investigate options for ambulance restocking that would eliminate the need for ambulance services to carry multiple drug boxes.



## 4.6. COMMUNICATIONS

### 4.6.1. STANDARD

A reliable communications system is an essential component of an overall EMS system. The agency is responsible for central coordination of EMS communications and the EMS plan contains a component for comprehensive EMS communications. The public can access the EMS system with a single, universal 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 radio system that allows for direct communication between 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 as they relate to EMS. There is an established mechanism for monitoring the quality of the communication system, including the age and reliability of equipment, and there is facilitated exploration of potential uses of advancing communications technology by EMS.

### 4.6.2. STATUS

Maine EMS does not have an adopted current communications plan. There was a communications plan that was drafted in 1993, but it was never disseminated, adopted, or implemented. There is no statewide EMS communications system, but there is a common VHF frequency (VHF155.385) that is shared by all agencies and hospitals. By written and verbal comments, it was noted that this frequency is untested and although it is required, it is unknown if all EMS agency radios still maintain this frequency. If this system works, it does supply a common frequency which can be used throughout the state for long distance transports, or in a time of natural or man-made disasters.

There is 100% 9-1-1 emergency phone coverage in the state, with all but three public safety answering points (PSAP) having enhanced 9-1-1 (E-9-1-1), which automatically gives the communications officer the location and phone number of the caller. 9-1-1 calls are managed by 48 PSAPs which are primarily operated by law enforcement. Maine is to be highly commended for accomplishing 100% saturation of 9-1-1, particularly in light of the rural and geographic challenges facing the state.

There is no statewide system of emergency medical dispatch (EMD). A recommendation was made by Maine EMS and several other state agencies to implement EMD in all PSAPs. However EMD certification was not included in final requirements for PSAPs.

Cell phone coverage has improved around the state and serves as a support and supplemental system to the public safety radio system for many agencies.

The VHF radio system is aging and there is no plan to update the system. There are reports that many of the system components are over 20 years old. There is no ongoing replacement program or any plans to replace equipment as it becomes unserviceable. Due to the age of the equipment, a small malfunction may result in the total loss of the radio system in that area. In many cases, the equipment is placed on privately owned towers, with no direct plan for operational security.

There are reports of issues with agencies operating on the same channel. Some agencies have very high powered base stations and they overpower adjacent and sometimes distant agencies. It was reported that some hospitals turn their radios down to eliminate the constant chatter that is on some primary radio channels. In an emergency or disaster situation, this single radio frequency will easily be overrun by responding units.

#### 4.6.3. RECOMMENDATIONS

- ◆ Develop and implement a statewide EMS communications plan.
- ◆ Conduct an assessment of the existing EMS radio system. Explore the possibility of funding upgrades and enhancements with homeland security and/or public health preparedness funding.
- ◆ Implement emergency medical dispatch statewide by partnering with appropriate state agencies that oversee the 9-1-1 system.

## 4.7. PUBLIC INFORMATION, EDUCATION AND PREVENTION

### 4.7.1. STANDARD

To effectively serve the public, each agency must develop and implement an EMS public information, education and relations (PIER) program. The PIER component of the EMS plan ensures that consistent, structured PIER 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 PIER 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 PIER 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 agency dedicates staffing, training and funding for these programs, which are directed at both the general public and EMS providers. The agency enlists the cooperation of other public service agencies in the development and distribution and evaluation of these programs, and serves as an advocate for legislation that potentially results in injury illness prevention.

### 4.7.2. STATUS

There is no comprehensive PIER program in place at the state level. Although they recognize the importance of public information, system members have not dedicated the necessary resources to realize the benefits of elevated public awareness. As a result of limited public awareness of its needs and limitations, the EMS community has been singularly unsuccessful in obtaining the funding necessary for it to assure critical infrastructure and the availability of its essential lifesaving services.

Maine EMS does not have staff resources dedicated to the PIER function. In addition to lack of public awareness, there is a lack of resources devoted to intra-system communication. The Maine EMS web site contains a variety of useful information and documents; however lack of staff resources results in delayed updates of information, posting of meeting minutes, etc. The Maine EMS Journal is an excellent publication which has been in existence for many years.

Most of the PIER programs that have been identified on local and regional levels have been medical education outreach. There are several excellent examples of such programs around the state including those that have resulted from a partnership with EMSC, including Youth Suicide Prevention Gatekeeper Training Program, and the formulation of regional injury prevention teams. Maine EMS has participated for many years in the National EMS Week campaign, and utilizes this opportunity to recognize EMS stakeholder accomplishments.

However in spite of these accomplishments there are no efforts to improve system utilization, eliminate unnecessary use, or enhance public awareness of the EMS system.

### 4.7.3. RECOMMENDATIONS

- ◆ Focus the PIER campaign on increasing the awareness of elected officials and decision-makers about the current status and urgent fiscal needs of Maine's EMS system.
- ◆ Develop and implement comprehensive and integrated EMS public information, education, and relations program.
- ◆ Elevate the priority of PIER within each agency's priorities such that it remains a critical focus at the state, regional, and local level.
- ◆ Establish a mechanism for rapid dissemination of policy decisions, meeting minutes, and other announcements of interest to EMS agencies and personnel.

## 4.8. MEDICAL DIRECTION

### 4.8.1. 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 Medical Director for EMS agency is clearly defined, with legislative authority, consistent with any state/local requirements, 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 local, 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).

### 4.8.2. STATUS

There is strong physician involvement at the state and regional levels of Maine's EMS system. However, physician involvement at the local/agency level is quite limited. Medical aspects of Maine's EMS system are controlled by the Medical Direction and Practice Board (MDPB), which is composed of the six regional medical directors, a representative of the Maine Chapter of the American College of Emergency Physicians, and the state medical director. As a result, the span of control of a regional medical director with respect to the number of providers supervised may be excessive.

The MDPB has the statutory authority to, and has, promulgated statewide EMS protocols for all levels of pre-hospital providers. The state is to be commended for achieving this level of consistency in its approach to patient care. These protocols enjoy wide acceptance throughout the EMS community, although some concerns were expressed concerning a "least common denominator" approach to protocol development. Other providers expressed a concern with "scope creep," the continued addition of drugs (in particular) and procedures to the required level of service. The MDPB strives to base EMS protocols on the best available medical evidence.

Regional medical directors are appointed by the regional councils. There are no term limits or professional qualifications for regional medical directors. Compensation of regional medical directors, if any, varies widely from region to region. The regional medical directors do not directly assess or assure the competence of all EMS providers within the region. There was concern expressed that regional medical directors, while serving as members of the MDPB, may at times represent the fiscal or political interests of their institutions rather than the best clinical interests of the EMS system. Additionally, testimony indicated that there might be benefit from period rotation of physicians on to and off of the MDPB.

There are no minimum training requirements for physicians or physician assistants who provide on-line medical control (OLMC) to EMS providers. Concern was expressed that some OLMC providers lack adequate knowledge of the EMS system, EMS provider levels, and Maine EMS protocols.

Individual EMS agencies are not required to have medical directors. Regional medical directors provide the sole medical oversight to many EMS agencies, while some agencies have retained the services of a local medical director to assist them with training, quality management, and other functions. These local medical directors do not have any formal position within the state's EMS system unless they are so delegated by the regional medical director.

Beyond the limited number of regional medical directors, there are no formal mechanisms for involvement of interested, qualified emergency physicians in the local, regional, or state EMS system. As a result, numerous valuable resources are not being utilized.

### 4.8.3. RECOMMENDATIONS

- ◆ Amend Maine's EMS rules to require that every EMS agency have a physician medical director. The agency medical director should have primary responsibility for assessment and assurance of the competence of every EMS provider.
- ◆ Regional medical directors should be charged to assist and facilitate the efforts of local medical directors and to participate in the development of statewide EMS protocols.
- ◆ Develop and promulgate job descriptions for local and regional medical directors.

- ◆ Require local and regional EMS medical directors to complete a nationally recognized medical directors' course within the first year of their appointment.
- ◆ Develop and require appropriate training for any individual who will provide on-line medical direction to EMS providers.
- ◆ Develop formal mechanisms to utilize physicians who have expertise in emergency medical services in all aspects of the Maine EMS system.
- ◆ Develop an equitable compensation schedule to assure pay parity among regional medical directors.

## 4.9. TRAUMA SYSTEMS

### 4.9.1. STANDARD

To provide a quality, effective system of trauma care, each community 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, APSA-COT and 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 and other related databases drive system improvements, and should be reflected in PIER and injury prevention programs. Rehabilitation is an essential component of any local trauma system and hence these services should also be considered as part of the designation process. The trauma system (or trauma system plan) reflects the essential elements of the Model Trauma Care System Plan.

### 4.9.2. STATUS

The Maine trauma care system is established in the EMS Act. There is a state Trauma Advisory Committee (TAC) which includes a representative from rehabilitation disciplines. This group is active and is developing a Technical Assistance Team process to assist system hospitals review their handling of trauma patients. The TAC is to be commended for this effort.

Although mandated to do so by statute, the EMS Board has not succeeded in implementing a state trauma registry. Trauma data is reported by Trauma Center hospitals directly to the National Trauma Data Bank.

The state designates hospitals as either Trauma Centers or Trauma System Hospitals, using criteria developed through a state-wide cooperative effort. The state is to be commended for the inclusive and voluntary nature of its trauma system development process. State on-site verification is required for Trauma Center designation.

The state protocol for the activation of EMS helicopters is not uniform across the state. Several providers mentioned this issue in connection with a perception that some hospitals



and physicians may be using or not using air-medical resources based on economic or other interests not related to the immediate needs of the patient.

### 4.9.3. RECOMMENDATIONS

- ◆ Develop and maintain a state trauma registry.
- ◆ Utilize trauma registry data, patient care reporting data, and other relevant data sources to drive EMS education, quality improvement, and injury prevention programs.
- ◆ Modify the Maine EMS Prehospital Treatment Protocols to authorize all EMS providers statewide to request air medical transport units without on-line medical direction.

## 4.10. EVALUATION

### 4.10.1. STANDARD

A comprehensive evaluation program is needed to effectively plan, implement and monitor the community 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 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. Pre-established 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 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 databases 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 agency ensures that all quality improvement activities have legislative confidentiality protection and are non-discoverable.

### 4.10.2. STATUS

Maine EMS performs data collection and analysis using a standardized form and reports, but a limited number of variables and delays in input compromise the timeliness and extent of evaluation. State EMS provides quarterly and annual reports to local EMS agencies; the information may be distributed too late to be of immediate utility to local EMS agencies. A new patient care information system is being pursued, but may take another 18 months until it is ready for implementation.

Maine was the first Crash Outcome Data Evaluation System (CODES) state (linking motor vehicle crash data with EMS and other data). No other linkages exist with other data sources such as vital statistics or hospital records. With the exception of articles published in peer reviewed journals, limited outcome data has been assessed.

A Quality Improvement (QI) subcommittee has been formed under the Board and is focusing on system issues, standards and criteria. The state level QI Committee is not involved in individual performance/remediation issues unless service/regional/disciplinary process efforts are not successful to the point where regulatory action may be required. The Rules establish response time standards for both transporting and non-transporting services, but they use an average time over the span of a year which may occlude underlying variation sufficient for remediation. The delay in generation of annual MHIC reports may also lead to late detection of deviation from this standard.

The local EMS agencies are required to submit a QI plan along with their annual license renewal application but the benefit or value yielded from this requirement was not presented to the team. No evidence was provided that any plans have made documented improvements at a local or regional level yet. The contract from state EMS with the regional offices has also required the establishment of a QI program in each region, but manpower and financial resources devoted to this process have not been sufficient enough to yield QI implementation on a widespread basis. In some regions, the QI duties were absorbed by the regional coordinator; in other regions a separate position was created for this purpose. The EMS Act appropriately protects QI records from disclosure, removing a potential barrier for aggressive QI activities.

In short, Maine EMS cannot make any conclusions about the efficacy of the EMS system based on the limited data available.

### 4.10.3. RECOMMENDATIONS

- ◆ Continue with the acquisition of an electronic patient care information system assuring an adequate education and implementation plan is in place to facilitate a smooth transition for local EMS agencies.
- ◆ Establish a priority in the overhauled regional contract scope for technical assistance to local EMS agencies for QI plan development/implementation; maintain the obligation of QI system development at the regional level.

- ◆ Initiate a reporting system that captures performance indicators (e.g., fractile response times, clinical outcomes, etc) as opposed to inventory indicators( e.g., call volumes, number of personnel, call types, etc.)
- ◆ Establish linkage of the new prehospital care data with other sources such as the Bureau of Highway Safety, hospitals, and vital statistics.