STATE OF WISCONSIN

A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

June 25 - 28, 2012

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 1995, for example, the lifetime costs of all injuries were estimated at $260 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 over 33,000 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 death and injury on the nation's highways. NHTSA has determined it can best use its limited EMS resources if its efforts are focused on assisting States with the development of integrated emergency medical services (EMS) programs which include comprehensive systems of trauma care.

To accomplish this goal, in 1988 NHTSA developed a Technical Assistance Team (TAT) approach which 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 now uses the same ten component areas plus the area of preparedness with updated standards. The standards now reflect current EMS philosophy and allow for the evolution into a comprehensive and integrated health management system, with regional accountable systems of care, as identified in the 2006 IOM Report on the Future of Emergency Care. 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 Wisconsin Department of Health Services, Emergency Medical Services Unit (EMS) requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the Wisconsin Statewide EMS program. NHTSA developed a format whereby the EMS staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in Madison, Wisconsin on June 26 - 28, 2012. For the first day and a half, over 30 presenters from the State of Wisconsin, provided in-depth briefings on EMS and trauma care, and reviewed the progress since the 2001 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 Education
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information and Education
- Medical Direction
- Evaluation
- Preparedness

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 Wisconsin. The team spent considerable time with each presenter so they could review the status for each topic.

Following the briefings by presenters from the EMS Unit, public and private sector providers, 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 the TAT focused on major areas for system improvement.

The statements made in this report are based on the input received. Pre-established 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 Wisconsin Department of Health Services, Emergency Medical Services for their support in conducting this assessment and the Bureau of Transportation Safety for supporting the assessment process.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Wisconsin. Each presenter was responsive to the questions posed by the TAT which aided the reviewers in their evaluation. Many of these individuals traveled considerable distance to participate.

Special recognition and thanks go to Brian Litza, EMS Director, Department of Health Services and his staff and all the briefing participants for their extraordinary efforts and well-prepared presentations.

INTRODUCTION

The people of Wisconsin are fortunate. The place they call home is gorgeous with abundant natural resources. They enjoy options to live in vibrant urban communities, world-class university towns, or small rural villages. They live among neighbors with helping spirits and an enthusiasm for volunteerism that creates an unparalleled quality of life. They also benefit from steadfast efforts to maintain an emergency medical services (EMS) system that strives to provide uniform quality among diverse communities, reducing morbidity and mortality from those things that could easily afflict any of us. For more than two generations, enthusiasm, commitment, and homegrown ingenuity and expertise have served the people of Wisconsin well.

In 1990 and again in 2001 Wisconsin requested a NHTSA assessment of its EMS system. Using the resulting collective recommendations as a guide, Wisconsin has made tremendous strides in improving its EMS system during the past 22 years.

This report represents the findings of a second Wisconsin EMS reassessment. Wisconsin is among only a few states to have initiated such self-reflection and invited repeated external evaluation. In so doing, past accomplishments are recognized. However, the clear focus is toward the future. This reassessment report is one tool to help Wisconsin EMS choose its path.

A pervasive issue to be overcome is lack of recognition of the critical societal role served by EMS and its appropriate stature in governmental organization and priorities. While extraordinary progress has been made over the past 22 years, there is much yet to be done. Further, the accomplishments have resulted from the dedication of countless volunteers and unrecognized efforts of committed professionals. At the same time, State funding of EMS interests has decreased, not just in relative terms adjusted for inflation, but in meaningful absolute terms. Further, EMS has been demoted within the governmental bureaucracy to the extent that infrastructural erosion may be a threat to the future of the State's EMS system.

Nevertheless, the spirit of Wisconsin EMS is alive and prepared to persevere to maintain the quality of life the people of Wisconsin so richly enjoy. The recommendations included in this report arise from a platform of prior achievement and help to point the way to a future that will serve the citizens and visitors to Wisconsin in a manner they deserve.

The TAT revisited the eleven essential components of an optimal EMS system that were used in the *Wisconsin: A Reassessment of Emergency Medical Services*, in 2001. These components provided an evaluation or quality assurance report based on ten standards. While examining each component, the TAT identified key EMS issues, reviewed the State's progress since the original report, assessed its status, and used the eleven 2009 Reassessment Standards as the basis for recommendations for Wisconsin EMS system improvement.

A. REGULATION AND POLICY

Standard

Each State should embody comprehensive enabling legislation, regulations, and operational policies and procedures to provide an effective state-wide system of emergency medical and trauma care and should:

- Establish the EMS program and designate a lead agency;
- Outline the lead agency's basic responsibilities and authorities including licensure and certification including the designation of emergency medical services regions;
- Require comprehensive EMS system planning;
- Establish a sustainable source of funding for the EMS and trauma system;
- Require prehospital data collection which is compatible with local, State and national efforts such as the National EMS Information System (NEMSIS) and evaluation;
- Provide authority to establish minimum standards related to system elements such as personnel, services, specialty care facilities and regional systems and identify penalties for noncompliance;
- Provide for an injury/trauma prevention and public education program; and
- Integrate the special needs of children and other special populations throughout the EMS system;
- Integrate pediatric EMS needs into State statutes, rules and regulations.

All of these components, which are discussed in different sections of this guideline, are critical to the effectiveness of legislation, regulations or policies/procedures which are the legal foundation for a statewide EMS system.

Status

The Wisconsin Emergency Medical Services community remains focused on the provision of out-of-hospital care and transportation for the citizens and visitors of the state. Reorganization of the Emergency Health Care and Preparedness Section (the Section) has recently been accomplished and, although internal roles and responsibilities of the work units have been somewhat redefined and are presently being operationalized, it is clear that the Section leadership is committed to successful

implementation and service to the EMS and trauma systems. Although these changes have created a bit of angst, it is equally clear that the stakeholders are highly committed to supporting the continued development and improvement of care throughout the state.

The administrative rules (DHS 110) governing the licensing, certification and training requirements for EMS providers have been updated, and this effort has resulted in streamlined processes and updated requirements to achieve consistency with national standards. However, there have been few statute changes and funding resources have decreased. The EMS system continues to find itself working within statutory parameters that are outdated and cumbersome to apply to the 21st century needs for EMS and trauma care. The Wisconsin Department of Transportation (DOT) continues to have statutory responsibility for the inspection of ambulances while the Section and the EMS Unit are responsible for the licensing of these services. This bifurcation of responsibility and authority remains problematic in terms of consistency in application and enforcement.

During the past decade, circumstances have conspired to create an environment where funding, regulation and statutory authority have seriously challenged the EMS system. The Funding Assistance Program (FAP) is the most significant contribution of state resources to the statewide EMS system but the dollars available have decreased while costs of equipment and education have increased. These same circumstances have also resulted in a decrease of Departmental staffing for system support. The budget for operation of the EMS Unit is woefully small for a system of this magnitude and the EMS Unit and Section are to be commended for their commitment to maximize available resources.

The EMS Board is appointed by the Governor and not only provides advice to the Department, the Section and the EMS Unit, but is a "hands on" working group. By being a "working" board, its efforts augment and support the EMS Unit and the Section in areas where State resources are not presently available. This 11 member group meets regularly. It has written a number of documents to provide advice to the EMS Unit and stakeholders. It has also worked to develop the basis for possible legislative remedies to some of the greatest challenges. However, these initiatives have failed to produce change. There is concern that the makeup of the EMS Board should be reviewed with an eye towards expanding the representation to better reflect the needs of the EMS system as it exists today.

The EMS Unit and the Section have made significant progress in developing the EMS data collection system. The majority of EMS agencies are complying with the State's requirements and submitting patient care reports. The Unit has implemented a contemporary data collection/management software package to manage the 500,000+ patient care reports received each year. However, the Unit's and local providers' abilities to develop meaningful performance improvement processes are hindered by the lack of statutory protection from legal discovery.

Recommendations

The Legislature should:

- Consolidate ambulance inspection and licensing authority within the Department of Health Services with sufficient funding and personnel to support the function.

- Authorize the Department to conduct criminal background checks as part of licensing processes, and take action based on findings, and provide sufficient resources for implementation.

- Redefine the EMS board membership on the basis of specific constituencies that require continuous participation to ensure appropriate multidisciplinary representation.

- Implement statute that creates consolidated EMS/Trauma/Preparedness regions. The geographic boundaries should be based on the existing Regional Trauma Advisory Council (RTAC) boundaries. The creation of these consolidated regions must include sufficient sustainable funding.

- **Provide sufficient and sustainable financial resources to adequately support the regulatory and system development responsibilities of the Section and Units.**

- **Ensure adequate legal protection of EMS data to enable the development of peer review processes.**

B. RESOURCE MANAGEMENT

Standard

Each State EMS lead agency should identify, categorize, and coordinate resources necessary for establishment and operation of regionalized, accountable EMS and trauma systems. The lead agency should:

- Maintain a coordinated response to day-to-day emergencies as well as mass casualty incidents or disasters and ensure that resources are used appropriately throughout the State;
- Have policies and regulations in place to assure equal access to basic emergency care for all victims of medical or traumatic emergencies;
- Provide adequate triage, including trauma field triage, and transport of all patients by appropriately certified personnel (at a minimum, trained to the emergency medical technician [EMT] level) in properly licensed, equipped, and maintained ambulances;
- Provide transport to a facility that is appropriately equipped, staffed and ready to administer to the needs of the patient including specialty care hospitals (section 4: Transportation);
- Appoint an advisory council, including pediatric EMS representation, to provide broad-based input and guidance to the state EMS system and to provide a forum for cooperative action and for assuring maximum use of resources; and
- Coordinate with State Highway Safety Agency and other State Agencies in the development of the Strategic Highway Safety Plan to ensure that EMS system information is used to evaluate highway safety problems and to improve post-crash care and survivability.

Status

In recent months, the Emergency Healthcare and Preparedness Section was created to include The State Trauma Program, the Public Health Preparedness Program, Hospital Preparedness Program, the EMS for Children Program, and "EMS Unit". Some stakeholders have indicated that this is a "downgrading" of the EMS Office. However, the restructure may provide the opportunity to capitalize on some key economies of scale and synergy that come with this combination.

The EMS Unit is obviously understaffed and in many cases there is evidence of its inability to fully monitor, oversee and enforce EMS regulations across the state. Trauma

center verification and classification is done through the statewide trauma system, and the EMS for Children program is working on a recognition process for pediatric hospitals. However, other types of specialty care designations for healthcare facilities are limited to small areas in certain parts of the state.

Wisconsin has a statewide EMS plan that was originally written in 1995, and is updated on a biannual basis. There are 33 priorities identified in the plan, and the latest draft of the plan is dated 2012. The plan lacks measurable milestones and strategic planning to achieve these priorities, and it does not identify responsible agencies for completing the tasks necessary to address its priority areas.

Wisconsin EMS has established statewide electronic patient care reporting, but lack of data analysis and generous time requirements for report submission are barriers to effective quality assurance and system improvement in general.

Emergency Medical Dispatch is used sporadically throughout the state. Lack of medically driven dispatch techniques with pre-arrival instructions allows for inappropriate EMS response and a less than optimal use of resources due to over-triage. Emergency Medical Dispatch helps greatly to assure delivery of quality EMS care when used in conjunction with pre-arrival instructions and dispatch quality assurance.

Wisconsin EMS agencies are experiencing difficulties with the recruitment and retention of volunteers, especially in efforts to recruit minority volunteers. This is a nationwide issue that is common throughout many jurisdictions.

The EMS Unit has a good working relationship with the Bureau of Transportation Safety and is taking advantage of opportunities for funding and support of common interests.

The EMS Unit has eight FTE employees and an annual budget that is a mixture of state and federal grant funds. It was noted that at times employees of the EMS Unit have difficulty obtaining approval to work nights and weekends. Such work is essential when dealing with the volunteer community, monitoring or participating in special events or exercises, or for travel across the state.

The State also provides funding through its Funding Assistance Program (FAP) directly to provider agencies through a formula-based application process. The amount of funding provided to the EMS Unit for its daily operations and the amount allocated to the FAP is below what might be expected in a state the size of Wisconsin.

There is a long-established EMS Board, which is referred to as a "working board" because it has produced many written products with recommendations for improving the state's EMS system. In some cases the EMS Board has actually performed work that could not be completed by the EMS Unit due to lack of resources. There is a general climate of frustration concerning many of the products produced by the EMS Board

because key efforts have been unsuccessful in inciting system change. Many EMS system stakeholders across the state see the lack of funding and lack of legislative action on EMS Board recommendations as prime indicators that there is a general lack of interest in the legislature and in state government when it comes to providing quality EMS care.

Nearly all stakeholders involved in this assessment discussed the potential benefit of empowering and funding the EMS Unit to a level where it could provide technical assistance customized to various geographic regions throughout the state.

Recommendations

- The Division of Public Health, the Department of Health Services and the State Legislature should take immediate steps to find additional stable funding sources and human resources to support the EMS Unit and FAP in the interest of improving EMS resource management activities such as data analysis, statewide technical assistance, recruitment and retention, medical direction, and priority medical dispatch.

- The EMS Unit should develop strategic methodology to support its EMS Plan objectives, complete with timelines, objectives and identification of responsible agencies.

- **The Legislature should provide statutory authority to the Department to develop and regulate a statewide emergency medical dispatch system.**

- The Division should make appropriate arrangements to ensure that EMS Unit personnel can work nights and weekends when necessary to accommodate volunteers and special events.

C. HUMAN RESOURCES AND EDUCATION

Standard

Each State should ensure that its EMS system has essential trained and certified/licensed persons to perform required tasks. These personnel include: first responders (e.g., police and fire), prehospital providers (e.g., emergency medical technicians and paramedics), communications specialists, physicians, nurses, hospital administrators, and planners. Each State should provide a comprehensive statewide plan for assuring a stable EMS workforce including consistent EMS training and recruitment/retention programs with effective local and regional support. The State agency should:

- Ensure sufficient availability of adequately trained and appropriately licensed EMS personnel to support the EMS system configuration;
- Assure an ongoing state EMS personnel needs assessment that identifies areas of personnel shortage, tracks statewide trends in personnel utilization and which establishes, in coordination with local agencies, a recruiting and retention plan/program;
- Establish EMT as the state minimum level of licensure for all transporting EMS personnel;
- Routinely monitor training programs to ensure uniformity, quality control and medical direction;
- Use standardized education standards throughout the State that are consistent with the National EMS Education Standards;
- Ensure availability of continuing education programs, including requirements for pediatric emergency education;
- Require instructors to meet State requirements;
- Assure statutory authority, rules and regulations to support a system of EMS personnel licensure that meets or exceeds the national EMS Scope of Practice Model, new National EMS Education Standards, as they are available, and other aspects of the EMS Education Agenda for the Future; and
- Monitor and ensure the health and safety of all EMS personnel.

Status

One of the most important components of any EMS system is sufficient human resources with adequate training to effectively provide emergency and non-emergency patient care and transportation throughout its jurisdiction. The Wisconsin EMS system provides services to over 500,000 ambulance patients per year using a cadre of over 20,000 certified EMS providers. The EMS Unit within the Emergency Health Care and Preparedness Section is responsible for the development, implementation, evaluation and support of the statewide system that provides training and education to this vital workforce.

In general, EMS provider education is delivered through the Wisconsin Technical College System (WTCS) and a cooperative agreement exists with the Department. There are circumstances where education and training is delivered through local agencies or other appropriate sponsors, but all education programs and faculty are required to meet Department of Health Services standards set through DHS 110. The state has adopted and is in the process of fully implementing recommendations outlined by the *"EMS Education Agenda for the Future"* and the *"National EMS Scope of Practice"*. Upon completion of the implementation process, the levels of certification for EMS providers in Wisconsin will include Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT), EMT-Intermediate (EMT-I) and Paramedic. It is important to note that Wisconsin has chosen to maintain its EMT-Intermediate level of certification even though it is not part of the *EMS Education Agenda* and will not be supported by the National Registry of EMTs. All Paramedic training centers will be required to achieve national accreditation by January 1, 2013.

The certification of EMS providers is based on completion of initial training from an authorized training center and successful certification by the National Registry of EMTs. Faculty are required to complete formal education programs as authorized by the Department of Health Services and maintain ongoing certification requirements as well. Plans to transition existing personnel to the new levels and scopes of practice have been completed and will be deployed in 2012 with completion expected by 2014. The recertification of EMS personnel follows National Registry requirements and personnel are required to maintain ongoing National Registry certification.

Paramedic education has been aligned with the EMS Education Standards and at the present time, four of the existing 12 paramedic training programs serving the State of Wisconsin are accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) through the Committee on the Accreditation of Emergency Medical Services Programs (CoAEMSP). The WTCS estimates that the remaining eight paramedic programs will achieve accreditation on or before the regulatory deadline.

Challenges with regard to maintaining quality education programs within the fiscal parameters of the WTCS continue to exist. The tuition of $126 per credit hour covers approximately 1/3 of actual costs. As course content increases and fiscal resources remain limited, EMS provider agencies are concerned that costs will be shifted to them. It is an expense they cannot afford.

A common theme in Wisconsin is the increasing difficulty of identifying sufficient clinical and field preceptor sites to accommodate the needs of the education programs. Preceptors are required to have no less than two years' experience thus sometimes limiting the number of available preceptors for students. Competition amongst the varied allied health care education programs places pressure on facilities and agencies to meet the needs of a growing student population. Opportunities may exist to develop non-traditional clinical experiences.

Concerns have been expressed regarding increases in educational time requirements for EMS providers over the past decade. Using a competency-based system of student evaluation has caused increases in the duration for students to complete initial training courses. Service providers are concerned that this results in both additional costs as well as making personnel less available for service.

Wisconsin EMS depends on a high number of volunteer EMS providers, particularly in rural areas, to maintain system effectiveness and availability. Concerns regarding the ability of volunteer EMS agencies to maintain their current level of service are valid and deserve attention. The challenges of recruiting and retaining qualified volunteer EMS providers deserve ongoing attention by the Section, stakeholder organizations and the WTCS.

Recommendations

- The Section and the EMS Unit should work with the Wisconsin Technical College System (WTCS) to develop methodologies, such as distributive learning, that will minimize the number of classroom hours required to achieve course competencies.

- The EMS Unit should partner with the Wisconsin Technical College System (WTCS) to fully develop alternative clinical opportunities to include non-traditional, focused experiences such as pediatric clinic rotations and assisted living facility rotations.

- The EMS Unit and Wisconsin Technical College System (WTCS) should undertake a comprehensive evaluation of the EMS Instructor cadre to ensure that instructors are adequately prepared to meet the needs of students and produce workforce-ready graduates.

- The Section and Wisconsin Technical College System should develop a strategy to understand and document the barriers and opportunities to improve the recruitment and retention of volunteers. Based on those outcomes, interventions to support and improve personnel availability for volunteer services should be developed and implemented.

D. TRANSPORTATION

Standard

Each State should require safe, reliable EMS transportation. States should:

- Develop statewide EMS transportation plans, including the identification of specific EMS service areas and integration with regionalized, accountable systems of emergency care;
- Implement regulations that establish regionalized, accountable systems of emergency care and which provide for the systematic delivery of patients to the most appropriate specialty care facilities, including use of the most recent Trauma Field Triage Criteria of the American College of Surgeons/Committee on Trauma;
- Develop routine, standardized methods for inspection and licensing of all emergency medical transport services and vehicles, including assuring essential pediatric equipment and supplies;
- Establish a minimum number of personnel at the desired level of licensure on each response and delineate other system configuration requirements if appropriate;
- Assure coordination all emergency transports within the EMS system, including public, private, or specialty (air and ground) transport and including center(s) for regional or statewide EMS transportation coordination and medical direction if appropriate; and
- Develop regulations to ensure ambulance drivers are properly trained and licensed.

Status

Since the 2001 NHTSA assessment, the Wisconsin Air Medical Council has organized and helps to coordinate and manage air medical services in the state. Mutual aid agreements with adjacent providers are required for each ambulance service provider, but a statewide transportation plan for coverage and operations does not exist. This affects not only a stressed routine response system, but a coordinated response to a disaster situation. Though the EMS Unit should be commended for implementing regulations pertaining to special events coverage, a concern was expressed regarding the length of time it takes to gain approval from the EMS Unit. Objective criteria have been established for approving licensed ambulance service operational plans. Ambulance services licensed after 2001 may staff with a single paramedic. However, ambulance services licensed prior to 2001 must maintain their two paramedic

configuration.

Wisconsin has 792 licensed or certified EMS services, which include 341certified first responder groups, 147 licensed basic ambulance services, 144 licensed intermediate technician ambulance services, 15 licensed intermediate ambulance services, 136 licensed paramedic ambulance services, and nine licensed air medical services. The services are 64% volunteer and 36% career service personnel. There are approximately 1500 ambulance vehicles registered in the state. Approximately 75% of the EMS ambulance services are rural-based; 46% are fire-based; and 54% are private, independent, or volunteer-based.

Though air medical services remain unregulated, there are some basic requirements for air medical services in the administrative rule revision. Wisconsin does not have a coordinated air response system. However, the Air Medical Council self-regulates the air ambulances with essential items found in rule. Air ambulances have carved out service areas, but more resources are needed in the Northern portion of the state. The Council provides a forum for review and discussion of needs and issues. The air ambulance providers did express interest in exploring activation guidelines.

Objective criteria have been established for the approval or disapproval of ambulance service operational plans. Inspections are the responsibility of the DOT. Vehicles are inspected once every two years by state patrol personnel. EMS Unit Coordinators also conduct spot checks on the vehicles and operational plans.

There is a standardized list of ambulance equipment, including pediatric equipment, listed in the administrative rule *TRANS 309*. The EMS Unit has worked with DOT to develop licensing rules and make suggestions regarding qualifications for inspection personnel. However, the equipment list has not been updated for over twelve years and the language resides in the DOT administrative rule. Both DOT and the EMS Unit will be reviewing the list for updates but constituents expressed the desire to have this inspection function within the EMS Unit.

Since 2010, there is increased collaboration between DOT, Bureau of Transportation Safety, and the EMS Unit. The EMS Unit is involved with the development of the Highway Safety Plan and Zero Fatalities conference. DOT has provided funding for the various activities. For example, flash drives were provided to all EMS data users to promote the Wisconsin Ambulance Run Data System (WARDS). The EMS Unit is also involved with the Governor's Highway Safety Conference.

The DOT partnership has also produced a marketing plan to recruit volunteers, as well as equipment and training for new first responder groups. Future goals include enhancements to WARDS, improvement of data quality and linkages from WARDS to trauma data.

The staffing requirement for ambulances is two EMTs per vehicle. This requirement

may be onerous in some rural communities. No standards are in place for first response groups and no driving safety training is required for ambulance vehicle drivers. The absence of driver training requirements was a major concern for licensed EMS agencies and the EMS Unit, which reflects a strong commitment to provider and patient safety.

In a large state like Wisconsin, there is often a need to transport patients long distances from the scene to appropriate facilities or between facilities. When this is the case, local EMS resources can be overburdened. One approach to managing these challenges may be to develop regionalized transportation systems.

A concern was expressed regarding the interfacility transports and the implementation of the critical care paramedic level. Though this level of care is greatly needed, there is growing concern amongst providers that the implementation date is unrealistic and available trained personnel may be insufficient to adequately manage the demand.

Recommendations

- **The EMS unit should mandate emergency vehicle operations training for ambulance drivers and include that requirement in the approval of ambulance service operation plans.**

- The Section should seek (NHTSA 402) funds to support a statewide transportation needs assessment in order to develop a strategic transportation plan.

- The EMS Unit and EMS Board should consider allowing alternate staffing configurations for rural areas, such as one EMT and one First Responder.

- The EMS Unit and EMS Board should require EMS operations plans to stipulate adherence to national guidelines for field triage of injured patients, in collaboration with the state trauma system.

E. FACILITIES

Standard

It is imperative that the seriously injured (or ill) patient be delivered in a timely manner to the closest appropriate facility. Each State should ensure that:

- Both stabilization and definitive care needs of the patient are considered;
- There is a statewide and medically accountable regional system, including protocols and medical direction, for the transport of patients to state-designated specialty care centers;
- There is state designation of specialty medical facilities (e.g. trauma, burns, pediatric, cardiac) and that the designation is free of non-medical considerations and the designations of the facilities are clearly understood by medical direction and prehospital personnel;
- Hospital resource capabilities (facility designation), including ability to stabilize and manage pediatric emergencies, are known in advance, so that appropriate primary and secondary transport decisions can be made by the EMS providers and medical direction;
- Agreements are made between facilities to ensure that patients, including pediatric patients, receive treatment at the closest, most appropriate facility, including facilities in other states or counties;
- Hospital 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 appropriate facilities.

Status

In 2008, Wisconsin began implementation of a statewide trauma system; 122 of 127 acute care hospitals currently participate. Level I and II facilities are verified by the American College of Surgeons and level III and IV facilities are classified using a State process. Level I and II pediatric trauma centers have also been verified. There is no formal hospital designation process for STEMI, stroke, burns, or other special populations. The Emergency Medical Services for Children program is working towards implementation of a pediatric designation process for hospital emergency departments.

The trauma centers in the state select the level at which they request verification (Level I and II) or classification (Level III and IV). This voluntary inclusive approach does not limit the number of Level I and II trauma centers, except as dictated by trauma patient

volume requirements. This process may result in too many Level I and Level II facilities within a defined geographic area. A hospital in a geographic area with the expertise and commitment to function as a Level I may be precluded from verification at this level because of nearby Level II facilities competing for trauma patient volume. Volume remains an important determinant of trauma care quality. Eventually, the State may need to adjust or modify trauma center designation levels for some hospitals in order to improve overall trauma system performance and patient care.

A "real time" patient tracking system (WI-Trac), originally implemented for disaster management, is currently used in some geographic areas as an everyday tool to track "real-time" hospital resources. This system is in pilot phase and is intended to provide awareness for EMS and other hospitals capabilities and availability of beds and specialty services.

Level I and II trauma centers submit data to the National Trauma Data Bank (NTDB); all trauma centers provide data to the State trauma registry. To this point, state, regional, and hospital-specific trauma reports have not been generated at the state level. The registry dataset has recently been made compliant with the National Trauma Data Standard which will facilitate both statewide aggregation and reporting to the NTDB. A recognized obstacle to effective peer review at a regional or state level in Wisconsin is the absence of hospital-provided outcome data.

Hospital diversion is not seen as an important issue for much of Wisconsin. There are local systems such as Milwaukee, Fox Valley, Green Bay, and Madison that have occasional diversion issues. These are managed locally by agreements between the facilities and the EMS providers. In Milwaukee, if more than five hospitals go on divert at any one time, they are all taken off divert status. Facilities will often tell an EMS service to divert only after they call to give report, rather than providing notification earlier. WI-Trac may be the solution for this notification problem in most areas of the state.

Due to local medical direction inadequacies, services are sometimes forced to transport patients to the local hospital, even those with time critical diagnoses. Many small hospitals that provide medical control require the EMS agency to bring the patient to their facility first, even if not in the best interest of the patient. Online medical control is too often used to overrule EMS personnel discretion regarding destination choice based on patient condition (such as for STEMI) and to overrule the statewide trauma and triage transport protocol.

At a local level, many hospitals identify their capabilities, but the information does not necessarily get disseminated to the EMS agencies. Many hospitals are unclear as to the level of care (scope of practice) of the local EMS agencies.

Recommendations

- The Section should designate and publish online (and maintain accuracy of) the capabilities and classification level of each hospital specifically addressing time critical diagnoses and special populations.

- **The State EMS Medical Director, in conjunction with the Physician Advisory Committee, should develop statewide guidelines on appropriate destination policies based on hospitals' capabilities and driven by patient need. Compliance should be monitored.**

- The EMS Unit should require each EMS operations plan to specifically address facility destinations for time critical diagnoses and special populations.

- The Section should require submission of hospital outcome data to Regional Trauma Advisory Councils (RTAC) and EMS peer review processes as a prerequisite for trauma center participation in the system.

- **The Section should empower the Regional Trauma Advisory Councils (RTAC) to ensure that trauma centers are classified at the level most appropriate to their capabilities and to ensure optimal performance of the trauma system.**

F. COMMUNICATIONS

Standard

An effective communications system is essential to EMS operations and provides the means by which emergency resources can be accessed, mobilized, managed, and coordinated. Each State should assure a comprehensive communication system to:

- Begin with the universal system access number 911;
- Strive for quick implementation of both wire line and wireless enhanced 911 services which make possible, among other features, the automatic identification of the caller's number and physical location;
- Strive to auto-populate prehospital patient care report (NEMSIS compliant) with all relevant times from the public safety answering point (PSAP);
- Provide for emergency medical dispatch training and certification for all 911 call takers and EMS dispatcher.
- Provide for priority medical dispatch;
- Provide for an interoperable system that enables communications from dispatch to ambulance, ambulance to ambulance, ambulance to hospital, hospital to hospital and ambulance to public safety communications.
- Provide for prioritized dispatch of EMS and other public safety resources.
- Ensure that the receiving facility is ready and able to accept the patient; and
- Provide for dispatcher training and certification standards.
- The statewide communications plan includes effective, reliable interoperable communications systems among EMS, 911, emergency management, public safety, public health and health care agencies.
- Each State should develop a statewide communications plan that defines State government roles in EMS system communications.

Status

Since the 2001 NHTSA assessment, the Wisconsin EMS unit has secured funding for the development of a statewide interoperable communications system; has secured E9-1-1 coverage to 99% of the population and disassembled the microwave system which is no longer needed.

Residents of Wisconsin continue to have access to the universal access number 9-1-1. There are 71 counties that have enhanced 9-1-1 system capabilities, out of 72 counties in total. There are 176 PSAPs in Wisconsin. Approximately, 130 of the PSAPs, dispatch EMS, but only 68 have an emergency medical dispatch system. An EMS Unit staff member has regularly attended Association of Public Safety Communication Officers (APCO) meetings around the state. He discovered that many PSAPs were reluctant to train their staff as emergency medical dispatchers because of cost, liability and shortages in staffing.

Dispatch coordination with disaster response was identified as a key role for the PSAPs. As a result of that assessment, they are implementing the WI Trac system through the Hospital Preparedness Program, which provides an alerting system for hospital diversion and bed capacity capabilities. However, not all PSAPs participate in this system.

The Wisconsin emergency healthcare system utilizes VHF radios for day-to-day operations, with trunked systems in some urban settings. Physician-directed standing orders and cell phones provide redundancy. All Wisconsin hospitals are required by statute to maintain a common radio communications system and comply with the Wisconsin EMS Communications Plan as a backup method to access online medical control. The Physician Advisory Committee is working on standards for online medical direction.

There are issues associated with medical direction for dispatch services. One issue revolves around the lack of medical oversight for dispatch centers and personnel dispatching ambulances. Another issue appears to be a pervasive statewide problem associated with hospital staff and their lack of familiarity with the operations of communications equipment. An educational course from Minnesota was identified as a model to address this need.

Wisconsin has established a statewide public safety communications system which allows for local and statewide communications including dedicated talk groups for EMS and other disciplines. The system was developed with financial support from the Homeland Security Interoperability Program funds. The system will be maintained with state general purpose funds and users fees.

Wisconsin has developed an EMS Communications Plan which is to be updated in 2012. The state EMS Unit should be commended for its efforts in the development of a comprehensive EMS communications plan, which was drafted in coordination with other public safety organizations through a mutual aid committee. One of the results of that was a mutual aid box alarm system (MABAS). However, the private providers are not able to participate in the MABAS, limiting their mutual aid capabilities.

There is some progress being made towards the development of dispatch standards. A

Governor-appointed panel has been authorized to create a committee to establish dispatch center and emergency medical dispatch training standards.

In addition to the dispatch standards committee, a statewide 9-1-1 board is being formed with the mission to focus on reviewing requirements for training and the need for 9-1-1 personnel; create a minimum 9-1-1 standard and funding source; upgrade technology to allow EMS to locate callers using phone systems; and to review best practices from other states.

Recommendations

- **The EMS Unit and EMS Board should be active participants in the process to create statutory authority, secure funding, and promulgate regulations for emergency medical dispatchers and 9-1-1 dispatch centers consistent with national standards.**

- The EMS Unit and EMS Board should complete the development of the online medical control and resource hospital standards in cooperation with the Physician Advisory Committee.

- The EMS Unit should support the implementation of an educational program to improve the working knowledge of radio equipment for all users.

- The EMS Unit should continue efforts to integrate EMS agencies, dispatch centers and hospitals on WI Tracs.

- The EMS Unit and EMS Board should consider the development of standardized air activation guidelines.

- The EMS Unit should investigate models from other states for the implementation of call centers which may help to facilitate interfacility transfers, air ambulance activation, and coordination of assets for disaster response.

G. PUBLIC INFORMATION AND EDUCATION

Standard

Public awareness and education about the EMS system are essential to a high quality system. Each State should implement a public information and education (PI&E) plan to address:

- The components and capabilities of an EMS system;
- The public's role in the system;
- The public's ability to access the system;
- What to do in an emergency (e.g., bystander care training);
- Education on prevention issues (e.g., alcohol or other drugs, occupant protection, speeding, motorcycle and bicycle safety);
- The EMS providers' role in injury prevention and control; and
- The need for dedicated staff and resources for PI&E.

Status

Though the EMS Unit has not developed a broad based public information and education plan, it has utilized its website to increase consistent communications with the EMS Community. There continues to be no funding or personnel dedicated to public information, education and injury prevention. Operational plans for ambulance services do not include public information, education and injury prevention but could be accomplished through a regulatory revision.

Since 2001, the "Bureau of EMS and Injury Prevention" was reorganized and the injury prevention function was relocated. Though the injury prevention activities still exist within the Department, the EMS Unit staff are unable to fully interact with the Violence and Injury Prevention Program (VIPP) and to collaborate on strategic planning and injury prevention efforts.

The EMS Unit has spent much time and effort in developing its website and in providing a numbered memo series to update the EMS community of current developments in the system. The series now has approximately 77 memos within the section for providers to review.

Though a public information web page has been created to disseminate information of interest to the public, it is lacking resources. It doesn't address the capabilities of the

EMS system, the public's role in the system and the public's ability to access the system. However, it does provide an interactive map of all the licensed EMS ambulance services in the state, training centers, complaint and investigation, as well as information on the public access defibrillation program.

The EMS Unit and EMS agencies participate in some public information and education activities such as EMS week, career days, and EMS booths at county fairs, and provide EMS related articles in local newspapers. Other public information programs identified by EMS agencies included: 7th and 8th grade CPR, "Project Adam," and "File for Life."

The EMS Unit and EMS Board have established two priorities for public information and education. One is to develop a broad based public information and education plan that would target policymakers and the general public. The other is to continue to develop EMS website to be the primary source of information regarding Wisconsin EMS.

In addition to the above priorities, the Section has plans to hire an epidemiologist which will provide the EMS Unit with the opportunity to mine their patient care data, trend injury and illness, and target prevention programs. The EMS Unit has a good relationship with the Bureau of Transportation Safety. This will provide an opportunity for them to access funds to support targeted injury prevention programs.

Recommendations

- The EMS Unit should partner with the Violence and Injury Prevention Program (VIPP) to conduct an assessment of current statewide activities by hospitals and EMS providers for public education and injury prevention programs.

- The EMS Unit should actively participate in the development of strategic plans with the Bureau of Transportation Safety, Office of Rural Health, and the Violence and Injury Prevention Program (VIPP).

- The EMS Unit should modify the regulations to include injury prevention, public education and public information in operational plans for licensed ambulance services.

- **The Section should utilize information from the trauma registry and Wisconsin Ambulance Run Data System (WARDS) to develop and disseminate fact sheets and brief reports to the public, policy makers and the EMS community.**

- The Section should seek resources to utilize patient care data for assessing injury type and prevalence in order to target localized and statewide injury prevention programs.

H. MEDICAL DIRECTION

Standard

Physician involvement in all aspects of the patient care system is critical for effective EMS operations. EMS is a medical care system in which physicians oversee non-physician providers who manage patient care outside the traditional confines of the office or hospital. States should require physicians to be involved in all aspects of the patient care system, including:

- A state EMS Medical Director who is involved with statewide EMS planning, overseeing the development and modification of prehospital treatment protocols, statewide EMS quality improvement programs, scope of practice and medical aspects of EMS provider licensing/disciplinary actions;
- Online and off-line medical direction for the provision of all emergency care including pediatric medical direction, when needed and the authority to prevent and EMS provider from functioning based on patient care considerations; and
- Audit and evaluation of patient care as it relates to patient outcome, appropriateness of training programs and quality improvement.

Status

The nature of EMS medical direction in Wisconsin is both a great advantage for the system and a challenge for future efforts to ensure statewide quality and reliability. The advantage comes from the depth and breadth of expertise among several EMS-committed physicians. They serve as the state EMS medical director, medical directors of advanced local EMS systems, and engaged advisors. They are too few, however, given the current manner in which EMS medical direction is organized throughout the state. Thus, there continues to be reliance on physicians with limited or no EMS experience. Not infrequently, EMS providers have difficulties identifying physicians who are willing to be medical directors. The results include portions of Wisconsin where EMS care is state-of-the-art and cutting edge research is being conducted. In other locations difficulties arise in getting EMS medical directors and their providers to adopt evolving standard practices, including appropriate designations for patient transportation destinations.

The state EMS Medical Director is an engaged and well-qualified physician who enjoys widespread recognition and respect. He is contracted by the State in accordance with Chapter 256, which establishes the position. However, while Chapter 256 establishes that there shall be a state EMS medical director, it does not endow him with any specific responsibilities or authorities. Further, it designates a specific funding source for $25,000, which has been interpreted as the ceiling of available funding for the position.

Thus, the state EMS medical director serves as only a small fraction of a full-time equivalent and functions mostly in a limited advisory capacity at the discretion of the EMS Unit.

The EMS rules and regulations (DHS 110) establish the qualifications of EMS medical directors and their responsibilities and authorities. In the aggregate, EMS medical directors have substantial latitude to determine how the systems and individuals within their purview operate. As noted, however, there is an undesirable degree of heterogeneity among EMS medical directors throughout Wisconsin. Differences include EMS-related fund of knowledge, commitment to the system, and motivation. The results include decisions about care and protocols with variation that cannot be explained by patients' best interests. Each of 792 EMS provider agencies is responsible for identifying its own medical director. Although specific qualifications are mandated, there is no current ability to verify them. While there is an online EMS medical director's course, a Wisconsin EMS medical director's orientation of sorts, available on the Unit's website, it is not possible to determine who has taken it or not. There is not a reliable way to efficiently communicate with all EMS medical directors, nor is there a readily available roster of who they are.

Online medical control is thought to be available throughout the state. That is, EMS personnel reliably have the ability to contact a hospital emergency department for patient care guidance. However, there are no prescribed qualifications for the person who might answer the call and provide such guidance. The responsibility to ensure the availability of qualified and quality online medical control rests with the EMS medical directors, and there is no ability to verify that they exercise this duty appropriately.

The Physician Advisory Committee, appointed by the Emergency Medical Services Board, is a valuable resource for deliberating EMS clinical issues, advising the Unit and the state EMS medical director, and creating useful products for various stakeholders. Current funding significantly limits the frequency of its meetings.

Recommendations

The Department of Health Services should:

- **Establish the position of State EMS Medical Director as a 0.5 full-time equivalent with commensurate compensation and support.**

- Clarify the responsibilities and authorities of the State EMS Medical Director with particular attention to his or her role in defining and resolving EMS clinical issues in the state, facilitating qualified EMS medical direction throughout the state, and providing clinical expertise within the EMS Unit.

The EMS Unit should:

- **Develop a system of regional EMS medical direction that includes a cadre of qualified EMS medical directors to provide medical direction throughout their regions or oversee local EMS medical directors within their regions.**

- Develop and maintain a roster of all EMS medical directors in Wisconsin, and provide them with periodic communiqués that include meaningful guidance and updates.

- Ensure that the Physician Advisory Committee conducts at least bi-monthly face-to-face meetings to conduct its business.

I. TRAUMA SYSTEMS

Standard

Each State should maintain a fully functional trauma system to provide a high quality, effective patient care system. States should implement legislation requiring the development of a trauma system, including:

- Trauma center designation, using American College of Surgeons Committee on Trauma guidelines as a minimum;
- Trauma field triage and transfer standards for trauma patients;
- Data collection and trauma registry definitions for quality assurance, using American College of Surgeons Committee on Trauma National Trauma Data Standards, as soon as practicable;
- Systems management and quality assurance; and
- Statewide Trauma System Plan, consistent with the Health Resources and Services Administration Model Trauma System Planning & Evaluation Document.

Status

Wisconsin's Trauma Care System is dedicated to reducing the death, disability, and suffering that result from traumatic injuries and mass casualty events by providing a comprehensive and integrated system of statewide prevention and trauma care resources throughout the continuum of care. The system is aligned with the efforts and activities of EMS, Emergency Medical Services for Children (EMSC), transportation safety, and emergency preparedness.

A Statewide Trauma Report/Plan was written and approved by the legislature in 2001 enabling administrative rules to be promulgated in 2005. These rules (DHS 118) include reference to an American College of Surgeons document: *Resources for Optimal Care of the Injured Patient: 1999.* Using this outdated reference leaves the trauma criteria and rules outdated. The excellent 2001 trauma plan is now also out of date and warrants revision.

Since 2005, Wisconsin has had statutory authority to designate trauma facilities through revised administrative rule DHS 118. This authority has been used to create an inclusive trauma care system with 122 of 127 acute care hospitals participating in this voluntary system. There are two Level I trauma centers, two Level I pediatric trauma centers, eight Level II trauma centers, and one Level II pediatric trauma center all verified through the American College of Surgeons. The remainder of Wisconsin's

trauma centers are classified as Level III or Level IV through a state-defined process. Each trauma facility is expected to demonstrate a trauma performance improvement process as well as education for all providers. System performance improvement includes a three-year verification/classification cycle for all trauma centers. American College of Surgeons reviewers are used to verify the Level I and II centers while a state process addresses the recurrent classification needs of the remaining 109 trauma centers (Level III and Level IV). This voluntary inclusive system appears to be functioning well at this point. Should multiple trauma centers be permitted to change their level in the future (resulting in too many Level II centers), the currently functional regionalization may be disrupted.

Wisconsin's trauma registry is supported by the Department of Transportation (DOT). There is collaboration with the Violence and Injury Prevention Program and EMSC to fund a part-time epidemiologist in the near future. Wisconsin's trauma registry has the capability to generate state, regional and hospital reports, but none have yet been created. DHS is currently aligning the state trauma registry with the National Trauma Data System (NTDS) while maintaining current data menus for EMS including First Responder, Primary and Secondary EMS services at the scene. There is no position to coordinate and support the trauma registry other than the State Trauma Coordinator.

General Purpose Revenue (GPR), transportation safety funds, and the Wisconsin Hospital Preparedness grant support the statewide trauma system. These funds provide trauma registry support, State Trauma Coordinator salary, contracting with site reviewers, and RTAC Coordinator support. Although the system currently functions without statutory funding, there are appropriations of $94,300 for trauma classification reviews and $449,200 for RTAC operations. Trauma system efforts towards injury prevention and public awareness remain in their infancy.

The State Trauma Advisory Council (STAC), created by statute, serves as an advisory body to DHS for trauma system development. STAC has been active since 2000 and includes surgeons, an emergency department physician, administration, nurses, paramedics, EMS Board member and pediatric representation. Flight support, rehabilitation expertise, and consumer representation are not present. The majority of STAC members are newly appointed and are learning the history and issues of the current EMS and trauma systems. STAC is collaborating with the Department to define priorities and address challenges including collaboration with Wisconsin's EMS system.

Wisconsin has nine Regional Trauma Advisory Councils (RTACs) and Coordinators who offer "Trauma Basics" training for EMS and hospitals throughout the state, funded by the Wisconsin Hospital Preparedness grant. RTACs were created based on existing referral patterns to Level I and Level II trauma centers. Performance improvement and peer review at the regional and state level is protected by statute. This provides a tremendous advantage towards successful system wide performance improvement efforts. The Wisconsin trauma system nine region model is ideal to serve as the

infrastructure for regional and state EMS organization and response for mass casualty and terrorism events.

Existing trauma system challenges include: effective collaboration between the State Trauma Advisory Council (STAC) and EMS Board, the organizational and operational separation between the EMS and trauma program, and the disproportional allocation of State EMS/Trauma Medical Director time in favor of EMS. The EMS and trauma program supported a joint EMS/STAC meeting in April 2012 to discuss and create a new statewide trauma triage and transport guidelines successfully. The EMS and trauma programs are planning twice a year joint meetings to work on crossover issues as well as trauma performance improvement initiatives.

The EMS Board and STAC have approved the newly updated statewide trauma triage and transport guideline. Implementation is pending, but several barriers to implementation exist, including: local compliance monitoring and buy-in from medical directors and hospitals. Currently, the advancement of the trauma system is hindered by limitations in funding and resources at the Department level.

Recommendations

- The Section, in conjunction with STAC, should update trauma administrative rules to be consistent with current standards, including the most recent American College of Surgeons Optimal Resources document.

- The Section, in conjunction with STAC, should update the trauma plan to be consistent with the HRSA Model Trauma System Planning and Evaluation document and work to secure permanent funding for trauma care system function.

- **The Section should access additional personnel and financial resources to make use of the trauma registry data to both improve trauma care and guide prevention efforts.**

- The Section should broaden the representation within the State Trauma Advisory Council (STAC).

- The Section should improve communication between STAC and the EMS Board.

- The Section should create the position and hire a state trauma medical director.

- The Section should ensure implementation of and compliance with the newly revised statewide trauma triage and transport guideline.

- The Section should use the trauma system STAC regional model to guide development of regional and state EMS organization and response for mass casualty and terrorism events.

J. EVALUATION

Standard

Each State should implement a comprehensive evaluation program to assess effectively and to improve a statewide EMS system. State and local EMS system managers should:

- Evaluate the effectiveness of services provided to victims of medical or trauma-related emergencies;
- Define the impact of the system on patient care and identify opportunities for system improvement;
- Evaluate resource utilization, scope of service, patient outcome, and effectiveness of operational policies, procedures, and protocols;
- Evaluate the operation of regional, accountable emergency care systems including whether the right patients are taken to the right hospital;
- Evaluate the effectiveness of prehospital treatment protocols, destination protocols and 911 protocols including opportunities for improvement;
- Require EMS operating organizations to collect NEMSIS compliant data to evaluate emergency care in terms of the frequency, category, and severity of conditions treated and the appropriateness of care provided; Assure protection from discoverability of EMS and trauma peer review data;
- Ensure data-gathering mechanism and system policies that provides for the linkage of data from different data sources through the use of common data elements;
- Ensure compatibility and interoperability of data among local, State and national data efforts including the National EMS Information System and participation in the National EMS Database;
- Evaluate both process and impact measures of injury prevention, and public information and education programs; and
- Participate in the State Traffic Records Coordinating Committee (TRCC) – a policy-level group that oversees the State's traffic records system, to develop and update a Statewide Traffic Records System Strategic Plan that ensures coordination of efforts and sharing of data among various State safety data systems, including EMS and Trauma Registry data.

Status

Efforts to conduct meaningful evaluation and ensure statewide EMS quality improvement initiatives remain largely underdeveloped. The previous EMS information system, WEMSIS, was replaced several years ago by WARDS, which is NEMSIS compliant. DHS 110 requires that all transporting EMS providers submit comprehensive data via WARDS. Compliance and timeliness of data submission is much improved over recent years. However, there remain substantial concerns about the quality of some data elements, and as much as 18% may be unusable. Potential problems include poor data entry by EMS personnel and technical asymmetry between WARDS and the proprietary bridging programs that submit the data from the vendors' versions of patient care reports. Ultimately, this limits the potential use of information generated from WARDS for evaluation and quality improvement.

Nevertheless, EMS providers are able to query WARDS with respect to the data they have submitted. But, they cannot make comparisons to similar EMS systems or others. There is no way to track or know who has taken advantage of this opportunity. Four basic standardized reports are available to EMS providers. Other reports await development.

Evaluation of the EMS system can be considered in three aspects. They are structures, processes, and outcomes. Structure, as the least dynamic, is the least challenging to evaluate. The EMS Unit is aware of the EMS resources in Wisconsin in a general way, but the structure of the system is anything but static. Across the state, individual services may be in continual flux as the immediate availability of volunteer personnel changes. Vehicles that become retired may not be recognized until subsequent inspection cycles.

Process measures can provide additional insight. The assumption is often made that improved processes, as determined by some objective measure, translate to improved outcomes. For example, shorter response times might lead one to believe that survival of certain conditions will be improved. Depending on the process and the outcome, the link may or may not be valid. WARDS has provided some ability to assess response intervals and frequencies of EMS calls. The far-ranging multitude of additional potential process measures awaits development on a statewide basis.

The most difficult challenge is to evaluate outcomes. On a statewide basis there is little ability to evaluate outcomes related to EMS care. The focused efforts of the trauma system provide some opportunities. There have also been pockets of success often related to specific local research efforts. The Bureau of Transportation Safety tracks data related to traffic safety. There is promise that the evolving EMS information system will facilitate future evaluations of EMS patient outcomes. But, an unresolved hurdle to be overcome is the routine acquisition of outcomes information from hospitals

and the ability to link it to EMS data. Many hospitals do not provide outcomes information as a matter of policy.

Evaluation activity that occurs as peer review under the auspices of the trauma system is statutorily protected from discovery in civil matters. Similar protections are not specifically provided for EMS-related peer review. Thus, in some quarters there is reluctance to pursue evaluation or generate quality improvement documents that could later be discovered and used in a civil procedure.

Recommendations

- The Department of Health Services should require that all licensed hospitals routinely provide meaningful outcomes information for all patients received by EMS.

- **The Emergency Health Care and Preparedness Section should develop and adequately fund the position of EMS data manager and technical advisor within the EMS Unit.**

- The EMS Unit should:

  - Continue to evaluate and remedy sources of decreased data integrity within Wisconsin Ambulance Run Data System (WARDS).

  - Develop standard reports from Wisconsin Ambulance Run Data System (WARDS) that provide comparative information to EMS providers.

  - Develop and disseminate evaluation and quality improvement tool templates for EMS providers to use within their systems.

  - Submit Wisconsin Ambulance Run Data System (WARDS) data to the National EMS Data Base.

- **The Legislature should implement a statute that specifically protects EMS-related peer review and quality improvement products from discovery in civil procedures.**

K. PREPAREDNESS

Standard

EMS is a critical component in the systematic response to day-to-day emergencies as well as disasters. Building upon the day-to-day capabilities of the EMS system each State should ensure that EMS resources are effectively and appropriately dispatched and provide prehospital triage, treatment, transport, tracking of patients and documentation of care appropriate for the incident, while maintaining the capabilities of the EMS system for continued operations, including:

- Clearly defining the role of the State Office of EMS in preparedness planning and response including their relationship with the State's emergency management, public health and homeland security agencies;

- Establishing and exercising a means to allow EMS resources to be used across jurisdictions, both intrastate and interstate, using the Emergency Management Assistance Compact and the National Incident Management System;

- Identifying strategies to protect the EMS workforce and their families during a disaster;

- Written protocols, approved by medical control, for EMS assessment, triage, transport and tracking of patients during a disaster;

- A current statewide EMS pandemic influenza plan; and

- Clearly defining the role of emergency medical services in public health surveillance and response.

Status

The EMS Unit realignment into the Emergency Health Care and Preparedness Section offers the opportunity to greatly improve overall EMS preparedness in the state. The ability to leverage personnel, equipment and agency relationships to develop stronger ties with state and local emergency management agencies and hospitals is a plus to an already robust program.

The Section currently provides respirator mask fit testing and specialty training such as Advanced Burn Life Support to EMS personnel. It also maintains a sufficient personal protective equipment stockpile to meet the needs of EMS in the initial stages of an adverse event. The Section also maintains a medical countermeasures stockpile and decontamination resources which can be made available to EMS during an emergency event.

The section has exercised the Emergency Management Assistance Compact with other states and observes National Incident Management System compliance standards. There are mass casualty plans and a statewide hospital surge plan that include EMS input and participation.

The Section also maintains the WI-Tracs patient tracking system, which is a resource that can interface with EMS patient care reporting to provide a surveillance capability. It is noted however, that there is a seven day window allowed for the final submission of EMS reports which somewhat diminishes this feature. The WI-Tracs system can potentially be leveraged to assist EMS with other system issues, which will become more apparent as the Section realignment develops.

During the H1N1 pandemic flu event, the Hospital Preparedness Program, Public Health Preparedness Program and EMS worked together to support a successful vaccination campaign. The training, participation and cooperation that resulted from this collaboration are examples of how well the new Section can perform when needed in the future.

It was noted that there are legal issues surrounding Alternate Standards of Care as well as diverse opinions on statewide EMS mass casualty triage systems.

The Hospital Preparedness Program, statewide Trauma Program, and EMS Unit must work together to identify opportunities to leverage each other's hospital contacts and resources to improve the overall service and care provided by each program. Continued integration must be done in a way that does not create a dependency upon federal funding to provide basic EMS preparedness. Sustained state funding for the EMS Unit is an important aspect for future success.

Recommendations

- The Section should leverage available resources from other programs to improve EMS preparedness statewide without creating a situation where EMS preparedness is dependent upon federal funding.

- The EMS Unit should require final submission of EMS Reports in a shorter timeframe to better support future Public Health surveillance efforts.

- The Section should seek resolution of the legal issues surrounding the implementation of alternate standards of care.

- The EMS Unit should consider using Model Uniform Core Criteria to select a standard mass casualty triage method for use statewide.

- **The Section should incorporate private EMS agencies into the overall mass casualty response plan.**

L. CURRICULUM VITAE

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ORGANIZATIONS/APPOINTMENTS

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Former Domestic Preparedness Committee Chair, NASEMSO
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Appointee, Delaware Emergency Medical Services Oversight Council
Appointee, Delaware Statewide Interoperability Executive Council
Principal Investigator, Delaware Public Health Preparedness Grant
Principal Investigator, Delaware Hospital Preparedness Grant
Member, Delaware Traffic Records Coordinating Council
Member, Delaware Homeland Security Grant Program Steering Committee
Member, Delaware Highway Safety Planning Council
Member, Delaware Trauma Systems Committee
Member, Atlantic EMS Council
Past member, Committee on Accreditation of Educational Programs for the EMS Professions
USDOT, Technical Assistance Team, Traffic Records Program, Member, State of Minnesota.
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American Board of Emergency Medicine, Diplomate
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Society for Academic Emergency Medicine
American College of Emergency Physicians
American Public Health Association
Annals of Emergency Medicine, Editorial Board
Prehospital Emergency Care, Editorial Board
Principal Investigator
  EMS Agenda for the Future
  EMS Agenda for the Future Implementation Guide
North Carolina Office of EMS
  State Trauma Advisory Committee
  Trauma Center Site Reviewer
Pitt County, NC, Emergency Management
  EMS Oversight Committee
DOT/NHTSA, EMS Assessment Program, TAT, Member,
  State of South Carolina
DOT/ NHTSA EMS Reassessment Program, TAT, Member, States of Colorado,
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American College of Surgeons Committee on Trauma
  Trauma Systems Consultation Committee (IN, TX)
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ORGANIZATIONS/APPOINTMENTS

American College of Surgeons Committee on Trauma,
Past Chair, ATLS Subcommittee 2003-2006, International Chair 2006-2009, Consultant
Trauma Systems Consultation Committee (reviewer NC, CT, HI, Team leader AZ, TN, IN, TX)
Member and Lead Reviewer, Trauma Center Verification & Review Committee (VRC)
Region Chief, Military Region 1999-2002
State Trauma Center Site Surveyor (Virginia, Pennsylvania, Illinois, Washington, Oregon)
Institute of Medicine, Committee on a Vision for Space Medicine Beyond Earth Orbit
NATO Emergency War Surgery Handbook, 3rd US Revision, Editorial Board
Ambroise Pare Military Surgical Forum of ISS-SIC, Past President
Society of Apothecaries of London, Diploma in the Medical Care of Catastrophes,
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Madigan Army Medical Center, Tacoma, Washington, Staff Surgeon,
Surgical Chief, ICU
47th Combat Support Hospital, Saudi Arabia and Iraq, Chief, Trauma Surgery
Inova Fairfax Hospital, Falls Church, Virginia, Vice Chief, Trauma Services
Emanuel Hospital, Associate Medical Director, Trauma Services, 2002-2009
Trauma Medical Director, Johnson City Medical Center 2009-2011
U.S. Public Health Service, Division of Trauma and Emergency Medical Systems,
BHRD, HRSA, Director 1994-1995
Uniformed Services University of the Health Sciences
Professor of Surgery 2002- present
National Capital Area Medical Simulation Center, Surgical Simulation Laboratory, Director
Oregon Health Sciences University, Clinical Professor of Surgery, 2004-2009
East Tennessee State University, Professor of Surgery, 2009-2011
Journal of Trauma, Senior Reviewer
HRSA Ad Hoc Committee to write Model Trauma Care System Plan/MTSPE, 1992/2003
Member, Resources Revision Committee, ACS COT and Contributing Author (Green Book)
Member, Pro Tem, ACS Health Policy Steering Committee
Member, Oregon State Trauma Advisory Board, 2004-2009
Member, Tennessee Trauma Care Advisory Council 2011
Member, Standards Committee, Pennsylvania Trauma Systems Foundation 2012
USDOT, NHTSA, EMS Reassessment Program, Technical Assistance Team, Member,
States of Mississippi, Montana, North Dakota, Missouri and Ohio.

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Health Facilities & EMS Division, Deputy Director for Acute, Community & Emergency Service, 2012-Present
Colorado Emergency Medical and Trauma Services Section, Colorado Department of Public Health and Environment, Chief
National Association of State EMS Officials (NASEMSO), President, 2010 – Present.
Committee on the Accreditation of Education Programs for the EMS Professions (CoAEMSP) 2006-2010, Past Chairman
Pueblo Community College, Department Chairman
State of New Mexico Emergency Medical Services Bureau, State EMS Training Coordinator/EMS Program Operations Manager
National Council of State EMS Training Coordinators, Inc., Chairman
US Department of Transportation, Paramedic Curriculum (1986) Leadership and Development Committee
Injury Prevention Program for EMS Providers, Leadership and Development Committees
States of Colorado and New Mexico, Legislative Policy Development and Implementation
Colorado and New Mexico Statewide EMS Advisory Councils
Colorado statewide EMS and Trauma Advisory Council, Executive Secretary
New Mexico EMS Statewide Advisory Committee, Former Vice Chairman
Emergency Medical Technician and Paramedic, Las Cruces, New Mexico
1990- New Mexico Governor's Award
1998-Colorado EMS Instructor of the Year
2006-Colorado EMS Association President's Award
USDOT, NHTSA EMS Assessment Program, Technical Assistance Team, Member, Puerto Rico and Ohio.

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DOT, National Highway Traffic Safety Administration
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National Association of State EMS Directors (1979-1996)
  Past President
  Past Chairman, Government Affairs Committee
National Association of EMS Physicians, Member
American Trauma Society
  Founding Member, Past Speaker House of Delegates
ASTM, Former Member, 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 *A Prehospital and Disaster Medicine*, (former).

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ORGANIZATIONS/APPOINTMENTS

Utah Bureau of EMS and Preparedness, Deputy Director
Past Chair National Council of State Trauma
Systems Managers
NASEMSO liaison for the ACS Trauma System
Planning and Evaluation Executive Committee
NHTSA EMT Refresher Course Curriculum Development
HRSA Rural Trauma Grant Reviewer
Utah Public Health Association, Member
American Trauma Society, Member
Task Force Chair for Utah Trauma System Development
Air Ambulance Rules Task Force, Chair
Appointed to Governor's Council on Blood Services
Previous member of State EMS Training Coordinators Council
CLEAR Certified Inspector
Utah Emergency Managers Association, Member
Certified EMT-I, 1983.
ACS, State Trauma System Assessment, Team Member, States of Alaska, Minnesota, Colorado and Louisiana, Texas.
USDOT, NHTSA, EMS Reassessment Program, Technical Assistance Team, Member, States of Michigan, Oklahoma, Delaware, Missouri and Ohio.
IOM Crisis Standards of Care Committee, Member
Planning Committee's member for IOM Rural EMS Workshop and Panel Discussion Chair.