STATE OF MICHIGAN

A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

March 28 - 30, 2017

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.

The Centers for Disease Control and Prevention reports that in 2012 the cost of crash injuries totaled $18 billion in lifetime medical costs. In addition, work lost because of crash injuries cost an estimated $33 billion. 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 35,000 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 Institute of Medicine (IOM) Report on the Future of Emergency Care. Additionally, in 2016 the National Academy of Sciences, Engineering and Medicine (NASEM) formerly known as IOM, published *A National Trauma Care System*. This report reinforces the need for a national trauma system and integration of military and civilian capabilities.

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 Michigan Bureau of Emergency Medical Services, Trauma and Preparedness requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the Michigan statewide EMS program. NHTSA developed a format whereby the EMS staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in East Lansing, Michigan, March 28 - 30, 2017. For the first day and a half, over 30 presenters from the state provided in-depth briefings on EMS and trauma care. 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 Michigan. The team spent considerable time with each presenter so they could review the status for each topic.

Following the briefings by presenters from the Michigan Bureau of EMS, Trauma & Preparedness, 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 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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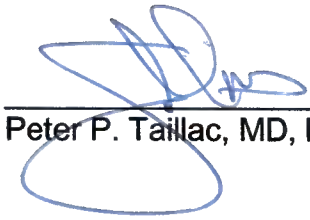

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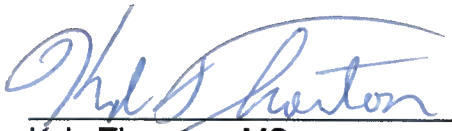

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ACKNOWLEDGMENTS

The Technical Assistance Team (TAT) acknowledges the Michigan Bureau of Emergency Medical Services, Trauma and Preparedness (BETP) for their support in conducting this assessment and the Office of Highway Safety Planning (OHSP) for support of the assessment process. The team sends a special acknowledgement of thanks to Dr. Jackie Scott, Director, BETP and Michael Prince, Director, OHSP.

The TAT thanks all of the presenters for being candid and open regarding the status of EMS in Michigan and for their extraordinary efforts and well-prepared presentations. 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 Kathy Wahl, Director, Division of EMS and Trauma, and the entire staff for their logistical support and gracious hospitality.

INTRODUCTION

Michigan stated it bluntly: "If you seek a pleasant peninsula, look around you." While the state's motto refers to the unique topography, to assume that is where the motto starts and stops would be a mistake of the highest order.

With a wide variety of areas that range from the very rural to the highly urban, more than 3,000 miles of freshwater coast and the right to lay claim to both "Motor City" and "Motown", there is plenty to be had that makes the Michigan collection of peninsulas truly pleasant.

The nearly 10 million Americans that call Michigan home should be proud of the work that has gone into developing their comprehensive EMS and trauma system.
One of the hardest things for any organization to do is to ask others to evaluate their work. A culture that welcomes input and critique is hard to develop, as the thought of "outsiders" looking into our world is unnerving and scary. This doesn't seem to be an issue for Michigan, and a culture that has embraced transparency and an eye to the future is paying off for Michiganders in big ways.

This is the goal of the state EMS assessment program; not to look for ways to find fault, but to provide the state an opportunity to highlight its successes, confront challenges head-on and look for opportunities to build in the future. It is clear that in the 10 years since the last assessment, Michigan has made tremendous strides in building its EMS and trauma system and the assessment team applauds your work.

With all of this success, the truth remains that EMS, trauma and other emergent care systems, preparedness and healthcare are not "plug and play" components. These systems are never complete and never done. As those charged with the responsibility of providing and caring for the people of our states, it is our solemn duty to remain vigilant and constantly evaluating whether we are doing the best that we can with our available resources.

This assessment team comes from across the nation and represents other states, each with its own successes and challenges. Each of us is keenly aware of the responsibility given to the Michigan Bureau of EMS, Trauma and Preparedness and its public safety and health partners. The concern and care for the people of Michigan resonates with each of us.

Thank you for inviting us to your collection of pleasant peninsulas. We hope that our assessment and report is valuable in your ongoing efforts to improve the emergency care for your citizens.

A. REGULATION AND POLICY

Standard

Each State should embody comprehensive enabling legislation, regulations, and operational policies and procedures to provide an effective statewide 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;
- Integrate the special needs of children and other special populations throughout the EMS system; and
- 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

Lead Agency
The Michigan Legislature designates the Michigan Department of Health and Human Services (MDHHS), through the Bureau of EMS, Trauma, and Preparedness (BETP), as the lead state agency responsible for "the development, coordination, and

administration of a statewide emergency medical services system". The BETP encompasses two divisions; the Division of Emergency Preparedness & Response, and the Division of EMS and Trauma. The Michigan Public Health Code (333.20910) details the responsibilities of the EMS Section of the Division of EMS and Trauma. These responsibilities include the licensing of EMS personnel and response agencies, EMS communications, preparedness, designating regional medical direction, promulgating various rules, and other responsibilities related to system oversight. It should be noted that this section of the code also contains at least some of the statutory authority for the trauma system development, which is discussed elsewhere in this document.

System Planning

While BETP has regulatory authority for system planning, the Emergency Medical Services Coordination Committee (EMSCC) is a statutory committee appointed by the MDHHS Director. It is a large committee, with its membership prescribed by code. The EMSCC has the responsibility to provide the "coordination and exchange of information on emergency medical services programs and services, act as a liaison between organizations and individuals involved in the emergency medical services section, make recommendations to the department in the development of a comprehensive statewide emergency medical services program", and several other advisory duties, including vehicle standards and patient care equipment. It should be noted that the code requires ex-officio membership of a Michigan State Senator and Representative on this group. The consumer representative from the EMSCC was one of the presenters, and seems engaged and excited about the role of the EMSCC. It was mentioned that concerns regarding a perceived lack of rural representation have been expressed in the past, and the MDHHS should assure adequate representation of as many of the state's stakeholder groups as possible.

The State Medical Director position is a fairly new position, existing only since 2015. However, the physician currently filling the position has been integrally involved in Michigan EMS for years, and brings an amazing energy and experience to the position. The State Medical Director reports to the director of the BETP, and is a 32% FTE contracted position. The position supports both the Division of Emergency Preparedness and Response and the Division of EMS and Trauma.

In addition to the State Medical Director, a system of medical direction for the state's EMS agencies exists through the appointment of medical directors by local medical control authorities (MCA).

Regionalization

There are eight EMS and trauma regions in Michigan, and there is evidence of active engagement primarily in the regionalization of trauma care in Michigan. There was little discussion of similar regionalization of stroke and STEMI care. It was mentioned that within the 61 MCAs, administered by the "participating hospitals" and serving Michigan's

83 counties, that hospitals self-identify as stroke and STEMI verified centers within those MCA's utilizing requirements set forth by such entities as the Joint Commission and the American Heart Association. The formal statewide programs for time dependent emergencies, such as stroke and STEMI, are in the early phases of development, and will be modeled upon the successful trauma system plan.

Budget

The FY 2017 budget for the Division of EMS and Trauma was $6,565,600, which includes state funds and federal grants. However, over half of this funding, the portion obtained from the Crime Victims Services Fund ($3,500,000), is at risk. Approximately one half of this funding is scheduled to "sunset" in 2018, which would be devastating.

Statutes and Rules

A comprehensive set of statutes and rules empower and guide the process including:

- The establishment of the EMS Coordination Committee (EMSCC) and specialized subcommittees such as the Statewide Trauma Advisory Committee (STAC), the Committee on Pediatric Emergency Medicine (CoPEM) and the Quality Assurance Task Force (QATF)
- Standards for investigating, training, testing, certifying, and setting scope of practice for the four levels of emergency medical care providers;
- Standards for authorizing and regulating transporting and non-transporting EMS agencies;
- Standards for the categorization and verification of trauma centers;
- Standards for the development of triage and transfer protocols for adult and pediatric trauma patients;
- Requirements for trauma centers and EMS programs to submit data to trauma and EMS registries;
- Standards for authorizing EMS air medical programs.

Data Collection

Each trauma center and transporting EMS entity is required to submit specified data to their respective statewide registries. Each registry is compatible with the current National Trauma Data Bank Standards (NTDBS) and National EMS Information Systems (NEMSIS) standard, with a transition to the NEMSIS 3.4 standard for the EMS data in process. The majority of EMS agencies are compliant with the data submission requirements and there were no significant data quality issues reported.

Injury Prevention

The trauma centers are required to have dedicated injury prevention staff and participation with regional initiatives. Additionally, the BETP has facilitated the distribution of funding through the Michigan Trauma System Development Projects to

multiple injury prevention projects throughout the state.

Special Needs Populations
The EMS for Children (EMS-C) Program continues to work to fulfill the performance measures for both pre-hospital and hospital pediatric care, as identified in the EMS-C Partnership Grants. This process has been enhanced by the inclusion of Michigan into the Pediatric Facility Recognition Quality Improvement Collaborative. The BETP has hired a coordinator for the EMS-C Program, and is seeking additional partners to augment the activities of this group. They have completed their MI-MEDIC pediatric dosage cards, provided child restraints to Michigan ambulances, and have specific protocols and equipment lists for pediatric patients. There was no discussion of other special needs population initiatives.

Recommendations

The BETP should:

- **Fill the vacant epidemiologist position to continue the data analysis and publication.**

- Adopt rules to establish standards for the care of patients suffering from a time sensitive condition other than trauma.

The State Legislature should:

- **Reauthorize and appropriate the Crime Victim Services Fund to the BETP.**

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

The state's consistent use of the eight regions as the infrastructure provides a simplified state system on all fronts and is a particular strength. The state's MCAs offer a consistent mechanism for coordination at the local level. Efforts to develop and implement the Burn Surge Plan are commendable.

The EMSCC and its system of sub-committees are engaged and provide a forum for local systems to interact with the BETP. While the EMSCC does not have a pediatric

representative appointed, the gap seems to have been filled with the Committee on Pediatric Emergency Medicine (CoPEM).

Over the last 10 years, the BETP has added significantly to its staff. This investment of resources is paying off for the state, resulting in the ability to take on multiple projects simultaneously. Collaboration within the Bureau is evident. The recent strategic planning effort is an excellent example of the BETP seeking input from stakeholders and using that information to develop future goals.

The BETP has experienced delays in implementing the electronic licensure system, but the staff is keenly aware of the system's potential. The BETP should prioritize the launching and refinement of the system.

The Trauma System is well on its way to becoming a well-developed system of care. The Centers for Disease Control (CDC) Field Triage Guidelines are in place, the Trauma Registry is actively receiving data, a state designation program exists and efforts are underway to designate the smaller hospitals.

While many hospitals voluntarily maintain a certification or accreditation related to cardiac or stroke care, they are not designated by the state. The development of accountable systems of care by the state will help ensure that all patients experiencing time-sensitive emergencies receive adequate care.

Some of Michigan's rural areas will continue to experience difficulty in gaining access to care, whether this is access to EMS or to hospitals or specialty care centers. Just as in the rest of rural America, Michigan's rural EMS and hospitals will continue to face challenges that the rest of the state will not. It is unlikely that volunteer models for EMS delivery are sustainable in the long term and the BETP should continue its efforts to address these challenges proactively. Maintaining relationships and collaboration with the Office of Rural Health and continuing to provide leadership and management training to both rural EMS agencies and hospitals are vital to the long-term success of the state. Most importantly, ensuring that rural providers have an equal voice in the planning process and with the EMSCC will continue to foster relationships between the BETP and the rural areas.

The BETP utilized funding from the state Office of Highway Safety Planning (OHSP) to implement the Michigan EMS Information System (MI EMSIS) and the trauma registry; this specific financial support is no longer available.

Recommendations

The Office of Rural Health should:

- Continue to invest resources in the provision of leadership and management training for EMS.

- Continue to support the recruitment and retention efforts for EMS.

The BETP should:

- **Implement the electronic licensure system as quickly as possible to align and streamline processes and reallocate resources.**

- Work closely with the State Trauma Advisory Committee (STAC) to develop consensus on benchmarks for performance for the Trauma System and Trauma Registry simultaneously. Utilize preliminary data to tell the story of the Trauma System success.

- **Pursue cardiac and stroke systems of care using the trauma system as a model.**

The State Office of Highway Safety Planning should:

- Renew its financial support of the EMS and trauma data systems.

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

The Michigan BETP Emergency Medical Services (EMS) Section is responsible for the licensure and relicensure of over 28,000 EMS personnel, 800 life support agencies (LSAs), and over 2,400 life support vehicles.

The most important component of the EMS system that serves the approximately ten million Michigan residents is this cadre of licensed caregivers. These caregivers must receive adequate training to effectively provide emergency and non-emergency patient care and transportation throughout Michigan. From testimony provided, it appears that the BETP and the multiple entities providing EMS education have a very good, collegial relationship with common goals of quality initial and continuing EMS education. Online education opportunities are being explored, and should continue to be integrated into initial and continuing education courses as the technology and acceptance improves.

Meeting the National Education Standards is a challenge for many states, and Michigan has been no exception. The BETP and the participating educational entities are commended for attaining Commission on Accreditation of Allied Health Programs (CAAHEP) accreditation for several of the Paramedic education programs, and initiating the process for several more, with the goal that all Paramedic education programs achieve a letter of review from COAEMSP or CAAHEP accreditation by January 1, 2018.The same level of attention should be focused on assuring an excellent standard for the Advanced Emergency Medical Technician (AEMT)/Specialist, Emergency Medical Technician (EMT), and Medical First Responder (MFR) levels of education.

There is a concern regarding the waning availability of individuals willing to volunteer for EMS service. The BETP is partnering with the Office of Rural Health and the Michigan Rural EMS Network (MI REMS) for the development of recruitment and retention strategies for volunteers, as well as career personnel, throughout the state.

A best practice program for the recruitment of young people to the EMS profession was illustrated by Kevin Wilkinson from Livingston County EMS. His agency works with five high schools to offer EMT courses to high school seniors. While this has been seen in other states, this program seems particularly successful, and has expanded to include firefighter training as well. There has been discussion of utilizing the unique high school "13th year" option available to Michigan graduating seniors in order to obtain their paramedic certification. This program deserves the support and facilitation of the BETP, and hopefully can be replicated throughout the state.

One area of caregiver licensure in Michigan is significantly lacking; the emergency medical dispatcher (EMD). The EMD has become an essential caregiver of EMS,

many times being the true "first responder" and should receive professional recognition in Michigan. Rules should be developed that set standards for pre-arrival instructions, continuing education, and medical direction of these vital EMS caregivers.

Another concern is the process that currently exists for the investigation and potential licensure action for licensees. The decision to suspend or revoke licenses lies exclusively with the Department. While the licensing action authority is delineated in statute and rules, the investigative component is expressed in BETP policies rather than rule. Further, investigations and privilege of practice actions are sometimes initiated by the MCAs. It is unclear whether any of the individuals have investigatory training.

The criminal background check program is limited to only an on-line and in-state source. The system would benefit from a biometric National Crime Information Center (NCIC) review of criminal histories.

Much, if not all, of the rules utilized by the BETP has not been updated in at least 10 years.

Recommendations

The State Legislature should:

- **Establish a licensure for emergency medical dispatchers and authorize the department to establish standards for EMD programs.**

- **If needed, pass legislation for a BETP specific NCIC criminal background check program, to include initial licensure applicants and, at specified intervals, renewal applicants.**

The BETP should:

- **Begin a revision of these administrative rules to assure the relevance and correctness of the administrative law necessary for the EMS system.**

- Work with the appropriate legal advisors to complete a comprehensive review of the current investigative and licensure action processes. Investigatory education and training should also be provided to the appropriate BETP personnel.

- Develop specific legislation and/or rule for the EMS criminal background check program.

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

Administrative Rule 333.20918(6) of the Michigan Administrative Code states each life support agency (LSA) and licensed individual is accountable to the medical control authority in the provision of emergency medical services, as defined in protocols developed by the medical control authority (MCA) and approved by the department.

The Ambulance Operations Subcommittee of the state EMSCC consists of 13 individuals representing a broad spectrum of interest groups involved in EMS operations in the state. Membership is not limited to members of the EMSCC. This subcommittee reviews and makes recommendations to the EMSCC and the Division of EMS and

Trauma regarding activities related to EMS ambulance operations in the state.

The *EMS - LSA's and Medical Control Rules* prescribe the operation of life support agencies and EMS vehicles and have not been updated since 2004.

The Division of EMS and Trauma recently realigned licensure and inspection schedules in an effort to improve the efficiency of their administrative duties related to education, inspection and licensure process for LSAs. Five Regional Coordinators and one floater position are employed as contract staff through the Michigan Public Health Institute to conduct inspections of LSAs, vehicles, and education programs. It was reported that in the past there has been some inconsistency in the manner in which these tasks have been performed.

LSAs are categorized as medical first response, BLS, limited ALS and ALS. The Bureau reports there are approximately 800 licensed LSAs. The classification of LSA's by prevalence is 51% Medical First Responder, 27% Advanced Life Support, 21% Basic Life Support, and 1% Limited Advanced Life Support. It is reported that up to 50% of the EMS workforce receives less than full time compensation (paid-on-call/volunteer).

Annual inspections are required for each licensed BLS, limited-ALS and ALS. Medical First Response agencies are exempt from licensure inspection; however, the vehicles operated by these agencies must be inspected. The Bureau is partially funded by revenue generated by EMS personnel and life support agency licensure fees.

There is a minimum equipment list and any additional equipment carried on the ambulance is at the discretion of the MCA or agency medical director based upon the MCA or agency protocols and the level of service provided.

Commission on Accreditation of Ambulance Services (CAAS) and Commission on Accreditation of Medical Transport Systems (CAMTS) accredited LSAs are required to submit a current copy of their accreditation certificate and/or letter from the accrediting body to the BETP with each license renewal. This certificate is accepted in lieu of a full licensure inspection by the state. The BETP conducts some random validation surveys of CAAS and CAMTS accredited agencies.

Administrative rule requires that each individual who operates a licensed life support vehicle during an emergency response or patient transport must complete a vehicle operation education and competency assessment. Compliance with this requirement is verified during an LSA inspection conducted by the BETP Regional Coordinator. The Bureau has developed driver education criteria that must be met rather than reviewing and approving specific courses. The TAT heard there is a need to strengthen driver training, creating more opportunities that prepare EMS personnel for operating different

vehicle types. The use of driving simulators was suggested to help improve ambulance operator skills.

A Michigan System Protocol exists for Medical Priority Response and Transport to provide guidelines to LSA's on the use of lights and sirens for EMS response and patient transportation.

There are nine rotary wing services, three of which offer fixed wing ambulance services. The air medical services in Michigan are hospital and community based services. There is a state air medical association that meets on a quarterly basis and is governed by a Board. The Association has a safety committee which sponsors a yearly educational conference for all air medical services in the state. The emphasis of the conference is on safety and quality assurance measures to ensure the highest standards of patient care.

Michigan system protocols are used by all MCAs. They may be modified with approval by the Quality Assurance Task Force and the state EMS Coordination Committee. The Michigan System Protocol for MCA Quality Improvement Programs reviews the process in which current protocols and their use can be monitored and upgraded. This provides a means of reviewing the standards of care in individual EMS services and the MCA as a whole. These reviews are conducted by local MCA professional standards review organizations (PSRO) to evaluate and ensure quality of care within the MCA. The Regional Trauma PSRO (RPSRO) addresses trauma specific quality issues including that the right patient is transported to the right facility at the right time.

The Bureau is working with an outside vendor to manage and track their personnel and agency licensure data. Currently, the Bureau is unable to determine the number of EMS providers affiliated with each licensed EMS agency. There appears to be no mechanism in place for BETP to assure all areas of the state are covered.

There was reference in the briefing book provided to the TAT of the formation of a stakeholder task force to assess the current demographics and regional needs in the state. A report of the stakeholder task force to address the unique needs of Michigan was due by March 31, 2016. It is unknown if this work was completed.

There are regulations in place to facilitate triage of injured patients to trauma centers. Currently, there is no statewide transportation plan for other time critical diseases such as STEMI and stroke.

There are plans for the Bureau to establish a process to evaluate the appropriateness of patient transport destination and diversions and examine any untoward outcomes due to delay in transfer to a trauma center. Presently, Level 1 and Level 2 trauma centers

are reporting this information to the MCA, Regional MCA and Trauma Networks; but the data is not being reported to the Bureau.

Michigan's EMS system covers a vast area of urban and rural communities with a goal of providing good medical care to the patient and getting the patient to the right hospital. The service delivery model in Michigan has historically developed under local jurisdictions and includes several certification levels (MFR, EMT, Advanced EMT and Paramedic) for EMS personnel. Minimum staffing requirements for transporting vehicles are defined in statute as follows: 1.) Basic Life Support, one EMT and one MFR 2.) Limited Advanced Life Support, one AEMT and one EMT 3.) Advanced Life Support, one paramedic and one EMT.

There are 61 MCAs that fall within the borders of eight MCA regional networks in Michigan. Each local MCA is responsible for assessing community needs, determining utilization of appropriate resources, and should also assess how their emergency response plan is meeting the needs of patients including special populations. The plan should ensure the provision of ALS care and an accounting of resources including personnel, vehicles and facilities. BETP does not directly coordinate patient transports within the state system. Though there is no state EMS transportation plan, the data from these assessments can help to identify gaps in the system and help to promote optimal integration between MCAs and service providers.

Recommendations

The BETP should:

- **Establish a state EMS transportation plan including inventory of current resources to include EMS personnel, vehicles and facilities.**

- Support the further development and support of the regionalized MCA system within the individual regions.

- Develop a review process for all deviations from the Adult/Pediatric Trauma Triage protocol as part of an overall statewide quality assurance program. Inform MCA's and regional MCA's of overall statewide frequency and occurrences of ambulance diversion.

- Utilize the new continuous quality improvement (CQI) Coordinator to analyze data collected and submitted to the statewide pre-hospital patient care reporting system and report such findings to MCA's, LSA's and other interested EMS and Trauma System stakeholders.

- Review and update rules governing air medical services using the National Association of State EMS Officials (NASEMSO) *State Model Rules for the Regulation of Air Medical Services* as a guide.

- Develop transport protocols for STEMI and stroke patients.

- **Initiate a comprehensive review and revision of administrative regulations governing EMS and trauma.**

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

There are 132 state licensed acute care hospitals in Michigan of which 34 are Critical Access Hospitals. Nearly all of the state's 83 counties have a hospital within the county or in a neighboring county. As expected, medical centers are clustered within the major metropolitan areas of Detroit, Grand Rapids, Lansing, Kalamazoo, and Saginaw. In rural Michigan, which accounts for 19% of the population, but 75% of the land mass, it is rare to find more than one hospital per county. There are also seven free-standing emergency departments located within the major population centers. All free-standing Emergency Departments are associated with hospital systems. These centers are allowed by the state to receive EMS transports, as identified in local MCA protocols.

Categorization of Michigan's specialty facilities remains in the early stages. Although there have been American College of Surgeons (ACS) verified level I and II trauma centers in the state for over 20 years, it was only with the funding of the state trauma system in 2014 that work began to implement the statewide trauma system. The Michigan Trauma Administrative Rules were approved by the legislature in 2008. They establish criteria for designating trauma centers to develop a "regionalized, coordinated and accountable state trauma system." The state uses the ACS definition of trauma center levels and has adopted the CDC field triage guideline for its trauma triage criteria. Within the last 2 years the Division efforts have focused on designating level III and IV trauma centers with the expectation that nearly all hospitals will receive trauma designation.

There are six burn centers in the state, three that are ACS burn verified, but they are not state designated. Burn care coordination has been advanced with the commendable work by dedicated stakeholders on a statewide mass casualty incident burn surge plan. The state also does not designate pediatric hospitals, although work began recently to define pediatric facility designation levels and pediatric facility recognition for all Michigan hospitals. Seven of the state's level I and II trauma centers have received verification by the ACS as pediatric trauma centers. Cardiac and stroke facilities are not designated by the state.

The state produced a destination and diversion guideline in 2004. With the advent of the trauma system development in 2014, they also defined in protocol Adult and Pediatric Trauma Triage including a destination decision guide. These guidelines set only minimal criteria regarding EMS destination. MCAs are allowed to amend the state protocols as long as the state's minimal criteria are met with recommendation by the EMSCC and approval by the State. Some regions have modified and expanded the destination guideline to assist transport of patients to appropriate facilities for specialty care including pediatric, obstetric, stroke, and cardiac.

Inter-facility transfers are common due to numerous rural facilities. Concerns have been expressed regarding paramedics' inexperience managing patients during critical care transfers. Although the current state system protocol for inter-facility transfers establishes some guidance, it falls short of assuring patient safety. There are no requirements for continuing medical education, clinical hospital experience, or field internship for critical care paramedics. These deficiencies have yet to be addressed.

Recommendations

The BETP should:

- **Designate specialty medical facilities including burns, pediatric, cardiac and stroke within a larger system of care.**
- Revise destination guidelines to assure transport of appropriate patients to free-standing emergency departments.
- Review and revise the guideline addressing the inter-facility transfer of critical care patients to address patient safety concerns.

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;
- 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; and
- Each State should develop a statewide communications plan that defines State government roles in EMS system communications.

Status

Michigan maintains a statewide 800 MHz system and provides access to the system to multiple public safety agencies and partners. There remains wide variation in the types

of communications systems utilized by local response agency. The decision to allow private entities with a public safety role to participate in the statewide system is commendable.

The Michigan Legislature has appropriated funding to install Smart911 software in all Public Safety Answering Points (PSAPs), creating a significant opportunity for the state to advance its emergency response system. Already, more than 30 counties and other entities have upgraded their software and plans are in place to continue to implement the system throughout the state.

The state has made significant progress in standardizing dispatch training with the 2012 requirement that tele-communicators in primary PSAPs complete a minimum amount of training set forth by the Michigan Public Service Commission. Gaps remain as this requirement applies to only those tele-communicators in primary PSAPs and do not address secondary facilities. There is no requirement that those answering calls for emergency medical assistance receive Emergency Medical Dispatch (EMD) training and certification. This means that Michigan has no assurances that persons requesting EMS will receive consistent pre-arrival instructions.

The BETP has published a communications plan. Future planning efforts with regard to communications should include the use of public safety broadband, particularly in the rural areas.

Recommendations

- **The Michigan Public Service Commission (MPSC) should adopt administrative rules requiring EMD certification for the dispatch of EMS.**

- Efforts should continue to incentivize public safety agencies and partners to utilize the statewide 800 MHz system while maintaining adequate legacy systems for redundancy.

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

Administrative Code 333.20910(1) (b) pertaining to the powers and duties of the Department include a responsibility to facilitate and promote programs of public information and education concerning emergency medical services. Although there is no formal comprehensive Public Information, Education, and Prevention (PI&E) plan in place for EMS in general, the EMS section contributes and participates in a number of programs with other Bureaus and community agencies to promote public information and education, injury prevention and public safety.

During the TAT meeting with stakeholders the BETP was described as an incredible state partner in developing injury prevention programs. There is a strong spirit of cooperation and collaboration with the Injury and Violence Prevention Unit, MDHHS and identifying opportunities on where "we can work together" to develop public education and awareness programs about the EMS system in Michigan and the EMS providers' role in injury prevention and control.

The analysis of data helps assess the needs of the population served and assists with the identification of actual or potential problem areas. For example, the Injury Center at the University of Michigan conducted a statewide needs assessment for injury and

violence prevention from December 2012 through January 2013 in order to assess potential problem areas for the development of focused injury prevention initiatives. The top three injury prevention priorities identified were motor vehicle occupants (53.1%), elderly falls (38.1%), and substance abuse (26.5%).

Michigan Criteria for Trauma Facility Designation requires all health facilities seeking designation by the State of Michigan as a trauma facility to participate in coordinating and implementing Regional Trauma Network injury prevention work plans and initiatives. Failure to participate in the Regional Trauma Network Injury Prevention work plan and initiatives is considered a critical deficiency.

The ACS verified facilities in Region 1 shared their current trauma related injury prevention plans with the Regional Trauma Network. These Plans were used in the development of a region specific injury prevention plan. The framework for regional plans included specific strategies to address regionally identified issues of MVC's, child passenger safety, falls and safety in the elderly population.

This level of participation is demonstrated in each region by volunteer efforts to develop SMART objectives to address region specific injury prevention, collaborating with regional partners on injury prevention initiatives, using regional injury data to prioritize injury initiatives and evaluate project outcomes.

In addition, through these regional activities an Injury Prevention Resource Guide was developed which identifies the program offered by each facility and the injury prevention contact.

Michigan has adopted the National EMS Education Standards which includes training in injury prevention and health and wellness of the EMS provider for all levels of EMS education. It was reported by the EMS Education Coordinator at the Division of EMS and Trauma that Michigan is the number two state in the country for human trafficking. As a result, there has been some discussion about including training in their initial EMS education curricula about how to recognize and report human trafficking. Additional opportunities to address current issues in the state through continuing education of EMS personnel include opioid overdose prevention and administration of naloxone, emergency preparedness and the use of ambulance child restraints.

Presently, there is no indication of efforts to increase public awareness of EMS Week activities and recognition of EMS personnel. This is not a priority at the state level due to funding and staff resources.

The EMS-C program, in collaboration with the Trauma section, has purchased ambulance child restraints. These restraints have been provided to EMS transporting agencies for every transport vehicle and for initial education programs. The educational

packet was developed and distributed along with the restraints.

Another innovative program coordinated by BETP is the distribution of MI-MEDIC Cards to life support agencies in Michigan. The MI-MEDIC cards were developed by Western Michigan University Homer Stryker M.D. School of Medicine through an EMS-C Partnership Grant. This injury prevention tool designed to reduce pediatric dosing errors has recently been updated, printed and distributed to all life support agencies in Michigan.

In 2015, the community-based Safe Kids Coalitions engaged 1,260 volunteers, coordinated 5,459 volunteer hours, reached 68,265 people through injury prevention activities and secured 300 community partners.

Reducing infant mortality in Michigan is a priority. It was reported that two-thirds of all infant deaths in Michigan (approximately 150 per year) are preventable. In order to address this issue, BETP and their EMS-C program implemented an EMS safe sleep education program called Direct on Scene Education (DOSE). DOSE is a program that trains first responders to identify unsafe sleep practices when they respond to calls. The responding EMS crews conduct a brief survey and provide quick education to families about safe sleep in an attempt to lower infant deaths that are caused by unsafe sleep practices. Michigan is one of six states to participate in the program. In the 2 ½ years since this program was implemented they have trained over 1000 EMS providers and EMS-C has purchased over 500 Pack N Plays for parents who do not have cribs for their infants. DOSE has contributed to going from a record high number of infant sleep related deaths in 2015 to a record low number of deaths in 2016.

BETP is encouraged to continue their involvement and collaboration with key stakeholder groups on a variety of injury/illness prevention initiatives such as: Safe Kids, Office of Highway Safety Planning "Summer of Safety" and "Go Slow on Ice and Snow" campaigns, Toward Zero Deaths, and motorcycle and bicycle safety programs, winter safety, personal and family preparedness initiatives such as "Matter of Balance" and other injury prevention programs with trauma facilities.

Through funding from a HRSA grant a by-stander care training program was developed to place 356 AED's in rural areas of the state. The Michigan Center for Rural Health is coordinating the rural AED Grant. Locations and placement of AED's are identified by local MCA's. There were six documented uses of an AED resulting in five saves. Working with their State Office of Rural Health, the BETP has focused efforts on the recruitment and retention of EMS providers. Using funding from the FLEX grant program and working directly with hospital and community members an EMS Leadership Academy is available to EMS personnel in Michigan. The program requires no formal leadership training and teaches organizational visioning, how to affect the culture of EMS organizations and how to lead a volunteer workforce. A total of 70 rural

life support agencies have completed training over the last four years.

Recommendations

The BETP should:

- **Include development of a comprehensive Public Information, Education and Prevention Plan for EMS and Trauma as a component of the strategic State EMS Plan (2017-2021) that is currently under development**

- Promote the EMS Leadership Academy with a target of 350 life support agencies completing a self-assessment tool to determine their attributes of a successful EMS agency

- Utilize EMS and trauma registry data to develop injury prevention programs and fact sheets that provide the public and policymakers with information on targeted issues

- **Ensure a listserv exists for medical directors and key EMS stakeholder groups to disseminate and coordinate information**

- Work with internal and external associations and organizations, including the media to develop a strong marketing campaign to promote EMS and educate the public on important targeted issues

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

Dr. William Fales was hired as the State EMS Medical Director in October 2015 as a 1/3 FTE. He is very active in the state and well thought of by the participants in the Reassessment Review. He has initiated several performance improvement projects and works closely with the EMSCC, the STAC, the EMS-C Program, and with the regional and MCA medical directors. His contributions have already resulted in better consistency in policies, procedures, and protocols across the state's EMS regions.

The Michigan State Protocols were last updated fully in 2012. Specific additions have been made to the protocols since then, but the full set is currently under review and update.

In the 2007 NHTSA Reassessment, it was recommended that a pediatric emergency physician be added to the EMSCC. This was not done out of concern that this would open up the Committee to requests from other specialists for specific representation. It was stated that the input of the Committee on Pediatric Emergency Medicine and the EMS-C program to the EMSCC was sufficient at this time.

The MCAs have gradually adopted the Michigan State EMS Protocols with some regional variations. This has resulted in greater consistency in medication use and procedures. Several regions have adopted uniform "drug boxes," further increasing consistency and facilitating medication resupply by hospitals.

Professional Standards Review Organizations (PSROs) have been established in each MCA for Performance Improvement (PI) purposes. Regional PSROs are focused on Trauma PI, but can be expanded to review other EMS PI issues, as well.

There is no consistent training or standards for new MCA medical directors. The responsibilities, accountability, and reimbursement of these medical directors appears to vary widely between MCAs.

Recommendations

- Given the depth and breadth of the position of State EMS Medical Director and the associated time involvement, consider an increase in the position above the current 0.32 FTE to better account for the time involved. The majority of states support a 0.5 FTE for their State EMS Medical Directors, most of which have smaller populations than Michigan.

- Update the full set of Michigan State EMS Protocols. It is recommended that the *NASEMSO Model EMS Clinical Guidelines* be used as a reference for this update.

- **The State should develop a standardized job description (including responsibilities and expectations) for the MCA medical directors, along with a standardized training curriculum. A more consistent reimbursement model for these medical directors should also be developed.**

- **Expand the purview of the regional PSROs to review performance indicators beyond trauma-related issues. The state EMS office should provide the data, tools, and support needed by these PSROs to fully develop their regional PI programs.**

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

Michigan is obviously proud of its budding inclusive state trauma system. Even with the delay in appropriated funding until 2012, it has moved forward with focus and clarity to address the optimal care of injured patients thanks to the commitment of the Division of EMS and Trauma and dedicated trauma stakeholders.

The state has enjoyed expert trauma care for its citizens for over 20 years with numerous ACS verified level I and II trauma centers in the state. This local expertise undoubtedly has helped system development gain early traction. Michigan's present criteria for trauma facility designation was finalized in 2015. The state has adopted the American College of Surgeons criteria for trauma center levels and uses the ACS to verify their level I, II, and III centers. The new rules for trauma center designation have sparked an interest for designation of additional level III and IV centers. Level III centers are allowed the option for verification either by the ACS or by in-state reviewers. Level IV facilities will be verified by the cadre of 69 newly trained in-state reviewers.

Michigan has numerous designated comprehensive trauma centers, eight level I and 23 level II, located in the population dense urban areas. Although the wealth of resources in the urban areas assures close proximity to trauma centers for this population, one must acknowledge the downside to the trauma system of diluting specialty resources, the cost of redundant services, and competition amongst hospitals for the same patient cohort. There are also nine level III and one level IV presently designated, most of which are located in the rural areas of the state. Division leadership is confident nearly all of the presently undesignated facilities will seek verification and designation, which speaks to engagement of the community.

In an effort to ensure the right patient is brought to the right facility at the right time, Michigan has adopted the CDC Field Triage Guidelines to assist EMS personnel in determining the severity of a trauma patient, and developed the system protocol for Adult/Pediatric Trauma Triage to guide patient transport to the closest appropriate facility. Analysis of the field triage and transport decisions statewide has yet to be performed as part of the state's performance improvement process to ensure compliance with the protocols. As mentioned earlier in this document, concerns have been expressed regarding paramedics' inexperience managing patients during critical care inter-facility transfers. There are no requirements for paramedics performing critical care inter-facility transfers to obtain continuing medical education, clinical hospital experience, or perform a field internship. These deficiencies have yet to be addressed.

The state has sponsored numerous trauma education and training opportunities for prehospital providers, trauma registrars, program managers, physicians and other trauma program participants. They include a Trauma Program Development Course, Trauma Registrar Course, Image Trend training, in-state site reviewer training, Prehospital Trauma Life Support Course, and Rural Trauma Team Development Course. These courses are essential. Teaching the material not only imparts knowledge and skills but allows for the development of mentoring relationships between the instructors and participants as well.

Trauma program and system development is dependent upon data to guide growth and quality. The Michigan criteria for trauma facility designation outlines data submission requirements for designated and provisional trauma centers. It also stipulates trauma centers must develop a performance improvement plan. Again, it is this registry data which is used to improve processes and patient outcome. The state trauma registry is receiving records from approximately 85% of Michigan hospitals. There presently is no requirement for hospitals opting out of participation in the state trauma system to submit data.

The state registry is trending a limited number of indicators including numerous demographic and quality data points. This effort just scratches the surface of the capabilities of the registry to guide system performance improvement. As the state

registry system and many of the registrars are new, efforts to validate data and ensure inter-rater reliability to optimize data quality will pay dividends for years to come. In time, linkage of the trauma registry to other state patient care databases with also help to improve care.

The working trauma system plan was drafted in 2004. It is out of date. There was a recent revision of the trauma system rules that are presently awaiting approval in the legislature.

Recommendations

The Division should

- **Revise the Trauma System Plan**

- Develop a more robust list of state registry quality indicators to focus performance improvement efforts on system efficiencies and quality. Trend this analysis and share on a regular basis with the regional MCAs and trauma programs.

- **Address quality and training issues regarding inter-facility transfer of critically injured patients.**

- Consider requiring non-trauma designated hospitals to submit trauma patient registry data to the state.

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

Since the 2007 NHTSA Reassessment, the state has made substantial improvements in its data systems and PI programs. The state has implemented a state of the art NEMSIS-compliant EMS data system (MI-EMSIS) to which 88% of the transporting agencies are submitting data. However, there is currently no linkage between the EMS and trauma registries.

The State has led efforts to ensure the individual MCAs are performing their statutory duties. However, there is still wide variability in the accountability and performance of individual MCAs.

Several valuable PI initiatives have been completed, including an evaluation of the safety and utility of lights and sirens in EMS responses and a pilot project to train EMTs to draw up and administer epinephrine.

There is no state designation for STEMI centers or stroke centers. This can lead to EMS bringing patients to hospitals which may not actually provide the service required by the patient, such as cardiac catheterization or endovascular stroke care. Currently, hospitals self-identify as stroke and STEMI verified centers utilizing requirements set forth by such entities as the Joint Commission and the American Heart Association The formal statewide programs for time dependent emergencies such as stroke and STEMI are in the early phases of development, and will be modeled upon the successful trauma system plan.

There is no rule in place to assist the State in determining the need for future Level 1 or 2 trauma centers. Allowing unfettered high-level trauma center designation risks diluting the experience of each center with a resultant decrease in the quality of care provided.

Recommendations

BETP should:

- **Link the EMS and trauma registries through unique identifiers to facilitate PI efforts and analysis of the quality of care provided.**

- **Develop a statewide trauma PI plan for use by the MCAs and associated trauma regions, utilizing performance indicators which may be extracted from the trauma registry data.**

- Link the trauma registry with other public safety datasets, including crash data.

- Continue efforts to evaluate the performance of statutory duties by the individual MCAs, including State-led PI initiatives.

- **Develop a stroke and STEMI designation process, including reporting and accountability requirements to ensure appropriate services are provided to patients.**

- Develop statute or rule to regulate the proliferation of high-level trauma centers in urban areas based on the *ACS Needs Based Assessment of Trauma Systems* tool.

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 Division of Emergency Preparedness and Response is the companion division to the Division of EMS and Trauma within the BETP. Both the Public Health Emergency Preparedness and Hospital Preparedness Programs are in the division. This structure is highly conducive to the sharing of information and facilitates close collaboration between the individual sections.

Michigan instituted a coalition approach in 2002 with the first funding received for bioterrorism efforts and was able to evolve these groups into Healthcare Coalitions (HCC) as the Hospital Preparedness Program changed its structure. Select MCAs act as the fiduciary agents currently, with efforts underway to establish the HCCs as

independent, 501c3 organizations. This is an important step in ensuring that the division is capable of transferring funds easily to the intended recipients. Several innovative approaches were highlighted, particularly the use of the patient tracking software and hardware by Region 6 on a routine basis. We consider this to be a best practice as this region is now well practiced in the use of the system should it be needed for a large-scale incident or public health emergency.

Another highlight is the development of the Michigan Emergency Drug Delivery and Resources Utilization Network (MEDDRUN) program intended to provide a short-term solution between a chemical or biological event and the release of the Strategic National Stockpile. The provision of both Basic and Advanced Disaster Life Support training to all types of providers is a significant step in addressing a potential gap.

Multiple examples of the integration and collaboration exist to include the use of the same regional construct, the use of preparedness funds to support Regional Healthcare Coalition Medical Directors, use of the HAvBED system to track EMS and dialysis center resources and the efforts to produce the special pathogen response network protocols and systems.

The EMS Section reported that they have adequate mechanisms in place to license individuals and EMS agencies in support of major events and offered several examples that have proven this capability. The adoption of the Recognition of EMS Personnel Licensure Interstate CompAct (REPLICA) into the Michigan Public Health Code will only serve to enhance this capability.

The team agreed that Preparedness was a particularly strong capability within in the state and we commend the BETP for their efforts.

Recommendations

- The BETP should highlight the success of Region 6 in utilizing the patient tracking system routinely as a means of exercising the system.

- **The Michigan Legislature should adopt REPLICA.**

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EMS Compass Evidence Review Group, Member
Eastern Association for the Surgery of Trauma, Senior Member
American Association for the Surgery of Trauma, Member
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4th Medical Battalion, USMC, Chief of Professional Services, 2010-11
Philadelphia FBI SWAT Team, Medical Support 1998-2008
Trauma Program Director, The Reading Hospital and Medical Center, Level 2 Trauma Center, Reading, PA 2005-08
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ASTM, Former Member, Committee F.30 on Emergency Medical Services
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  Pediatric EMS Study Committee, Member
  Committee Studying Use of Heimlich Maneuver on Near Drowning Victims, Member
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Occupant Protection Program
Motorcycle Safety Program
Drivers Education
Traffic Records
Pedestrian Safety
Standardized Field Sobriety Testing

Enforcing Underage Drinking Laws (EUDL), Program Review
States of Nevada, Maine, and Oregon, 2011

Impaired Driving Advisory Update, 2010

Drivers Education Assessment, Pilot Program, 2010

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Utah Army National Guard
Combat medical experience in both Iraq and Afghanistan

Chair, Medical Director's Council, 2015-2016
National Association of State EMS Officials (NASEMSO)

Medical Officer, UT-1 Disaster Medical Assistance Team

Advanced Trauma Life Support Instructor

Site Visitor: American College of Surgeons-Committee on Trauma, Trauma Center Verification

USDOT, NHTSA EMS Reassessment Program, Technical Assistance Team Member

KYLE THORNTON, EMT-P, B.U.S

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ORGANIZATIONS/APPOINTMENTS

Bureau Chief, New Mexico Department of Health EMS Bureau
President - Elect, National Association of State EMS Officials
Member, National Registry of EMT's Board of Directors
Member, Commission on Accreditation of EMS Programs Board of Directors
Member, New Mexico Joint Organization on Education
Member, New Mexico Public Regulation Commission Ambulance Advisory
Member, New Mexico Medical Direction Committee
Member, New Mexico Trauma System Fund Authority
University of New Mexico EMS Academy Advisory Board
Member, Central Community College of New Mexico Advisory Board
Member, San Juan Community College EMS Program Advisory Board
Preventive Block Grant Coordinator, New Mexico Department of Health
Former Deputy Chief, Sandoval County (New Mexico) Fire Department
Former BLS/ILS Director, University of New Mexico, School of Medicine EMS Academy
Former member – New Mexico Instructor Association
USDOT, NHTSA, EMS Reassessment Program Technical Assistance Team Member; States of Wyoming and Iowa

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ORGANIZATIONS/APPOINTMENTS

Assistant Director, VDH, Office of EMS (Sept. 1997- to Present)
Manager, Licensure and Certification, Virginia Department of Health.
Office of EMS (May 1989 - Sept. 1997)
Deputy Emergency Services Coordinator
City of Roanoke, VA
Office of Emergency Services, Oct. 1985-April 1989
Nationally Registered EMT-Paramedic (Aug. 1985 - March 1993)
Virginia EMT- Paramedic (Nov. 1985 – present)
Atlantic EMS Council
National Association of State EMS Officials
Virginia Recruitment and Retention Coordinators Network
EMS Workforce Development Committee
VDH, Health Workforce Advisory Committee
State Rural Health Plan, Healthcare Workforce Council
National Traffic Incident Management Coalition (NTIMC) representing National Association of State EMS Officials (NASEMSO)
Highway Incident and Transportation Systems Committee, NASEMSO
Virginia Heart Attack Coalition/Mission Lifeline Steering Committee
NASEMSO, Model Interstate Compact for EMS Personnel Licensure (REPLICA) Drafting Team member
Virginia Association of Governmental EMS Administrators
Alliance for Emergency Medical Education and Research, Advisor
USDOT, NHTSA, EMS Reassessment Program, Technical Assistance Team Member, State of Kansas, State of Indiana.