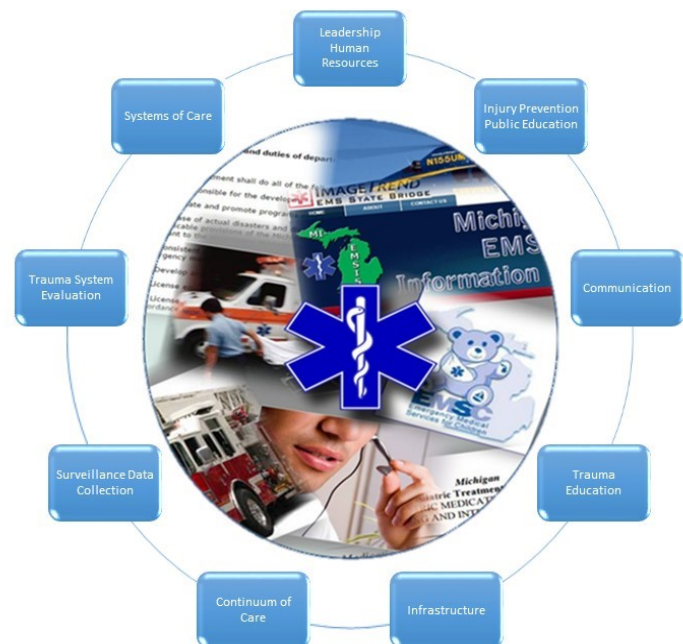


MICHIGAN TRAUMA SYSTEM



April 2019

Strategic Plan 2018-2023

A guide to operationalizing a system of care that ensures the injured or potentially injured receive the right care at the right place in the right

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EXECUTIVE SUMMARY

Injury is the leading cause of death for Michigan residents between the ages of 1 to 49. Unintentional falls are the most frequent leading cause of injury-related hospitalizations with nearly five times the number of injuries over the next leading cause, which is motor vehicle crashes for all ages combined. National partners and stakeholders recognized that a regionalized, accountable and coordinated approach to care for the injured is an effective way to ensure positive outcomes for the injured and to implement prevention strategies to mitigate deaths from injury.

Trauma systems have been in place throughout the country for many years. The first system began in Maryland in 1973. The document *Trauma System Agenda for the Future* published in 2004 with the support of the National Highway Traffic Safety Administration described a trauma system as regionalized, making efficient use of health care resources. Michigan was one of the last states in the country to fund and support a statewide trauma system.

Once system support was provided for the Michigan trauma system in 2012, the components as described in statute and Administrative Rules were put into place including; the organizational structure, data registry and verification/designation process. In 2017, discussions began regarding the need to tactically address the growing trauma system in Michigan to sustain the efforts made to operationalize the system and to focus on the determined priority goals and objectives. A survey was disseminated to partners which assisted in identifying a mission and vision as well as critical issues. A facilitated townhall meeting was organized to discuss the survey results and to develop a mission, vision and identify priorities

The *Model Trauma System Planning* document published by the Health Resources and Services Administration (HRSA) in 2006 remains the national guidance document for trauma system development and assessment. This resource provided the foundation for this plan and the evaluation of the work done thus far. Workgroups were formed to consider the critical components of the system discussed in the HRSA document, outline the barriers and opportunities and to draft goals and objectives for each component.

The draft plan will be presented to the Statewide Trauma Advisory Subcommittee (STAC) in May 2019 and will be implemented after endorsement. Progress on plan implementation will be presented to STAC annually. The plan will be published and posted at www.michigan.gov/traumasystem. Experience implementing the published goals, objectives and strategies will inform future strategic plans.

MICHIGAN TRAUMA SYSTEM STRATEGIC PLAN

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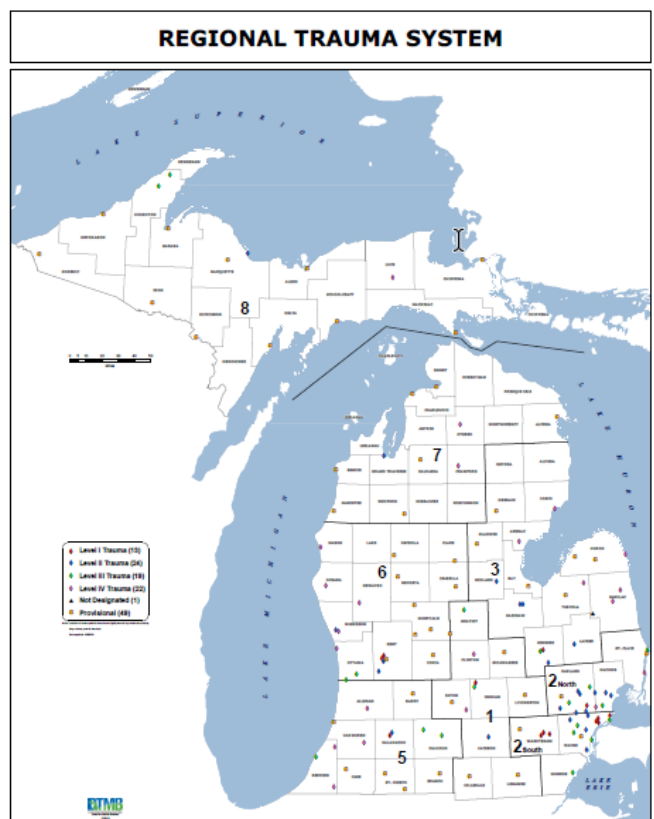
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STRATEGIC PLAN 2018-2023

HISTORY AND BACKGROUND

Trauma is defined as bodily injury from applied force. The trauma system as described in Administrative Rule 325.127 Rule 3 (l) means a comprehensive and integrated arrangement of emergency services personnel, facilities, equipment, services, communications, medical control authorities and organizations necessary to provide trauma care to all patients within a geographic region. The system is designed to make efficient use of resources and provide seamless care for the injured across the continuum.

The development of the trauma system began in 2000 with the appointment of the Trauma Commission by the Governor. The findings of the Commission state “The evidence compiled from testimony at the public hearings; discussion with non-profit organizations such as the Michigan Trauma Coalition; information on other states trauma systems; as well as discussion among Commission members, reinforced the need for a statewide coordinated trauma care system.” Recommendations from the committee lead to legislation in 2004 (Public Act 580, 581, 582). The Statewide Trauma System Administrative Rules were filed with the Secretary of State in October 2009. The system operationalized when funding was made available in 2011. The appropriation has sunset language effective 2021. The organizational structure described in rules and based on the Emergency Preparedness regions were formalized with bylaws and workplans. Each Regional Trauma Network applied for and received recognition by Michigan Department of Health and Human Services.



A process to verify and designate up to 128 acute care facilities was developed and is currently in the implementation phase.

A statewide trauma registry was established, and data is collected quarterly from all participating facilities.

Two advisory committees were established. The Statewide Trauma Advisory Committee (STAC) provides expertise to the Bureau of EMS, Trauma and Preparedness on system issues and the Designation Subcommittee advises the Bureau on the verification and designation of trauma facilities.

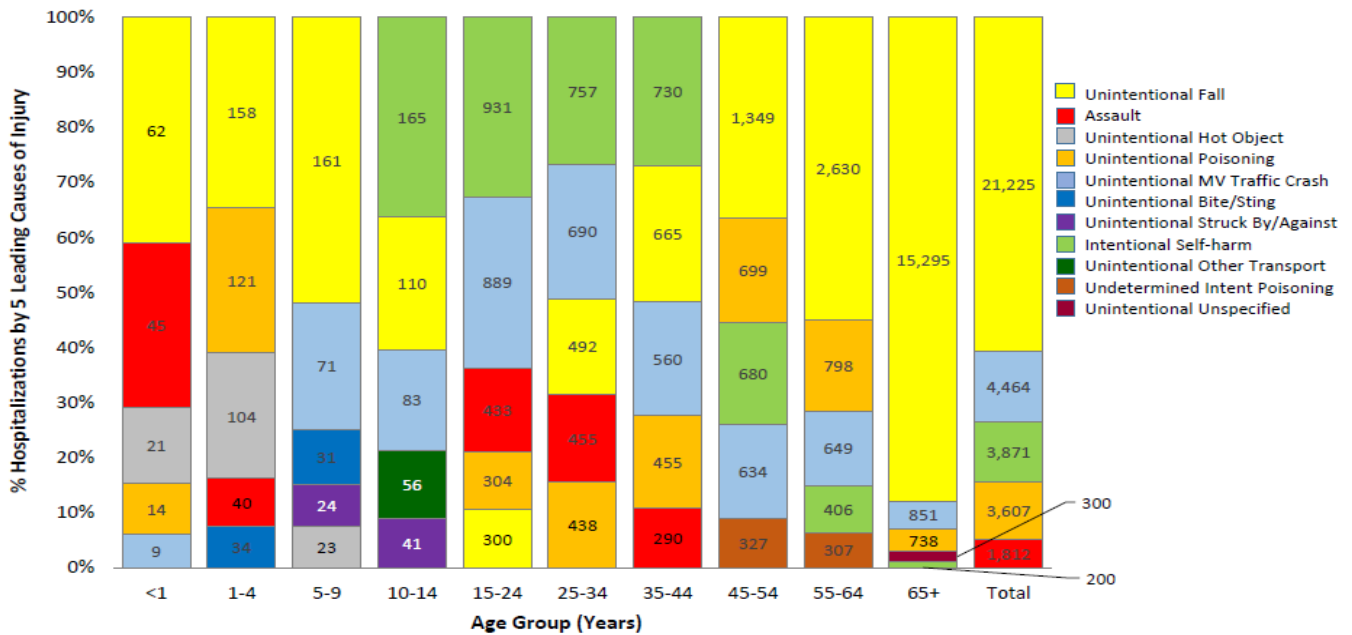
This work is supported by a mobilized and dedicated group of trauma content experts, injury prevention partners, the EMS system, Michigan Committee on Trauma, Michigan Trauma Coalition, the Bureau of EMS, Trauma and Preparedness, and others.

BURDEN OF INJURY

Injury is the leading cause of death for Michigan residents between the ages of 1 to 49 years of age.¹ Over all age groups, injury is the 5th leading cause of death in Michigan, preceded only by heart disease, cancer, chronic lower respiratory diseases and stroke.¹ Injury may either be unintentional or intentional (violence-related, including assault, homicide, and suicide) and can lead to death, disability and lifelong health consequences. Unintentional injury can be defined as injuries that were unplanned or unpremeditated, where a harmful outcome was not sought. As presented in Figure 1, unintentional falls are the most frequent leading cause of injury-related hospitalizations with nearly five times the number of injuries over the next leading cause, which is motor vehicle crashes for all ages combined.² Unintentional injury accounts for the vast majority of injury-related hospitalizations, as displayed in Figure 1, and injury-related deaths.² Regardless of intention, injury has emerged as a public health issue leading to significant morbidity and mortality in Michigan.

Figure 1.

Michigan Resident Injury Hospitalizations, Five Leading Causes of Injury, by Age Group, FY2015 (Oct 2014-Sep 2015)



Source: Michigan Inpatient Database (MIDB)

¹ Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services

² Injury and Violence in Michigan. Michigan's Core Violence and Injury Prevention Program Burden

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The injury pyramid in Figure 2 illustrates that fatal injuries represent only a small fraction of all injuries. While deaths are the most devastating outcome of injuries, analyzing injury related hospitalizations and emergency room visits provides additional, valuable information. Injury related fatalities are significant, but non-fatal injuries occur more frequently. More than 58,000 Michiganders were hospitalized for injuries between the years 2006 and 2015. Michigan averages 6,196 injury-related deaths per year.²

The financial consequences from injuries are substantial. The CDC estimates that lifetime medical and work loss costs totaled more than \$7.54 billion for injury deaths in Michigan in 2014.³ Figure 3 displays the injury death related costs in Michigan compared to other nearby states in the Midwest. The cost totals in Figure 3 do not include other costs such as the impact on quality of life.

Figure 2.



Adapted from *Injuries and violence: the facts*. Geneva, WHO 2010.

Figure 3.

Costs of Fatal Injuries in 2014			
State	Number of Deaths	Death Rate (per 100,000)	Fatal Injury Related Costs
Minnesota	3,226	54.3	\$3.04B
Wisconsin	4,032	64.2	\$3.93B
Indiana	4,462	66.5	\$5.24B
Michigan	6,652	63.8	\$7.54B
Illinois	6,983	52	\$8.29B
Ohio	8,366	69.4	\$9.37B

Source: www.cdc.gov/injury/wisqars/cost/state_costs

³ Luo F, Florence C. State-Level Lifetime Medical and Work-Loss Costs of Fatal Injuries — United States, 2014. *MMWR Morb Mortal Wkly Rep* 2017;66:1–11. DOI: <http://dx.doi.org/10.15585/mmwr.mm6601a1>.

STRATEGIC PLANNING PROCESS

Once the trauma system was implemented, planning next steps and determining future priorities to sustain gains made and direct efforts was needed. In 2017, a strategic planning townhall meeting was held and attended by 48 partners and stakeholders. Informing the discussion was: the Michigan Emergency Medical Services Plan 2015-2016, the 2017 State of Michigan Reassessment of Emergency Medical Services by the National Highway Traffic Safety Administration, the Regional Trauma Systems: Optimal Elements, Integration, and Assessment System Consultation Guide by the Committee on Trauma American College of Surgeons and the results of a survey that was disseminated to gather information about strategic issues, priority system components and opportunities. At the townhall meeting, the group developed mission and vision statements as well as priority goals. Workgroup discussions centered around: Leadership and Human Resources; Injury Prevention and Public Education; Communication; Trauma Education; Infrastructure; Continuum of Care; Surveillance and Data Collection; System Evaluation; and Finance. With resources focused on facility program development, the discussions initiated at the townhall were tabled until 2018 when strategic planning resumed. In August 2018, strategic planning continued with a review by STAC and the Bureau of EMS, Trauma and Preparedness (BETP) of the Benchmarks and Indicators and Scoring (BIS) from the Health Resources and Services Administration (HRSA) *Model Trauma System Planning and Evaluation*.¹ The BIS were used to measure progress, consider barriers, craft strategies and prioritize goals and objectives. After the review was completed, workgroups were formed that included many of the participants who had attended the townhall. In order make the most efficient use of resources, the discussions were aligned with recommendations from the American College of Surgeons document, *Regional Trauma Systems: Optimal Elements, Integration, and Assessment* as well as the BIS. Benchmarks and Indicators that did not need further consideration were not included in the plan. The workgroups completed their discussions in March of 2019.

Workgroup 1-Administrative (Leadership-Infrastructure-Finance)

Workgroup 2-Operational and Clinical

Workgroup 3-Data Collection

Workgroup 4-System Assessment & Evaluation

Workgroup 5-Trauma Education & Injury Prevention

Mission

Achieving optimal patient outcomes through an integrated, coordinated, statewide trauma system of quality care, education and injury prevention.

Vision

An effective statewide system of coordinated and standardized evidenced-based trauma care that is patient centered and outcome focused.

- The integrated system spans the entire continuum of care from injury prevention to post-acute care.
- The system is accountable, highly effective, and widely recognized as a model for time sensitive trauma care.

PRIORITY BENCHMARKS AND OBJECTIVES

Workgroup	Benchmark	Objective
ADMINISTRATIVE	HRSA Benchmark 105: The system assesses and monitors its value to its constituents in terms of cost-benefit analysis and societal investment.	By September 30, 2020, develop a messaging/media campaign for the trauma system that resonates with the intended spectrum of constituents as evidenced by print, social media, and other communication modalities.
ADMINISTRATIVE	HRSA Benchmark 204: Sufficient resources, including those both financial and infrastructure related, support system planning, implementation, and maintenance.	By September 30, 2023, establish a stable funding source for the trauma system that is aligned with the trauma system strategic plan and priorities.
OPERATIONS	HRSA Benchmark 302: The trauma system is supported by an EMS system that includes communications, medical oversight, prehospital triage and transportation; the trauma system, ems system, and public health agency are well integrated.	By December 31, 2022, the Regional Trauma Networks will put into place plans, policies, tools and tracking methods for patient transfers to ensure trauma patients are moved appropriately and expeditiously.
INJURY PREVENTION	HRSA Benchmark 203: The State lead agency has a comprehensive written trauma system plan based on national guidelines. The plan integrates the trauma system with EMS, public health, emergency preparedness, and incident management. The written trauma plan is developed in collaboration with community partners and stakeholders.	By January 31, 2021, the STAC establishes a multidisciplinary and multi-agency subcommittee writing group to write an Injury Prevention (IP) Plan with a comprehensive public health focus that is specific for the state of Michigan.
SYSTEM ASSESSMENT	HRSA Benchmark 103: A resource assessment for the trauma system has been completed and is regularly updated.	By December 31, 2020, implement a STAC approved regional inventory assessment tool that collects system metrics including those described in Administrative Rules as evidenced by assessment findings reported to the RPSRO biannually. Implement strategies to address gaps and report outcomes and progress in annual regional report.

ADMINISTRATIVE

Leadership/Human Resources/Statute/Infrastructure/Finance

Policy development is an essential Public Health Core Function. Trauma system components include trauma advisory committees; legislation and regulations; system leadership; coalition and partnership building; system integration; and financing.

HRSA Benchmark 105: The system assesses and monitors its value to its constituents in terms of cost-benefit analysis and societal investment.

- **HRSA Indicator 105.3** - An assessment of the needs of the media concerning trauma system information has been conducted.
- **HRSA Indicator 105.4** - An assessment of the needs of public officials concerning trauma system information has been conducted.
- **HRSA Indicator 105.5** - An assessment of the needs of the public concerning trauma system information has been conducted.
- **HRSA Indicator 105.7** - An assessment of the needs of the general medical community, including physicians, nurses, pre-hospital care providers, and others, concerning trauma system information, has been conducted.
- **Priority Goal from Strategic Planning 2017** - Assure administrators at hospitals understand the trauma system and their role in it.

Barriers:

- Lack of existing data to establish cost-benefit of, and societal investment in, the trauma system.
- Public sector leadership may lack education on current state of the trauma system.
- Persons who fill leadership roles are constantly changing resulting in need for message repetition.
- Message needs may differ from the local to regional to state leadership.

Opportunity:

- An opportunity to develop a clear, concise, consistent communication about the Michigan Trauma System.

Goal:

- There is structure, leadership and resources to support a regionalized, coordinated and accountable system of care for the injured or potentially injured in Michigan.

Objectives:

- By September 30, 2020, develop a messaging/media campaign for the trauma system that resonates with the intended spectrum of constituents as evidenced by print, social media, and other communication modalities.
- By September 30, 2022, measure campaign as evidenced by exposure, engagement, influence, and report results to STAC.

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HRSA Benchmark 204: Sufficient resources, including those both financial and infrastructure related, support system planning, implementation, and maintenance.

- **HRSA Indicator 204.2** - Financial resources exist that support the planning, implementation, and ongoing management of the administrative and clinical care components of the trauma system.
- **HRSA Indicator 204.4** - Operational budgets (system administration and operations, facilities administration and operation, and EMS administration and operations) are aligned with the trauma system plan and priorities. Examples: Full-Time Equivalents (FTE'S) per population to support the infrastructure; costs to improve the communication system.
- **Priority Goal from Strategic Planning 2017** - Consistent, equitable, sustainable, unassailable funding that demonstrates value/substance and supports on-going development.

Barriers:

- Lack of stable funding for the trauma system at the local, regional, state and national level.
- Federal and state funds are restricted and only allocated for specific projects which makes spending the funds more difficult.

Opportunity:

- Leverage community partners in the efforts to secure stable funding for the trauma system.

Goal:

- Establish and maintain funding.

Objectives:

- By September 30, 2021, a stable funding source for the trauma system will be identified as evidenced, at minimum, by the elimination of the sunset language.
- By September 30, 2023, establish a stable funding source for the trauma system that is aligned with the trauma system strategic plan and priorities.
- By September 30, 2023, data will be available that demonstrates trauma system impact on the injured.

HRSA Benchmark 207: The lead agency informs and educates state, regional, and local constituencies and policy makers to foster collaboration and cooperation for system enhancement and injury control.

- **HRSA Indicator: 207.2** - The trauma system leaders (lead agency, advisory committees, and others) informs and educates constituencies and policy makers through community development activities, targeted media messaging, and active collaborations aimed at injury prevention and trauma system development.
- **HRSA Indicator: 207.3** - Trauma system leaders (lead agency; trauma specific statewide multidisciplinary, multi-agency advisory committees; and others) mobilize community partners in identifying the injury problem throughout the State and in building coalitions of personnel to design systems that can reduce the burden of injury.

Barriers:

- Data dependent.
- No established communication link with local constituencies and policy makers at present.

Opportunities:

- Identify risk factors and related interventions to prevent injuries.
- Partner with community health.
- Conduct population-based injury prevention.
- Provide opportunity for trauma system to emphasize the prevention of injuries.

Goals:

- Reduction of death and disability caused by trauma.
- High Priority for 2020 -2023.

Objectives:

- By September 30, 2023, trauma system leadership and stakeholders will be engaged in statewide collaborative initiatives that address evidenced based injury prevention that incorporate existing partnerships and capitalize on established gains as evidence by statistical improvement in injury rates in identified population.
- By September 30, 2023, using data, regional injury prevention experience, and partnerships, develop a plan for a system that addresses the burden of injury that includes future planning, as evidenced by a draft plan presented to STAC in 2024.

OPERATIONS AND CLINICAL Emergency Preparedness/Prehospital Care/Communication System/Competent Workforce

Assurance is an essential Public Health Core Function. Trauma system components include ensuring constituents that services necessary to achieve agreed upon goals are provided by encouraging the actions of others (public and private); requiring action through regulations; and providing services directly.

HRSA Benchmark 208: The trauma, public health and emergency preparedness systems are closely linked.

- **HRSA Indicator 208.2** - The incident management and trauma systems have formal established linkages for system integration and operational management.

Barriers:

- Lack of familiarity with state preparedness plan as it relates to mass casualty incidents and patient surge planning. The plan was developed prior to the existence of the trauma system therefore gaps in communication exist.
- There is limited trauma representation at state level preparedness meetings.

Opportunity:

- Provide ongoing, clear communication regarding regional preparedness planning at regional trauma meetings.

Goal:

- Develop a policy for incident management and trauma system linkage.

Objective:

- By December 31, 2023, trauma leadership and regional trauma partners will be integrated in preparedness planning at the local, regional and state level. As evidenced by meeting attendance, participation in exercises and communications.

HRSA Benchmark 302: The trauma system is supported by an EMS system that includes communications, medical oversight, prehospital triage and transportation; the trauma system, EMS system, and public health agency are well integrated.

- **HRSA Indicator 302.2** - There is a clearly defined, cooperative, and ongoing relationship between the trauma specialty physician leaders (e.g., trauma medical director within each trauma center) and the EMS system medical director.
- **HRSA Indicator 302.5** - The retrospective medical oversight of the EMS system for trauma triage, communications, treatment, and transport is closely coordinated with the established performance improvement processes of the trauma system.
- **HRSA Indicator 302.6** - There are mandatory system-wide prehospital triage criteria to ensure that trauma patients are transported to an appropriate facility based on their injuries. These triage criteria are regularly evaluated and updated to ensure acceptable and system-defined rates of sensitivity and specificity for appropriately identifying the major trauma patient.

Barriers:

- EMS Administrative Rules do not require initial input on trauma protocols from trauma content experts.
- The relationships between hospital Trauma Medical Directors (TMD) and Medical Control Authority (MCA) Medical Directors are variable. There are inconsistencies in the MCA's operations and staffing levels.
- There are no written responsibilities in the TMD job description for activities outside the hospital, such as local, regional, and state meetings or EMS activities. Hospitals may not provide funded hours for these activities.
- Advanced Life Support Services are not as prevalent in rural areas which can lead to level IV trauma facilities receiving high acuity patients with limited interventions prior to arrival.
- There is not a uniform, routine evaluation of the Adult and Pediatric Trauma Triage protocol implementation.
- Monitoring adherence to destination protocols is in its infancy.
- Linkage between Michigan EMS Information System (Mi-EMSIS) and the state trauma registry is inconsistent.
- Linking patient information through the care continuum is limited.

Opportunities:

- Create opportunities for EMS and trauma leadership to discuss and develop clearly defined cooperative, ongoing relationships.
- Provide an opportunity for all interested trauma program staff to interact and establish connections with prehospital providers.
- Support uniform methods of identifying trauma incidents in MI-EMSIS to support system and care evaluation.

Goals:

- Develop a formal written procedure delineating the responsibilities of the TMD in each trauma facility and the MCA Medical Director regarding the roles, responsibilities and methods of working together.
- Ensure there is a performance improvement process that: retrospectively reviews medical oversight of trauma triage, communication, treatment and transport, probabilistically links Mi-EMSIS and trauma registry data, a formal method to monitor, track and trend patient transfers in the system, develops a standardized practice to identify and review deviations in protocols, guidelines, and care.

Objectives:

- By December 31, 2022, the data in Mi-EMSIS and the state trauma registry will be probabilistically linked, and trauma transfers will be monitored.
- By December 31, 2023, there will be an established process where the trauma content experts will provide their expertise related to EMS trauma protocols.
- By December 31, 2023, a STAC member will be invited to participate on the Quality Assurance Task Force (QATF) when trauma protocols are on the agenda as evidenced by agenda and minutes.
- By December 31, 2023, the QATF will develop a process to review adherence to Adult and Pediatric Trauma Triage protocols.

HRSA Benchmark 303: Acute care facilities are integrated into a resource-efficient, inclusive network that meets required standards and that provides optimal care for all injured patients.

- **HRSA Indicator 303.4** - When injured patients arrive at a medical facility that cannot provide the appropriate level of definitive care, there is an organized and regularly monitored system to ensure the patients are expeditiously transferred to the appropriate, system defined trauma facility.

Barriers:

- Information about patient movement in and through the regions including emergency department dwell times, level of transport, and transport times have not been formally reported to the Regional Professional Standards Review Organization (RPSRO).
- Prehospital transport can be impacted by available resources, call volumes, and transport distances. Critical care transport resources are not universally available in the state.
- There is no uniform method to collect multiple transfer information.
- State required data set (National Trauma Data Set) limits the collection of some system metrics.

Opportunity:

- Explore issues and challenges related to patient transfers including transfer guidelines and procedures, lack or limited monitoring of ED dwell times and failure to report trends to the RPSRO.

Goal:

- Develop systems and procedures for monitoring interfacility transfers.

Objective:

- By December 31, 2022, the Regional Trauma Networks will put into place plans, policies, tools and tracking methods for patient transfers to ensure trauma patients are moved appropriately and expeditiously.

TRAUMA EDUCATION AND INJURY PREVENTION

Assessment/Injury Epidemiology/Outreach and Prevention

Assessment is an essential Public Health Core Function. Assessment is described as regular systematic collection, assembly, analysis and dissemination of information on the health of the community. Trauma systems must develop prevention strategies that help control injury as part of an integrated, coordinated and inclusive trauma system.

HRSA Benchmark 203: The State lead agency has a comprehensive written trauma system plan based on national guidelines. The plan integrates the trauma system with EMS, public health, emergency preparedness, and incident management. The written trauma plan is developed in collaboration with community partners and stakeholders.

- **HRSA Indicator 203.5** - A written injury prevention and control plan is developed and coordinated with other agencies and community health programs. The injury program is data driven, and targeted programs are developed based on high injury risks areas. Specific goals with measurable objectives are incorporated into the injury plan.

Barriers:

- An injury prevention plan requires the input and participation of a multitude of disparate groups, partners and stakeholders. Anticipated are the challenges inherent in gaining consensus and final actionable coordinated plan among both internal and external stakeholders.
- Challenges regarding actionable data include: the broad range of data sources may be a significant resource however the resources required to collect, analyze, and make the data usable are significant, data is collected by many sources that are independent of each other, staff turnover continue to impact data collection.
- Injury prevention plan development and data collection is predicated on the commitment of partners and stakeholders with other responsibilities.
- Communication process or pathway in bringing groups utilizing different data sources together.

Opportunities:

- Engaged, committed partners and stakeholders in state trauma programs.
- Partnerships with Michigan Department of Health and Human Services (MDHHS) Chronic Disease Injury Prevention and Epidemiology who have years of experience with injury prevention initiatives and surveillance for injury.
- Commitment from local and national stakeholders such as American College of Surgeons, Safe Kids Coalition, CDC, Office of Highway Safety and Planning etc. for resource allocation for injury prevention.

Goal:

- Develop a written plan for injury prevention based on actionable data that reflects national guidelines and includes community partners and stakeholders.

Objectives:

- By January 31, 2021, the STAC establishes a multidisciplinary and multi-agency subcommittee writing group to write an Injury Prevention (IP) Plan with a comprehensive public health focus that is specific for the state of Michigan.

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- By June 30, 2021, draft a comprehensive IP Plan with goals and time-specific, measurable objectives that are linked to the trauma system plan for trauma education and IP in the State of Michigan. The plan will also recommend specific IP activities for each level of hospital trauma designation.
- By December 31, 2023, a final plan is adopted by the STAC.

HRSA Benchmark 205: Collected data are used to evaluate system performance and to develop public policy.

- **HRSA Indicator 205.4** - Injury prevention programs use trauma management information system (MIS) data to develop intervention strategies.
- **HRSA Indicator 205.5**- Education for trauma system participants is developed based on a review and evaluation of trauma MIS data.

Objectives:

- By January 31, 2020, compile a comprehensive list of local, state, and national injury/violence/epidemiology data sources containing data specific to the state of Michigan.
- By June 30, 2020, request and obtain injury/violence/epidemiology data reports from the identified data sources to compile a comprehensive view of injuries in Michigan.
- By September 30, 2020, request and obtain a listing of all IP programs occurring throughout Michigan.
- By June 30, 2021, publish a comprehensive overview summary of injuries in Michigan, and make recommendations on priority areas, topics, and populations to assist in planning future interventions and services.
- By December 31, 2021, prepare a report outlining the evidence-based strength and geographical mapping of injury and violence prevention interventions/programs currently being implemented in Michigan.
- By December 31, 2021, conduct a statewide needs assessment to determine the current of level professional trauma education (i.e., this includes Physicians, Nursing, PAs, NPs, EMS, and others) using experience from the previously conducted assessment.
- By May 31, 2022, compare the results of the trauma education needs assessment to the pre-Administrative Rules survey completed in 2016 to evaluate progress and/or changes in trauma education needs.
- By October 31, 2022, publish recommendations for prehospital, nursing, physician and allied health personnel for initial and ongoing trauma and IP training. The professional trauma education needs assessment and trauma MIS data will be used to develop these guidelines.

HRSA Benchmark 207: The lead agency informs and educates state, regional, and local constituencies and policy makers to foster collaboration and cooperation for system enhancement and injury control.

- **HRSA Indicator 207.4** - A trauma system public information and education plan exists that heightens public awareness of trauma as a disease, the need for a trauma care system and the prevention of injury.

Objectives:

- By March 31, 2020, develop an internet based public education system with hyperlinks and resources which could be accessed from the michigan.gov/trauma website.
 - a. Build a resource page with hyperlinks to websites that support the identified priorities for IP and education in the state of Michigan, such as:
 - i. Center for Disease Control (CDC)
 - ii. Michigan Trauma Coalition (MTC)

- iii. American Trauma Society (ATS)
 - iv. Older Adult Falls and Safe Driving: Office of Service to the Aging (OSA); Area Agencies on Aging; Senior Neighbors; Safe Drivers, Safe Options; etc.
 - v. Society of Trauma Nurses (STN)
 - vi. Other resource hyperlinks added as priorities are established.
 - vii. Prevention tips for the top 3 identified injuries from the state trauma registry.
- By March 31, 2021, the Regional Trauma Networks with the assistance of the MDHHS Trauma Section will promote regional evidenced based primary injury prevention activities and projects.
 - a. The RTNs or its designated committee will review the injury/epidemiology data reports obtained from the state annually to identify the top injury causes in their region.
 - b. The RTNs will work with other local agencies (e.g., local health departments, health care delivery systems such as health clinics and physician offices, senior centers, schools, etc.) to identify a regional strategy for injury prevention education and/or interventions needed to mitigate the incidence of top injuries.
 - c. Allocate funds (if available) based on identified injury prevention needs through a grant process that includes an evaluation component.
- By May 31, 2021, promote evidenced based primary injury prevention activities and projects regionally by development of a first annual regional community event initiative to correlate with trauma awareness month [May].
 - a. Develop media release to recognize trauma awareness month and distribute trauma awareness materials.
 - b. Identify topics and talking points to increase public awareness that trauma is a preventable disease.
 - c. Level 1 and 2 trauma centers within each region will provide support for level 3 and 4 centers with development of community events.

HRSA Benchmark 301: The trauma management information system (MIS) is used to facilitate ongoing assessment and assurance of system performance and outcomes and provides a basis for continuously improving the trauma system including cost benefit analysis.

- **HRSA Indicator 301.4** - The lead agency has available for use the latest in computer/technology advances and analytical tools for monitoring injury prevention and control components of the trauma system. There is reporting o the outcome of implemented strategies for injury prevention and control programs within the trauma system.

Objectives:

- By August 31, 2020, develop a plan for ongoing surveillance of injury epidemiology data reports and capturing of trends. These reports will be distributed to the STAC and Regional Trauma Networks.
- By June 30, 2021, each Regional Trauma Advisory Council (RTAC) Injury Prevention subcommittee (through the Regional Trauma Coordinator), will report on which injury prevention programs have been implemented based on specific injury data obtained from monitoring tools.
- By June 30, 2021, each RTAC will report on injury prevention outcome data for at least one implemented program.

DATA COLLECTION

Trauma Management Information System/System Performance

The trauma management information system should be designed to provide system-wide data that allow and facilitate evaluation of the structure, process and outcomes of the entire system: all phases of care; and their interactions.

HRSA Benchmark 102: There is an established trauma management information system (MIS) for ongoing injury surveillance and system performance assessment

- **HRSA Indicator 102.5** - There is an established method of collecting trauma financial data form all health care facilities and trauma agencies including patient charges as administrative and system costs.

Barriers:

- Cost information is not required data.
- This type of data collection would be burdensome and not easily shared.

Opportunities:

- National data could be used to describe cost of injury.
- Some data can be interpolated to describe costs of injured.
- Academic research may provide an opportunity to describe cost of injury and trauma care.
- Cost data can describe the benefits of implementing a trauma system that improves outcomes and productive life saved.

HRSA Benchmark 205: Collected data are used to evaluate system performance and to develop public policy.

- **HRSA Indicator 205.1** - Collected data are used for strategic and budgetary planning
- **HRSA Indicator 205.2** - Collected data from a variety of sources are used to review the appropriateness of trauma system policies and procedures.

HRSA Benchmark 206: Trauma system leaders, including a trauma specific statewide multidisciplinary, multi-agency advisory committee regularly review system performance reports.

- **HRSA Indicator 206.1** - Trauma data reports are generated by the trauma system no less than once per year and are disseminated to trauma system leaders and stakeholders to evaluate and improve system performance and effectiveness.

Barriers:

- Limited data set (Administrative Rules require National Trauma Data Set).
- Elements not defined in data dictionary will create inconsistencies.
- Turnover in roles of registrar, data abstractor, epidemiologist.
- Training needs are ongoing.
- Registry software not intuitive.
- EMS data collection is not seamless.
- Data across care continuum is not linked.

Opportunities:

- Active participation in state trauma registry.
- Michigan Trauma Quality Improvement Program partnership.
- Engaged trauma registrars and mentoring opportunities.
- Training and education ongoing.
- Consider best practices from other states using the same software.
- Consider collecting additional data elements with input from advisory bodies.

Goal:

- Ongoing collection of actionable data to drive system development, performance improvement, system evaluation.

Objectives:

- By December 31, 2020, institute yearly registrar training that includes an ImageTrend® specific module, dictionary, report writing, etc. Record training and have available via website.
- By December 31, 2020, engage in ongoing discussions with software vendor for options that best address identified needs.
- By December 31, 2021, develop a Michigan Data Dictionary from within the National Trauma Data Bank that provides more in-depth information to address inconsistencies.
- By December 31, 2022, implement a process to address data validity at the facility and state level.
- By December 31, 2022 refine description of the role of a trauma registrar.
- By December 31, 2023 consider resources or support needed for state trauma registry including staffing needs.

SYSTEM ASSESSMENT & EVALUATION

Assessment/Trauma Management Information System/Research/ Performance Improvement/Quality Assurance

Key aspects of system-wide effectiveness include the outcomes of population-based injury prevention initiatives; access to care as well as the availability of services; quality of services provided within the trauma care continuum for injury epidemiology; resource assessments; prehospital and acute care management phases thorough rehabilitation; community reintegration; and financial impact or cost.

HRSA Benchmark 101: There is a thorough description of the epidemiology of injury in the system jurisdiction using both population-based data and clinical database.

- **HRSA Indicator 101.4** - Collaboration exists between EMS, public health officials, and trauma system leaders to complete injury risk assessments.
- **HRSA Indicator 101.6** - The trauma system works with EMS and the public health system to complete a jurisdiction-wide study of the determinants of injury using existing data sources and public health tools.

Barriers:

- State trauma registry is continuing to receive incidents and data; however, completeness and validity have not been fully established.
- Population based injury data has not been fully realized.

Opportunities:

- There are many entities collecting elements of injury and injury surveillance in Michigan.
- Potential partnerships can be further explored.
- Trauma registry adds a more specificity to data on injury, patient outcomes, and productive life lost.

Goal:

- Using existing surveillance data, monitor and trend injury to inform initiatives, publish reports, FACT sheets, drive patient care, performance improvement and system evaluation.

Objectives:

- By December 31, 2020, track and report on injury data from the state trauma registry including age, gender, top mechanism of injury, ISS, and mortality as evidenced by state and regional reports.
- By December 31, 2022, use existing data sources to describe the burden of bodily injury by the application of force in Michigan to inform 2024 strategic plan and injury prevention initiatives.
- By December 31, 2023 collaborate with injury prevention partners and stakeholders on injury surveillance and reporting as evidenced by fact sheets, web links, participation in meetings, and projects as needed.

HRSA Benchmark 103: A resource assessment for the trauma system has been completed and is regularly updated.

- **HRSA Indicator 103.1** - The trauma system has completed a comprehensive system status inventory that identifies the availability and distribution of current capabilities and resources.
- **HRSA Indicator 103.2** – The trauma system has completed a gap analysis based on the inventories of internal and external system status as well as system resource standards.
- **HRSA Indicator 103.3** – There has been an initial assessment (and periodic reassessment) of overall system effectiveness.
- **HRSA Indicator 103.4** - The trauma system has undergone a jurisdiction wide external independent analysis.

Barriers:

- Resource assessment was conducted in 2015 in the initial phase of system development.
- Incomplete information regarding system components limits the Regional Professional Standards Review Organizations ability to fully assess local system function and conduct a gap analysis.

Opportunities:

- National Highway Traffic Safety Administration conducted a Reassessment of Michigan’s EMS and Trauma System in 2017.
- Partners and stakeholders are engaged and committed to system evaluation and appreciate the critical importance of measuring capacity with regular participation in system status inventory.
- Regional Professional Standards Review Organizations are organized in each region, prepared to address system inventory results and address identified gaps.

Goal:

- Develop and conduct a STAC approved comprehensive system inventory in each region that informs the Regional Trauma Networks on system functioning.

Objective:

- By December 31, 2020, implement a STAC approved regional Inventory assessment tool that collects system metrics including those described in Administrative Rules as evidenced by assessment findings reported to the RPSRO biannually. Implement strategies to address gaps and report outcomes and progress in annual regional report.

HRSA Benchmark 104: An assessment of the trauma system’s emergency preparedness has been completed including coordination with the public health, EMS system, and the emergency management agency.

- **HRSA Indicator 104.1** - There is a resource assessment of the trauma system’s ability to expand its capacity to respond to mass casualty incidents (MCIs) in an all-hazards approach.
- **HRSA Indicator 104.2** – There has been a consultation by external experts to assist in identifying current status and needs of the trauma system to be able to respond to mass casualty incidents.
- **HRSA Indicator 104.3** – The trauma system has completed a gap analysis based on the resource assessment for trauma emergency preparedness.

Michigan Trauma System

HRSA Benchmark 204: Sufficient resources, including those both financial and infrastructure related, support system planning, implementation, and maintenance.

- **HRSA Indicator 204.5** - The trauma system plan includes identification of additional resources (both manpower and equipment) necessary to respond to mass casualty incidents.

Barriers:

- The Michigan trauma system was operationalized 19 years after the preparedness program was established in the state.
- The role of trauma facilities in mass casualty events has not been highlighted in exercises as much as other events.
- Silos still exist between stakeholders who are involved in trauma related mass casualty events.

Opportunities:

- Trauma stakeholders understand and are committed to contributing to the discussion and planning around mass casualty events.
- Recent national and worldwide experience has provided an opportunity to capitalize on best practices that can and must be shared.
- A fully operationalized trauma system is critical to positive patient outcomes in a mass casualty events.

Goal:

- Assess and address identified gaps in trauma emergency preparedness.

Objective:

- By September 30, 2021, support collaboration with preparedness partners and stakeholders as evidenced by sharing expertise at meetings, planning events, website links, education and training.

EVALUATION

The STAC approved strategic plan implementation is ongoing. Progress on the objectives and strategies, will be reported annually to STAC and elements specific to the Regional Trauma Networks will be reported to the responsible parties as described in the plan.

Data will be collected on the implementation process and impact of the strategic plan and reported on in the annual report to STAC.

The final report in 2023 will be used to inform the next strategic plan including best practices, lessons learned, and barriers identified. Resource limits and a potentially narrowly defined registry data set may impact the ambitious plan set forth in the document.

APPENDIX A
STATE TRAUMA ADVISORY COMMITTEE MEMBERSHIP,
DESIGNATION SUBCOMMITTEE MEMBERSHIP &
STRATEGIC PLANNING TOWNHALL PARTICIPANTS



STATEWIDE TRAUMA ADVISORY SUBCOMMITTEE MEMBERS

January 2018

Name	Position	Term
Jeff Boyd Livingston County EMS 3950 W. Grand River Howell, MI 48855 Phone: 517-546-6220 jboyd@co.livingston.mi.us	Life Support Agency Manager who is a member of the Emergency Medical Services Coordination Committee (EMSCC)	1-2020
Robert Domeier, MD Washtenaw/Livingston MCA P.O. Box 130448 Ann Arbor, MI 48114 Phone: 734-604-6532 rdomeier@epmg.com	MCA Medical Director, Non-rural County	1-2020
Gaby Iskander, MD Spectrum Health 100 Michigan St NE Grand Rapids, MI 49503 Phone: 616-391-3996 gaby.iskander@spectrumhealth.org	Trauma Surgeon/Trauma Medical Director	1-2020
Dawn Rudgers, RN Hills and Dales General Hospital 4675 Hill St. Cass City, MI 48726 Phone: 989-912-6564 drudgers@hillsanddales.com	Hospital Administrator NOT designated as a Level I or Level II trauma center by the American College of Surgeons Committee on Trauma	1-2020
Beth Fasbinder, BSN, RN Henry Ford Hospital 2799 West Grand Blvd Detroit, MI 48202 Phone: 313-916-7051 bfasbin1@hfhs.org	Trauma Nurse Coordinator	1-2020
Jill Jean, RHIT St. John Providence Park Hospital 47601 Grand River Ave. Novi, MI 48374 Phone: 248-465-5354 jill.jean@ascension.org	Trauma Registrar	1-2020



Name	Position	Term
Howard Klausner, MD Henry Ford Health System 2799 W Grand Blvd., CFP 266 Detroit, MI 48202 Phone: 248-469-3159 hklausn1@hfhs.org	Emergency Physician	1-2020
Joshua Mastenbrook, MD Western Michigan University School of Medicine 1000 Oakland Dr. Kalamazoo, MI 49008 Phone: 269-337-6600 joshua.mastenbrook@med.wmich.edu	MCA Medical Director, Rural County	1-2020
Allan Lamb, DO Beaumont Hospital - Trenton 5450 Fort St. Trenton, MI 48183 Phone: 734-676-4996 allan.lamb@beaumont.org	Hospital Administrator designated as a Level I or Level II trauma center by the American College of Surgeons Committee on Trauma	1-2020
Wayne Vanderkolk, MD Michigan Committee on Trauma 200 Jefferson Grand Rapids, MI 49503 Phone: 616-456-5311 waynshell@aol.com	Trauma Surgeon/Trauma Medical Director	1-2020

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517-355-8150

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Verification/Designation Coordinator-Tammy First
TraumaDesignationCoordinator@michigan.gov

State Trauma Epidemiologist/Registrar – Liz Vickers
StateTraumaRegistrar@michigan.gov

DESIGNATION SUBCOMMITTEE MEMBERS

January 2017

Name	Position	Term
<p>Holly Bair, RN Beaumont Hospital 3535 W 13 Mile Road Royal Oak, MI 48073 Phone: 248-898-1994 habair@beaumont.edu</p>	<p>Trauma Program Manager Level I Hospital Region 2N</p>	11-2017
<p>Joseph Buck, MD St. John Hospital and Medical Center 22101 Moross, PBI Suite 330 Detroit, MI 48236 Phone: 313-343-7542 joseph.buck@stjohn.org</p>	<p>Board Certified Surgeon Region 2S</p>	11-2017
<p>Todd Chassee, MD Spectrum Health 678 Front Avenue NW, Suite 220 Grand Rapids, MI 49504 Phone: 616-802-8401 tchassee@kcems.org</p>	<p>Board Certified Emergency Department Physician Region 6</p>	11-2017
<p>Rita Cox, MSN, MBA, RN Bronson Methodist Hospital 301 John Street, Box 67 Kalamazoo, MI 49007 Phone: 269-341-7695 coxr@bronsonhg.org</p>	<p>Trauma Program Manager Level I Hospital Region 5</p>	11-2017
<p>Deborah Falkenberg, RN Covenant Healthcare 1447 N Harrison Saginaw, MI 48603 Phone: 989-583-6218 dfalkenberg@chs-mi.com</p>	<p>Trauma Program Manager Level II Hospital Region 3</p>	11-2017
<p>John Kepros, MD Sparrow Hospital 1215 E Michigan, 2 South Trauma Office Lansing, MI 48912 Phone: 517-364-2616 john.kepros@sparrow.org</p>	<p>Board Certified Surgeon Region 1</p>	11-2017
<p>Mark Kerschner, MD Bronson Methodist Hospital 601 John Street Kalamazoo, MI 49007 Phone: 269-598-8284 Kerschnm@bronsonhg.org</p>	<p>Board Certified Emergency Department Physician Region 5</p>	11-2017

<p>Christine McEachin, RN Henry Ford Macomb Hospital 15855 Nineteen Mile Clinton Township, MI 48038 Phone: 586-263-2323 cmceach1@hfhs.org</p>	<p>Trauma Program Manager Level II Hospital Region 2N</p>	<p>11-2017</p>
<p>Sujal Patel, MD Covenant Healthcare 5415 Fashion Square Blvd. Saginaw, MI 48604 Phone: 989-790-4855 espnmd@att.net</p>	<p>Board Certified Surgeon Region 3</p>	<p>11-2017</p>
<p>Shamarie Regenold, RN Munson Medical Center 1105 Sixth Street Traverse City, MI 49684 Phone: 231-935-7514 sregenold@mhc.net</p>	<p>Trauma Program Manager Level II Hospital Region 7</p>	<p>11-2017</p>
<p>Robert Smith, MD Munson Medical Center 1105 Sixth Street Traverse City, MI 49384 Phone: 231-935-7835 temsdoc218@earthlink.net</p>	<p>Board Certified Emergency Department Physician Region 7</p>	<p>11-2017</p>
<p>Penny Stevens, RN Sparrow Hospital 1215 E Michigan Lansing, MI 48912 Phone: 517-364-3783 penny.stevens@sparrow.org</p>	<p>Trauma Program Manager Level I Hospital Region 1</p>	<p>11-2017</p>
<p>Wayne Vanderkolk, MD Mercy Health Saint Mary's 245 Cherry Street Suite 102 Grand Rapids, MI 49503 Phone: 616-456-5311 waynshell@aol.com</p>	<p>Board Certified Surgeon Region 6</p>	<p>11-2017</p>
<p>Christopher Wagner, RN University of Michigan Health Systems 1500 East Medical Center Drive Ann Arbor, MI 48109 Phone: 734-936-9658 cwag@umich.edu</p>	<p>Trauma Program Manager Level I Hospital Region 2S</p>	<p>11-2017</p>
<p>Jon Walsh, MD Bronson Methodist Hospital 601 John Street, Box 67 Kalamazoo, MI 49007 Phone: 269-341-6022 walshj@bronsonhg.org</p>	<p>Board Certified Surgeon Region 5</p>	<p>11-2017</p>

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Also attributing to the townhall meeting:

Helen Berghoef, Emily Bergquist, Tammy First, Deb Detro-Fisher, Theresa Jenkins, Bob Loiselle, Lyn Nelson, Kevin Putman, Liz Vickers, Kathy Wahl, Deb Wiseman, Eileen Worden

APPENDIX B
MICHIGAN DESIGNATED TRAUMA FACILITIES

Michigan Trauma Facilities in Designation Process
Status Update
As of June 5, 2019

Trauma Facility Name	Location	Adult	Pediatric	Status	Expiration Date
Allegan General Hospital	Allegan	Level IV		Designated	11/8/20
Ascension Borgess Hospital	Kalamazoo	Level II		Designated	5/11/22
Ascension Borgess Lee Memorial Hospital	Dowagiac	Level IV		In Process	N/A
Ascension Genesys Hospital	Grand Blanc	Level II		Designated	6/30/21
Ascension Macomb-Oakland Hospital	Warren	Level III		Designated	4/26/22
Ascension Macomb-Oakland Hospital; Madison Heights	Madison Heights	Level IV		Designated	3/28/21
Ascension Providence – Novi	Novi	Level II		Designated	3/20/21
Ascension Providence Hospital – Southfield	Southfield	Level II		Designated	8/12/21
Ascension Providence Rochester Hospital	Rochester	Level III		Designated	6/6/19
Ascension River District Hospital	East China	Level IV		Designated	7/13/19
Ascension Standish Hospital	Standish	Level IV		Designated	6/5/21
Ascension St. Joseph Hospital	Tawas City	Level IV		Designated	3/16/21
Ascension St. Mary’s of Michigan	Saginaw	Level II		Designated	8/26/20
Aspirus Ironwood Hospital	Ironwood	Level IV		Designated	10/2/21
Aspirus Iron River Hospital & Clinics	Iron River	Level IV		In Process	N/A
Aspirus Keweenaw Hospital	Laurium	Level III		Designated	8/3/20
Aspirus Ontonagon Hospital	Ontonagon	Level IV		Designated	10/5/21
Baraga County Memorial Hospital	L’Anse	Level IV		In Process	N/A
Beaumont Hospital – Dearborn	Dearborn	Level II		Designated	1/25/19
Beaumont Hospital – Farmington Hills	Farmington Hills	Level II		Designated	1/26/22
Beaumont Hospital – Grosse Pointe	Grosse Pointe	Level III		Designated	3/4/22
Beaumont Hospital – Royal Oak	Royal Oak	Level I	Level II	Designated	2/18/20
Beaumont Hospital – Taylor	Taylor	Level IV		Designated	9/17/21
Beaumont Hospital – Trenton	Trenton	Level II		Designated	12/13/19
Beaumont Hospital – Troy	Troy	Level II		Designated	6/4/21
Beaumont Hospital – Wayne	Wayne	Level III		Designated	4/17/21
Bronson Battle Creek	Battle Creek	Level III		Designated	1/18/21
Bronson Lakeview Hospital	Paw	Level IV		Designated	12/6/20
Bronson Methodist Hospital	Kalamazoo	Level I		Designated	10/10/20
Bronson South Haven	South Haven	Level IV		Designated	11/30/21
Children’s Hospital of Michigan	Detroit		Level I	Designated	10/16/19
Covenant Healthcare	Saginaw	Level II	Level II	Designated	12/16/21
C.S. Mott Children’s Hospital	Ann Arbor		Level I	Designated	2/2/21
Deckerville Community Hospital	Deckerville	Level IV		Designated	2/16/21
Detroit Receiving Hospital	Detroit	Level I		Designated	3/26/20
Dickinson County Healthcare System	Iron Mountain	Level IV		In Process	N/A
DMC Huron Valley Sinai Hospital	Commerce	Level III		In Process	N/A
Eaton Rapids Medical Center	Eaton Rapids	Level IV		Designated	10/6/20
Garden City Hospital	Garden City	Level III		Not Designated	N/A
Harbor Beach Community Hospital	Harbor Beach	Level IV		Designated	8/3/20

Michigan Trauma Facilities in Designation Process
Status Update
As of June 5, 2019

Trauma Facility Name	Location	Adult	Pediatric	Status	Expiration Date
Hayes Green Beach Memorial Hospital	Charlotte	Level IV		In Process	N/A
Helen DeVos Children's Hospital	Grand Rapids		Level I	Designated	3/6/21
Helen Newberry Joy Hospital	Newberry	Level IV		Designated	5/18/21
Henry Ford Allegiance Health	Jackson	Level II		Designated	1/18/20
Henry Ford Hospital	Detroit	Level I		Designated	4/30/22
Henry Ford Macomb Hospital	Clinton Township	Level II		Designated	2/27/22
Henry Ford West Bloomfield	West Bloomfield	Level III		Designated	1/19/21
Henry Ford Wyandotte Hospital	Wyandotte	Level III		Designated	12/2/20
Hills and Dales General Hospital	Cass City	Level IV		Designated	11/16/19
Hillsdale Hospital	Hillsdale	Level IV		In Process	N/A
Holland Hospital	Holland	Level III		Designated	8/24/20
Hurley Medical Center	Flint	Level I	Level II	Designated	4/3/21
Kalkaska Memorial Health Center	Kalkaska	Level IV		In Process	N/A
Lake Huron Medical Center	Port Huron	Level III		In Process	N/A
Lakeland Health – St. Joseph	St. Joseph	Level III		Designated	8/15/20
Lakeland Hospital - Niles	Niles	Level IV		Designated	3/13/21
Lakeland Hospital – Watervliet	Watervliet	Level IV		Designated	6/1/20
Mackinac Straits Hospital	Saint Ignace	Level IV		In Process	N/A
Marlette Regional Hospital	Marlette	Level IV		Not Designated	N/A
McKenzie Health System	Cass City	Level IV		Designated	3/16/20
McLaren Bay Region	Bay City	Level III		In Process	N/A
McLaren Caro Region	Caro	Level IV		In Process	N/A
McLaren Central Michigan	Mt. Pleasant	Level IV		In Process	N/A
McLaren Flint	Flint	Level III		Designated	6/24/20
McLaren Greater Lansing	Lansing	Level III		Designated	7/20/19
McLaren Lapeer Region	Lapeer	Level II		Designated	11/17/19
McLaren Macomb Hospital	Mount Clemens	Level II		Designated	4/12/19
McLaren Oakland	Pontiac	Level II		Designated	9/25/21
McLaren Port Huron	Port Huron	Level III		Designated	12/8/19
McLaren Thumb Region	Bad Axe	Level IV		In Process	N/A
Memorial Healthcare	Owosso	Level III		In Process	N/A
Mercy Health Muskegon – Hackley	Muskegon	Level II		Designated	3/6/21
Mercy Health Muskegon - Lakeshore	Shelby	Level IV		Designated	2/9/21
Mercy Health Mercy Campus	Muskegon	Level IV		Designated	1/18/21
Mercy Health Saint Mary's	Grand Rapids	Level II		Designated	10/29/19
Metro Health: University of Michigan Health	Wyoming	Level II		Designated	5/31/20
MidMichigan Medical Center – Alpena	Alpena	Level III		In Process	N/A
MidMichigan Medical Center – Clare	Clare	Level IV		In Process	N/A
MidMichigan Medical Center - Gladwin	Gladwin	Level IV		In Process	N/A
MidMichigan Medical Center – Gratiot	Alma	Level III		Designated	11/30/20
MidMichigan Medical Center - Midland	Midland	Level II		Designated	2/6/20

Michigan Trauma Facilities in Designation Process
Status Update
As of June 5, 2019

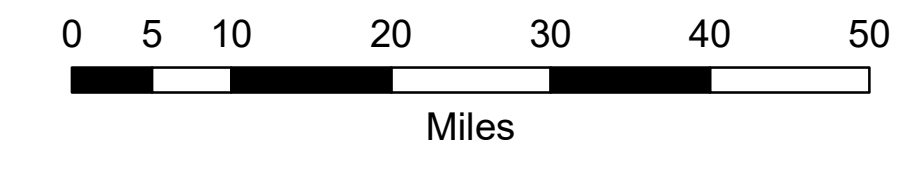
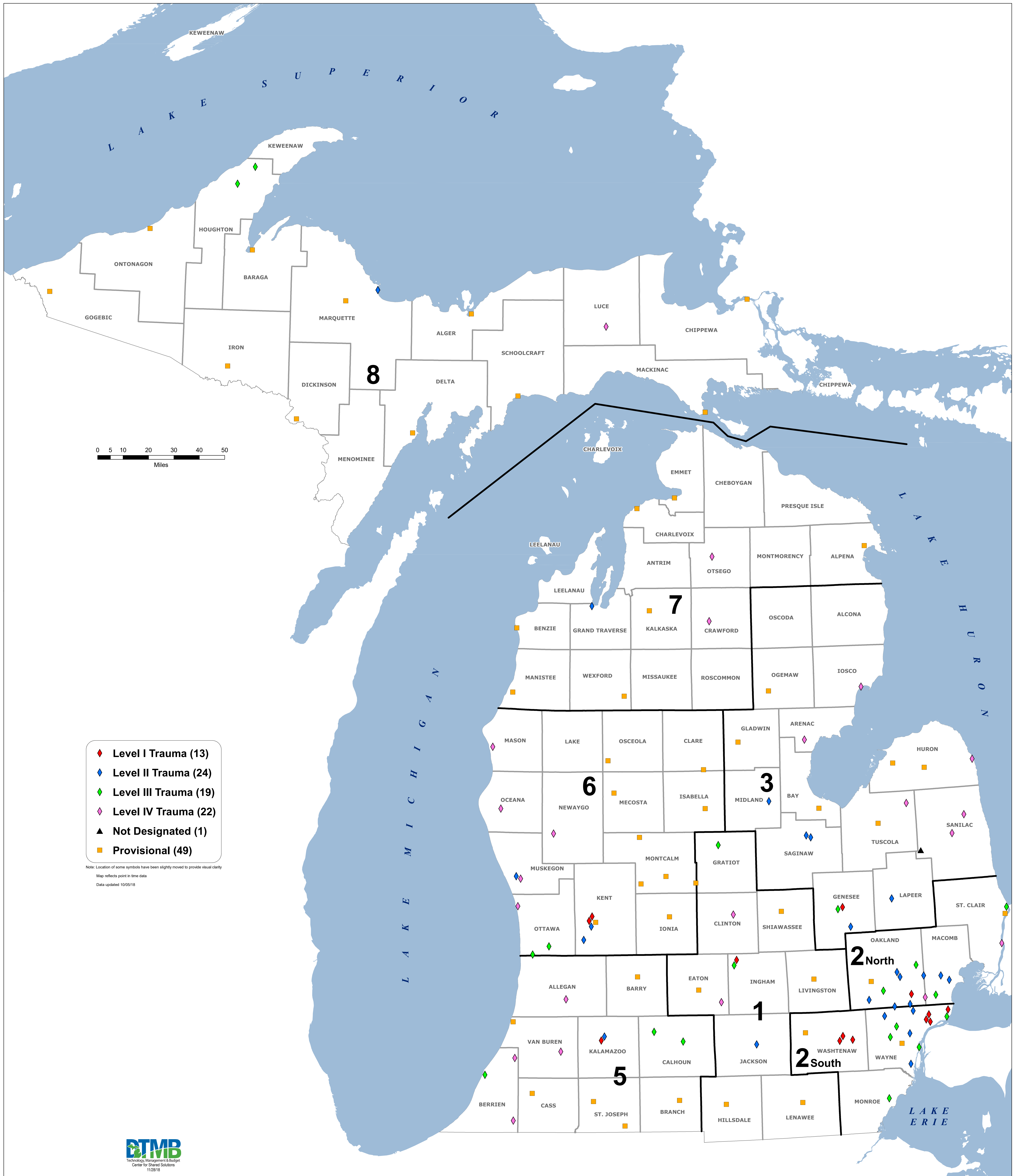
Trauma Facility Name	Location	Adult	Pediatric	Status	Expiration Date
MidMichigan Medical Center – West Branch	West Branch	Level IV		In Process	N/A
Munising Memorial Hospital	Munising	Level IV		In Process	N/A
Munson Healthcare	Traverse City	Level II		Designated	5/12/20
Munson Healthcare Cadillac Hospital	Cadillac	Level IV		In Process	N/A
Munson Healthcare Charlevoix Hospital	Charlevoix	Level IV		In Process	N/A
Munson Healthcare Grayling Hospital	Grayling	Level IV		Designated	6/19/21
Munson Healthcare Manistee Hospital	Manistee	Level IV		In Process	N/A
North Ottawa Community Hospital	Grand Haven	Level IV		Designated	1/30/21
Oaklawn Hospital	Marshall	Level III		Designated	7/20/19
OSF St. Francis Hospital & Medical Center	Escanaba	Level IV		In Process	N/A
Otsego Memorial Hospital	Gaylord	Level IV		Designated	8/23/20
Paul Oliver Memorial Hospital	Frankfort	Level IV		Designated	11/7/21
ProMedica Bixby Hospital	Adrian	Level IV		In Process	N/A
ProMedica Coldwater Regional Hospital	Coldwater	Level III		In Process	N/A
ProMedica Monroe Regional Hospital	Monroe	Level III		Designated	4/25/20
Scheurer Hospital	Pigeon	Level IV		Designated	2/26/22
Schoolcraft Memorial Hospital	Manistique	Level IV		In Process	N/A
Sheridan Community Hospital	Sheridan	Level IV		In Process	N/A
Sinai-Grace Hospital	Detroit	Level II		Designated	11/5/20
Sparrow Carson Hospital	Carson City	Level IV		In Process	N/A
Sparrow Clinton Hospital	St. Johns	Level IV		Designated	6/7/20
Sparrow Hospital	Lansing	Level I		Designated	4/26/20
Sparrow Ionia Hospital	Ionia	Level IV		In Process	N/A
Spectrum Health Big Rapids	Big Rapids	Level IV		Designated	10/16/19
Spectrum Health Blodgett	Grand Rapids	Level III		Designated	1/25/22
Spectrum Health Butterworth	Grand Rapids	Level I		Designated	3/6/21
Spectrum Health Gerber Memorial Hospital	Fremont	Level IV		Designated	11/14/20
Spectrum Health Kelsey Hospital	Lakeview	Level IV		In Process	N/A
Spectrum Health Ludington	Ludington	Level IV		Designated	4/12/21
Spectrum Health Pennock	Hastings	Level IV		Designated	3/11/22
Spectrum Health Reed City	Reed City	Level IV		In Process	N/A
Spectrum Health United Hospital	Greenville	Level IV		Designated	9/13/19
Spectrum Health Zeeland Community	Zeeland	Level III		Designated	2/1/21
St. John Hospital & Medical Center	Detroit	Level I	Level II	Designated	10/23/20
St. Joseph Mercy Chelsea	Chelsea	Level IV		In Process	N/A
St. Joseph Mercy Hospital	Ann Arbor	Level I		Designated	6/19/19
St. Joseph Mercy Oakland	Pontiac	Level II		Designated	12/6/21
St. Mary Mercy Hospital	Livonia	Level II		Designated	11/19/21
Sturgis Hospital	Sturgis	Level IV		In Process	N/A
Three Rivers Health	Three Rivers	Level IV		In Process	N/A
University Hospital – Michigan Medicine	Ann Arbor	Level I		Designated	9/16/20

Michigan Trauma Facilities in Designation Process
Status Update
As of June 5, 2019

Trauma Facility Name	Location	Adult	Pediatric	Status	Expiration Date
UP Health System – Bell	Ishpeming	Level IV		In Process	N/A
UP Health System – Marquette	Marquette	Level II		Designated	8/10/21
UP Health System – Portage	Hancock	Level III		Designated	12/11/18
War Memorial Hospital	Sault Ste. Marie	Level III		In Process	N/A

DO NOT DISTRIBUTE

REGIONAL TRAUMA SYSTEM



- ◆ Level I Trauma (13)
- ◆ Level II Trauma (24)
- ◆ Level III Trauma (19)
- ◆ Level IV Trauma (22)
- ▲ Not Designated (1)
- Provisional (49)

Note: Location of some symbols have been slightly moved to provide visual clarity.
 Map reflects point in time data.
 Data updated 10/05/18

APPENDIX C
MICHIGAN TRAUMA SYSTEM LEGISLATION

MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES

BUREAU OF EMS, TRAUMA AND PREPAREDNESS

EMS AND TRAUMA SERVICES SECTION

STATEWIDE TRAUMA SYSTEM

Filed with the Secretary of State on May 31, 2017

These rules become effective immediately upon filing with the Secretary of State unless adopted under section 33, 44, or 45a(6) of 1969 PA 306. Rules adopted under these sections become effective 7 days after filing with the Secretary of State.

(By authority conferred on the department of health and human services by sections 20910, 20917a, and 2233 of 1978 PA 368, MCL 333.20910, 333.20917a, and 333.2233; and Executive Reorganization Order No 2015-1, MCL 400.227.)

R 325.125; R 325.126; R 325.127; R 325.128; R 325.129; R 325.130; R 325.131; R 325.132; R 325.133; R 325.134; R 325.135; R 325.136; R 325.137; and R 325.138 are amended in the Michigan Administrative Code as follows:

PART 1. GENERAL PROVISIONS

R 325.125 Definitions; A to D.

Rule 1. As used in these parts:

(a) "ACS-COT" means the American College of Surgeons-Committee on Trauma.

(b) "Adult trauma patient" means an injured or potentially injured individual that is, or reasonably appears to be, 15 years of age or older.

(c) "ATLS course" means an advanced trauma life support course with an emphasis on the first hour of initial assessment and primary management of an injured patient, starting at the point in time of injury continuing through initial assessment, life-saving intervention, reevaluation, stabilization, and transfer when appropriate.

(d) "Administrative hearing" means a hearing conducted pursuant to the administrative procedures act, 1969 PA 306, MCL 24.201 to 24.328.

(e) "Code" means MCL 333.1101 to MCL 333.25211 and known as the Michigan public health code.

(f) "Department" means the Michigan department of health and human services, or its duly appointed successor.

(g) "Disciplinary action" means an action taken by the department against a health care facility or regional trauma network for failure to comply with the code, rules, or protocols approved by the department.

R 325.126 Definitions; E to O.

Rule 2. As used in this part:

(a) "Health care facility" means a health care facility licensed under MCL 333.20801 and 333.21501 that operates a service for treating emergency patients, 24 hours a day, 7 days a week.

(b) "Hold itself out" means the agency, health care facility, or trauma facility advertises, announces, or charges specifically for providing trauma care as defined in the code.

(c) "Inter-facility trauma transfer" means identifying the group of trauma patients that require additional trauma resources with the goal of providing optimal care to these patients by the timely transfer of that patient to an appropriate level of care to optimize outcome.

(d) "Medical control" means the supervision and coordination of emergency medical services through a medical control authority, as prescribed, adopted, and enforced through department-approved protocols, within an emergency medical services system.

(e) "Medical Control Authority or "MCA" means an organization designated by the department to provide medical control as defined in the code.

(f) "Medical control authority board" means a board appointed by the participating organizations to carry out the responsibilities and functions of the medical control authority.

(g) "Medical control authority region" means the geographic area comprised of a county, group of counties, or parts of an individual county, as designated by the department.

(h) "Non-designated health care facility" means a health care facility that has chosen not to be a part of Michigan's trauma care system, or a health care facility that the department has not designated as a trauma facility.

R 325.127 Definitions; P to T

Rule 3. As used in this part:

(a) "Pediatric trauma facility" means a facility that has obtained a level of verification as a pediatric trauma facility, as provided by the ACS-COT, as well as those requirements to be designated as a trauma facility in Michigan, as set forth in R 325.127 to R 325.138.

(b) "Pediatric trauma patient" means an injured or potentially injured individual that is, or reasonably appears to be, under 15 years of age.

(c) "Physician" means a doctor of medicine (MD) or a doctor of osteopathy (DO) who possesses a valid current license to practice medicine in the state of Michigan.

(d) "Protocol" means a patient care standard, standing orders, policy, or procedure for providing emergency medical services that is established by a medical control authority and approved by the department under MCL 333.20919.

(e) "Professional standards review organization" means a committee established by a life support agency or a medical control authority for the purpose of improving the quality of medical care, as provided in MCL 331.531.

(f) "Quality improvement program" means actions taken by a life support agency, medical control authority, trauma facility, or jointly between a life support agency, medical control authority, or trauma facility with a goal of continuous improvement of medical care in accordance with the code. Actions shall take place under a professional standards review organization, as provided in MCL 331.531 to 331.533.

(g) "Regional Professional Standards Review Organization or RPSRO" means a committee established by the regional trauma network for the purpose of improving the quality of trauma care within a recognized trauma region as provided in MCL 331.531 to 331.533.

(h) "Regional trauma advisory council or "RTAC" means a committee established by a regional trauma network and comprised of MCA personnel, emergency medical services (EMS) personnel, life support agency representatives, health care facility representatives, physicians, nurses, and consumers. The functions of the RTAC are to provide leadership and direction in matters related to trauma systems development in their region, and monitor the performance of the trauma agencies and health care facilities within the region, including, but not limited to, the review of trauma deaths and preventable complications.

(i) "Regional trauma network" means an organized group comprised of the local MCAs within a region, which integrates into existing regional emergency preparedness, and is responsible for appointing a regional trauma advisory council and creating a regional trauma plan.

(j) "Regional trauma plan" means a written plan prepared by a RTAC, and submitted by the regional trauma network and approved by the department, that is based on minimum criteria established by the department.

(k) "Statewide Trauma Care Advisory Subcommittee or "STAC," as used in these rules, means the statewide trauma care advisory subcommittee as defined in MCL 333.20917a, 333.20908, and 333.20910, that acts as the department's subject matter experts with regard to the clinical and operational components of trauma care.

(l) "Statewide trauma care system" means a comprehensive and integrated arrangement of emergency services personnel, facilities, equipment, services, communications, medical control authorities, and organizations necessary to provide trauma care to all patients within a particular geographic region.

(m) "Statewide trauma registry" means a system for collecting data which the department manages and analyzes the data and disseminates results.

(n) "Trauma" means bodily injury caused by the application of external forces.

(o) "Trauma bypass" means to forego delivery of a patient to the nearest health care facility for another health care facility whose resources are more appropriate to the patient's injury pursuant to direction given to a pre-hospital emergency medical service by online medical direction or predetermined triage criteria as established by department-approved protocols. However, trauma care still must be provided to patients as necessary pursuant to 42 USC §1395dd or other applicable laws.

(p) "Trauma diversion" means the re-routing of a trauma patient from a trauma care facility that has 1 or more of its essential resources currently functioning at maximum capacity, or is otherwise unavailable, to an alternate trauma care facility in order to serve the best interests of the trauma patient.

(q) "Trauma facility" means a health care facility designated by the department as having met the criteria set forth in the code as being either a level I regional trauma research facility, level II regional trauma facility, level III community trauma facility, or level IV trauma support facility.

(r) "Trauma response" means a patient who has been injured or potentially injured as a result of the application of external forces and requires the utilization of the trauma care system.

(s) "Trauma team" means a team of multidisciplinary health care providers established and defined by a health care facility or emergency care facility that provides trauma care.

(t) "Triage" means classifying patients according to the severity of their medical conditions.

R 325.128 Terms.

Rule 4. Terms defined in the code have the same meanings when used in these rules.

R 325.129 Powers and duties of department.

Rule 5. (1) The department, with the advice of the emergency medical services coordination committee and statewide trauma care advisory subcommittee, shall do all of the following:

(a) Implement an "all-inclusive" trauma system throughout the state. This type of system allows for the care of all injured or potentially injured patients in an integrated system of health care in the pre-hospital and health care facility environments by personnel that are well trained and equipped to care for injured patients of any severity. The system allows for a health care facility to participate in the system to the extent or level that it is willing to commit the resources necessary for the appropriate management of the trauma patients and prohibits the department from limiting the number of health care facilities that seek to qualify for any given level of trauma designation under this system. It also ensures that all trauma patients are served by a system of coordinated care, based on the degree of injury and care required.

(b) Perform all of the following:

(i) Establish a statewide trauma quality improvement process using a statewide database.

(ii) Monitor the statewide trauma system.

(iii) Ensure the coordination and performance of the regional trauma networks.

(iv) Set minimum standards for system performance and trauma patient care.

(c) Develop a statewide process to establish regional trauma networks comprised of local medical control authorities in a manner that integrates into existing regional emergency preparedness, EMS, or medical control systems.

(d) Implement and maintain a statewide trauma systems plan.

(e) Develop a statewide process for the verification of trauma resources based on criteria as defined in the "American College of Surgeons-Resources for Optimal Care of the Injured Patient; 2014," including any subsequent amendments and editions of this publication. This document is available online at the ACS website or from ACS, P.O. Box 92425, Chicago, IL 60675.

(f) Develop a statewide process for the designation of trauma facilities.

(g) Develop an appeals process for facilities contesting their designation.

(h) Establish state trauma recommendations and approve regional trauma triage protocols which are established and adopted by the local medical control authority.

(i) Maintain the established regional trauma networks to provide system oversight of the trauma care provided in each region of the state. Regional trauma networks shall be

comprised of collaborating local medical control authorities (MCAs) in a region. The collaborating MCAs in a region shall apply to the department for approval and recognition as a regional trauma network. The department, with the statewide trauma care advisory subcommittee and emergency medical services coordination committee, shall review the regional trauma network application for approval every 3 years. The establishment of the regional trauma networks shall not limit the transfer or transport of trauma patients between regional trauma networks.

(j) Require field triage protocols which are established and adopted by local medical control and regional trauma networks, and shall be developed based on triage criteria prescribed by the department upon the recommendation of the STAC and emergency medical services coordination committee, and following the procedures established by the department under MCL 333.20919(3).

(k) Verify the trauma care resources of designated trauma facilities or health care facilities seeking designation in this state for a 3-year period.

(l) Establish a mechanism for periodic redesignation of all health care trauma care facilities.

(m) Develop a comprehensive statewide data collection system.

(n) Formulate recommendations for the development of performance improvement plans by the regional trauma networks, consistent with those in R 325.135.

(o) Develop a process for trauma system performance improvement, which will include responsibility for monitoring compliance with standards, maintaining confidentiality, and providing periodic review of trauma facility standards. The standards as specified in R 325.129(2)(l)(e) and R 325.135 are incorporated by reference in these rules.

(p) Develop a process for the evaluation of trauma system effectiveness based on standards that are incorporated by reference in these rules, as specified in subdivision (b) of this subrule and R 325.135.

(q) Coordinate and integrate appropriate injury prevention initiatives and programs.

(r) Support the state trauma system and provide resources to carry out its responsibilities and functions.

(s) Support the training and education needs and resources of trauma care personnel throughout the state.

(2) The department may deny, suspend, or revoke designation of a trauma facility upon a finding including, but not limited to, any of the following:

(a) Failure to comply with the administrative rules and/or health care facility rules and regulations.

(b) Willful preparation or filing of false reports or records.

(c) Fraud or deceit in obtaining or maintaining designation status.

(d) Failure to meet designation criteria established in these rules.

(e) Unauthorized disclosure of medical or other confidential information.

(f) Alteration or inappropriate destruction of medical records.

(g) The facility no longer has the resources required to comply with the current level of designation conferred.

(h) The facility no longer cares for trauma patients.

(i) A department-approved trauma care verification body has determined that the facility no longer meets its trauma facility verification criteria.

(j) Identified deficiencies are not remediated in the allowable timeframe.

(3) The department shall provide notice of intent to deny, suspend, or revoke trauma facility designation and shall provide for an appeals process in accordance with the code and the sections 71 to 87 of the administrative procedures act of 1969, MCL 24.271 to 24.287.

(4) In developing a statewide trauma system, the department shall consider all of the following factors:

- (a) Efficient implementation and operation.
- (b) Decrease in morbidity and mortality.
- (c) Cost effective implementation.
- (d) Incorporation of national standards.
- (e) Availability of funds for implementation.

R 325.130. Trauma facility verification; designation and redesignation.

Rule 6. (1) A health care facility, which intends to provide trauma care, shall obtain designation as a trauma facility. A health care facility shall not self-designate itself as a trauma facility.

(2) A health care facility shall not use the word "trauma" to describe its facility, or in its advertising, unless it obtains and maintains a designation as a "trauma facility" from the department.

(3) The department shall redesignate the trauma capabilities of each health care facility on the basis of verification and designation requirements in effect at the time of redesignation.

(4) To obtain a designation as a "trauma facility," the institution shall apply to the department. An applicant health care facility has a right to an administrative hearing if denied a specific trauma facility level designation.

(5) The department shall designate the existing trauma resources of all participating health care facilities in the state, based upon the following categories:

(a) A level I regional trauma research center shall comply with the standards that are incorporated by reference and verification criteria developed by ACS-COT for Level I trauma facilities pursuant to R 325.129(l)(e), and all of the following:

- (i) Comply with data submission requirements in R 325.133 and R 325.134.
- (ii) Participate in coordinating and implementing regional injury prevention plans.
- (iii) Provide staff assistance to the department in the designation and verification process of community trauma facilities and trauma support facilities.
- (iv) Participate in the regional performance improvement process.

(b) A level II regional trauma center shall comply with the standards that are incorporated by reference and verification criteria established by the ACSCOT or level II trauma facilities, pursuant to R 325.129(l)(e), and all of the following:

- (i) Comply with data submission requirements in R 325.133 and R 325.134.
- (ii) Participate in coordinating and implementing regional injury prevention plans.
- (iii) Provide staff assistance to the department in the designation and verification process of community trauma facilities and trauma support facilities.
- (iv) Participate in the regional performance improvement process.

(c) For a level III, community trauma facility, verification criteria shall be established by the department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee. The

standards are incorporated by reference in these rules, based upon verification criteria established by ACS-COT for level III facilities, pursuant to R 325.129(l)(e), and all of the following:

- (i) Comply with data submission requirements in R 325.133 and R 325.134.
- (ii) Participate in coordinating and implementing regional injury prevention plans.
- (iii) Participate in the regional performance improvement process.

(d) For a Level IV trauma support facility, verification shall be completed using an "in-state" process, and criteria shall be established by the department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee. The verification standards incorporated by reference in these rules, are based upon criteria recommended by ACS-COT for level IV facilities, pursuant to R 325.129(l)(e) and Michigan level IV verification criteria and all of the following:

- (i) Comply with data submission requirements in R 325.133 and R 325.134.
- (ii) Participate in coordinating and implementing regional injury prevention plans.
- (iii) Participate in the regional performance improvement process.

(e) The Michigan level III and IV verification criteria document is available from the department or online at the Michigan trauma system website.

(6) The resources of health care facilities applying for level I regional trauma research facility or level II regional trauma facility designation status shall be verified by the ACS-COT and shall do all of the following:

- (a) Comply with data submission requirements in R 325.133 and R 325.134.
- (b) Participate in coordinating and implementing regional injury prevention plans.
- (c) Provide staff assistance to the department in the designation and verification process of community trauma facilities and trauma support facilities.
- (d) Participate in the regional performance improvement process.

(7) Health care facilities seeking designation as a level III, community trauma facility shall be verified using either an in-state process established by the department, with the advice of the state trauma advisory subcommittee, or by the ACS-COT and shall do all of the following:

- (a) Comply with data submission requirements in R 325.133 and R 325.134.
- (b) Participate in coordinating and implementing regional injury prevention plans.
- (c) Participate in the regional performance improvement process.

(8) Health care facilities seeking designation as a level IV, trauma support facility shall be verified using an in-state process established by the department, with the advice of the state trauma advisory subcommittee, and shall do all of the following:

- (a) Comply with data submission requirements in R 325.133 and R 325.134.
- (b) Participate in coordinating and implementing regional injury prevention plans.
- (c) Participate in the regional performance improvement process.

(9) Health care facilities wishing to be redesignated as a level I regional trauma research facility must independently obtain ACS-COT verification at that level, and shall comply with the standards that are incorporated by reference pursuant to R 325.129(l)(e), and all of the following:

- (a) Comply with data submission requirements in R 325.133 and R 325.134.
- (b) Participate in coordinating and implementing regional injury prevention plans.

(c) Provide staff assistance to the department in the designation and verification process of community trauma facilities and trauma support facilities.

(d) Participate in the regional performance improvement process.

(10) Health care facilities wishing to be redesignated as a Level II regional trauma facility must independently obtain ACS-COT verification at that level, and shall comply with the standards that are incorporated by reference pursuant to R 325.129(l)(e), and all of the following:

(a) Comply with data submission requirements as set forth in R 325.133 and R 325.134.

(b) Participate in coordinating and implementing regional injury prevention plans.

(c) Provide staff assistance to the department in the designation and verification process of community trauma facilities and trauma support facilities.

(d) Participate in the regional performance improvement process.

(11) Health care facilities wishing to be re-designated as a level III community trauma facility must obtain verification at that level using either in-state resources, or the ACS-COT, and shall comply with the standards that are incorporated by reference pursuant to R 325.129(l)(e), and all of the following:

(a) Comply with data submission requirements in R 325.133 and R 325.134.

(b) Participate in coordinating and implementing regional injury prevention plans.

(c) Participate in the regional performance improvement process.

(12) Health care facilities wishing to be redesignated as a level IV trauma support facility must obtain verification at that level using an in-state process. Level IV verification criteria shall be established by the department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee. The verification standards incorporated by reference in these rules are based upon criteria recommended by ACS-COT for level IV facilities, pursuant to R 325.129(l)(e), R 325.130, and Michigan level IV verification criteria, including all of the following:

(a) Comply with data submission requirements in R 325.133 and R 324.134.

(b) Participate in coordinating and implementing regional injury prevention plans.

(c) Participate in the regional performance improvement process.

(13) The department may, with the advice and recommendations of the state trauma advisory committee and emergency medical services coordination committee, modify the criteria or establish additional levels of trauma care resources as appropriate to maintain an effective state trauma system, and protect the public welfare, except that the department shall not establish any criteria for the purpose of limiting the number of health care facilities that qualify for a particular trauma level under these rules.

R 325.131 Triage and transport.

Rule 7. (1) The department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee, shall develop recommendations, based on standards that are incorporated by reference in these rules, pursuant to R 325.129(l)(e), R 325.136, R 325.137, and R 325.138 for protocols which are established and adopted by local medical control, for the triage, transport, and inter-facility transfer of adult and pediatric trauma patients to appropriate trauma care facilities.

(2) The standards that are incorporated by reference in these rules, pursuant to R 325.129(l)(e), R 325.136, R 325.137, and R 325.138 for the triage, transport, and the inter-facility transfer of trauma patients, provide recommended minimum standards of care for protocols which are established and adopted by local medical control that must be utilized during transport of trauma patients. On an annual basis, or as needed, the department shall review and update these recommended minimum standards with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee.

(3) The department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee, shall create regional trauma networks that shall have the responsibility for developing triage and transport procedures within that geographical area. Both of the following apply:

(a) Each regional trauma network shall be created within the emergency preparedness region currently established within the state.

(b) Each trauma region may create its own triage and transport criteria and protocols, destination criteria and protocols, and inter-facility transfer criteria and protocols, which are established and adopted by local medical control, so long as they meet or exceed the standards that are incorporated by reference in these rules, pursuant to R 325.129(l)(e), R 325.129(l)(k), R 325.136, R 325.137, and R 325.138, and that they are reviewed by the quality assurance task force and approved by the department. This may include coordination of triage and transport criteria and protocols, which are established and adopted by local medical control, across geographic regions if in the best interest of providing optimal trauma care to patients.

R 325.132 Trauma regions.

Rule 8. (1) The department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee, shall support the establishment and operational activities of the trauma regions through the commitment of resources.

(2) Each region shall establish a regional trauma network as prescribed and defined by R 325.125 to R 325.135.

(3) All MCAs within a region must participate in the regional trauma network, and life support agencies that care for trauma patients shall be offered membership on the regional trauma advisory council. Regional trauma advisory councils shall be operated in a manner that maximizes inclusion of their constituents. All of the following must apply:

(a) At least quarterly, a regional trauma network shall submit evidence of ongoing activity, such as meeting notices and minutes, to the department. Annually, the regional trauma advisory council shall file a report with the department which describes progress toward system development, demonstrates on-going activity, and includes evidence that members of the regional trauma advisory council are currently involved in trauma care.

(b) The regional trauma network shall develop a system regional trauma plan. The plan is subject to review of the STAC and emergency medical services coordination committee and approval by the department.

(c) The department shall review the plan to assure that it contains at a minimum, all of the following:

(i) All counties within the regional trauma advisory council have been included unless a specific county, or portion thereof, has been aligned within an adjacent network, and all health care entities and MCAs, life support agencies have been given an opportunity to participate in the planning process.

(ii) All of the following components have been addressed:

(A) Injury prevention.

(B) Communications.

(C) Regional performance improvement.

(D) Trauma education.

(E) Infrastructure.

(F) Continuum of care.

(4) Each regional trauma network shall appoint a RPSRO as defined in R 325.127(g).

(5) Each regional trauma advisory council shall develop performance improvement plans that are based on standards that are incorporated by reference in these rules, pursuant to R 325.129(l)(e), R 325.129(1)(k), and R 325.135, and shall be reviewed annually by the state trauma advisory subcommittee and emergency medical services coordination committee for recommendations to the department.

(6) Recommendations, which are developed and proposed for implementation by a regional trauma advisory council, shall meet or exceed those that have been established by the department with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee, as based on standards that are incorporated by reference in these rules, pursuant to R 325.129(l)(e) and R 325.129(1)(k).

(7) The department shall recognize the regional trauma network once it approves a completed regional trauma plan. The regional trauma network approval process shall consist of the following phases:

(a) The first phase is the application phase, which begins with the submission to the department of a completed regional plan for the regional trauma network.

(b) The second phase is the review phase, which begins with the receipt of the regional plan, and ends with a department recommendation to approve the regional trauma network.

(c) The third phase is the final phase, with the department making a final decision regarding the regional trauma network plan. This phase also includes an appeal procedure for the denial of an approval of application in accordance with the department's administrative hearings requirements.

(8) If the application phase results in a recommendation to the department for approval by the statewide trauma advisory subcommittee and the emergency medical services coordination committee, and the department approves, then the department shall notify the regional trauma network applicant of the recommended action within 90 days from receipt by the department.

(9) Upon approval, a regional trauma advisory council shall implement the plan to include the following:

(a) Education of all entities about the plan components.

(b) On-going review of resources, process, and outcome data.

(10) The regional trauma network approval is in effect for 3 years.

R 325.133. Data collection.

Rule 9. (1) The department, with the advice and recommendations of the state trauma advisory subcommittee and emergency medical services coordination committee, shall develop and maintain a statewide trauma data registry. The department shall do all of the following:

(a) Adopt the national trauma data standard elements and definitions as a minimum set of elements for data collection, with the addition of elements as recommended by the STAC. The following standards are incorporated by reference in these rules, as identified in the National Trauma Data Standard: Data Dictionary, 2016 Admissions, including subsequent amendments and editions. A link to the document is available online at the Michigan trauma systems website. A copy may be obtained at no cost by writing to the Bureau of EMS, Trauma and Preparedness.

(b) Implement a plan for data including the following:

(i) Notify partners of data dictionary changes and new iterations annually.

(ii) Define the data validation process for designated trauma facility data submissions to the statewide trauma registry.

(iii) Participate in state data collaboration activities.

(iv) Establish and maintain processes for the following:

(A) Data related to trauma incidents shall be submitted to the statewide trauma registry according to the data submission timelines.

(B) Monitor national standards, regional issues, facility, and RPSROs to determine the need for additional data metrics needed for system function.

(C) For those trauma incidents that met the inclusion criteria identified for data submission, the following data elements shall be submitted to the department:

(1) All national trauma data standard data elements.

(2) All data elements recommended by the STAC.

(v) Develop annual reports using regional and state data defined by the STAC which assesses the state trauma system and regional trauma networks.

(vi) Evaluate and import additional data from existing databases as needed.

(vii) Support and evaluate probabilistic and deterministic data linkages.

(2) The department shall support the data collection and analysis process.

(3) Both of the following apply to health care facility participation in data submission:

(a) All designated facilities shall participate in data submission.

(b) Participation as appropriate in the RPSRO, as provided in 1967 PA 270, MCL 331.531 to 331.533.

R 325.134 Statewide trauma registry.

Rule 10. (1) The purpose of the trauma registry is to collect and analyze trauma system data to evaluate the delivery of adult and pediatric trauma care, develop injury prevention strategies for all ages, and provide resources for research and education.

(2) The department shall coordinate data collected by the trauma care facilities and emergency medical service providers. The department shall develop and publish a data submission manual that specifies all of the following:

(a) Data elements and definitions. The standards that are incorporated by reference pursuant to R 325.133(1)(a), and all of the following:

(i) Definitions of what constitutes a reportable trauma case.

- (ii) Method of submitting data to the department.
- (iii) Timetables for data submission.
- (iv) Data submission format.
- (v) Protections for individual record confidentiality.
- (b) Notification of trauma care facilities of the required registry data sets and update the facilities and providers, as necessary, when the registry data set changes.
- (c) Specification of both the process and timelines for health care facility submission of data to the department.
- (3) All health care facilities shall submit to the department trauma data determined by the department to be required for the department's operation of the state trauma registry. The department shall prescribe and provide both of the following:
 - (a) Standard reporting mechanisms to be used by all health care facilities.
 - (b) The form and content of records to be kept and the information to be reported to the department.
- (4) The department and regional trauma advisory councils shall use the trauma registry data to identify and evaluate regional trauma care and to prepare reports and analyses as requested by regional trauma advisory councils, the state trauma advisory subcommittee, or the emergency medical services coordination committee.

R 325.135 Regional performance improvement.

- Rule 11. (1) Each trauma care region shall be required to develop and implement a regional trauma performance improvement program. This program shall include the standards that are incorporated by reference pursuant to R 325.129(1)(e), R 325.129(1)(k), and R 325.130(6)(d), and shall include the development of an annual process for reporting to the department a review of all region-wide policies, procedures, and protocols.
- (2) Each regional trauma network is responsible for monitoring, assessing, and evaluating its regional trauma system to improve trauma care, reduce death and disability, surveillance of injury, and implementation of injury prevention activities.
 - (3) Each regional trauma network shall appoint a RPSRO.
 - (4) Deviations from protocols, which are established and adopted by local medical control and approved by the department for trauma patients, shall be addressed through a documented trauma performance improvement process established by a professional standards review organization.
 - (5) Each regional trauma advisory council shall observe the confidentiality provisions of the health insurance portability and accountability act under 45 CFR Part 164, data confidentiality provisions under the code, or as established by the regional professional standards review organization.
 - (6) The performance improvement process shall include the following standards that are incorporated by reference in these rules, pursuant to R 325.129(1)(e), R 325.129(1)(k), and R 325.130(6)(d) and include all of the following system components to be evaluated for both pediatrics and adults:
 - (a) Components of the regional trauma plan.
 - (b) Triage criteria and effectiveness.
 - (c) Trauma center diversion.

(d) Data driven provision of care defined by available data metrics supported by the region, the statewide trauma advisory subcommittee, and the department.

(7) Each trauma care region shall be responsible for the ongoing evaluation of its trauma care system. Accordingly, each region shall be responsible for the ongoing receipt of information from the regional trauma system constituents on the implementation of various components of that region's trauma system, and shall include the standards that are incorporated by reference pursuant to R 325.129(1)(e), R 325.129(A)(12), and R 325.130(6)(d), and include all of the following system components to be evaluated:

(a) Components of the regional trauma plan.

(b) Triage criteria and effectiveness.

(c) Trauma center diversion.

(d) Data analytics as defined by the department with the advice of the statewide trauma advisory subcommittee.

(8) Based upon information received by the region in the evaluation process, the region shall annually prepare a report containing results of the evaluation and a performance improvement plan. The report shall be made available to all regional trauma system constituents. The region shall ensure that all trauma facilities participate in this annual evaluation process, and encourage all other hospitals that treat trauma patients to participate in the annual evaluation process. The region shall not release specific information related to an individual patient or practitioner. Aggregate system performance information and evaluation will be available for review.

R 325.136 Destination protocols.

Rule 12. Local MCAs shall develop and submit trauma destination protocols to the EMS and trauma section for review by the quality assurance task force, pursuant to MCL 333.20916. Upon review and approval by the department, the MCA must formally adopt and implement the protocol. The following factors will be used in evaluating those destination protocols:

(a) Trauma patients shall not be transported to a facility not participating in the state trauma system unless there is no other reasonable alternative available.

(b) Trauma patients shall be transported to the closest appropriate trauma facility as identified in regional and local medical control protocols.

(c) If a level I or level II trauma facility is not within a reasonable distance from the scene, the trauma patient shall be transported to the closest appropriate trauma facility.

(d) Each region shall make appropriate determinations for destination based on what is best for the patient.

(e) In areas of the state close to state borders, the most appropriate facility may be out of the state. If possible, transport trauma patients within state borders. Local protocols shall address this issue.

R 325.137 Trauma patient inter-facility transfer protocols.

Rule 13. (1) All designated trauma centers shall maintain inter-facility transfer protocols for trauma patients that are consistent with regional and local medical control protocol and that are compliant with the emergency medical treatment and labor act, 42 USC 1395dd.

(2) All level III and level IV designated hospitals will develop and implement formal policies based on published guidelines for the transfer of trauma patients who need care at level I or level II trauma facilities.

(3) Trauma patients will be transported to a hospital that is designated as a trauma facility.

R 325.138 Criteria for transfer protocols; criteria.

Rule 14. Designated trauma centers shall contact the department for current trauma patient transfer guidelines.

APPENDIX D
2017 NATIONAL HIGHWAY TRAFFIC SAFETY
ADMINISTRATION REASSESSMENT OF MICHIGAN'S
EMERGENCY MEDICAL SERVICES

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:

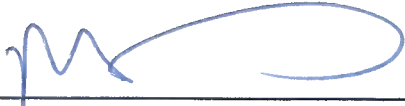
General Emergency Medical Services Overview of System Components

- 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.



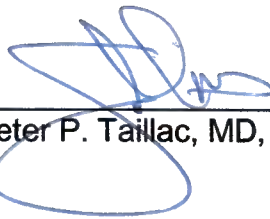
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ACKNOWLEDGMENTS

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 (NEMIS) 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 will 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.**

L. CURRICULUM VITAE

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Banner Trauma Advisory Council, Banner Health, Co-Leader
Arizona Emergency Medical Systems, Inc., Board Member
Inspire 2 Heal, Board Member
Arizona Task Force 1, Urban Search and Rescue, Federal Emergency Management Agency
Air Evac, PHI Air Medical, Medical Director, Phoenix, AZ
Trauma and Emergency Medical Services Performance Improvement Committee, Arizona Department of Health Services, Member
EMS Compass Evidence Review Group, Member
Eastern Association for the Surgery of Trauma, Senior Member
American Association for the Surgery of Trauma, Member
National Association of EMS Physicians, Member
Society of Critical Care Medicine, Member
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
Hospital of the University of Pennsylvania, Department of Surgery, Trauma and Critical Care Surgeon, Assistant Professor 1997-2008
USDOT, NHTSA EMS Reassessment Program, Technical Assistance Team, Member, Alaska, 2014, Indiana, 2015, Delaware, 2016, and Michigan, 2017

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National Association of State EMS Officials (NASEMSO) Board Member – Western Plains Region Representative, Government Information Committee, Air Medical Committee, Rural and Frontier EMS Committee - Chair
Joint Committee on Rural Emergency Care (JCREC) – Co-Chair
Commission on the Accreditation of Pre-hospital Continuing Education (CAPCE) – Board Member (Vice-chair)
National EMS Management Association (NEMSMA)
ServeWyoming Commission
EMS Supervisor, Hamilton County Emergency Medical Service – Chattanooga, TN
Chattanooga State Technical Community College, Adjunct Faculty, Emergency Medical Services Department
EMS Supervisor, Memorial Hospital EMS, Chattanooga, Tennessee
Paramedic, White Rose Ambulance, York, Pennsylvania
Commander – Wyoming Medical Detachment
Operations and Training Officer – DENCOM DIMA
Executive Officer- 278TH ACR Convoy Security Company
Executive Officer- 278TH Brigade Medical Company
Assistant Brigade Medical Operations Officer – 190TH SBDE
Medical Platoon Leader
Flight Medic-Combat Enhanced Capability Aviation Team (CECAT)
Medic – Field Artillery Battalion – 181ST FA
Medic – Ambulance Company – 583rd Med. Co. (AMB)
USDOT, NHTSA EMS Reassessment Program, Technical Assistance Team Member, States of Delaware, and Indiana

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EMS Specialist
DOT, National Highway Traffic Safety Administration
(March 1996 - to Present)

Director, OEMS
Virginia Department of Health
(1976 to March 1996)

ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors (1979-1996)
Past President
Past Chairman, Government Affairs Committee
National Association of EMS Physicians, Member
American 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

USDOT, NHTSA, Assessment and Reassessment Programs, Technical Assistance Team, Technical Document Editor, Administrative Consultant, 1992-Present

Emergency Medical Services
Impaired Driving Program
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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ORGANIZATIONS/APPOINTMENTS

Fellow of the American College of Emergency Physicians
Diplomate, American Board of Emergency Medicine

Board Certified: Emergency Medicine
Board Certified: Emergency Medical Services (EMS)

Clinical Professor
Department of Surgery
Division of Emergency Medicine
University of Utah School of Medicine

Medical Director, West Valley City (UT) Fire and EMS

Colonel, Medical Corps
State Surgeon
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

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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.