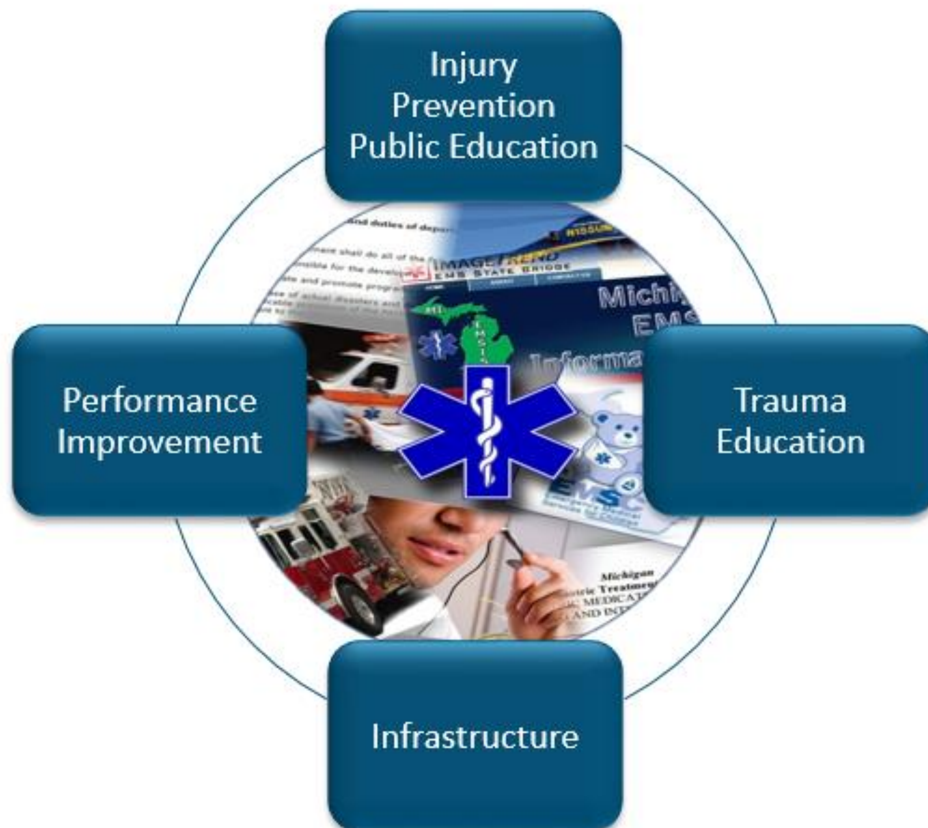
Michigan Trauma System Development Projects 2018



April 1, 2019

Division of EMS, Trauma and Preparedness
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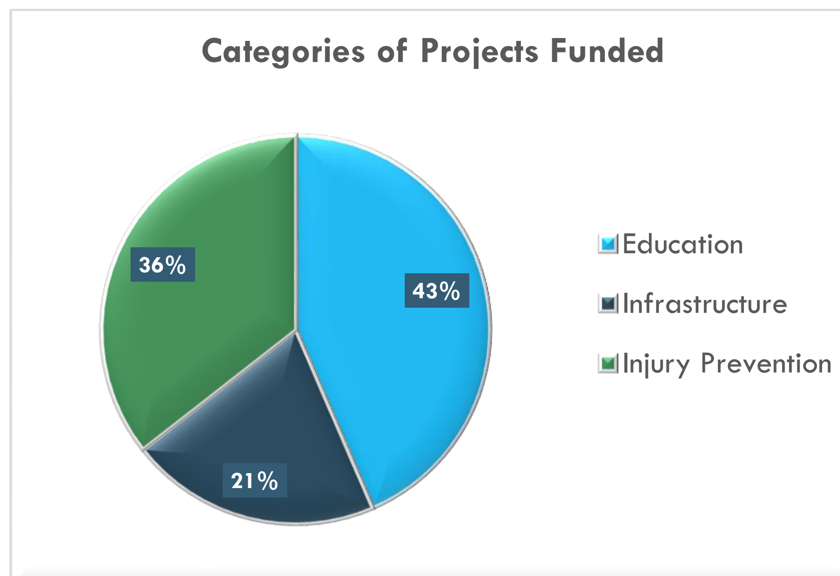
Background

Michigan has been engaged in trauma system development since the creation of the Trauma Commission by Public Act 440 of 2000. Michigan's Trauma System was formalized by legislation in 2004. The system was funded in 2012.

Ongoing commitment of resources is integral to ensuring a strong system is in place to meet the needs of the injured or potentially injured. Frontline partners and stakeholders involved in the trauma system understand the gaps and challenges in program development and community needs and are positioned to address those needs. In 2018, the Bureau of EMS, Trauma and Preparedness (BETP) allocated one million dollars in the form of grants to support system building focused at the trauma program level. This funding provided an opportunity to identify gaps and implement mitigation strategies in their programs based on national standards.

The Michigan Trauma System Development Project was designed to address three broad categories of system building: Injury Prevention, Trauma Education, and Trauma Infrastructure. The breakdown of funding categories is depicted in Figure 1.

Figure 1. Breakdown of Trauma System Development Project Categories Funded

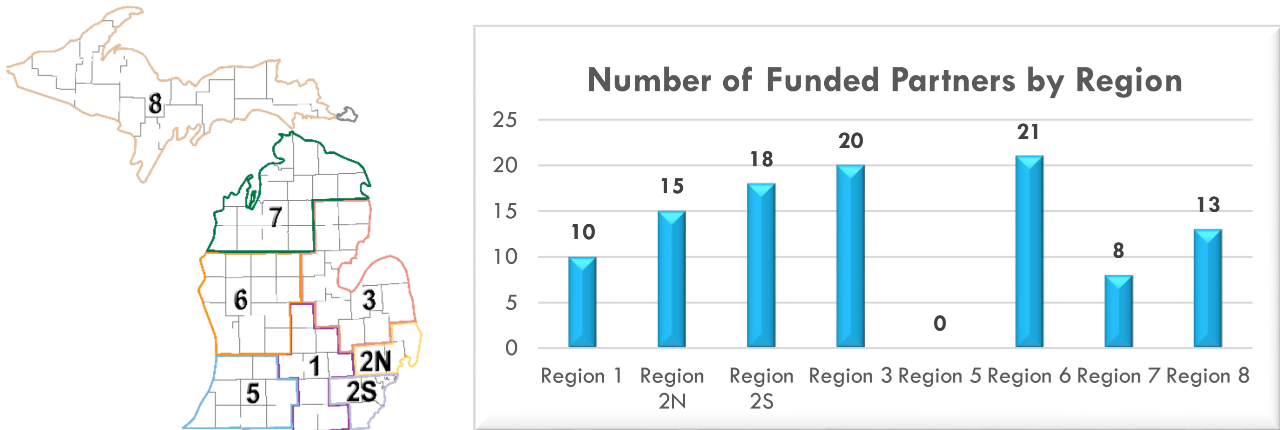


Building a trauma program and maintaining readiness for trauma requires the expenditure of resources. This funding opportunity focused on providing support for trauma facilities engaged in program building. The developing trauma program self identified a gap or need related to their trauma program development efforts and applied for funding to address those needs.

Support was available to all acute care facilities that documented they were engaged in trauma program building, a total of 105 partners participated in the project and those partners completed 239 projects. Figure 2 displays the breakdown of the number of participating partners in each region of the state.

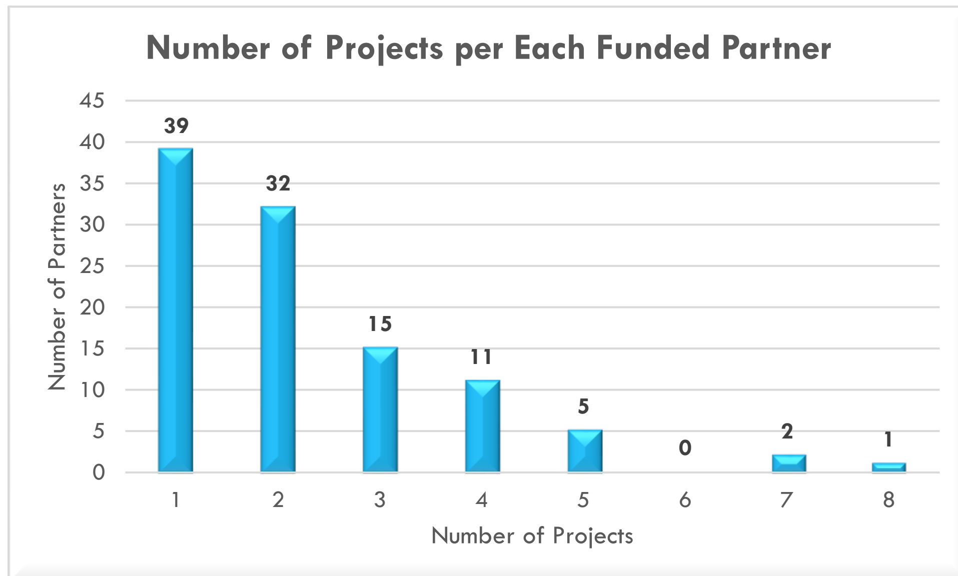
BETP
Bureau of EMS, Trauma & Preparedness

Figure 2. Breakdown of Funded Partners by Region



Each partner submitted a project participation form to the fiduciary Regional Medical Control Authority Network (RMCAN); and once the work was completed, submitted a Final Report. Funding was disbursed at project completion. Some of the participants were engaged in more than one project. The projects began in January 2018 and were completed in September of 2018. The number of projects per funded partner is depicted in Figure 3.

Figure 3. Number of Projects per Each Partner



Similar trauma system building projects were also funded in 2016 and 2017.

Trauma Education

Foundational to maintaining a competent workforce is education. "Maintenance of competence should be ensured by requiring standards for credentialing and certification and specifying continuing educational requirements for physicians and nurses providing care to trauma patients… In cooperation with the prehospital certification and licensure authority, ensure that prehospital personnel who routinely provide care to trauma patients have a current trauma training certificate, for example, Prehospital Trauma Life Support (PHTLS) or Basic Trauma Life Support (BTLS) and others or that trauma training needs are driven by the performance improvement process."[1] A total of 15 partners used their funding for attendance at national, state, and local educational conferences. A total of 62 partners used their funding for trauma education, resulting in 89 trauma courses being held. Courses were held in all trauma regions of the state that requested funding. Courses offered include:

- Abbreviated Injury Scale and Injury Scoring (AIS): 3 courses
- Advanced Surgical Skills for Exposure in Trauma (ASSET): 2 courses
- Advanced Trauma Care for Nurses (ATCN): 4 courses
- Advanced Trauma Life Support (ATLS): 12 courses
- Course in Advanced Trauma Nursing (CATN): 1 course
- Emergency Nursing Pediatric Course (ENPC): 1 course
- Pediatric Care After Resuscitation (PCAR): 1 course
- Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA): 1 course
- Rural Trauma Team Development Course (RTTDC): 2 courses
- Trauma Care After Resuscitation (TCAR): 15 courses
- Trauma Certified Registered Nurse (TCRN): 2 courses
- TeamSTEPPS training: 1 course
- Tactical Emergency Casualty Care (TECC): 1 course
- Trauma Nursing Core Course (TNCC): 19 courses
- Trauma Outcomes and Performance Improvement Course (TOPIC): 5 courses
- General Trauma Education: 27 courses

Trauma education continues to be a focus of trauma program building. The Michigan Trauma System Development Projects 2017 report stated that 58% of trauma system development support was used for trauma education courses in 2016. In 2018 the demand for education continued, 43% of the trauma facilities participating in the initiative requested support for trauma education.

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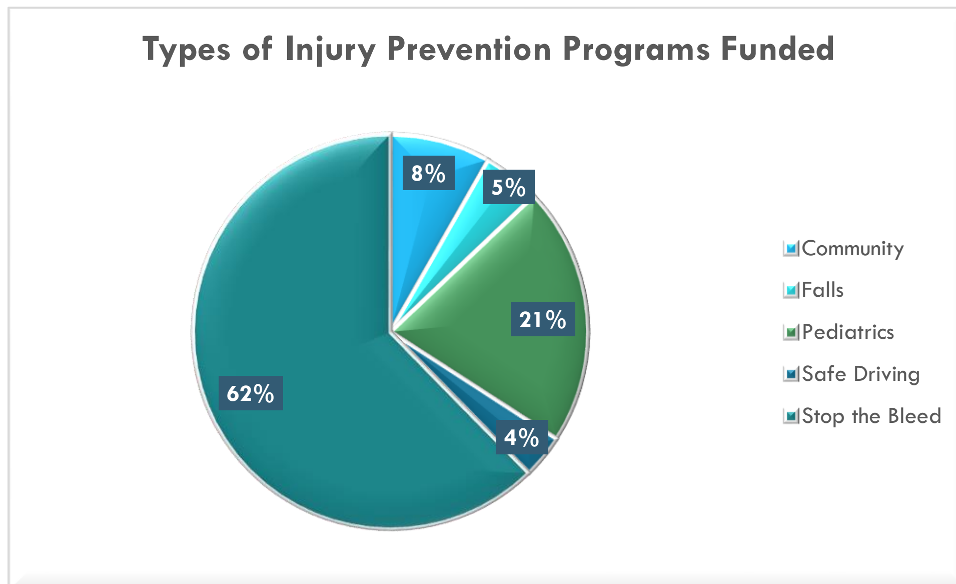
[1] *The American College of Surgeons Committee on Trauma, Regional Trauma Systems: Optimal Elements, Integration and Assessment System Consultation Guide.*

Injury Prevention

According to the CDC (2009),[2] "Injury is the leading cause of death for persons aged 1-44 years." In addition to deaths, disabilities, and ongoing health issues related to trauma impose a major economic burden on communities and individuals. In Michigan, the costs associated with crash related deaths alone top one billion dollars.[3] Total lifetime costs from injuries and violence in the U.S. in 2013 were 671 billion dollars.[4] Injury prevention is the best way to decrease the morbidity and mortality associated with trauma (CDC, 2009)[2]. Trauma center staff have a responsibility to develop partnerships and work collaboratively with their communities to identify and prioritize relevant injury prevention programs.[5] The top two causes of injuries for patients admitted to the hospital in Michigan are: slipping, tripping, and falls representing 57% of all injury cases reported in the state trauma registry; followed by land transportation accidents at 23%.

In order to support this critical component of a well-functioning trauma system, 85 injury prevention initiatives were funded by the Trauma System Development grants. The programs reflect specific community needs being addressed in unique ways.

Figure 4. Types of Injury Prevention Programs Funded



A majority of the participating trauma programs (62%) were engaged in Stop the Bleed® trainings. This is a national awareness campaign designed to encourage and support the education and training of immediate bystanders for bleeding emergencies at the workplace, school, community and elsewhere.[6] Information about how the Bureau of EMS, Trauma and Preparedness is supporting the Stop the Bleed® can be found here.

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[2] Centers for Disease Control and Prevention. (2009). Guidelines for field triage of injured patients: Recommendations of the national expert panel on field triage. *Morbidity and Mortality Weekly Report.* January 23, 2009. 58(RR01);1-35. Retrieved September 20, 2018, from https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5801a1.htm.

[3] Michigan Department of Health and Human Services. (2018). *Michigan Statewide Trauma System*. https://www.michigan.gov/mdhhs/0,5885,7-339-71551_69345---,00.html.

[4] Centers for Disease Control and Prevention. (2016). Cost of injuries and violence in the United States. Retrieved September 20, 2018, from https://www.cdc.gov/injury/wisqars/overview/cost_of_injury.html.

[5] American College of Surgeons. (2014) Resources for Optimal Care of the Injured Patient. P. 139.

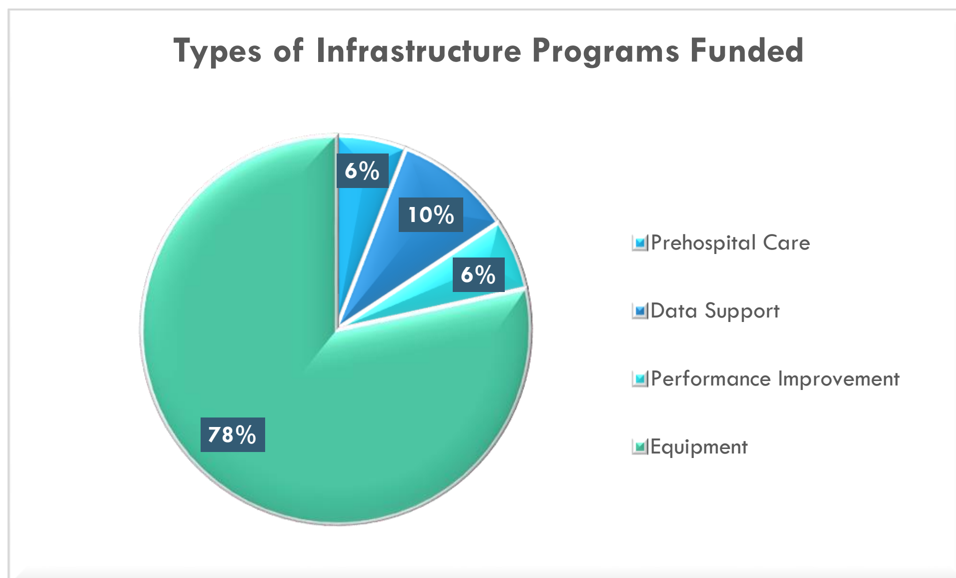
6 American College of Surgeons. "Bleeding Control 2018 Progress Report." Accessed 11/2/2018. https://www.bleedingcontrol.org/~/media/bleedingcontrol/files/2018_stb_progressreport.ashx

Infrastructure

Literature suggests that the average annual cost for trauma centers to maintain essential infrastructure and capacity to provide 24/7 emergent service is 6.8 million dollars for a Level I trauma facility and 2.3 million dollars for a Level II trauma facility. These costs are based on four categories: administrative, clinical medical staff, operating room and education/outreach.[7]

Currently, Michigan has 37 Level I and Level II facilities verified and designated. There are 48 facilities currently designated as Level III or IV. All eligible facilities in Michigan have indicated their intent to be verified or designated as a trauma center. A significant number of these are smaller facilities serving rural communities with fewer resources than the Level I and Level II trauma facilities that are located in more urban areas of the state. Of the 51 total infrastructure related projects, 5 involved data collection, 40 were for equipment, 3 dealt with prehospital care, and 3 projects involved performance improvement. Projects in this category provided an opportunity for facilities to manage some of the identified gaps in their program infrastructure.

Figure 5. Categories of Infrastructure Programs Funded



[7] Ashley DW et al." What Are the Costs of Trauma Center Readiness? Defining and Standardizing Readiness Costs for Trauma Centers Statewide" Accessed 4/26/2018https://www.ncbi.nlm.nih.gov/pubmed/28958278

Conclusion

Michigan, in collaboration with many partners and stakeholders, has operationalized a system of care for the injured designed to ensure the right patient get to the right place at the right time. Maintaining these gains and supporting the necessary growth and development to meet the needs of the injured will require continued commitment and resources. The Bureau of EMS, Trauma and Preparedness is committed to supporting collaboration with partners, encouraging education and training, disseminating best practices, engaging in robust performance improvement and meeting the challenges with practical solutions.