

*Arizona Emergency Medical Services
and Trauma System Strategic Plan*

2013-2018



Arizona Department of
Health Services



Bureau of Emergency Medical
Services and Trauma System



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System Strategic Plan
2013-2018*

September 2013

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"Health and Wellness for All Arizonans."



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September 9, 2013

In 2008, Arizona's Trauma System was really in its infancy. There were 7 Level I Trauma Centers located in Phoenix, Tucson, and Flagstaff and none in rural Arizona. Arizona's injury surveillance data clearly illustrated that the biggest improvement in traumatic injury outcomes would come from preventing injuries and improving access to care, particularly in the rural parts of Arizona.

In 2013, the state of Arizona now has a functional statewide trauma system involving 32 trauma centers. Of these 32 hospitals formally designated, 8 are level I, 3 are level III, and 21 are level IV trauma centers. Seventeen trauma centers now serve rural Arizona.

Our trauma system has changed dramatically in 5 short years. This is why, in November 2012, we asked the American College of Surgeons (ACS) to review our entire trauma system. Typically we would ask the ACS to conduct a system review every 10 years, but we requested an early review due to the remarkable expansion and progress in order to provide guidance in the further development and refinement of our state trauma system.

We have great faith in the future of our trauma system. A few top-tier trauma system priorities are: 1) intensifying our efforts on preventing injury from happening in the first place (prevention is always the best cure); 2) helping our Level III and IV trauma centers implement performance improvement practices in their facilities to ensure that trauma patients get the highest high quality and timely care, whether in the rural or urban setting; 3) updating our trauma plan which contains a five year, comprehensive package of goals and measurement strategies that were developed in conjunction with the trauma experts in our state; and 4) recruiting a few key, rural hospitals to serve as regional level III trauma centers. The following document is a roadmap for how we will mitigate the impact of traumatic injuries and improve the access to, and quality of, trauma care in Arizona.

Will Humble
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"Health and Wellness for All Arizonans."

Table of Contents

	Page
The Arizona Trauma System	1
Acknowledgements	2
Goal 1: System Leadership	4
Goal 2: System Development/Integration	5
Goal 3: Pre-Hospital Care & Transport	6
Goal 4: Special Populations	7
Pediatric Trauma	7
Geriatrics	8
Burns	8
Goal 5: Injury Prevention	9
Goal 6: Rehabilitation	10
Medical Rehabilitation	10
Acute-Stress Recovery	11
Goal 7: Trauma System Evaluation	12
Goal 8: Statutory Authority/Administrative Rules	14
List of Acronyms	15

The Arizona Trauma System

Introduction

The Arizona Department of Health Services and the State Trauma Advisory Board (STAB) recognize that a strategic plan is essential in a changing health care environment. Many components make up a statewide trauma care system. Detailed planning is required for all components to interface successfully and for health professionals to cohesively interact, enabling the trauma system to work effectively. This statewide network or system of health care delivery requires a multidisciplinary team approach. Such an approach is a requirement for an inclusive, seamless system of health care delivery in which all involved health care providers function in pre-planned concert with one another.

In 2012, the American College of Surgeons (ACS) performed a comprehensive evaluation of the Arizona State Trauma System. The overall goals of the system remain committed to state and regional integration of a high quality, cost effective trauma care, and significantly reducing the morbidity and mortality due to injuries in Arizona. The ACS recommended continuous development and appraisal of a guiding vision and operational plan for the future of the Arizona trauma system.

Methodology

In response, the Bureau of Emergency Medical Services and Trauma System (BEMSTS), the STAB, and other dedicated trauma system stakeholders established a trauma plan workgroup to collectively assess and evaluate the current trauma system. This plan represents input from a broad spectrum of health care providers, researchers, epidemiologists, hospital and EMS managers and administrators, local, regional, and statewide public health leaders who came together to provide their expertise in developing the content and format of this document. The trauma plan workgroup reviewed the State of Arizona's previous trauma system plan, the ACS system evaluation, the HRSA-Model Trauma System Planning and Evaluation (MTSPE) document, and the results of the assessment made using the MTSPE to construct a dynamic strategic trauma plan. This 5-year plan will serve as the blueprint to guide the further development and assessment of an inclusive and integrated trauma system for Arizona.

The plan is arranged into eight major goals. Each goal is supported with parallel objectives and measureable strategies to achieve those goals. Accountability and responsibility are defined, as is the timeline in which each strategy will be reviewed and evaluated on a regular basis.

Our robust trauma data clearly illustrates that the greatest opportunity for saving lives and improving outcomes from traumatic injury currently lies in rural Arizona. This plan largely focuses on addressing this significant public health challenge.

Acknowledgements

The Arizona State Department of Health Services Bureau of EMS and Trauma System would like to acknowledge our partners that assisted in the development and success of this Strategic Plan.

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- Arizona Emergency Medical Systems, Inc. (AEMS)
- Northern Arizona EMS (NAEMS)
- Southeast Arizona EMS (SAEMS)
- Western Arizona Council of EMS (WACEMS)
- Emergency Medical Services Council
- Education Standing Committee
- Medical Direction Commission
- Protocols, Medications & Devices Standing Committee
- State Trauma Advisory Board
- Trauma & EMS Performance Improvement Standing Committee

Goal 1: System Leadership

Objective 1.1: Diversify to provide more inclusive statewide STAB representation.

Strategy	Measure(s)	Lead	Partners	Timeline
Increase rural trauma representation.	The addition of two more rural trauma members: 1. Trauma surgeon 2. Trauma coordinator from a designated trauma center.	ADHS	STAB	2014

Objective 1.2: Increase active participation by STAB members.

Strategy	Measure(s)	Lead	Partners	Timeline
Implement limits on the number of reappointments for STAB members.	Track and publish meeting attendance and participation.	ADHS	STAB	Ongoing

Objective 1.3: Develop a Trauma Program Managers Group.

Strategy	Measure(s)	Lead	Partners	Timeline
Regularly convene and empower a Trauma Program Managers Group.	Participation of urban and rural trauma managers.	ADHS CFRH	Trauma Managers	Ongoing

Goal 2: System Development/Integration

Objective 2.1: Build and improve a tiered integrated trauma system.

Strategy	Measure(s)	Lead	Partners	Timeline
Increase Level III and Level IV trauma centers in rural/tribal areas.	<ol style="list-style-type: none"> 1. Number of Level III and Level IV designated trauma centers. 2. Move towards all rural/tribal hospitals becoming Level IV Trauma Centers. 3. Recruit key rural hospitals to serve as regional level III trauma centers 	ADHS CFRH	Statewide trauma centers & AZTrACC	Ongoing

Objective 2.2: Establish guidelines for regional trauma care.

Strategy	Measure(s)	Lead	Partners	Timeline
Improve system integration including prevention, capacity, communication and referral capabilities.	<ol style="list-style-type: none"> 1. Reduction in incidence of traumatic injuries as well as over and under trauma triage. 	ADHS	All level trauma centers and acute care hospitals, EMS Regions	Ongoing

Objective 2.3: Improve trauma training to all level providers statewide.

Strategy	Measure(s)	Lead	Partners	Timeline
Provide rural trauma education, including pediatric, geriatric, and burn populations, to surgeons, emergency physicians, nurses and EMCTs.	<ol style="list-style-type: none"> 1. Number of training sessions. 2. Increase in Level I trauma center involvement. 	Level I trauma centers	Regional EMS councils, Trauma Centers, EMS agencies	Ongoing
Assign additional support for RTTDC coordinator.	Number of RTTDCs	AZCOT AZTrACC	Trauma centers	Ongoing

Goal 3: Prehospital Care & Transport

Objective3.1: Maximize the effectiveness of regionalized trauma triage.

Strategy	Measure(s)	Lead	Partners	Timeline
Define regional scene and inter-facility transport protocols directing patients to the most appropriate level hospital and trauma center by the most appropriate mode.	<ol style="list-style-type: none"> Over and under trauma triage rates. Pass non-punitive EMS trauma destination protocols that take into account EMS Region variations and resources 	ADHS, TEPI	Regional EMS Councils, STAB, EMSC, EMSRUG, TRUG	Ongoing July 2014

Objective3.2: Better inclusion of EMS data in the Arizona State Trauma Registry (ASTR).

Strategy	Measure(s)	Lead	Partners	Timeline
Require electronic data submission of all EMS agencies including ground and air services. Confirm data for trauma triage elements. Provide regionalized prehospital trauma reports.	Proportion of trauma events in the ASTR with complete pre-hospital data.	ADHS, TEPI, Regional EMS Councils	EMS Agencies, EMSC, MDC	2018

Objective3.3: Require EMS education on trauma for adult, pediatric, geriatric, and burn populations.

Strategy	Measure(s)	Lead	Partners	Timeline
Modify current certification requirements to include mandatory age specific continuing education.	Implementation of standards for prehospital trauma education.	ADHS, Regional EMS Councils	EMSC, Education Committee, Training Programs, Trauma Centers	2015
Develop event calendar/web references of available trauma education from all trauma centers and other sources.	Trauma center outreach education.	ADHS, Regional EMS Councils	Trauma Centers Training Programs Regions	Ongoing

Objective3.4: Develop a central communication system to facilitate field-to-facility, inter-facility, and all-hazards response communication.

Strategy	Measure(s)	Lead	Partners	Timeline
Gap analysis to identify opportunities to improve the communication system.	Analysis of communication system.	ADHS	ADOA Public Safety Interoperability Communications	2015
Identify funding.	Funding search.	ADHS Emergency Preparedness		2015

Goal 4: Special Populations *Pediatric*

Objective 4.P.1: Development of a pediatric specific injury report.

Strategy	Measure(s)	Lead	Partners	Timeline
Create a pediatric trauma report.	Pediatric injury, incidence, process, and outcome report (exclusive of drowning, poisonings, and strangulation).	EMSC, ADHS utilizing the trauma registry report	PACES	2014

Objective 4.P.2: Outline roles and responsibilities of definitive pediatric care facilities.

Strategy	Measure(s)	Lead	Partners	Timeline
Expansion of existing pediatric prepared emergency care (PPEC) program.	Increased level of participation.	AzAAP	AzAAP Hospitals	Ongoing

Objective 4.P.3: Develop pediatric trauma triage protocols.

Strategy	Measure(s)	Lead	Partners	Timeline
1. Evaluate existing pediatric trauma protocols and data including those critically injured.	Evaluate over and under pediatric triage.	ADHS, EMSC, Regional EMS Councils	STAB TEPI, Trauma Registrars, Trauma Centers	2015
2. Development of recommendations for which patients require transport to the closest facility.	See Objective 3.1 (2)			

Objective 4.P.4: Comprehensive assessment of pediatric trauma beds within the system.

Strategy	Measure(s)	Lead	Partners	Timeline
Query state license for number of all pediatric trauma beds.	Number of pediatric trauma beds.	ADHS, AzHHA, EMSC	PACES	2014

Objective 4.P.5: Lower the pediatric injury mortality rate by 20% in 2 years.

Strategy	Measure(s)	Lead	Partners	Timeline
1. Track epidemiology. 2. Institute effective injury prevention and outreach.	Pediatric mortality rate.	Pediatric Trauma Centers	Safe Kids, EMS for Children, Office of Injury Prevention for DHS	2018

Geriatrics

Objective 4.G.1: Incorporate use of American College of Surgeons Committee on Trauma geriatric guidelines for outcome data collection.

Strategy	Measure(s)	Lead	Partners	Timeline
Expand ASTR inclusion criteria and include the following data element to be submitted to the ASTR.	<ol style="list-style-type: none"> 1. Length of stay 2. Mortality and morbidity 3. ED dwell time 4. Time to OR 5. Ground level falls with extremity fractures 	ADHS	Trauma centers	2014

Objective 4.G.2: Improve timely discharge of geriatric patients to appropriate rehabilitation facility.

Strategy	Measure(s)	Lead	Partners	Timeline
Partner with Rehabilitation Centers.	Timely discharge to rehabilitation facility.	ADHS	Rehabilitation hospitals, Trauma centers, AzHHA	2014

Burns

Objective 4.B.1: Incorporate American Burn Association burn collection data.

Strategy	Measure(s)	Lead	Partners	Timeline
Include the following burn injury data elements into the ASTR.	<ol style="list-style-type: none"> 1. Incidence 2. Etiology 3. Geographic distribution 4. Length of stay 5. Mortality 	ADHS, TEPI, TRUG	Burn center directors	2015

Objective 4.B.2: Develop statewide burn triage and transfer plan.

Strategy	Measure(s)	Lead	Partners	Timeline
Develop burn triage and transfer criteria based upon American Burn Association (ABA) guidelines.	Burn over and under triage.	ADHS, Burn center directors	Trauma centers and burn centers	2015

Objective 4.B.3.: Promote effective disaster management, including surge capacity, at the state level using existing comprehensive burn disaster network.

Strategy	Measure(s)	Lead	Partners	Timeline
Incorporate current Arizona burn disaster network into the trauma disaster plan. Review and modify AZ burn disaster network plan.	<ol style="list-style-type: none"> 1. AZ Burn Disaster Network Plan developed by the AZ Burn Center 2. Number trained and retrained 3. Number of supplies to burn centers 	ADHS, PHEP, Burn center directors	Trauma staff and the planning team	Ongoing

Goal 5: Injury Prevention

Objective 5.1: Reduce injury related morbidity and mortality through primary injury prevention.

Strategy	Measure(s)	Lead	Partners	Timeline
Strengthen and coordinate statewide trauma center primary injury prevention programs.	<ol style="list-style-type: none"> Trauma Center site surveys Office of Injury Prevention report 	ADHS	Trauma Center survey teams, Trauma Centers, EMS agencies, EMSC, Safe Kids Coalitions	Ongoing

Objective 5.2: Improve rural injury prevention.

Strategy	Measure(s)	Lead	Partners	Timeline
<ol style="list-style-type: none"> Identify high leverage rural injury events. Disseminate these data to the rural trauma prevention community. Coordinate primary prevention activities of the rural trauma centers. 	<ol style="list-style-type: none"> Specific rural trauma issues identified in the ASTR. Rural Highway EMS Resource Assessment Projects 	ADHS	Trauma Centers, IPAC, Safe Kids Coalition, MADD DUI Courts, SBIRT, Fall Prevention GOHS	Ongoing July 2014 - ongoing

Objective 5.3: Coordinate the implementation of this Trauma Plan with the 2012-2016 Arizona Injury Prevention Plan.

Strategy	Measure(s)	Lead	Partners	Timeline
<ol style="list-style-type: none"> Coordinate with the IPAC. Make the Injury Prevention 101 course available to trauma center staff. (www.safestates.org) 	Degree of the implementation of the Arizona Injury Prevention Plan.	ADHS	IPAC, OIP, Trauma Centers and EMS providers	Ongoing

Objective 5.4: Facilitate linkage between trauma centers and state and local primary injury prevention programs.

Strategy	Measure(s)	Lead	Partners	Timeline
Establish collaborations focused on fall-related injury prevention.	<ol style="list-style-type: none"> Representation of falls coalition within trauma centers. Incidence and mortality due to falls reported in the annual trauma report. 	ADHS	Trauma Centers, OIP, Office of Chronic Disease, EMS	Ongoing

Objective 5.5: Initiate and implement a statewide burn prevention program focusing on the common causes of burn injuries.

Strategy	Measure(s)	Lead	Partners	Timeline
Implement American Burn Association prevention programs.	<ol style="list-style-type: none"> Documentation of prevention programs Annual review of burn etiologies Number of programs, interventions, outcomes 	Burn Center Director	AZ Burn Found., Maricopa Health Foundation, ADHS	Ongoing

Goal 6: Medical Rehabilitation *Rehabilitation*

Objective6.1: Integrate trauma center, inpatient rehabilitation facilities, and long term acute care hospitals statewide.

Strategy	Measure(s)	Lead	Partners	Timeline
Develop a model for incorporating medical rehabilitation facilities into the state trauma system.	1. Convene a task force to formally assess the current trauma rehabilitation status.	ADHS	Rehabilitation Centers, Trauma Centers, Task Force	2015
	2. Identify nationally recognized standards and processes.	Task Force		
	3. Assess feasibility of establishing standards and designation in Arizona.			

Objective6.2: Ensure adequate medical rehabilitation services are available to meet the needs of trauma patients throughout the state.

Strategy	Measure(s)	Lead	Partners	Timeline
1. Integrate Rehabilitation data elements into the ASTR. 2. Conduct a survey of current medical rehabilitation resources, including availability of specialty beds within the state. 3. Ensure transfers to medical rehabilitation facilities is determined based upon patient criteria and services provided by the facility.	1. Analysis of rehabilitation care through the ASTR.	ADHS	STAB, TRUG	2014
	2. Assessment results.	ADHS	OMFL at ADHS; providers; AzHHA	2015
	3. Develop document identifying criteria for appropriate admission to rehabilitation facility.	STAB	Providers, AzHHA	2014

Objective6.3: Efficient transfer of patients between trauma centers and medical rehabilitation facilities.

Strategy	Measure(s)	Lead	Partners	Timeline
Remove financial barriers to efficient patient transfers.	1. Data on transfers to rehabilitation services.	ADHS	AHCCCS, Health Plans/Carriers, AzHHA	2015
	2. Development of reimbursement policies.	STAB		
	3. Develop advocacy strategy.			

Acute-Stress Recovery (ASR)

Objective 6.ASR.1: Perform SWOT analysis.

Strategy	Measure(s)	Lead	Partners	Timeline
<ol style="list-style-type: none"> 1. Develop an ASR tool to assess resources available for victims and families post trauma. 2. Identify and disseminate best practices. 3. Collaborate with regional behavioral health authorities 	Creation of the post-trauma ASR tool.	ADHS Division of Behavioral Health Services	State Trauma/EMS regions. Behavioral health partners, Social Work, Case Management community agencies	2015

Objective 6.ASR.2: Develop resources to assist EMS Agencies and Trauma Centers with ASR.

Strategy	Measure(s)	Lead	Partners	Timeline
Develop and disseminate the trauma plan to community partners involved with ASR.	Education to regional ASR stakeholders.	ADHS	Community partners identified in the SWOT analysis and STAB.	2016

Goal7: Trauma System Evaluation

Objective 7.1: Significantly reduce the injury mortality rate in the state of Arizona.

Strategy	Measure(s)	Lead	Partners	Timeline
Iterative measurement, evaluation, and publication of the incidence and outcomes of traumatic injuries in Arizona.	Assessing factors related to rural/urban, blunt/penetrating, age, transportation method and time, and level of hospital care through the ASTR.	ADHS	STAB, AZTrACC, EMS Regional Councils,	Ongoing
Seek partnerships to increase access to trauma care in rural Arizona	Assess the ASTR and HDD to assess delays in transfers, transfers after admission, deaths in non-trauma centers and improve trauma billing efficiency	CFRH	Level I Trauma Program Managers	3 to 4 times per year

Objective 7.2: Perform a biennial review benchmarking the objectives and progress towards the goals in the State Trauma Plan.

Strategy	Measure(s)	Lead	Partners	Timeline
Perform mid-course assessments of the trauma plan assessment on a yearly basis	Annual STAB workgroup report	ADHS	STAB	Annually, beginning in 2014

Objective 7.3: Evaluate urban and rural regional mode of transportation and transport times.

Strategy	Measure(s)	Lead	Partners	Timeline
Identify audit filters for appropriate utilization for mode of transport and transport times for trauma patients.	<ol style="list-style-type: none"> 1. Review transportation times in regional aggregate. 2. Evaluation of transport time: Time call received to dispatch, dwell times at sending hospital, arrival at tertiary care facility. 	TEPI	EMS	2014

Objective 7.4: Establish a monitoring and evaluation system for the Trauma Plan.

Strategy	Measure(s)	Lead	Partners	Timeline
Develop a system for measuring implementation and impact of the Trauma Plan.	<ol style="list-style-type: none"> 1. Timely access to trauma care 2. Preventable deaths 3. Overall mortality 4. Preventable morbidity 5. Time to transfer 6. Transfer after admission 7. ED dwell times pre-transfer 8. Length of stay in hospital 9. Trauma billing efficiency 	ADHS	All trauma stakeholders	Ongoing

Objective 7.5: Require annual review of local EMS QI activities.

Strategy	Measure(s)	Lead	Partners	Timeline
<ol style="list-style-type: none"> 1. Require all EMS agencies to submit an annual QI plan with quarterly reporting to BEMSTS. 2. Develop rules and guidelines for submission. 	% of participation.	ADHS	Regions, EMS Agencies, EMSC, MDC	2018
Define trauma specific indicators necessary for EMS to report.	Obtain data from Premier EMS Agency registry.	ADHS	Regions, EMS Agencies, EMSC, MDC	2018

Goal 8: Statutory Authority/Administrative Rules/Funding

Objective 8.1: Increase statutory authority to regulate the Arizona trauma system.

Strategy	Measure(s)	Lead	Partners	Timeline
<ol style="list-style-type: none"> 1. Amend current trauma system statutes and rules. 2. Identify evidence based guidelines to increase trauma funding. 	<ol style="list-style-type: none"> 1. Design trauma center needs criteria for new and existing trauma centers, as well as performance benchmarks and standards of care. 2. Change trauma center funding legislation and evaluate alternative trauma funding strategies to include all trauma centers. 3. Appoint a State Trauma Medical Director with trauma surgical expertise based upon feasibility. 4. Establish State pediatric trauma center verification and designation levels. 5. Establish State burn center verification and designation levels. 	ADHS	Trauma centers, System stakeholders	Ongoing

List of Acronyms

ABA	American Burn Association
ACS	American College of Surgeons
AHCCCS	Arizona Health Care Cost Containment System
ADHS	Arizona Department of Health Services
ADOA	Arizona Department of Administration
AEMS	Arizona Emergency Medical Systems Council
ASTR	Arizona State Trauma Registry
ATLS	Advanced Trauma Life Support
AzAAP	Arizona Chapter of the American Academy of Pediatrics
AZCOT	Arizona Committee on Trauma
AzHHA	Arizona Hospital and Healthcare Association
AZ-PIERS	Arizona Prehospital Information and EMS Registry System
AZTrACC	Arizona Trauma & Acute Care Consortium
BIS	Benchmarks, Indicators, & Scoring
CDC	Centers of Disease Control
CFRH	Center for Rural Health
DQA	Data and Quality Assurance Section
EMCT	Emergency Medical Care Technician
EMSC	Emergency Medical Services for Children
GOHS	Governor's Office of Highway Safety
HDD	ED and Hospital Discharge Database
IPAC	Injury Prevention Advisory Council
LLIS	Lessons Learned Information Sharing
MDC	Medical Direction Commission
MOU	Memorandum of Understanding
MTOS/SRR	Major Trauma Outcome Study/Survival Risk Ratio
MTSPE	Model Trauma System Planning & Evaluation
NAEMS	Northern Arizona EMS Council
NEMIS	National EMS Information System
NHTSA	National Highway Traffic Safety Administration
NTDB	National Trauma Data Base
OIP	Office of Injury Prevention
PACES	Pediatric Advisory Council on Emergency Services
PHEP	Public Health Emergency Preparedness
PI	Performance Improvement
PMD	Protocols, Medications and Devices Standing Committee
PPEC	Prescribed Pediatric Extended Care
RTTDC	Rural Trauma Team Development Course
SAEMS	Southern Arizona EMS Council
SCI	Spinal Cord Injury
STAB	State Trauma Advisory Board
TBI	Traumatic Brain Injury
TEPI	Trauma and EMS Performance Improvement Standing Committee
TRUG	Trauma Registry Users Group
USDOT	U.S. Department of Transportation
WACEMS	Western Arizona Council of EMS