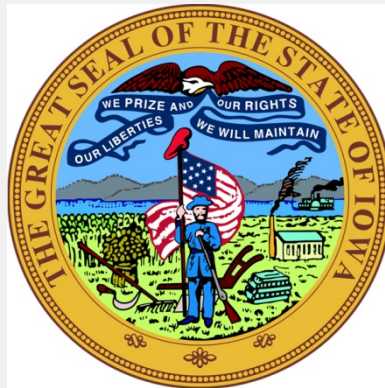


# STATE OF IOWA



## A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

April 27 - 30, 2015

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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 Center 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 33,000 people lose their lives on our nation's roads, and approximately 70 percent of those fatalities occur on rural highways. The National Highway Traffic Safety Administration (NHTSA) is charged with reducing death and injury on the nation's highways. NHTSA has determined it can best use its limited EMS resources if its efforts are focused on assisting States with the development of integrated emergency medical services (EMS) programs which include comprehensive systems of trauma care.

To accomplish this goal, in 1988 NHTSA developed a Technical Assistance Team (TAT) approach which permitted states to utilize highway safety funds to support the technical evaluation of existing and proposed emergency medical services programs. Following the implementation of the Assessment Program, NHTSA developed a Reassessment Program to assist those states in measuring their progress since the original assessment. The Program remains a tool for States to use in evaluating their statewide EMS programs. The Reassessment Program follows the same logistical process, and now uses the same ten component areas plus the area of preparedness with updated standards. The standards now reflect current EMS philosophy and allow for the evolution into a comprehensive and integrated health management system, with regional accountable systems of care, as identified in the 2006 IOM Report on the Future of Emergency Care. NHTSA serves as a facilitator by assembling a team of technical experts who demonstrate expertise in emergency medical services development and implementation. These experts demonstrate leadership and expertise through involvement in national organizations committed to the improvement of emergency medical services throughout the country. Selection of the Technical Assistance Team is also based on experience in special areas identified by the requesting State. Examples of specialized expertise include experience in the development of legislative proposals, data gathering systems, and trauma systems. Experience in similar geographic and demographic situations, such as rural areas, coupled with knowledge in providing emergency medical services in urban populations is essential.

The Iowa Department of Public Health, Bureau of Emergency and Trauma Services requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance

program to provide a technical reassessment of the Iowa statewide EMS program. NHTSA developed a format whereby the EMS staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in Des Moines, Iowa, April 27-30, 2015. For the first day and a half, over 25 presenters from the state provided in-depth briefings on EMS and trauma care. Topics for review and discussion included the following:

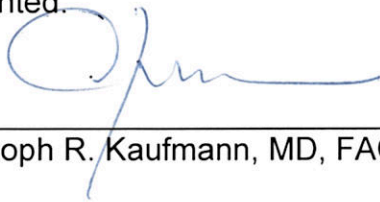
#### General Emergency Medical Services Overview of System Components

- Regulation and Policy
- Resource Management
- Human Resources and Education
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information and Education
- Medical Direction
- Evaluation
- Preparedness

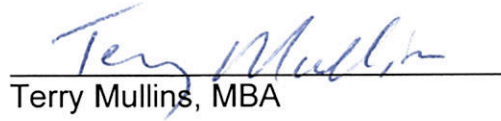
The forum of presentation and discussion allowed the TAT the opportunity to ask questions regarding the status of the EMS system, clarify any issues identified in the briefing materials provided earlier, measure progress, identify barriers to change, and develop a clear understanding of how emergency medical services function throughout Iowa. The team spent considerable time with each presenter so they could review the status for each topic.

Following the briefings by presenters from the Iowa EMS, public and private sector providers, and members of the medical community, the TAT sequestered to evaluate the current EMS system as presented and to develop a set of recommendations for system improvements. When reviewing this report, please note the TAT focused on major areas for system improvement.

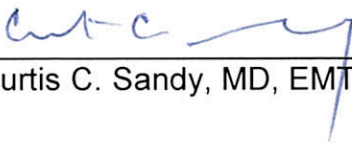
The statements made in this report are based on the input received. Pre-established standards and the combined experience of the team members were applied to the information gathered. All team members agree with the recommendations as presented.



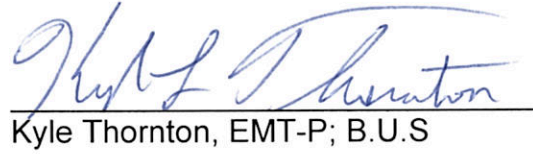
Christoph R. Kaufmann, MD, FACS



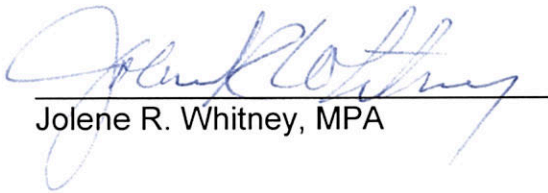
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## ACKNOWLEDGMENTS

The Technical Assistance Team (TAT) would like to acknowledge the Iowa Department of Public Health, Bureau of Emergency and Trauma Services (BETS) for their support in conducting this assessment and the Governor's Traffic Safety Bureau for participation in the assessment process.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Iowa. 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 Ken Sharp Division Director for Acute Disease Prevention, Emergency Response and Environmental Health, BETS Rebecca Curtiss, Bureau Chief and Joe Ferrell, BETS Executive Officer and the rest of the BETS staff and all the briefing participants for their extraordinary efforts and well-prepared presentations.

## INTRODUCTION

For too many, Iowa is one of the several “fly over states” in our country, a place that lacks “star power”, where the winters are cold and the way of life centers around agriculture. But the song of Iowa is much, much more than that.

The over three million residents of Iowa live in a state that has a rich tradition of history and service. The land is fertile, producing much of our country’s best agricultural products, such as corn, soybeans, cattle, hogs and dairy products. Agriculture built this state through its early history. But as the state matured and progressed, Iowans led in many other ways. Iowa contributed proportionally more men to Civil War service than any other state, Union or Confederate. The courts of Iowa were proponents of and ruled for civil rights some 90 years before the federal courts in our country. The sense of service, duty, and pride guided the state and its residents into a present day that is vibrant with a mixed economy built on manufacturing, finance & insurance, and of course, agriculture. The population is diverse, educated, and takes pride in their robust educational system, their college and professional sports teams, and all that their rural and metropolitan areas have to offer. It is indeed a wonderful and beautiful part of America.

The sense of pride and service that built Iowa is clearly evident in the volunteer and career EMS caregivers and the myriad of nurses, physicians, and other health care providers that care for the residents of Iowa. Throughout the 99 counties, communities have worked to provide a high level of EMS and hospital care that many other states would envy and should strive for.

There isn’t anywhere that this dedication is more apparent than in the Bureau of Emergency and Trauma Services (BETS). This office is staffed with individuals who have a stunning level of commitment to the profession of emergency care. Many of these individuals have worked to grow and improve EMS and emergency care in Iowa for decades, longevity that is seldom enjoyed or seen elsewhere in our country. These individuals have seen the bureau through extremely difficult, chaotic times, and without them, Iowa EMS would be in a much different place.

There always are and will be improvements to be made, and the NHTSA Technical Assistance Team (TAT) is honored to have the opportunity to hear the story of the Iowa BETS, and to see the desire to improve the system. The system that is in place, and the improvements made along the way, are a testament to the dedication and hard work of the past. The TAT is confident that the new division leadership, combined with an experienced and remarkably dedicated bureau staff and statewide cadre of healthcare providers, will make the future Iowa EMS, trauma, and stroke/STEMI care system an example of success to which other states will strive to match.



## A. REGULATION AND POLICY

### Standard

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

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

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

### Status

**Lead Agency:** The Iowa Legislature designated the Iowa Department of Public Health (IDPH) as the lead state agency for the “development, coordination, implementation, and monitoring of the EMS and trauma care systems for Iowa”. The Bureau of Emergency and Trauma Services (BETS) was formed in 2014 when the former Bureau

of EMS and the Center for Disaster Operation and Response were merged. The BETS is one of five Bureaus in the Division of Acute Disease Prevention, Emergency Response and Environmental Health.

**System Planning:** While BETS has regulatory authority for system planning, the Emergency Medical Services Advisory Council “shall advise the director and develop policy recommendations concerning the regulation, administration and coordination of emergency medical services in the state”, and the Trauma System Advisory Council shall, “Advise the department on strategies to achieve optimal trauma care delivery throughout the state.” Presenters suggested that the membership requirements of the Trauma System Advisory Council do not reflect current system needs and should be updated.

Each county is eligible to receive EMS System Development Grants each year. The state legislature allocates annual funds for these grants, all provider certification fees and revenue generated from commemorative birth and marriage certificates are added to these available funds. In return for these grants, each county must develop and maintain a county-wide strategic EMS plan. Recently, the BETS and stakeholders developed a “System Standards Self-Assessment Tool’ that each county must complete as part of their county-wide assessment. BETS is currently aggregating the results of the assessment tool.

The State EMS Medical Director position has been vacant for a number of years. Several presenters suggested that the lack of a medical director has handicapped system progress. Public Safety Answering Point (PSAP) operations and training are not regulated by the Department and BETS does not have the authority to certify emergency medical dispatch (EMD) staff or to require that PSAPs use EMD protocols.

**Regionalization:** There are no formalized EMS or trauma system regions in Iowa. Organic or referral-based regions have formed around the higher level trauma centers and some EMS agencies. Previously, the public health/emergency preparedness program had adopted six regions for its planning activities, but these were abandoned when they were not found to be effective. There was near universal calls for regionalization of EMS and trauma activities by presenters. This need is highlighted by the recognition of STEMI and stroke centers of care.

**Budget:** The FY 2013 appropriation for BETS was \$2.49 M and grants payable were \$1.66 M leaving \$830,000 to support the remaining activities. Funding sources include the general fund, federal Block grant, Flex grant, HPP/PHEP grants, EMSC grant and Highway Traffic Safety grant. The Department has requested authority for an internal fund transfer to support additional FTEs for an epidemiologist/data analyst and a regional coordinator.

The BETS has the authority to set fees for EMS provider certification services but not for authorized programs or trauma center verification services.

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

- The establishment of two advisory councils – the EMS Advisory Council and the Trauma System Advisory Council;
- Standards for investigating, training, testing, certifying, and setting scope of practice for several levels of emergency medical care providers;
- Standards for authorizing and regulating EMS programs;
- Standards for the use flashing white lights by EMS providers while responding to emergencies;
- Standards for the categorization and verification of trauma centers;
- Standards for the development of triage and transfer protocols for trauma patients;
- Requirements for trauma centers and EMS programs to submit data to a trauma and EMS registry;
- Education requirements for trauma practitioners;
- Guidance for the distribution of EMS System Development grants tied to county strategic planning;
- Standards relating to withholding resuscitation;
- Standards for medical direction for authorized service programs;
- Standards for distribution of AED grants, and
- Standards for authorizing EMS Air Medical programs.

**Data Collection:** Each trauma center and EMS service program is required to submit specified data to their respective statewide registries. Each is compatible with the current NTDS and NEMSIS standard. A specific appropriation was received in FY 2014 to fund the purchase of replacement registry software systems. Not all EMS agencies are compliant with the data submission requirements and there are data quality issues reported for the EMS registry.

**Injury Prevention:** The EMS for Children program has coordinated injury prevention initiatives with various stakeholders. The Trauma System Advisory Council authorization language includes an injury prevention role. The two ACS Level I trauma centers are required to have dedicated injury prevention staff and initiatives, but there is no central coordinated effort within the Department for injury prevention initiatives.

**Special Needs Populations:** Beyond the requirement that initial certification cover the content identified in the National EMS Education Standards, there are no additional requirements for specific education on the care of special populations. Each medical director has flexibility in setting the continuing education content for the providers. The BETS does not require a specific pediatric equipment list for ambulances.

## Recommendations

BETS should:

- Adopt by reference a minimum ambulance equipment list for pediatric patients.

The IDPH should:

- **Secure funding for, and hire, a State EMS Medical Director as soon as practical.**
- Secure funding for, and hire, an epidemiologist and regional coordinator as soon as practical.
- Adopt rules to establish regions for the care of the ill or injured patient suffering from a time sensitive condition. Consideration should be given to historic referral patterns that have developed around the higher level trauma centers.

The State Legislature should:

- Establish EMD standards for PSAP centers and require EMD be utilized for all requests for EMS services.
- **Authorize IDPH to amend the membership list for the Trauma System Advisory Council to reflect current system needs.**
- **Authorize BETS to collect and retain fees for service program authorizations and trauma center verifications.**

## 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 Iowa Bureau of Emergency and Trauma Services (BETS) has undergone significant changes in the past two years. This includes the addition of a new Bureau Chief and Division Director, and the combining with or addition of other Department of Public Health programs, to include the Stroke/STEMI and Preparedness programs. Fortunately, there is remarkable longevity among many of the program staff and supervisors, providing excellent system and institutional history. There is an obvious energy and desire to improve all of the systems overseen by the BETS.

BETS has done an admirable job of assuring that each of the NHTSA standards for

Resource Management is addressed. It is clear that BETS realizes there are always opportunities for improvement.

There is rule that requires those requesting EMS assistance receive care from at least one certified EMT. The dedicated individuals and agencies that make up the state EMS system make efforts to assure that there is a timely response to requests for EMS assistance. The type of this response, volunteer or career, varies dependent on the location of the call, as is expected in a rural state. The response times may be longer than desired in some instances, but this is a function of the geography, availability of personnel in the rural area and environment.

There is a dizzying number of EMS agencies; 333 fully certified ambulance agencies, 144 agencies certified as “transport agreement” agencies, and 436 non-transporting agencies. With this in mind, the BETS ability to assure the inspection of all of these agencies every three years is difficult to conceive.

There is a clear opportunity for the regionalization of Emergency Medical Services (EMS) care, to include the potential development of EMS response and system planning regions, the consolidation and collaboration of existing EMS agencies, and the combining of administrative and medical direction resources. The decrease of volunteerism was mentioned multiple times; this is an issue seen nationally, and one unlikely to abate. Regionalization of EMS care is one way to help deal with this reality, and carries with it many other benefits, such as unified command structure, the provision of common treatment guidelines/protocols, and the standardization of operating procedures and equipment. A basis for the development of these regions may be substantially found by studying the transport patterns of patients suffering from one of the time sensitive conditions (stroke, STEMI, or trauma) and in the current distribution of Level I, II, and III trauma centers.

There is also a large number of Public Safety Answering Points (PSAP), and an apparent lack of consistency in the EMS response provided by these PSAPs. Some provide for Emergency Medical Dispatch (EMD), while most do not. The lack of a comprehensive EMD system statewide is a disservice to the residents of Iowa.

Many service programs do not bill for their services instead relying upon taxpayer support. For service programs that do bill, there is not a consistent method for the development of a fee structure which is tied to the cost for system readiness. This has the potential for overbilling and, just as concerning, under billing in a resource-constrained environment.

Iowa does not have the provision of EMS as a statutory responsibility of counties, townships or cities, leading to the common issue of EMS not being seen as an essential service, which the public most certainly expects. The Iowa legislature

should consider the addition of EMS to the list of responsibilities of counties, townships, and cities.

In the case of multi-casualty events, there does not appear to be a consistent structure of mutual aid agreements between these counties, townships, or cities. It seems some areas have very clear-cut and defined agreements with neighboring communities. However, agreements are not required in order to be an authorized service program.

There is a state EMS Advisory Council (EMSAC) appointed by the IDPH director. There is also a Quality Assurance and Standards & Protocols (QASP) subcommittee, which has advisory responsibility primarily with clinical and scope of practice issues. These groups may benefit from clarification of their advisory role, and re-visiting the methods of nomination of members by representative organizations.

The relationship between BETS and the Office of Highway Safety is good and improving, with participation of BETS with the traffic safety plan and other initiatives. This relationship should be cultivated, as it may provide an opportunity for collaboration and funding, particularly in the realm of data sharing and linkage with the fatality and crash databases maintained by the sister offices.

Funding is always a challenge for state EMS and other government offices. As with many states, there is a lack of interest and understanding of the needs and financial requirements on the part of the legislature and public of an EMS and trauma system. Some local governments have long received EMS at a huge discount due to the dedication of the volunteers in rural areas. Now that this resource is shrinking, local governments have difficulty finding funds to continue the provision of this critical safety net service. The creation of a dedicated and sustainable EMS and trauma fund should be undertaken by the Iowa Legislature in order to prepare for the maturation of a regionalized statewide EMS and trauma systems, potentially identifying funding sources such as additional fines added to law enforcement citations, authorization fees, insurance premiums, or other options.

## Recommendations

- **BETS should undertake the design of a regionalized system of EMS and trauma care, to include the development of EMS regions, and the collaboration and consolidation of EMS provision of care within these regions.**
- BETS should require mutual aid agreements for service program authorization.
- The State Legislature should fund a study to evaluate current EMS costs and billing practices with a goal to develop a statewide billing structure.
- **The State Legislature should consider action to establish county and/or municipality responsibility for the assurance of EMS response within given jurisdictional borders.**
- The Department of Public Health and the State Legislature should take steps to create dedicated and sustainable funding sources for the provision of statewide Emergency Medical Services and trauma care.



## 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 Iowa BETS currently certifies approximately 11,771 caregivers, of which over half (6,675) are certified at the EMT level. Those certified at the EMT-Intermediate or A-EMT level make up 759 caregivers, with 337 at the EMT-P level, and 2,731 at the Paramedic and “Paramedic Specialist” level.

The most important component of the EMS system that serves the approximately three million Iowa residents is this cadre of certified caregivers. These caregivers must receive adequate training to effectively provide emergency and non-emergency patient care and transportation throughout Iowa and the bordering states. From testimony provided, it appears that BETS and the 18 institutions providing EMS education have a very good, collegial relationship with common goals of quality EMS initial and continuing education. Asynchronous and synchronous distance 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 Iowa has been no exception. However, the standards seem to have offered an opportunity for the robust community college and hospital based educational system to collaborate to improve the education being offered. The BETS and the participating educational entities are commended for attaining CAAHEP accreditation for the Paramedic level education programs. The same level of attention now should be focused on assuring an excellent standard for the AEMT, EMT, and EMR levels of education.

BETS is transitioning the multi-level paramedic designation out of their certification structure. This is an extremely positive development, as the multiple level designation was confusing. As an additional improvement, BETS should consider abandoning the term “certification”, and begin to “license” their caregivers.

BETS should be commended for their workforce assessment that provided a clear understanding of issues facing the cadre of Iowa EMS personnel. There is a general sense that, especially in the rural agencies, the age of those available to serve their communities is increasing. This concern is due to, and exacerbated by, the waning availability of younger individuals willing to volunteer. The BETS must partner with stakeholders to continue to develop recruitment and retention strategies for volunteers, as well as career personnel, throughout the state.

One area of caregiver certification in Iowa 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 Iowa. Additionally, rule should be developed that sets standards for pre-arrival instructions, continuing education, and medical direction of these vital EMS caregivers.

While funding is always a concern, the lack of the clinical expertise of a state level physician medical director for the BETS programs is a significant disservice to the EMS, trauma, preparedness, and stroke/STEMI stakeholders. BETS must explore at least part time contracting options in order to establish this position. Iowa is missing out on national level discussions involving evidence based protocol, standard development, and other significant national issues. This may be the highest priority for the BETS at this time.

## **Recommendations**

- **The State Legislature should establish a certification for emergency medical dispatchers and authorize the department to establish standards for EMD programs including medical direction requirements.**
- IDPH should immediately hire an Iowa State EMS Medical Director, at least as a part time, contract position.

BETS should:

- Establish a minimum number of pediatric continuing education hours as a requirement for renewal of EMS certification.
- Continue the process of eliminating the multiple levels of paramedic currently allowed.

## D. TRANSPORTATION

### Standard

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

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

### Status

Since the last NHTSA assessment, BETS has been able to establish standards and authorize all non transport services including air and ground ambulance service programs. They also established standards for authorized service programs that are unable to maintain 24/7/365 staffing.

BETS is to be commended on their efforts to establish EMS system standards. The Bureau requires recipients of the EMS Systems Standards grant to submit an Iowa EMS Systems Standards Self Assessment. This document was developed with stakeholder input and establishes 52 Iowa EMS system standards and associated measurements. For example, "The EMS system shall have a provision for ALS care." The measurement identified for this standard is having a "policy on provision for ALS."

Each county is to develop an EMS system plan and take into account community needs, utilization of appropriate resources, and should also assess how the plan is meeting the needs of patients including special populations. The plan should also include a provision of ALS care and an accounting of resources including personnel, vehicles and facilities. 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 service providers.

There are regulations in place to facilitate triage of injured patients to designated trauma centers. The state has adopted by reference the adult and pediatric "Out of Hospital Trauma Triage Destination Decision Protocol." State protocols also recommend the transport of patients to stroke and cardiac centers for definitive care.

The BETS does not directly coordinate the transports within the state system. There are 99 counties in Iowa representing separate EMS systems. Generally, Iowa does not have multi-county regions established to coordinate and integrate EMS care between counties. However, to assure the coordination of emergency transport within each county EMS system, the Bureau requires each service provider to have an EMS system response agreement. The purpose of the agreement is to ensure an organized response to EMS incidents is provided within defined service areas. The agreement ensures patient transportation is available, defines all EMS provider responsibilities (including ambulance, ambulance -TA, non-transport, communications center) and provides risk management.

Authorized service providers are required to have a medical director, an agreement with a primary dispatch center and a facility to provide on-line medical direction. They can also have a transport agreement in place between two or more service programs that specify the duties of the agreeing parties to ensure appropriate transport of patients in a given service area. It is also a requirement of a service program to ensure a response to a request when dispatched by a public safety answering point (PSAP) within the primary service area. It was reported that the agreements work well for the most part; however, there have been some instances of services leveraging the agreement to pick and choose calls.

Though each authorized service program submits a description of a service area, there is no mechanism in place for BETS to assure all areas of the state are covered resulting in overlaps of service areas between providers. It was brought to the TAT's attention that there is no oversight for dispatching ambulances across county lines creating situations where the closest ambulance may not be dispatched.

BETS has an established method for conducting inspections. There are four regional coordinators who conduct inspections every three years on all 931 service programs. These inspections coincide with the re-authorization of the service programs. There is no accounting process in place to determine the actual number of transport and non-

transport vehicles being inspected. There are no fees associated with the inspections or authorization process. In addition, there is no state standardized drug, supply and equipment list. Generally, the service provider establishes the list for medical director review and approval based upon the agency protocols and the level of service provided.

Through the Iowa EMS for Children program and a partnership with the Kiwanis Foundation, 310 BLS services have received bags of pediatric equipment along with three hours of pediatric specific training. This is a commendable effort to enhance provider capabilities to serve pediatric patients. Based on the National Pediatric Readiness survey, 36% of ALS and BLS providers in Iowa carry ALL nationally recommended pediatric equipment. Iowa's average percent of nationally recommended pediatric equipment carried by transporting vehicles is higher than the national average.

BETS has legislation in place to authorize air ambulance services. Currently, there are 18 air ambulance services in the state. It is not a requirement for air services to have nationally recognized EMS service program accreditation. However, if they seek accreditation, they can submit their application and inspection forms to BETS and acquire exempt status from the state application/inspection process. There appears to be sufficient coverage across the state for air services. There is no state guideline for air activation.

The minimum standard for ambulance staffing in Iowa is one EMT and a currently licensed driver. Ambulance drivers must be trained in CPR, emergency driving techniques, and communications equipment. The service program must also have a driving policy in place that addresses such items as speed limits and use of lights and sirens. It is also a requirement of a service program to have a written contingency plan that can be activated when unforeseen circumstances arise such as a temporary staffing shortage for the provision of services 24/7.

## **Recommendations**

- BETS should utilize the data from the EMS System Resources assessments to establish a state EMS transportation plan.
- BETS should identify a mechanism to account for the number of EMS vehicles to enhance resource management capabilities in the event of a disaster.
- **IDPH should assess fees for inspections and authorization processes to provide funding for EMS system technical assistance, regional system planning and compliance.**
- **BETS should consider the development of multi county regions to support systems development to ensure coordination of patient transport across county lines.**

- BETS should develop a standardized guideline for air activation, with medical direction input.
- BETS should utilize results from the Pediatric Readiness Survey to continue efforts of the EMS for Children program to provide training and equipment to authorized service programs and hospitals.

## 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

Stabilization and definitive care needs of patients with time critical diagnoses are appropriately addressed within the state of Iowa. Trauma centers are verified through a defined process; stroke and STEMI facilities are also categorized and identified. However, the statewide trauma system is not currently divided into regional systems. Medical direction is also not regionalized nor is there a state EMS medical director (or state trauma medical director). Some destination protocols have been written and implemented, such as the “Out-of-Hospital Trauma Triage Destination Decision Protocol,” and there is an ongoing effort to develop a statewide STEMI program.

Hospital participation within the inclusive trauma system is mandatory while verification level is voluntary. The inclusive trauma system in Iowa therefore includes participation of all 118 hospitals; 22 of these are urban hospitals, 6 are rural referral hospitals, 8 are



rural hospitals, and 82 are critical access hospitals. All 118 hospitals participate in the trauma system at one of four levels, some with verification by the American College of Surgeons Verification Review Committee (ACS VRC). The levels of these trauma centers are as follows:

- Level I = 2 ACS VRC verified
- Level II = 2 ACS VRC verified
- Level II = 2 state verified
- Level III = 19 state verified
- Level IV = 93 state verified by application only

There is one American Burn Association verified burn center in the state (University of Iowa Burn Center). There is a Level I pediatric trauma center (Children's Hospital at the University of Iowa) and a Level II pediatric trauma center (Blank Children's Hospital in Des Moines). Additional trauma specialty support is provided out of state, most frequently in Omaha, Nebraska. There is no document that categorizes the current capabilities of each hospital in the state.

The trauma center verification process differs by trauma center level, although the verification for each level is for a three-year period. Level I trauma centers are verified by the ACS VRC while Level II trauma centers are verified either through the ACS VRC or the State. BETS verifies Level III and Level IV trauma centers, exclusively through an application process for Level IVs. The demands of coordinating approximately 40 trauma reverifications each year do not allow the BETS state trauma coordinator time for quality improvement initiatives or other trauma system development work.

Iowa Level IV trauma centers vary in capability – some are critical access hospitals and some are not. Level IV trauma centers in adjacent counties, despite each meeting state requirements, may have very different capabilities. The decision to transport an injured patient to one of these Level IV facilities (rather than to a higher level of care farther away) may result in adverse sequelae for the patient. Addition of another tier of trauma center designation, Level V (as already exist in several rural states), will result in better triage options for the injured patient and for the patient with other time critical conditions.

The current Level IV criteria could be brought to a higher level (between current Level III and IV criteria), while Level V criteria could either duplicate current Level IV criteria or be "lowered" as appropriate to match the actual resources of the smallest critical access hospitals. The addition of Level V trauma centers will close the gap towards optimal use of all hospitals in this inclusive trauma system.

There is an expectation that all 118 trauma centers in Iowa have their Emergency Department nurses certified in the Trauma Nursing Core Course (TNCC). Pediatric-specific training is not mandatory, but Pediatric Advanced Life Support (PALS) is taught widely, including in Level IV trauma centers. Participants confirmed that the critical access facilities and other smaller hospitals are motivated to arrange interfacility

transfer for children as soon as possible after stabilization. Air ambulance resources are frequently utilized for interfacility transport of trauma patients and pediatric patients, both to hospitals in Iowa and out of state. Interfacility transfer protocols and agreements are lacking. Participants confirm a reluctance of local EMS agencies to consistently accept interfacility transports for fear of depleting local resources.

Trauma centers in Iowa rarely go on divert status. In the larger cities, such as Des Moines, trauma diversion procedures are well worked out among the facilities and used judiciously – with a trauma center being on diversion for as short a period as possible, sometimes for only 30 minutes.

## Recommendations

- BETS should periodically revise trauma center standards to meet or exceed national standards, such as those promulgated by the American College of Surgeons.
- BETS should utilize out-of-state reviewers for verification of all Level I, Level II (and consider Level III) trauma centers.
  - Consider use of the American College of Surgeons trauma center verification process.
- **The State Legislature should revise trauma system legislation adding Level V trauma centers to further delineate hospital capabilities among the 93 Level IV trauma centers in order to refine trauma patient triage and improve patient outcomes.**
- **BETS should devote an additional FTE to trauma center verification in order to provide time to address trauma system performance improvement.**
- BETS should ensure interfacility transfer protocols and agreements are in place to facilitate timely transport of patients requiring higher levels of care.
- BETS should publish the capabilities of each hospital in the State and provide updates on a regular basis on the BETS website.
- BETS should work towards categorization and verification of hospital emergency capabilities and work to increase hospital capability as needed to provide optimal care for all time critical diagnoses across the entire State.

## 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

Since the last NHTSA assessment, Iowa updated the EMS communications directory in 2002 which provides the frequency, tone and dial number for all of the hospitals in Iowa. They also implemented the enhanced 911 system statewide. The State's E911 system

consists of 117 public safety answering points (PSAP) across 99 counties that handle both landline and wireless 911 calls for the citizens of Iowa.

Iowa State code requires the provision of E911 for land line and wireless phone services. All 99 counties have the capability of accepting wireless enhanced 911 phase II service which includes the caller's location by longitude and latitude.

The E911 system is undergoing changes. The best description of the 911 system enhancements was provided to the TAT in the Homeland Security report as follows: "On July 8, 2011, the State of Iowa began the development and implementation of the next phase of Iowa's enhanced 911 system: the implementation of a statewide, IP-enabled, or next generation, 911 system. When completed, this upgrade will allow PSAPs to receive IP-based signaling for the delivery of emergency calls that include text, video, and picture messaging. Callers will be able to text emergency messages to select PSAPs within the next few months. The system improvements also include improved GIS mapping and database and address reconciliation to improve the automatic location services. The system will allow a dispatcher to pinpoint the caller on recent GIS imagery of the geographical area the PSAP covers. The upgraded program should be completed by December 31, 2015."

The EMS system standards document established by the BETS suggests that communications issues be addressed at the local level for planning, equipment, dispatch and coordination. There appears to be some involvement by the Bureau in addressing communications issues at the state level. They recently participated in a FirstNet consultation. In addition, the Department of Public Health has a seat on the state Interoperable Communications System Board. Iowa developed its Statewide Communications Interoperability Plan (SCIP) in August 2013. There are many goals, but no implementation plan. There is an effort to be more inclusive of EMS in planning efforts. However, there needs to be a change in the statute to allow for specific EMS representation on the state interoperability board.

The state updated the EMS radio plan which lists the radio frequencies and dial tones for all of the hospitals in Iowa. As in many states, there are interoperability issues with disparate and aging systems. There is no recent assessment of the hospital and EMS communications equipment.

Regarding the auto-population of patient care reports, not all PSAPs have computer-aided dispatch systems. Those that do are able to auto-populate the patient care reports. PSAPs that do not have CAD systems email data once the call is closed out.

Though Iowa is making great strides to improve the access to EMS care to the public through the E911 system, many dispatch centers continue to operate without standardized emergency medical dispatch training. There are no requirements for dispatch centers accepting medical emergency calls to have medical priority dispatch systems, where life saving instructions can be provided to the public in response to

specific questions asked of the caller. There are no requirements for PSAPs to utilize certified EMDs. There are no required EMD training standards or certification standards. The extent of medical director involvement with EMD systems is unknown.

## **Recommendations**

- **The State Legislature should enact legislation authorizing the IDPH to establish standards for any PSAP dispatching EMS resources to have an emergency medical dispatch system and certified EMD personnel.**
  - **Once enacted, IDPH should establish training and certification standards for emergency medical dispatchers.**
- The State Legislature should enact legislation to regionalize PSAPS for the provision of emergency medical dispatch consistent with proposed EMS and trauma regions.
- **The State Legislature should enact legislation mandating EMS representation on the state Interoperability Board.**
- BETS should conduct an assessment of current radio capabilities of hospitals and authorized service programs focusing on interoperability and data transmission.
- The State Legislature should seek funding to support an upgrade to the statewide communications system for public safety including emergency medical services
- BETS should explore the opportunity to utilize Next Generation GIS capabilities to map authorized service program geographic service areas.
- **BETS should encourage the regionally identified PSAPs to utilize 911 funds to support the acquisition of emergency medical dispatch system and EMD training.**

## 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

The Iowa Department of Public Health has a Communications Plan that provides policies and protocols for press releases, responding to the media, graphic design, logo use, marketing, and use of social media. They also have a public health response plan to guide IDPH staff in establishing and providing communications and information during a disaster. The Bureau staff have participated in Public Information Officer (PIO) courses and the CDC Crisis and Emergency Risk Communications course. Many PIO courses have been offered to EMS agencies and hospital personnel.

BETS has developed remarkable public service announcements to address volunteer EMTs, team approach to EMS, local EMS units, how to access the system and call for help, and accident prevention. In addition, the Bureau staff is able to post to their Facebook page and have access to Twitter through the Department's Communications Director. IDPH currently has five departmental social media channels: Facebook, Twitter, YouTube, LinkedIn and Pinterest. The Communications Director posts daily to Twitter and weekly to Facebook. The Bureau also maintains a webpage which identifies services, staff and programs. The website also hosts several BETS EMS system documents including the EMS System Standards document and the System Status Update reports.

There are many injury prevention and public information efforts occurring in Iowa. The BETS is actively involved with Highway Safety Strategic planning and activities associated with the Zero Fatalities campaign. They also support local activities and participation with annual EMS Week and EMSC Day. BETS issues a monthly newsletter to preparedness, trauma and EMS audiences.

BETS is moving forward with additional public information and education efforts through use of the EMS system standards, partnering with the Iowa EMS association and providing success stories to federal partners.

The EMS for Children program is very robust and engages hospitals and EMS providers in injury prevention efforts. Many programs have been developed with a safety focus pertaining to ATV's, falls from windows, school playgrounds, bikes, water and farm equipment.

The EMS for Children program also administers the Love Our Kids grants program. Revenues are generated from a vanity license plate to provide pediatric injury prevention projects through a grant process for rural Iowa communities. The type of projects most funded by the "Love Our Kids" grants in 2013 involved safe sleep environment, passenger safety and bike helmet education. Each applicant receives \$1500 and approximately \$30,000 is available each year.

Some bystander training is provided by the American Red Cross, as well as, through the county CERT programs.

Along with the Highway Safety Office alliance, there appear to be additional opportunities for partnerships, both internally and externally, with the Office of Disability Injury and Violence Prevention and the Iowa Injury Prevention Research Center. Though some patient care data is available and analyzed by the research center and by individual trauma centers, there are no coordinated efforts for a strong marketing campaign to address targeted issues.

## Recommendations

- **IDPH should create an injury prevention coordination coalition to work with internal and external partners to develop a clearinghouse for injury prevention programs.**
- With the Iowa Injury Prevention Research Center, BETS should utilize patient care and trauma registry data to develop fact sheets that provide the public and policymakers with information on targeted issues.
- BETS should utilize the data collected from the county EMS system assessments to educate stakeholders, policymakers and the public about the strengths and gaps in the EMS system.
- BETS should develop a listserv for the medical directors and other key stakeholder groups to disseminate and coordinate information.
- IDPH should encourage the development and coordination of targeted injury prevention activities at regional and community levels.



## 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

Physician medical direction is a requirement for all authorized service programs providing EMS in Iowa. The medical director is responsible for protocol development and approval, CQI, and CEU program development, serving as a liaison to the medical community and has the authority to restrict EMS providers' practice. Medical directors must be Iowa-licensed physicians and attend a Medical Director Workshop within the first year of service. No further organized medical director education is required. The initial training workshop is currently being evaluated and updated to better address perceived medical director training needs. There was testimony that requiring additional training or providing additional workshops focusing on clinical or administrative topics would be helpful. Medical director expertise and involvement varies greatly across the state and there was testimony that there are many medical directors that have minimal involvement.

There is no formal regionalization of medical direction though some counties have developed countywide medical directorates. Such a directorate allows for better alignment with treatment protocols and other patient care issues. Unfortunately, a multi-county regionalized system for medical direction does not appear to exist, nor does there appear to be a driving incentive to develop such a system.

Currently, there is no state EMS medical director. Historically, the position had been

funded but with funding cuts and questions about the utility of the role, the position has gone unfilled for several years. Recent attempts at funding the position again have been unsuccessful. There was comment that a part-time contract has been discussed and may be the best solution. There was testimony that the lack of the State EMS Medical Director leaves a void in leadership and coordination for the system and other medical directors statewide.

Physicians on the EMSAC are tasked with serving as medical director resources for the Bureau but have limited influence for real statewide initiatives and minimal contact with the agency medical directors. Professional physician organizations have minimal coordination with EMS medical director activities. While there is an EMS providers' association in the state, there is no formal medical director organization.

There are criminal and civil liability protections in statute for medical directors and on-line medical direction in regards to the provision of medical care but no protection for administrative liabilities. Medical directors of public services that participate in the state liability program do have some further protections for medical direction but it is unclear whether this includes any administrative protections.

There are statewide protocols developed by the QASP and approved by the EMSAC that serve as the standard of care for EMS services. Service medical directors are responsible for protocol development that meet or exceed these statewide treatment protocols within the limits of the scope of practice. However, medical directors are allowed to omit portions of the statewide protocols. This practice appears to contradict the requirement of meeting or exceeding the minimum standard of care established by the statewide protocols. There is a trauma triage destination protocol based upon the CDC guidelines that cannot be modified, but no air medical activation protocol exists.

## **Recommendations**

BETS should:

- **Hire a State EMS Medical Director. At a minimum, contract on a part-time basis for this position.**
- **Provide ongoing medical director education, including web-based, addressing administrative and clinical aspects of EMS.**
- Encourage the regionalization of medical direction.
- Establish a mechanism to evaluate deviations or omissions from the statewide protocols by service medical directors that would reduce care.
- With input from EMSAC, develop a protocol for activation of air medical services.

- Encourage the development of a medical director organization. Possible avenues include engaging ACEP and IAFFP or the Iowa EMS Association.

The QASP should:

- Reference the recently published national evidence-based guidelines and National Model EMS Clinical Guidelines for incorporation in the existing statewide protocols.

## 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

Mortality for a given severe injury or combination of injuries in rural areas of the U.S. is twice as high as it is in urban areas – this is related to time, distance, and availability of surgical care. Iowa, with the majority of its population in cities, has a large rural population – a challenge for optimizing trauma care. A statewide trauma system plan was developed in 1994. Since the initial implementation of the trauma system in 2001, further system maturation has been slow. The trauma system plan is now outdated.

Iowa has an inclusive trauma care system with all 118 hospitals participating. Much of the infrastructure is present for building a model statewide trauma care system. Trauma legislation, a verification process, and a (new) statewide trauma registry are all in place.

The goal for Iowa's trauma system was presented as "to match the patient's medical needs to existing medical resources." Although this was a natural and appropriate concept when starting development of a statewide trauma system, as the system matures the paradigm should be reversed to say the goal is "to provide medical resources required to meet existing patient needs." The focus should no longer be on making use of existing resources, but rather to adjust those resources to meet the needs of the patient. "Inclusive" not only implies participation of all trauma centers, but also implies building the system to provide optimal care for all patients, both those with minimal injuries and those with severe injuries, and in all geographic locations. Ongoing

investment in the system is required.

Although EMS agencies reportedly follow the Iowa statewide “Out-of-Hospital Trauma Triage Destination Decision Protocol” (based on 2011 CDC guidelines), the protocol itself is limited and insufficient for optimal trauma patient care. Patients with GCS <14, systolic blood pressure < 90, or respiratory rate <10 or >29 are to be transported to a Level I or Level II trauma center UNLESS the Level I or II center is farther than 30 minutes away. In its current iteration, this protocol results in some critically-injured patients being transported to Level IV trauma centers. In many cases, it would minimize morbidity and mortality to transport the patient to a Level I or II trauma center 45 or 60 minutes away - rather than to a closer hospital without emergency surgical capability. The current protocols require refinement.

There are currently no interfacility transfer protocols for trauma patients.

One potential shortcoming of the Iowa verification process is that hospitals themselves choose to be verified at a certain level. This could potentially result in hospitals not providing care for all trauma patients that would benefit from their capabilities. For example, hospitals capable of Level II verification should not be permitted to request verification as a Level IV facility – to prevent unnecessary triage bypass with a critically injured patient.

State-specific verification criteria (Level II, III, and IV) should be updated at regular intervals. Addition of Level V trauma center criteria and verification of some critical access hospitals as Level V centers will facilitate more appropriate triage as prehospital providers will be better able to select the appropriate destination from multiple nearby hospitals. This change would allow for more comprehensive/stringent criteria than the current ones used for Level IV verification. It will improve the ability of pre-hospital providers to take “the right patient to the right facility at the right time”

A new statewide trauma registry (Image Trend) has been selected, purchased and distributed. A “go live” date for the new registry is July 1, 2015. There is the expectation that these data will be used to integrate system function given the potential to link prehospital and hospital data. The University of Iowa Injury Prevention and Research Center is already involved with data analysis.

There is a Trauma System Advisory Council (TSAC) with membership specifically dictated by the enabling legislation. This membership, based on trauma system concepts of 20 years ago, is not ideal for the dynamics and culture of today’s trauma systems. New legislation providing for flexibility in membership and representation of various specialty interests and organizations would improve the productivity of this group. There is also a “System Evaluation Quality Improvement Subcommittee (SEQIS)” incorporated under TSAC.

The trauma system is not divided into regions. Creation of trauma regions would prove

useful for trauma system and EMS performance improvement, as well as for hospital preparedness purposes. As over 95% of disasters in the U.S. involve mechanical trauma, trauma regions are, in fact, also ideal for disaster planning and response.

The magnitude of preventable trauma mortality in Iowa is not known. A preventable mortality study would serve to inform the most appropriate investment of limited resources and to focus performance improvement efforts.

With the recent ACS Trauma Systems site visit, there appears to have been resurgence in trauma system development/maturation interest. This has been largely due to new leadership in the BETS and a new state trauma coordinator. The BETS, especially its current 1.3 FTE trauma staff, is dedicated to improving care of the trauma patient and continuing development of the Iowa trauma system. Indeed, success of this effort will be important to many across the U.S. as Iowa will then be able to set a new standard for quality rural trauma care. This will not be possible with only 1.3 FTEs dedicated to trauma system maintenance and improvement.

## **Recommendations**

The BETS should:

- Work with stakeholders and the Trauma System Advisory Council to update the statewide trauma system plan to be consistent with the HRSA Model Trauma System Planning and Evaluation document.
- Update trauma administrative rules to be consistent with current standards, including the most recent American College of Surgeons Optimal Resources document.
- **Work with stakeholders to revise and improve statewide trauma triage guidelines to optimize trauma patient destination decisions, particularly for those patients with critical injuries and those less-severely injured patients requiring timely surgical intervention.**
- **Work with stakeholders to develop and implement statewide interfacility trauma transfer guidelines, ensuring rapid transfer from lower levels of trauma center care to higher levels of care for those patients who will benefit.**
- Develop a mechanism to ensure that each hospital is designated at a level commensurate with its actual capabilities. The BETS should work with stakeholders to develop trauma regions, ideally based on trauma referral patterns.

- **Perform and publish a state trauma preventable mortality study using statewide EMS and trauma center data, to better define the magnitude of the trauma triage and transfer problems, guide system development priorities, and obtain additional legislative and financial support.**
- Secure additional required FTE support and permanent funding for trauma care system function and maturation, including hospital verification and system performance improvement/quality assurance, as guided by statewide EMS and trauma registry data.

The State Legislature should:

- Revise trauma legislation adding Level V trauma center verification criteria in order to be able to differentiate capability among the current 93 Level IV trauma centers.
- Revise trauma legislation to modernize TSAC membership and allow for flexibility in participants commensurate with current work efforts.

## 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

Iowa has a statewide EMS data management system and recently transitioned to the ImageTrend product for this service. EMS call data submission is required for all EMS service programs, though the non-transport services have not reported consistently. This has led to the questioning of the quality and completeness of the data that is submitted. The state is prepared for NEMSIS 3 data submission but does not have a timeline to begin using the dataset. The EMS data is submitted to the National EMS Information System.

The Iowa trauma registry has been in place for many years and is also transitioning to the ImageTrend product. Having both the EMS and trauma data in ImageTrend can help link patient records across the system if data submission is actively regulated. Trauma registry and crash data have been used by the Injury Prevention Research Center at the University of Iowa for several ongoing projects. Trauma Registry data is submitted to the National Trauma Data Base.

The EMSAC has a Quality Assurance Standards and Protocols (QASP) subcommittee that has mainly focused on statewide protocol development and scope of practice issues. The QASP has coordinated with the Trauma System Advisory Council and the new Stroke Quality Assurance Committee. However, the majority of quality assurance activities are left to the local service and medical director. Each service is required to have a CQI plan approved by the medical director and seems to mostly focus on chart audits. There was testimony that cumbersome PCRs or the use of paper charts can hinder any meaningful review and feedback.

The Bureau has tracked benchmarks for elements such as documentation of vital signs and GCS, aspirin for cardiac chest pain, neurologic exams for stroke, scene times for trauma and usage of lights and sirens. This data was used to identify areas of needed improvement and resulted in a training course in GCS for providers.

Peer-review data is protected by statute from discoverability.

## Recommendations

BETS should:

- **Ensure all service programs submit data to the state EMS database.**
- Encourage authorized service programs to adopt the ImageTrend State Bridge for patient care reports.
- **Develop a comprehensive regionalized program evaluating the effectiveness of out- of-hospital care and patient outcome with particular focus on time sensitive emergencies including trauma, STEMI and stroke patients.**
- **With authorized service program medical directors, establish a standardized approach to quality assurance and ensure provider feedback and loop closure processes.**
- Evaluate air medical utilization and the effectiveness of trauma triage, STEMI, and stroke destination protocols.
- Closely monitor recommendations of the EMS Compass – NASEMSO EMS Performance Measures Project.

The IDPH should:

- Support the proposed BETS epidemiologist position to analyze, prepare and disseminate EMS and trauma data reports.

## **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**

BETS was formed in 2014, when the former Bureau of EMS and the Center for Disaster Operation and Response were merged. BETS is the Department's lead for planning and coordinating the ESF 8 response for Iowa and coordination with the Iowa Department of Emergency Management and Department of Homeland Security. Staff have completed appropriate ICS courses and are consistently assigned to the State's EOC and the Department's emergency operations center.

BETS Staff are assigned to and comfortable with the nomenclature, process and responsibilities for all common disaster response and preparedness realms including EMAC, ChemPak, DMAT, DMORT, CERT, MRC, ESARVHP, EHRT, LSRT, SNS, etc. Iowa has been an EMAC recipient during the severe floods in 2008 when it requested resources from out of state. And several Iowa assets participated in the EMAC-directed

response to Hurricane Katrina.

As the recipient of Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness (PHEP) CDC grants, BETS is responsible for coordinating disaster preparedness and recovery planning and exercises with the 74 health care coalitions across the state. Membership in the health care coalitions includes county emergency management staff, county health department staff and usually, local EMS providers.

Each coalition is responsible for addressing four preparedness attributes each year. This can be achieved in exercises conducted by a single or multiple county coalitions. Staff has identified a trend for the healthcare coalitions to consolidate, typically within regions where organizational interaction is common.

HPP and PHEP grants require that exercises include special populations. Iowa's two children's hospitals participate in preparedness exercises and the Des Moines region coalition incorporates pediatrics into its exercises.

The Department does not have a current statewide EMS Pandemic Influenza Plan, though it did develop one in 2009. Instead, it has developed the Iowa Department of Health Public Health Emergency Response Plan. It is designed to serve as the basis for the Department's response to all public health disasters that occur in the state. There is not a published healthcare provider immunization strategy, though the Department has developed a methodology that would be adopted in a pandemic event.

The Department has not completed a crisis standard of care protocol, though a stakeholder group is working on one now. While the state has not adopted a patient tracking software solution, it recently purchased EMResource to facilitate the tracking of resources and monitoring service availability.

## **Recommendations**

- **BETS, in consultation with the EMS Advisory Council and Trauma System Advisory Council, should adopt Regional Health Care Coalitions that align with proposed EMS and trauma regions.**

BETS should:

- **Utilize the HPP and/or the PHEP grant to fund a Preventable Mortality Study to characterize deaths and identify opportunities for system interventions.**
- Finalize the crisis standards of care protocol, ensuring EMS medical director participation.

## L. CURRICULUM VITAE

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### **ORGANIZATIONS/APPOINTMENTS**

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

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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).

## **TERRY MULLINS, MBA**

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Arizona Department of Health Services  
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## **ORGANIZATIONS/APPOINTMENTS**

Arizona Department of Health Services, Bureau of EMS and Trauma System - 2006  
Children's National Medical Center, Trauma-EMS Technical Assistance Center - 4 yrs  
Great Falls Emergency Medical Services - 3 yrs  
Missoula Emergency Medical Services - 2 yrs  
National EMS Advisory Council - 2011 to present  
IOM Standing Committee on Health Threats Resilience - 2011 to present  
USDOT, NHTSA EMS Technical Assistance Team, Reassessment Program, Member,  
States of, North Dakota, Nevada and Missouri.

## **CURTIS C. SANDY, MD, EMT-T, FACEP**

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Chair, Idaho EMS Physician Commission

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### **ORGANIZATIONS/APPOINTMENTS**

American College of Emergency Physicians (ACEP), Fellow

Immediate Past President, Idaho Chapter, 2009-2011

President Idaho Chapter 2004-2009

American Board of Emergency Medicine, Diplomate, EMS Sub-specialty

National Association of EMS Physicians (NAEMSP)

Air Medical Physician Association (AMPA)

National Association of State EMS Officials (NASEMSO)-Medical Director Council

Idaho EMS Physician Commission, Board of Medicine Representative,

Idaho Time-Sensitive Emergencies Task Force

Idaho EMS Code Task Force

Idaho Cardiac Level One Steering Committee

Idaho State EMS Bureau Air Medical Utilization Task Force

Medical Direction Subcommittee, Idaho EMS Advisory Committee

Medical Director, Bannock County Ambulance/Pocatello Fire

Medical Director, Ft. Hall Fire and EMS, Fort Hall, ID

Medical Director, Bannock County Search and Rescue

Medical Director, Portneuf, Life Flight/LFN, Pocatello, ID

Medical Director, BYU-Idaho Paramedic Program, Rexburg, ID

Medical Director, Bureau of Land Management, Idaho,

Medical Director, Power County EMS,

Director of EMS, Portneuf Medical Center,

Tactical Physician, Bannock County Sheriff Southeast Idaho STAR,

Assistant Associate Clinical Medical Director, College of Southern Idaho Paramedic Program, Twin Falls, ID

Affiliate Clinical Faculty: Idaho State University,

Consultant, SafeTech Solutions, LLP –

- Principal Author – A Guide to Medical Direction in North Dakota
- Principal Author – A Guide to Medical Direction in South Dakota

Vice Chair, Southeast Idaho Regional TSE Committee

PALS Training Center Development, Republic of Georgia, 2014

USDOT, NHTSA, EMS Reassessment Program, Technical Assistance Team, Member, States of Oklahoma, Missouri, Ohio, Wyoming and Alaska.



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### **Organizations/Appointments**

USDOT, NHTSA, Assessment and Reassessment Programs, Technical Assistance Team, 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

## **KYLE THORNTON, EMT-P; B.U.S**

Bureau Chief  
New Mexico Department of Health, EMS Bureau

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### **ORGANIZATIONS/APPOINTMENTS**

Bureau Chief, New Mexico Department of Health EMS Bureau  
Secretary, National Association of State EMS Officials  
Member, National Registry of EMT's Board of Directors  
Member, New Mexico Joint Organization on Education  
Member, New Mexico Public Regulation Commission Ambulance Advisory  
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;  
State of Wyoming.

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### **ORGANIZATIONS/APPOINTMENTS**

Utah Bureau of EMS and Preparedness, Specialty Care and Data System Director

Utah Bureau of EMS and Preparedness, Former-Assistant Director

National Council of State Trauma, Past Chair

Systems Managers

NASEMSO liaison for the ACS Trauma System

Planning and Evaluation Executive Committee

NHTSA EMT Refresher Course Curriculum Development

HRSA Rural Trauma Grant Reviewer

Utah Public Health Association, Member

American Trauma Society, Member

Task Force Chair for Utah Trauma System Development

Air Ambulance Rules Task Force, Chair

Appointed to Governor's Council on Blood Services

State EMS Training Coordinators Council, previous member

Utah Emergency Managers Association, Member

Certified EMT-I, 1983.

ACS, State Trauma System Assessment, Team Member, States of Alaska, Minnesota, Colorado and Louisiana, Texas.

USDOT, NHTSA, EMS Reassessment Program, Technical Assistance Team, Member, States of Michigan, Oklahoma, Delaware, Missouri, Ohio, Wisconsin, Wyoming, Florida and Alaska.

IOM Crisis Standards of Care Committee, Member

Planning Committee member for the IOM Rural EMS Workshop and Panel Discussion Chair.