STATE OF OHIO

A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

February 15-17, 2011

National Highway Traffic Safety Administration Technical Assistance Team

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BACKGROUND

Injury is the leading cause of death for persons in the age group one through 44 as well as the most common cause of hospitalizations for persons under the age of 40. The financial costs of injuries are staggering: injuries cost billions of dollars in health care and social support resources. In 1995, for example, the lifetime costs of all injuries were estimated at $260 billion annually. 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 37,000 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 Ohio Department of Public Safety, Division of Emergency Medical Services (DEMS) requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the Ohio Statewide EMS program. NHTSA developed a format whereby the DEMS staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in Mt. Sterling, Ohio on February 15-17, 2011. For the first day and a half, over 20 presenters from the State of Ohio, provided in-depth briefings on EMS and trauma care, and reviewed the progress since the 2001 Reassessment. Topics for review and discussion included the following:

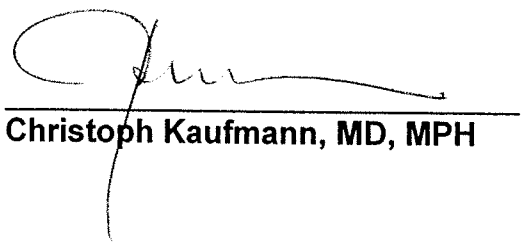
General Emergency Medical Services Overview of System Components

- 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 Ohio. The team spent considerable time with each presenter so they could review the status for each topic.

Following the briefings by presenters from the DEMS, 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.



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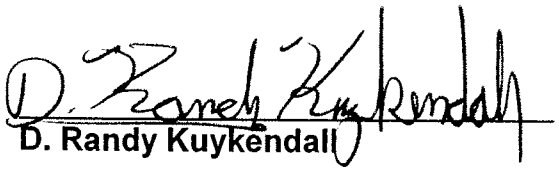

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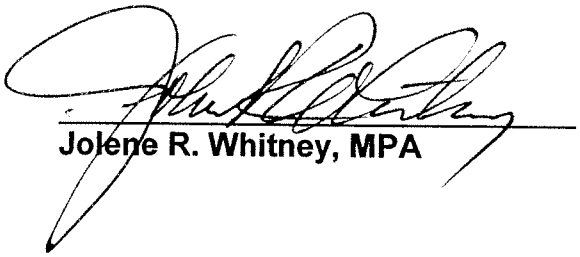

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ACKNOWLEDGMENTS

The Technical Assistance Team (TAT) would like to acknowledge the Ohio Department of Public Safety, Division of Emergency Medical Services (DEMS) for their support in conducting this assessment and the Ohio Traffic Safety Office for supporting the assessment process.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Ohio. 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 Dr. Carol Cunningham, State EMS Medical Director and Richard Rucker, Executive Director, DEMS and his staff and all the briefing participants for their extraordinary efforts and well-prepared presentations.

INTRODUCTION

As the State song suggests, "Beautiful Ohio" is a state with much to admire. Ohio is the crossroads of America. It is the home of nationally recognized institutions of higher education and healthcare. Ohio teams frequently dominate in many sports. The economy is founded on a diverse mix of agriculture, manufacturing and service industries. Ohioans reside in a blend of communities ranging from livable mid-size cities to beautiful rural countryside.

As the nation's seventh most populous state, Ohio has plenty of demand for emergency medical services. The State's 11.5 million people depend on their EMS system to respond promptly and effectively to time critical diagnoses. That system has evolved over the past forty or more years to include basic and advanced care available in all areas of the State.

Despite substantial progress, the job of building Ohio's EMS system remains far from done. The State's lead agency does not have clear uniform regulatory authority over all forms of EMS agencies and vehicles. The increased use of safety belts and corresponding decrease in revenues from fines are threatening the financial viability of the EMS system infrastructure. The State holds a rich repository of EMS and trauma care data that has not yet been fully transformed into useful information for guiding further policy development.

While there are notable gaps in the system, a great deal has been accomplished that has provided a foundation for future improvements. Partnerships exist between essential stakeholders at all levels. EMS education is well established and supporting the growth of Paramedic availability statewide. Trauma triage criteria have been implemented statewide. Post 9/11, EMS has been integrated into a number of Ohio preparedness initiatives. Wireless 9-1-1 system access has been almost fully implemented statewide. There are a variety of public information and education initiatives aimed at preparing the public to prevent injuries and take action when an emergency confronts them. The needs of children are being considered as system decisions are being made.

The next steps in Ohio's EMS system development include a focus on the fundamentals. Authorities at state, regional and local levels must be clarified. A reliable level and source of funding needs to be secured. Structural differences between the regulation of varying forms of EMS agencies must be eliminated. Priorities need to be established for verifiable trauma care.

Ohio's EMS system meets key elements of each NHTSA standard. With some careful planning, cooperation, and commitment, there is good reason to believe the State can make substantial progress towards becoming a national example of excellence. The Buckeyes deserve nothing less.

OHIO DIVISION OF EMERGENCY MEDICAL SERVICES (DEMS)

The TAT revisited the ten essential components of an optimal EMS system that were used in the Ohio*: An Assessment of Emergency Medical Services*, in 2001. These components provided an evaluation or quality assurance report based on ten standards. While examining each component, the TAT identified key EMS issues, reviewed the State's progress since the original report, assessed its status, and used the eleven 2009 Reassessment Standards as the basis for recommendations for Ohio EMS system improvement.

A. REGULATION AND POLICY

Standard

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

In 1992, responsibility for Emergency Medical Services (EMS) was moved from the Department of Education to the Department of Public Safety, creating the Division of Emergency Medical Services (DEMS). A new State Board of Emergency Medical Services (hereinafter "the EMS Board") was established to oversee emergency medical services and the certification and the training of EMS and fire service personnel in Ohio. The DEMS, in conjunction with the EMS Board, has statutory authority for the following:

- Establishing training and certification standards for fire and emergency medical services personnel;
- Fire and EMS instructor training and certification standards;
- Accreditation of EMS programs of instruction and approval of EMS continuing education programs / Chartering of firefighter and fire safety inspector programs of instruction;
- Oversight of Ohio's trauma system;
- Distribution of grants for emergency medical services organizations;
- Emergency Medical Services for Children (EMSC);
- Regional Physician Advisory Boards;
- Investigations to insure compliance with Chapter 4765 of the Ohio Revised and Administrative Codes;
- Collection and analysis of data submitted to the EMS Incident Reporting System and the Ohio Trauma Registry; and
- Preparation of a statewide emergency medical services plan and a plan for the statewide regulation of emergency medical services during periods of disaster.

The EMS Board is responsible for the promulgation of rules and regulations pertaining to EMS in Ohio. The DEMS staff serves as the administrative arm of the EMS Board. The Executive Director of the DEMS serves as the Chief Executive Officer of the EMS Board. This position reports to both the Board Chair and the Director of Public Safety. That reporting structure is not optimal in that there could be differences in policy direction between the EMS Board and the Department. Serving two masters in this way is not an ideal supervisory structure.

The EMS Board consists of 20 members mostly appointed by the Governor with Senate concurrence. These members are appointed from nominations submitted by EMS stakeholder groups and must have background or experience in emergency medical services or trauma care. EMS Board members include emergency and pediatric physicians, a trauma surgeon, nurses, educators, hospital administrators, fire chiefs and emergency medical technicians. A final member of the EMS Board is designated by the Director of the Ohio Department of Public Safety. EMS Board members serve for a three year term without compensation, but are reimbursed for their expenses. The EMS Board currently meets every other month to carry out its duties and appoints committees and subcommittees as necessary.

The primary funding source for the DEMS and the EMS Board is safety belt violation fines. Due to increase in safety belt use rates (a good thing) this revenue source is decreasing (a bad thing). An increase in fees to obtain driving abstracts was recently added to legislation. Sixty cents of each fee has been designated for the EMS and Trauma fund. The money generated through this fee has been sufficient to maintain operations however a recent challenge has been made to the collection of the fee which is concerning as it could result in a loss of the funds in the future. The net result is that the Division and the EMS Board are under resourced to fulfill their legislatively assigned

functions. The strategy Ohio has used for its funding sources makes good sense but has created instability in support due to a declining base of fines collected.

Each year the DEMS offers grant funding to eligible EMS agencies in Ohio. Since its inception, the grant program has awarded funding for training, training equipment, and patient care equipment. Over 700 EMS agencies benefit annually from Ohio EMS grant support. The Ohio Revised Code defines the priority distribution of available funds for Ohio's EMS and trauma system grant program.

> First priority is given to EMS organizations for training, purchase of equipment and vehicles, and to improve the availability, accessibility, and quality of EMS in Ohio. In this category, the Board gives priority to grants for training and equipping of EMS personnel. This is commonly called the EMS Training and Equipment Grant.
>
> Second priority is given to entities that research the causes, nature, and effect of traumatic injuries, educate the public about injury prevention, and implement, test, and evaluate injury prevention strategies. This is commonly called the Trauma System Injury Prevention Grant.
>
> Third priority is given to entities that research, test, and evaluate procedures that promote the rehabilitation, retraining, and re-employment of adult or pediatric trauma victims and social service support mechanisms for adult or pediatric trauma victims and their families. This is commonly called the Trauma Rehabilitation Grant.
>
> Fourth priority is given to entities that research, test, and evaluate medical procedures related to adult and pediatric trauma victims and their families. This is commonly called the Trauma Procedures Grant.

The EMS Board is seeking a change to the above designations to allow for a one-time allotment of funds to assist educational institutions in obtaining national accreditation.

Institutions wishing to offer training for initial First Responder or EMT certification must be accredited (approved) by the EMS Board. Programs offering continuing education must be similarly approved. In keeping with the national *EMS Education Agenda for the Future*, the Board recently voted to require Ohio's paramedic institutions to obtain national accreditation through the Committee on the Accreditation of Allied Health Education Programs, (CAAHEP) by January 1, 2018.

In the State of Ohio, there are more than 42,000 certified EMS personnel. The Division certifies these persons based upon the successful completion of an approved course of education and successful completion of National Registry of EMTs certification. The levels of certification recognized in Ohio include First Responder, EMT-Basic, EMT-Intermediate and EMT-Paramedic. Approximately 4,000 initial certifications and 10,000

certification renewals are processed annually. Certificate holders must meet continuing education requirements and renew their certification every three years.

The EMS Board and the Executive Director are statutorily required to investigate all complaints or allegations of violations involving emergency medical technicians, fire fighters, instructors, and EMS or fire training institutions. The DEMS conducts all investigations, to include, but not limited to, interviewing witnesses and subjects of investigations, collecting and interpreting data and evidence, preparing case summaries, case notes, and cases for presentation to the EMS Board and the DEMS Executive Director for conclusive findings. Additionally, the staff prepares affidavits and exhibits for hearings, drafts the subsequent adjudication orders and record of proceedings for appeals and monitors compliance with all imposed disciplinary sanctions. Over the last two years, the office has conducted over 1600 investigations. All disciplinary actions taken by the EMS Board are posted on the DEMS web site and included in the Division's newsletter.

The State of Ohio has a legislated trauma system with the purpose of ensuring that seriously injured people get to the right hospital in the right amount of time. The EMS Board, with advice from its Trauma Committee, and working through the DEMS is tasked with monitoring, coordination and facilitating the trauma system. It is not clear that the authority in statute and resources available are achieving this charge. Guidelines for the care of trauma victims and their transport to trauma facilities by EMS personnel, consistent with state trauma triage protocols adopted by the EMS Board, have been developed and distributed. The Trauma Committee is established in law and consists of 24 members which may be too large to be practical.

The EMS Board has two statewide databases, created in legislation, that provide it with information to guide decision making. The EMS Incident Reporting System (EMSIRS) collects data on all emergency runs made by EMS units in Ohio. The Ohio Trauma Registry (OTR) is a database of clinical information from all Ohio hospitals on all seriously injured people they admit. These databases are maintained and operated by the DEMS, and are used by the EMS Board to make data-based decisions. They are also used by medical researchers studying EMS and trauma care.

EMSC is a federally funded initiative designed to improve emergency care for children and ensure that the children of Ohio receive the very best emergency care the EMS system can provide. The EMS Board includes a designated position for a pediatric physician and the EMSC committee of the EMS Board serves as the advocate for pediatric issues.

The State of Ohio is divided into ten pre-hospital emergency medical services regions for the purpose of overseeing the delivery of pre-hospital emergency medical services. For each region, the EMS Board may appoint up to nine members to a Regional Physician Advisory Board (RPAB). Care is taken to ensure broad representation of the counties in the region. The RPAB may provide assistance to regional EMS

organizations in such areas as continuing education programs, equipment procurement, establishing mutual aid agreements, development of written medical protocols and in obtaining a medical director. The regions as currently configured may not be ideal. Beyond their assigned role in medical direction, it is not clear that the regions are fulfilling other functions often performed by similar organizations.

The EMS Board is charged with the preparation of a statewide emergency medical services plan and a plan for the statewide regulation of emergency medical services during periods of disaster. The DEMS maintains an active role in homeland security and disaster preparedness, representing the interests of EMS and fire personnel through participation on various committees, including the Homeland Security Advisory Council. The Division facilitates the exchange of critical information through participation in the Strategic Analysis and Information Center. The DEMS is an integral part of the state's planning and response to disasters through work with various preparedness committees and initiatives and staffing of the state EOC during times of disaster.

The EMS Board has established a Strategic Planning Committee to develop a 5-year plan for the advancement of Ohio's EMS system. All current committees of the Board have completed a S.W.O.T. analysis and submitted goals. The recommendations of this Technical Assistance Team (TAT) report will also be reviewed with the Strategic Planning Committee and incorporated into the plan.

In addition to its responsibilities for EMS, the DEMS is also the lead agency for the training and certification of fire service personnel in Ohio. There are over 42,000 firefighters certified by the state of Ohio and 10,000 certified fire safety inspectors. Until recently, fire certificates were issued without an expiration date. At the request of fire service partners, legislation was passed requiring the renewal of fire certificates. Certificate holders must now meet continuing education requirements and renew their certification every three years. Approximately 5,000 new certificates are issued annually, and over 13,000 renewals are completed each year.

Institutions wishing to offer training for initial Firefighter or Fire Safety Inspector certification must be approved by the Executive Director with the advice and counsel of the Firefighter and Fire Safety Inspector Training Committee of the EMS Board. There are currently 70 institutions approved to offer fire training and over 4000 firefighter and fire safety inspector instructors certified through the DEMS.

The Firefighter and Fire Safety Inspector Training Committee of the EMS Board is one of two committees established in law. The Executive Director of the DEMS, with the advice and counsel of the committee, is responsible for adopting standards to regulate firefighter and fire safety inspector training and the chartering of training programs. The DEMS charters institutions interested in offering fire service training programs. The DEMS is accredited by the National Board of Fire Service Professional Qualifications (Pro Board).

While the Division and the Board have significant responsibilities and appear to be doing excellent work in many areas of EMS and trauma care, they are lacking some of the fundamental capabilities that would enable them to meet the NHTSA standard. Having a separate Medical Transportation Board that regulates predominately private-for-profit EMS agencies is an anomaly. The lack of authority to submit Ohio's substantial pre-hospital database into the National EMS Information System (NEMSIS) represents a missed opportunity for both Ohio and the nation. A very limited ability to enforce requirements such as the reporting of agency medical directors is concerning in that it hampers a fundamental understanding of who is doing what within the EMS system. Similar "home rule" excuses pervaded many presentations to the TAT when there appeared to be a common understanding about why DEMS is unable to enforce requirements that are clearly the right thing for EMS patients.

Recommendations

- The DEMS and the EMS Board should complete their strategic planning process with the inclusion of recommendations from this report.
- The EMS Board should in its strategic planning process re-evaluate the current map and functions of EMS regions in Ohio to determine if there can be improvements by updating roles and aligning with the State's Homeland Security regions or other functional model.
- **The legislature should reassign the current functions, authorities and resources of the Ohio Medical Transportation Board to the DEMS as a step towards achieving a single lead EMS agency in Ohio.**
- **The EMS Board should work cooperatively with the Legislature to identify a stable and ongoing source of funding to adequately support all of the functions assigned to the EMS Board and the DEMS.**
- The Director of Public Safety and the EMS Board should clarify the supervisory hierarchy of the EMS Executive Director to establish a single point of oversight.
- The EMS Board should provide the Legislature with models that can be used as a foundation to establish comprehensive lead agency authority to improve the care of patients with trauma, stroke, STEMI and other time critical emergency conditions.
- The Division and the EMS Board should take steps as the opportunity presents in policy, legislation, regulation and other venues to move towards the use of current nomenclature for "licensure" of EMS personnel, "accreditation" in reference to national educational program accreditation rather than State program approval, titles for levels of EMS personnel levels, etc.

- **The EMS Board and the Legislature should assure that DEMS has the necessary authority to enforce existing or future statutory and rule requirements for the provision of EMS.**

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 EMS Board continues to be responsible for the promulgation of rules and regulations pertaining to Ohio EMS and the development of the EMS system. The Board is statutorily created and is authorized to promulgate rules, make disciplinary decisions and, in conjunction with the Department of Public Safety, supervise the activities of the Executive Director of the DEMS. Although this board clearly fulfills the responsibilities of an advisory committee to state government on matters of EMS and trauma, it also holds significant regulatory, enforcement and oversight authority with regard to the DEMS and system stakeholders. Since the Board is codified not only as

an advisory council, but an official body of state government, it is positioned in a pivotal leadership role to drive the development of policies and resources necessary to ensure the continued success of trauma and EMS throughout the state of Ohio.

Ohio's forty-five verified trauma centers are evidence of hospital commitment to ensuring quality care for trauma patients. Statewide trauma triage protocols with regional modifications are in place and require EMS providers to transport severely injured patients directly to verified trauma centers. The trauma registry system provides data to the DEMS and through the existence of several regional trauma registry data collection points; data are available in those areas for regionalized quality improvement efforts as well.

Ambulance staffing requirements have recently changed in Ohio and seem to be controversial in terms of ensuring timely responses to emergency calls. Due to the existing bifurcated system of ambulance service regulation, the DEMS is unable to determine the numbers and locations of ambulance service assets across the state.

The Ohio Fire Chiefs' Association's Ohio Fire Service Emergency Response System (ERS) provides local fire chiefs with easy access to large quantities of fire service resources that may be needed to respond to a major fire or natural or man-made disaster. This system provides for rapid activation and response of fire service resources in quantities beyond the means of a single fire department and local mutual aid.

The DEMS continues to work closely with Ohio's Strategic Transportation Safety Plan (STSP). Although EMS clinical data has not been used in this effort, data are available and should be considered in the continued development of the STSP.

Recommendations

- **The EMS Board and the DEMS should work cooperatively with the Legislature to identify a stable and ongoing source of funding to adequately support all of the functions assigned to the Board and the DEMS.**

- The EMS Board should redefine the EMS grants program to appropriately prioritize funding that will support system-wide development activities at the state, regional and local level with priority given to rural and underdeveloped EMS and trauma system components.

- **The EMS Board should develop and present a proposal to the Legislature to consolidate the responsibilities of the Ohio Medical Transportation Board within the DEMS.**

- The EMS Board should implement regulatory changes that will require that all ambulance services and ambulance vehicles, regardless of ownership or service provision model, are inspected and licensed by the DEMS.

- **The DEMS should develop and maintain a comprehensive database of EMS and trauma system resources that provides an accurate accounting of personnel, equipment and services throughout Ohio.**

- The DEMS should continue to support the collection, evaluation and dissemination of system resource information to local, regional, statewide and national stakeholders by improving the effectiveness of existing data collection systems.

- The EMS Board and the DEMS should evaluate the statewide availability of EMS and trauma resources to ensure that these resources are adequately matched to the evolving needs of the EMS and trauma system.

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

Training and certification has long been an area in which Ohio has had strong capabilities. Both DEMS staff and educational program presenters shared a common perspective and commitment to doing the right things for candidates. The obvious respect and support between DEMS staff and education program managers was refreshing to see and no doubt works to the ultimate best interest of EMS patients.

In the summer of 1986, legislation moved the authority for training of advanced EMTs and Paramedics out of the Board of Regents and into the Ohio Department of Education. The Office of Public Safety was established within the Vocational Education section of the Department of Education with authority to establish minimum training and certification standards for EMTs, EMS instructors and the accreditation of educational institutions.

Controversy over the use of the National Registry of EMTs (NREMT) testing as the Ohio certification examination led to the establishment of the Division of EMS within the Department of Public Safety (previously Department of Highway Safety). A new twenty member board was established with authority to create the rules and regulations for the development of EMS. Fines associated with the violation of safety belt usage laws have provided the funding for the EMS Board and DEMS as well as establishing a grant fund.

Ohio currently certifies four levels of EMS providers: First Responder, EMT-Basic, EMT-Intermediate and EMT-Paramedic. In general, Ohio has shown a steady increase in the number of certifications issued. In 1992, there were approximately 34,000 certified EMTs at all levels in Ohio. Today, there are over 42,000 EMTs. A small amount of this increase (approximately 2100) can be attributed to the addition of First Responder as a certification level beginning in late 2000. The most noticeable change has occurred at the Paramedic level jumping from approximately 6,000 certified in 1992 to over 16,000 today. The majority of personnel are still certified at the EMT-Basic level which has remained a fairly constant number over the past twenty years (approximately 24,000 in 1992 and approximately 21,500 today). The NREMT examination is used for certification at all four levels.

Although a needs assessment has not been completed, Ohio has served as a training ground for many other states. As an example, Tennessee reported approximately 75% of the 150 new paramedics hired at a department that went from volunteer to paid status came from Ohio. The EMS agencies who lost personnel, in most cases easily found others to take their place. Rural areas with volunteers were reported to be having more trouble recruiting and retaining personnel. Some volunteer agencies report using their grant money to pay for personnel to complete additional training only to have those personnel move to the urban and metropolitan areas in search of jobs once their training is complete. To assist the rural volunteer agencies, a Recruitment and Retention Committee was established and a section of the DEMS web site has been

established to provide resources and information to those needing assistance. Data about the adequacy of EMS staffing across Ohio is not consistently evaluated to assure that community needs are being met.

Institutions wishing to offer training for initial First Responder or EMT certification must be State accredited by the EMS Board. The term "accreditation" in Ohio refers to the State's approval process for educational programs and is not consistent with the national terminology for non-governmental, independent, national accreditation by CAAHEP. In keeping with the national *EMS Education Agenda for the Future*, the Board recently voted to require Ohio's paramedic institutions to obtain national accreditation through CAAHEP by January 1, 2018. The cost of obtaining national accreditation has been cited as a barrier.

There are currently 93 institutions approved to offer EMS training, which include colleges and universities, vocational schools, hospitals, EMS organizations and fire departments. Only five of the 51 institutions approved for Paramedic training currently hold CAAHEP accreditation. Ohio's state "accreditation" approval process for all levels closely mirrors the national accreditation standards. The DEMS is currently in the process of developing an on-line application process for initial and renewal program approvals that will include annual reporting. On-site reviews and audits will continue to be completed as in the past, but the on-line reporting will make it easier to monitor programs between reviews.

Recent changes in Ohio law permits the DEMS to issue program approvals for a period of up to five years, but most are issued for three. Provisional State accreditation may also be issued to programs that fail to meet the standards established by the Board. Rules are in place to permit the provision of didactic portions of the initial certification courses through distance learning. Although not yet being utilized by most programs, this is intended to provide an opportunity for those candidates with limited access to training or those facing scheduling problems to have more access to quality education.

The Ohio curriculum at each level is currently under review to bring it in line with the National EMS Educational Standards as a minimum. Ohio's scope of practice will remain at or above the *National EMS Scope of Practice Model*, including the use of supraglottic airways by EMT-Basics in the pulseless and apneic patient and endotracheal intubation of apneic patients at the EMT-Intermediate level.

There are over 500 institutions which have been awarded a Certificate of Approval by the EMS Board to offer continuing education to currently certified EMS personnel. Certificates of Approval may be issued for up to five years but are generally renewed every three years. The renewal process includes an on-site review of facilities, equipment and records along with interviews of key program personnel. An on-line application process is being developed for the continuing education sites as well.

All instructors for initial and continuing education must hold a certificate to teach issued

by the EMS Board. There are currently over 3600 EMS, Assistant EMS and Continuing Education instructors certified through the DEMS. To become an EMS instructor, an individual must have at least five years experience, pass a knowledge exam and skills exam at their level of certification and complete a seventy-hour course of instruction, including supervised teaching. Renewal requirements include instructional continuing education and active teaching.

A physician serving as a medical director of an EMS agency may apply to become an EMS instructor. Requirements for training and testing are waived for these individuals. This was done to encourage physician involvement in the educational processes.

To qualify for Ohio EMS certification, EMS personnel are required to successfully complete an approved course of instruction and pass the state-specified NREMT examinations. Ohio's curricula meet, and in some cases exceed, the National Education Standards.

Recommendations

The DEMS and the EMS Board should:

- Conduct a formal needs assessment of the numbers, levels, and placements of EMS personnel required for optimal system performance as part of the current focus on recruitment and retention.

- **Reform the current Ohio "accreditation" process into a State approval process that works in conjunction with the nationally recognized EMS education program accreditation to assure Ohio students continue to get the best possible educational preparation.**

- **Assure that after January 1, 2013, graduates of non-CAAHEP accredited paramedic education programs understand their eligibility for Ohio certification but not national certification through the NREMT.**

- Continue to implement the *EMS Education Agenda for the Future* including the *National EMS Scope of Practice Model* as a foundation for the Ohio authorized EMS scope of practice, National EMS Education Standards, national certification and national EMS education program accreditation.

- Assess and report the outcome evaluations of all levels of EMS education programs.

- Support the initial cost of paramedic program accreditation with EMS grant funds.

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

The DEMS, as the state lead agency, does not license or inspect all EMS organizations operating ambulances within the state. Only private-for-profit EMS organizations are required to be licensed. Licensing for these organizations is accomplished by the Ohio Medical Transportation Board, which operates independently from the DEMS and EMS Board. However, the DEMS also has authority to "prepare for the operations of EMS" which may include determining equipment and supplies, minimum ambulance staffing and needed communications. There appears to be some confusion and duplication of

effort by having two boards regulate the provision of emergency medical services within Ohio.

Annually, the OMTB licenses 443 EMS organizations, 133 MICU's and conducts inspections on 3200 vehicles. Seventy percent of the ambulance services in Ohio are fire based and are not state regulated. There are 15 licensed air ambulance services, with 57 helicopters located throughout the state. There is no certificate of need for establishing the necessity for an air ambulance or the vehicle locations. It was reported that there is no central dispatch for air ambulance, no standardized activation guidelines and no other accreditation required (such as CAAMTS).

To this day, the DEMS does not have the ability to monitor and assess the number of EMS organizations and vehicles, or the level of care provided by every EMS organization in the state. This greatly impacts their ability to assess the number of resources, utilization, and appropriate use of resources for routine patient care, let alone the needs of a region in the event of a disaster.

With regard to ambulance staffing, a 2008 legislative amendment brought about a modification to the minimum staffing requirements. The minimal level of staffing is now one First Responder and one EMT. Historically, the minimum level of staffing has been two EMTs. The statutory change now requires both personnel to respond in the ambulance when dispatched. This change created a burden for rural providers who would previously ensure minimum staffing of two EMT's, with one EMT arriving at the scene.

The DEMS has no regulations for ambulance drivers. However, the Transportation Board requires the non-EMT drivers to be EVOC trained. Emergency vehicle operations courses are provided within the state.

Recommendations

- The Legislature should merge the functions of the OMTB within the DEMS to create efficiencies, reduce duplication and confusion to the public and EMS providers.
- **The Legislature should establish authority for DEMS to require all EMS agencies operating ambulances within Ohio to be licensed and inspected regularly.**
- **The Legislature should authorize DEMS to establish regulations for all ground and air ambulances operating within the state to ensure standardization of equipment, staffing and communications statewide.**
- With stakeholder input, the Board of EMS and Department of Public Safety should establish a graduated fee schedule for EMS organization licensure and ambulance permits.

- The Legislature should restore the minimum staffing requirement for ambulances to be two EMT's.

- The EMS Board should establish rules that require all ambulance drivers to be trained in emergency vehicle operations.

- **The EMS Board should utilize the Air Ambulance Committee and the RPABs to establish a statewide standardized air medical activation guideline.**

E. FACILITIES

Standard

It is imperative that the seriously injured (or ill) patient be delivered in a timely manner to the closest appropriate facility. Each State should ensure that:

- Both stabilization and definitive care needs of the patient are considered;
- There is a statewide and medically accountable regional system, including protocols and medical direction, for the transport of patients to state-designated specialty care centers;
- There is state designation of specialty medical facilities (e.g. trauma, burns, pediatric, cardiac) and that the designation is free of non-medical considerations and the designations of the facilities are clearly understood by medical direction and prehospital personnel;
- Hospital resource capabilities (facility designation), including ability to stabilize and manage pediatric emergencies, are known in advance, so that appropriate primary and secondary transport decisions can be made by the EMS providers and medical direction;
- Agreements are made between facilities to ensure that patients, including pediatric patients, receive treatment at the closest, most appropriate facility, including facilities in other states or counties;
- Hospital diversion policies are developed and utilized to match system resources with patient needs – standards are clearly identified for placing a facility on bypass or diverting an ambulance to appropriate facilities.

Status

There are 181 hospitals in the state of Ohio with 33,860 beds. Only 45 of these are verified trauma centers at any level. These include fourteen Level I trauma centers, thirteen Level II trauma centers, and eighteen Level III trauma centers. Included in these numbers are three Level I and three Level II pediatric-specific trauma centers. Additionally, there are nine burn centers in Ohio including the nationally recognized Shriners' Hospitals for Children in Cincinnati.

As Ohio currently uses the American College of Surgeons (ACS) verification process

exclusively and the ACS only verifies Levels I through III, the State of Ohio has neither criteria for nor verification of Level IV or V trauma centers. However, it should be noted that the verification of trauma centers within the state is entirely voluntary. It is quite impressive that 45 hospitals have elected to undergo the ACS verification process (every three years) and participate in the state trauma system without financial incentives.

Many states have developed statewide funds for uncompensated trauma care that serve, in part, to offset the expense incurred with maintaining an adequate and available hospital staff to respond to the myriad needs of injured patients in a timely fashion. Such a fund may also serve to facilitate completion of an inclusive trauma system in Ohio, with all hospitals participating in the system at a level commensurate with their abilities. Other states have used a variety of sources for these funds, including: vehicle licensing, seatbelt fines, moving violation/DUI fines, tobacco taxes, etc. Some of these statewide trauma center funds are established in a manner that qualifies the state for federal Medicaid matching funds.

Statewide trauma triage protocols, which are routinely modified as needed, require EMS providers to transport severely injured patients directly to verified trauma centers. Five circumstances are outlined in law that permits transport to non-trauma centers. Acute care hospitals are required to have protocols that address the emergency care of trauma patients and their appropriate transfer to a trauma center. Trauma centers are required to have transfer agreements with acute care facilities to ensure continuity of care and the appropriate transfer of trauma patients.

Although there has been no statewide survey of hospital capabilities, this has been accomplished at the local level in many areas of the state. The Region I RPAB (SW Ohio) has completed surveys of the hospitals in the region for the past two years. The reported capabilities are provided to local medical directors and EMS agencies to assist in transport decision-making. The Central Ohio Trauma System (COTS) also maintains Franklin County and Central Ohio Hospital Resource Guides for EMS providers.

While currently not as mature as the trauma system, systems of care for other time critical diagnoses are being developed in Ohio. Individual hospitals have begun the effort to improve care of patients with stroke and STEMI through voluntary accreditation as stroke or cardiac centers. Successful implementation of these systems of care will require additional support not only from local EMS agencies, but also from the DEMS. The number of these efforts can be expected to rapidly increase as the State works to provide timely care and for all citizens for all time critical diagnoses.

Ohio EMSC, housed within the DEMS at the Ohio Department of Public Safety, was created to incorporate children's issues into all aspects of the EMS system. Ohio has received funding consistently since 1987 for the EMSC Program. Although the early EMSC Program focused on injury prevention activities, the release of EMSC Performance Measures by the Health Resources and Services Administration in 2005

changed the focus to pediatric emergency care. These measures include inter-facility transfer guidelines and agreements.

Recommendations

The Legislature should:

- Create a trauma fund to partially compensate all verified trauma centers for unreimbursed care provided to trauma patients.

- **Pass legislation that includes criteria for verification of Level IV, and possibly Level V trauma centers in order to support completion of an inclusive trauma system for the citizens of Ohio.**
    - **This legislation should also include provisions for designation and de-designation of trauma centers.**
    - **This legislation should also mandate reporting of all trauma-specific data to the Ohio State Trauma Acute Care Registry or link trauma data reporting to receiving uncompensated care financial offsets.**

The DEMS should:

- Utilize data to review, modify, and monitor state and regional use of Ohio trauma triage guidelines, including over triage and under triage rates.

- Enhance current efforts to provide for the specialized triage and emergency care needs of children and the elderly.

- **Continue to systematize the care of patients with stroke, STEMI and other time critical diagnoses.**

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

Status

The Governor established a task force that oversees the State Interoperability Executive Committee (SIEC). The Public Safety Director links the task force with the SIEC which provides guidance and strategic direction to the emergency responders for reliable wireless communications interoperability.

A county-by-county communications capability assessment was completed in 2005. This created a database of equipment and frequencies for each county and support agency. It also established multi-disciplinary capabilities for an interoperable communications system.

The Ohio Office of Information Technology implemented the Multi-Agency Radio Communications Systems (MARCS), an 800 MHz radio system that provides effective communications throughout Ohio. The system is used by all state agencies, sheriff dispatch centers, county emergency management, many EMS providers, hospitals and health departments. The Ohio Emergency Management Agency has a remote deployable site called a Transportable Communications System (TCS) which can be used to patch UHF, VHF and redundancy for the 800 MHz system.

Currently, enhanced wireline 9-1-1 service is provided statewide (88 counties) and enhanced wireless 9-1-1 service is provided in 84 counties. As of December 2010, Phase I automatic number identification has been implemented in four counties. Phase II which includes automatic number and location identification has been implemented in 78 counties. Legislation supporting funding for further development of the 9-1-1 system is due to sunset by December 31, 2012. This is an area of concern as these funds could be utilized by counties to support emergency medical dispatch (EMD) training for centers with wireless 9-1-1.

There appears to be no clear authority for emergency medical dispatch training or requirements. However, the State Board of Education has an emergency service telecommunicator training program which is offered at vocational centers throughout the state. The 40 hour course is offered 8 times a year and the tuition covered for employees of emergency medical service providers from a fund created by law. However, very little funding has actually been realized.

Dispatch centers in Ohio vary from sophisticated to minimally staffed in rural areas. There are neither Emergency Medical Dispatch Center standards nor standards for personnel who routinely dispatch emergency medical services.

Recommendations

- **The EMS Board should seek authority to develop dispatch center and emergency medical dispatcher certification standards.**

- The EMS Board should create a dispatch subcommittee to establish medical priority dispatching standards and emergency medical dispatcher certification standards.

- **The DEMS should encourage standardized EMD training for dispatchers supported by wireless 9-1-1 funds to counties and/or the EMS grants program.**

- The Ohio Emergency Management Agency with the Department of Public Safety should conduct regular assessments for ambulances, hospitals and dispatch centers within the emergency healthcare system to ensure routine and redundant communications systems are sufficient and interoperable.

- The EMS Board and stakeholders should create a central dispatch center for air medical services with flight-following and the ability to track resources and availability of aircraft.

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 Ohio Injury Prevention Partnership (OIPP) is the CDC's Injury Community Planning Group (ICPG) for Ohio. The OIPP is a statewide group of professionals representing a broad range of agencies, organizations and disciplines concerned with building Ohio's capacity to address the prevention of injury. There is a very close relationship between OIPP and the DEMS. They have been a participating member of the OIPP since its inception in 2009 and currently serve in a leadership position.

The President of OIPP serves as the injury prevention liaison to the EMS Board's Trauma Committee. Because of its wide array of available expertise, OIPP was selected as the primary author of the injury prevention section of *A Framework for Improving Ohio's Trauma System*. The first plan of action identified in the injury prevention section of the document is to develop a statewide injury prevention plan on high priority injuries. They also identified a strategy within the plan to support public health policies designed to advance injury and violence prevention.

Annually, the DEMS offers grant funding to eligible EMS agencies statewide. These grants are categorized into four priorities. The second priority is commonly called the "Trauma System Injury Prevention Grant" and is awarded to entities that research the cause, nature, and effect of traumatic injuries, educate the public about injury prevention, or implement, test, and evaluate injury prevention strategies. Since 2003-2004, the DEMS has awarded over $2.2 million in this category.

The EMS for Children's program resides within the DEMS. The coordinator has been active with injury prevention programs though recent efforts have been focused on meeting national performance measures associated with the grant funding. The Safe Kids Ohio is currently located in the DEMS and is managed by the EMSC coordinator. Ohio provides administrative assistance and fiscal oversight for the 15 coalitions and 6 local chapters, and coordinates their monthly phone meetings. The EMSC coordinator also serves on the OIPP and plans to become more involved with the organization.

The DEMS has a designated liaison from the Department of Public Safety Public Information Office. The liaison handles all media inquiries and information releases pertaining to EMS initiatives and also assists the DEMS with postings to its web site and publication of a newsletter – *The Siren*. The PIO is very active in marketing campaigns and collaborates with the State Office of Traffic Safety (SOTS) on many initiatives The SOTS was instrumental in providing funds to support this NHTSA assessment.

The Department of Public Safety provides numerous printed safety materials and safety videos to the public, free of charge. This includes information related to such topics as bicycle safety, pedestrian safety, teen drinking and driving, and vehicle occupant safety. Several PSA campaigns have been provided to the public with a focus on CPR training, toy safety and child passenger safety.

Every year, the DEMS supports activities associated with EMS week and provides recognition to outstanding EMS personnel. The materials developed for EMS week have been recognized by the ACEP at the national level. They also conduct activities related to other national recognition programs like Trauma month.

Most P.I. & E. activities are conducted at the local level. The DEMS has had limited involvement in educating the public in regards to accessing EMS or in the provision of bystander care.

Recommendations

- The DEMS should seek funding from the Office of Traffic Safety or the Office of Rural Health to support a train-the-trainer course for a bystander care program;

- **The DEMS should seek opportunities to collaborate with the Ohio Department of Health on data linkages and injury prevention priorities;**

- The DEMS should require recipients of EMS grant funds to submit information regarding the effectiveness of their injury prevention programs;

- The DEMS should utilize existing databases to assess injury prevention needs and to focus educational efforts to the public and EMS providers;

- The DEMS should utilize social networks like Twitter and Facebook, to educate the public regarding preparedness, injury prevention and other aspects of the EMS and trauma system.

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;
- On-line 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

The State EMS Medical Director is a contract position designated in Ohio law and must be a board-certified emergency medicine physician in active practice and actively involved in EMS for at least 5 years. The Medical Director directs the Executive Director of the Division of EMS and advises the EMS Board with regard to trauma and EMS issues. The State EMS Medical Director however, has limited authority in regards to agency medical directors and has limited involvement with air medical transport within the state.

The State EMS Medical Director for the past several years provides many hours of service beyond what her contract provides and is recognized at a national level for her contributions.

Each EMS region has appointed a Regional Physician Advisory Board (RPAB) that serves in an advisory capacity to the EMS agencies in their region. Each physician on the RPAB serves a 3 year term and is selected to ensure geographic representation within the region. The RPABs meet 4 times a year.

The RPAB advisory role includes the development and recommendation of patient treatment protocols including approving state trauma triage rules, assisting in

developing EMS continuing education programs, assisting in the organization, evaluation, and procurement of equipment for EMS organizations, and facilitating agreements for mutual aid and assistance between EMS organizations in the region. The RPAB also serves as a resource to maintain agency medical director contacts as well as help identify issues and solutions that affect the provision of medical care to patients. The RPAB cannot however serve as a "regional medical direction" board because of liability concerns. The RPAB's mission is mostly trauma focused.

Region 6 has not had an active RPAB in several years. This seems to be due to its rural nature, the large size of the region and the lack of a true regional referral center within the region. A new chairman has recently been appointed and attempts to revitalize the RPAB are underway.

The Chairs of the RPABs meet quarterly with the State Medical Director and contribute to the development of the State of Ohio EMS Guidelines and Procedures Manual.

The Medical Oversight Committee of the EMS Board is composed of physicians and providers and recommends scope of practice changes based upon evidence-based best practices when available.

Each EMS agency is required to have a medical director and notify the DEMS regarding the name of that individual. The medical director must be board-certified or board-eligible in emergency medicine, be actively involved in emergency care of patients, and actively participate in quality improvement activities, education and protocol development and updates. For agencies without a board-certified or board-eligible emergency medicine physician, the medical director must meet all other requirements as well as complete a medical director education course as approved by the state. This includes the NAEMSP Medical Director Course or the Ohio ACEP course which is available on-line. However, there is no mechanism in place to track completion of these courses unless a physician submits a request for CME.

Currently, the DEMS does not have an accurate database of medical directors as there is no mechanism to enforce the agency notification requirement. While physicians must register as a medical director with the Board of Pharmacy, there is no such registration requirement for the DEMS.

The agency medical director is required to establish patient treatment protocols and can use the state guidelines as a resource. The medical director can restrict a provider's scope of practice but cannot expand beyond the state adopted scope of practice for each licensure level.

Medical directors have a level of protection from civil liability related to acts and omissions except in cases of willful and wanton misconduct. There is no administrative liability protection in statute however.

Recommendations

- **The DEMS and Legislature should expand the role of RPAB from an advisory role to an authoritative role under direction of the EMS Board and the State Medical Director.**

- **The Legislature should extend the existing medical director liability protection to the RPABs to enable the provision of regional medical direction.**

- The DEMS should redefine EMS regions to better align regions with Homeland Security Planning Regions and reduce geographic size to increase RPAB activities.

- **The DEMS should expand RPABs' mission from that of trauma to all time-critical diagnoses and require development of regional triage criteria for STEMI, stroke, post-cardiac arrest, and pediatrics.**

- The Legislature should provide limited immunity for administrative liability of medical directors.

- The EMS Board and the DEMS should develop and require medical director certification for all agency medical directors and develop a statewide database to ensure compliance with minimum standards and increase medical director communication.

- The DEMS should require verification of medical director registration for all EMS agencies.

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

Ohio, the seventh most populous state, faces most of the trauma system development challenges represented by all states; there exist challenges of population density disparity, funding, geography, "home rule" politics, lack of a state trauma plan, cross-border issues, EMS and air medical inconsistency across the state. Trauma system development has been ongoing in Ohio for over three decades. An initial focus on the development of prehospital emergency medical service capacity has evolved to a view that encompasses a desire to achieve comprehensive and integrated EMS and trauma systems. Despite the appropriate breadth of this view and many successes, there remain many opportunities for improvement

In the 1980's, Ohio hospitals were included in a voluntary, loosely coordinated trauma system: larger urban hospitals self-identified as regional trauma centers. There was no formal verification of trauma care among hospitals. In July 2000, legislation was passed that established a mandated statewide trauma system, created a statewide trauma committee (the Ohio Trauma Committee), defined "trauma victim", and set official verification standards for trauma centers. One of the recognized shortcomings of the current Ohio trauma system is that it is "exclusive"; it focuses exclusively on the severely injured patient rather than all injured patients and is centered exclusively on

hospitals verified by the ACS as trauma centers rather than all hospitals who may receive injured patients. The state trauma registry only collects data on those trauma patients admitted to a hospital for at least 48 hours, are transferred, or who die. A true inclusive trauma system would concern itself with all injured patients seeking hospital care within the state.

It is not known whether the non-participating hospitals (non trauma centers) do submit all required data to the Ohio Trauma Acute Care Registry. These facilities are to report trauma patient data, as do the verified trauma centers. The difficulty is that these facilities are also expected to transfer all trauma patients at risk of complication or death. This is a "Catch 22" in which small hospitals are expected to submit reports voluntarily that may bring their care into question at the State level. For this reason and many others, it will be beneficial to the victims of injury in Ohio to add Level IV trauma centers and perhaps Level V trauma centers also. Periodic visits by the State would be expected to improve trauma care simply through the hospital site visit process.

A trauma rehabilitation registry, the first of its kind in the nation, was established as a module of the Ohio Trauma Registry in 2005. This registry was developed to track and understand longer-term outcomes of trauma victims. To date, the data captured in this registry have not been linked to acute care data in such a way that meaningful analyses have been forthcoming. Statewide trauma triage protocols have been developed that require EMS providers to transport severely injured patients directly to verified trauma centers with a few exceptions. Acute care hospitals are required to have protocols that address the emergency care of trauma patients and their appropriate transfer to a trauma center. Trauma centers are to have transfer agreements with acute care facilities to ensure continuity of care and the appropriate transfer of trauma patients. The presence and consistency of these various protocols and agreements across the many hospitals in Ohio is not tracked. Verifying that these protocols and agreements exist and are appropriately written is an important body of work yet to be accomplished.

Despite its limitations (functioning as an advisory group) the Ohio Trauma Committee has had numerous successes. The Trauma Committee is charged with assisting the State Board of EMS in the development of a variety of trauma system elements including prehospital triage of patients to trauma centers, restrictions on admission of trauma patients by non-trauma centers; and oversight of EMS quality of care and provider education. The advisory nature and large size of the 22-member (plus three liaison members) Ohio Trauma Committee limits its potential.

Only a lead agency that monitors patient care and transfer, has designation and de-designation authority over trauma centers, and has approval authority for triage protocols can be expected to successfully implement a comprehensive and integrated inclusive trauma system. Similarly, the trauma lead agency needs to be properly positioned and structured within the DEMS in order to be successful and achieve its potential. The work of the trauma office is large and requires adequate FTE resources. This work includes (but is not limited to): Level IV (and Level V) trauma center

verification, designation and de-designation of trauma centers, ensuring data collection from all trauma centers throughout the state, managing the Ohio Trauma Acute Care Registry, updating and approving regional trauma triage guidelines, ensuring seamless transfer of trauma patients through the trauma system (including special populations such as pediatric, elderly, and burns), ensuring adequate and appropriate use of rehabilitation resources, and developing agreements for trauma patient repatriation to neighboring states.

The forty-five verified trauma centers in Ohio are self-selected and undergo voluntary verification by the American College of Surgeons. There was no state needs assessment to determine the optimal level, number, and location of trauma centers; neither is there a state designation process. As such, the Level I and II trauma centers are in population centers, while the Level III trauma centers are more rural in location. This non-ideal geographic distribution leaves nearly 4% of the Ohio population more than one hour away from definitive care at a Level I or II trauma center, whether by ground or air transport (American Trauma Society TIEP data, 2009). Regions with "gaps" in their ability to provide timely trauma care need state involvement and assistance to solve the access problems these underserved areas represent. Addition of a State Trauma Medical Director would be expected to solve problems such as these and facilitate implementation of the Ohio Trauma Plan.

In 2008, the Ohio Trauma Committee convened to evaluate the strengths and weaknesses of the current system. A general assessment was conducted utilizing the *Model Trauma Systems Planning and Evaluation* document created by HRSA. In 2009, a workgroup was formed by the Ohio Trauma Committee to develop a strategic plan for Ohio's trauma system based on the results of the system assessment. In October 2010, the EMS Board approved *A Framework for Improving Ohio's Trauma System.* The "Trauma Visionary Committee," including members of the Trauma Committee and the EMS Board, has been tasked with developing the Ohio Trauma Plan. Implementation challenges will follow Trauma Plan development. The membership of this new workgroup appears conducive to successful inclusive trauma system development.

Finally, as Ohio looks to improve disaster preparedness, the broad distribution of trauma centers throughout the State makes an excellent foundation for medical plans for disasters, either manmade or natural. Similarly, as homeland defense planning efforts mature, the "hub and spoke" trauma system model should not be overlooked as the base on which patient and medication distribution strategies can be built.

Recommendations

The Legislature should:

- **Modify existing trauma system legislation to establish criteria for and develop an inclusive trauma system for Ohio.**
    - **Develop Ohio criteria for verification of Level IV (and consider Level V) trauma centers (even if the American College of Surgeons has not/will not).**
- **Create and fund the position of State Trauma Medical Director.**

The DEMS should:

- **Complete and implement the Ohio Trauma Plan based on the preliminary document, "*A Framework for Improving Ohio's Trauma System.*"**
    - **Formalize the Trauma Visionary Committee as a permanent adjunct to the trauma program.**
    - **Provide adequate support for current and future work of the Trauma Visionary Committee in developing and implementing the Ohio Trauma Plan.**
- **Provide additional FTE's for the DEMS to be able to manage the trauma program.**
- Overcome apparent obstacles to full use of trauma system data to support statewide and national quality assurance and prevention efforts and to support future trauma system maturation.
    - Develop strategies to ensure trauma patient data is submitted from all Ohio hospitals to the Ohio Trauma Acute Care Registry.
    - Work with the Ohio Attorney General to be authorized to publish statewide aggregate trauma and EMS data and submit statewide aggregate data to the National Trauma Data Bank and NEMSIS.
    - Develop and implement an evidence-based injury prevention and control plan integrated with interested agencies.
- Appoint a State Trauma Medical Director.
    - Ideally, this should be a trauma/critical care surgeon (of at least 0.25 FTE)

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

The Division of EMS requires all EMS patient encounters be reported to the EMS Incident Reporting System (EMSIRS) by the transporting agency. This system was built by the state and is transitioning to NEMSIS V2 compliance. The state has provided grants to EMS agencies to help facilitate the access to EMSIRS and simplify data submission. The EMSIRS is compatible with commercial PCR programs through a batch file and FTP transfer.

Currently, there is no mechanism to monitor compliance with the data submission requirement nor is there provision for enforcement but the DEMS reports around 85% of all patient encounters are submitted. However, these submissions are from ground transport agencies and may not necessarily reflect care provided by first responder agencies or air medical services. Agency data submission is tied to state EMS grant eligibility. Ohio does not submit to the national EMS database (NEMSIS) over concern of an Ohio law addressing release of medical information that tends to reveal patient identity. The DEMS has published annual benchmark reports including regionalized breakdowns of incident time intervals and procedure success rates.

The Trauma Registry (TR) is used to compile all trauma related admissions greater than 48 hours, trauma deaths, and trauma transfers from hospital to hospital. It is currently being upgraded to be National Trauma Data Standard (NTDS) compliant. The Ohio Office of Traffic Safety has provided $350,000 in Section 408 grant funding to facilitate the upgrade of this registry.

The Division of EMS participates in the Ohio Traffic Records Coordination Committee. This committee's focus is on the collection and analysis of traffic safety data to reduce crash-related deaths and injuries. The upgrade of both the TR and EMSIRS will allow high-quality data submissions into Ohio's Crash Outcome Data Evaluation System (CODES) program.

Several EMS agencies have utilized information from both of these databases for system enhancements and research projects. Several papers have been published by outside researchers including in peer-reviewed medical journals.

The use of these databases by the DEMS and the EMS Board has been limited mainly due to the lack of personnel to analyze the data. When benchmarked against other states, the DEMS lacks the human resources to optimally analyze the acquired data.

The EMS Board requires each EMS agency to implement a peer-review and quality assurance program. This program is focused on improving the ability to provide effective trauma care and takes into account the trauma care guidelines developed by the board. This peer-review and QA process is protected from discovery for liability purposes.

Recommendations

- **The DEMS should require all hospitals to submit trauma registry data for all trauma admissions, deaths and transfers.**

- The Department of Public Safety should provide funding for additional staff for increased analysis of database data.

- **The DEMS should seek clarification of law in order to submit EMSIRS data to the national EMS database (NEMSIS) and trauma registry data to the NTDB.**

- The DEMS should increase analysis of database information to drive EMS and trauma system design and policies including patient destination criteria and appropriate use of air medical resources.

- The DEMS should resolve the confidentiality issues which currently restrict access to de-identified data for public purposes.

- The DEMS should use the EMSIRS and TR data to regularly provide reports to hospitals and EMS providers.

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

Statutorily, the roles of the EMS Board and the DEMS in domestic preparedness are defined in Ohio Revised Code (ORC).The ORC requires the EMS Board to provide a liaison to the Ohio Emergency Operations Center (EOC) when there is a disaster that warrants a Governor's emergency declaration. This requirement is being met through the DEMS participation at the state Emergency Operations Center (EOC). The EMS Board is required to establish a statewide emergency medical services plan, and a plan for the regulation of EMS during periods of disaster. The latter must be consistent with the statewide plan and the State EOP, and must be sent to the Ohio Emergency Management Agency (EMA).

Although the statutory responsibilities and authority of the EMS Board and the DEMS are somewhat limited concerning domestic preparedness, both the EMS Board and DEMS work to ensure that the needs of the EMS community related to preparedness are met. The Ohio Emergency Management Agency and Ohio Homeland Security are also divisions of the Department of Public Safety. As components of the same department, cooperation between the agencies is enhanced. The DEMS provides staff support through its Homeland Security Coordinator. The lack of authority to regulate EMS agencies inhibits the DEMS's ability to adequately identify and track resources, thus being a barrier in terms of planning for mass casualty events.

The DEMS works with the Ohio Department of Health (ODH) in developing protocols and training to deploy both EMS and hospital based CHEMPACKS. In partnership with ODH, the EMS Board and DEMS completed the deployment of regional equipment caches, as well as supporting a training capacity expansion project. Funding for EMS agencies to purchase radios compatible with the Multi Agency Radio Communications System (MARCS) was authorized by the EMS Board.

In 2009, the DEMS and the EMS Board worked with the ODH to address the H1N1 influenza outbreak. As a result of the declared public health emergency, certified EMT-Intermediate and EMT-Paramedic personnel were made available to local public health officials to perform H1N1 immunizations under physician direction.

In order to meet the requirements of the ORC, the EMS Board adopted the Ohio Fire Chiefs' Association's Ohio Fire Service Emergency Response System (ERS) as Ohio's plan. The ERS provides local fire chiefs with easy access to large quantities of fire service resources that may be needed to respond to a major fire or natural or man-made disaster. This system provides for rapid activation and response of fire service resources in quantities beyond the means of a single fire department and local mutual aid.

The ERS is a database of typed resources maintained and updated regularly by regional coordinators. Activation of the plan is through the Ohio Central Dispatch Facility, and in time of disaster is coordinated through the State Emergency Operations Center. The system includes validation of all necessary mutual aid and emergency management assistance compact documentation. The success of this plan has been validated through actual uses, and exercises. Although this system is predominately centered around fire service resources, non-fire based agencies may choose to participate.

Recommendations

- **The EMS Board and the DEMS should require the use of a statewide patient tracking system by all ambulances during a multiple casualty or mass casualty incident.**

- The EMS Board and the DEMS should develop a comprehensive data base of EMS resources to be utilized during multiple casualty or mass casualty incident.

- **The DEMS should work closely with the ODH to support the continued development of hospital preparedness planning and effective use of HPP and other grant funds targeted to increase medical facility surge capabilities.**

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
Trauma Systems Consultation Committee (reviewer NC, CT, HI, Team leader AZ, TN, IN, TX)
Member and Lead Reviewer, Trauma Center Verification & Review Committee (VRC)
Region Chief, Military Region 1999-2002
Trauma Center State 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, 3rd US Revision, Editorial Board
American Board of Surgery, Associate Examiner
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
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-
Division of Trauma and Combat Surgery, Chief
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-present
Journal of Trauma, Senior Reviewer
Program Committee, Medicine Meets Virtual Reality, 2000-2003
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
USDOT, NHTSA EMS Reassessment Program, Technical Assistance Team, Member,
States of Mississippi, North Dakota, and Missouri.

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ORGANIZATIONS/APPOINTMENTS

Colorado Emergency Medical and Trauma Services Section, Colorado Department of Public Health and Environment, Chief
National Association of State EMS Officials (NASEMSO), President, 2010 – Present.
Committee on the Accreditation of Education Programs for the EMS Professions (CoAEMSP) 2006-2010, Past Chairman
Pueblo Community College, Department Chairman
State of New Mexico Emergency Medical Services Bureau, State EMS Training Coordinator/EMS Program Operations Manager
National Council of State EMS Training Coordinators, Inc., Chairman
US Department of Transportation, Paramedic Curriculum (1986) Leadership and Development Committee
Injury Prevention Program for EMS Providers, Leadership and Development Committees
States of Colorado and New Mexico, Legislative Policy Development and Implementation
Colorado and New Mexico Statewide EMS Advisory Councils
Colorado statewide EMS and Trauma Advisory Council, Executive Secretary
New Mexico EMS Statewide Advisory Committee, Former Vice Chairman
Emergency Medical Technician and Paramedic, Las Cruces, New Mexico
1990- New Mexico Governor's Award
1998-Colorado EMS Instructor of the Year
2006-Colorado EMS Association President's Award
USDOT, NHTSA EMS Assessment Program, Technical Assistance Team, Member, Puerto Rico.

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ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors
Past President
Past Treasurer
New England Council for EMS
Past President
Executive Committee
EMS Agenda for the Future, Co-Chair
EMS Education Agenda For The Future, National Implementation Team, Chair
FLEX Program, National Resource Center, Board Member
EMS Agenda for the Future Implementation Guide Committee Member
Vermont State Firefighters Association
National Registry of EMTs, Board Member
Essex Rescue, EMT-I Captain
Health Care Finance Administration Negotiated Rule Making, NASEMSO, Committee Member
National Scope of Practice Model Project – Principal Investigator
American College of Surgeons – Trauma System Assessment Team Member
EMSC Grant Review Team Member
USDOT, NHTSA EMS Assessment Program, Technical Assistance Team, Member, States of Delaware, Texas, and North Dakota
USDOT, NHTSA EMS Reassessment Program, Member, States of Colorado, Alaska, Ohio, Connecticut, Delaware, Mississippi, Oregon, Michigan, Kansas, North Dakota, American Samoa, Nevada and Oklahoma.

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

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

ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors (1979-1996)
  Past President
  Past Chairman, Government Affairs Committee
National Association of EMS Physicians, Member
American Trauma Society
  Founding Member, Past Speaker House of Delegates
ASTM, Former Member, Committee F.30 on Emergency Medical Services
Institute of Medicine/National Research Council
  Pediatric EMS Study Committee, Member
  Committee Studying Use of Heimlich Maneuver on Near Drowning Victims, Member
World Association on Disaster and Emergency Medicine
  Executive Committee, Former Member
Editorial Reviewer for *A Prehospital and Disaster Medicine*, (former).

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ORGANIZATIONS/APPOINTMENTS

American College of Emergency Physicians (ACEP), Fellow
- Immediate Past President, Idaho Chapter, 2009-pres
- President Idaho Chapter 2004-2009
- President Elect – Idaho Chapter 2003-2004
- Councilor - Idaho Chapter 2004-2005
- Academic Affairs Committee 2001-2003
- Alternate Councilor, Representative Council, Oct 2002

American Board of Emergency Medicine, Diplomate
Emergency Medicine Residents Association (EMRA)
- Board of Directors, Academic Affairs, Director, 2001-2003
- Board Liaison to the Council of Residency Directors 2001-2003
- Board Liaison to the Medical Student Committee of EMRA 2001-2003
- Participant in CORD Core Competencies conference, March 2002

National Association of EMS Physicians (NAEMSP)
Air Medical Physician Association (AMPA)
Idaho EMS Physician Commission, Board of Medicine Representative, 2006-pres
Idaho EMS Code Task Force – 2007- pres
Idaho Cardiac Level One Steering Committee 2009 – pres
Medical Director, Bannock County Ambulance/Pocatello Fire, Pocatello, ID 2007- pres
Medical Director, Ft. Hall Fire and EMS, Fort Hall, ID 2007- pres
Medical Director, Bannock County Search and Rescue 2007- pres
Medical Director, Portneuf, Life Flight, Pocatello, ID 2004- pres
Medical Director, BYU-Idaho Paramedic Program, Rexburg, ID 2008- pres
Tactical Physician, Bannock County Sheriff Southeast Idaho STAR, 2008-pres
Assistant Associate Clinical Medical Director, College of Southern Idaho Paramedic Program, Twin Falls, ID 2004-pres
Idaho State EMS Bureau Air Medical Utilization Task Force 2005
Medical Direction Subcommittee, Idaho EMS Advisory Committee 2005-2006
Affiliate Clinical Faculty: Idaho State University, Department of Family Medicine, Pocatello, ID, 2003-present.
Consultant, SafeTech Solutions, LLP
USDOT, NHTSA, EMS Reassessment Program, Technical Assistance Team, Member, States of Oklahoma and Missouri.

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ORGANIZATIONS/APPOINTMENTS

Utah Bureau of EMS and Preparedness, Deputy Director
Chair National Council of State Trauma
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
Previous member of State EMS Training Coordinators Council
CLEAR Certified Inspector
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 and Missouri.