STATE OF NEVADA

A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

February 24-27, 2009

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 40,000 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 accidental injury on the nation's highways. NHTSA has determined it can best use its limited 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 new 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 Nevada Office of Emergency Medical Systems (OEMS), in concert with the Nevada Office of Traffic Safety (OTS) requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the Nevada Statewide EMS program. NHTSA developed a format whereby the OEMS staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in Reno, Nevada, on February 24-26, 2009. For the first day and a half, many presenters from the State of Nevada, provided in-depth briefings on EMS and trauma care, and reviewed the progress since the 1991 Assessment. Topics for review and discussion included the following:

General Emergency Medical Services Overview of System Components

- Regulation and Policy
- Resource Management
- Human Resources and Training
- 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 Nevada. The team spent considerable time with each presenter so they could review the status for each topic.

Following the briefings by presenters from the Nevada OEMS, 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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ACKNOWLEDGMENTS

The TAT would like to acknowledge the Nevada Office of Emergency Medical Systems and the Nevada State Office of Traffic Safety and for their support in conducting this assessment.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Nevada. 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 Fergus Laughridge, OEMS Program Manager, his staff and all the briefing participants for their extraordinary efforts and well-prepared presentations. In addition, the Team thanks REMSA for their work in arranging travel and hosting the team during our stay in Nevada.

Special thanks also to Nevada's Governor's Office of Traffic Safety, for supporting this process and providing assistance to the EMS system in Nevada.

INTRODUCTION

Nevada is a state with great geographic and demographic extremes. Snow capped mountain ranges that soar above 10,000 feet fall steeply to deserts near sea level. Two populous urban areas border vast expanses of rural and frontier land. A geographic area large enough to encompass at least seven other states has citizens living in towns of less than 100 people. Clark County has nearly two million people compared to Eureka County with 1500. Rugged frontier miners rub elbows alongside pampered tourists seeking to connect with whatever form of recreation suits their fancy.

From the EMS perspective, patients in urban centers are served by modern, well equipped, highly resourced systems that compare well with the best available anywhere in the country. A few hundred miles away, a rural volunteer agency may not be able to field two EMT-Basics to answer the next call.

Since the last EMS assessment in 1991, the Nevada EMS system has seen progress on several notable fronts. The placement of the Office of Emergency Medical Systems (OEMS) within the Division of Health is rational given the tasks it needs to be doing. The relationship of the OEMS with the largest counties has improved through partnerships built on trust and mutual respect. There is a statewide EMS patient care reporting system. Preparedness initiatives that were not even envisioned in 1991 are now maturing.

Despite noteworthy progress, some of Nevada's highest peaks are shrouded in clouds. Volunteerism appears to be on the decline in some of the State's most vulnerable and difficult to serve rural areas. The OEMS has not been given the staffing or financial resources identified as necessary in 1991 to achieve important objectives. The relationships between tertiary resource centers and community hospitals remain informal. The State lacks an EMS plan to guide next steps in developing systems that can best meet the needs of people with time sensitive injuries and illnesses. The question of who bears what responsibility for blending the component parts into a cohesive whole is not fully defined.

The Silver State has reached a fork in the road. Any path forward has risks and could lead to a destination not currently on the map. The road will likely have some rocky stretches no matter which choice is taken. Nevada can decide to have a modern fully integrated statewide EMS system or it can choose to continue a path towards a series of related but different local or regional systems. The realities of distance and resources will mean that different patients receive care more or less expediently. It does not need to mean that the care itself should be different.

Nevada is a state that is rich in many resources. Our team has seen a spirit of cooperation coupled with a can-do attitude throughout the spectrum of the EMS system. We are hopeful that this State will find the path that represents a best fit for both the injured child in Luning and the senior citizen having a stroke in Las Vegas. The choices may not always be easy but the people of this great state deserve nothing less than the best.

NEVADA EMERGENCY MEDICAL SERVICES (EMS)

The TAT revisited the ten essential components of an optimal EMS system that were used in the Nevada*: An Assessment of Emergency Medical Services*, in 1991. These components provided an evaluation or quality assurance report based on 1989 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 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

The Nevada Office of Emergency Medical Systems (OEMS) resides within the Health Statistics, Planning and Emergency Response Bureau of the Health Division of the Department of Health and Human Services. This structure and placement for the OEMS is a recent change that was made as part of Nevada's response to better prepare for a range of public health and all-hazard emergencies. The OEMS has a staff of eight full-time equivalents and a general fund budget of about $700,000. The OEMS is supported by a nine member Committee on Emergency Medical Services that is appointed by the Governor and includes representation from various stakeholders. The Committee is advisory to the Health Division. The Office exists without resources to support even a part-time physician medical director.

The Nevada Revised Statutes Chapter 450B is the State's EMS enabling legislation. This chapter provides the minimum standards for EMS personnel training, certification and licensure, along with requirements for ambulance service permitting, trauma center designation, automated defibrillator placements, do not resuscitate orders and a variety of similar categories. Importantly, the statutory language does not clearly task OEMS with the full range of strategic system development and evaluation authorities necessary to ensure systems of care to meet the needs of persons with time sensitive illness and injuries. The statute provides authority for the creation of Administrative Code. Nevada Administrative Code 450B provides additional detail and specificity primarily for how EMS organizations and personnel are expected to function.

The current statute does not define which level of government is responsible for providing EMS and assuring qualified medical oversight. This is a glaring deficiency that leaves open questions about what responsibilities fall to state, county and local governments in assuring at least minimal EMS operations. These responsibilities need to be defined and enforced to avoid a future crisis in the availability of EMS to some communities.

An interesting feature of the 450B Statute is a provision that allows counties with a population of over 400,000 people to establish their own EMS regulatory structures, including the certification and licensing of EMS personnel and permitting of EMS agencies. This provision applies functionally to Clark County at present and may soon also apply to Washoe County. Clark County has its own Office of EMS under the Southern Nevada Health District that closely parallels the functions, structure, staffing and budget of the State OEMS. The State OEMS and the Clark County Office of EMS both report collegial working relationships and good coordination. This county authority for EMS oversight is apparently a historical concession of the Nevada Legislature in an effort to allow more "local" management and regulation of EMS in areas of significant population. While the perspective is understandable, the duplication and possibility of fragmentation for a statewide EMS system is concerning. An alternative to the present

parallel state and county structure might be some other division of duties and responsibilities. The State might fulfill the traditional roles of system planning and public protection through licensing and permitting. The County might take on tasks such as managing Certificates of Need for new agencies, countywide quality improvement, local medical direction, public education, etc.

The leadership of the Health Division and the organizational structure down to the EMS Program Manager should be commended for having achieved more with less. Personnel are being certified and licensed. Agencies are being permitted in accordance with minimum standards. The State has used federal EMS for Children funding to support a number of initiatives and pediatric training. Trauma centers have been verified and designated. An information system that is compliant with the National EMS Information System has been built with a very modest budget.

The size of the Nevada EMS system in terms of numbers of agencies and personnel, land area of the State, number of hospitals, and volume of EMS responses on an annual basis all suggest that the system is under-resourced to meet the Legislature's intended declaration …."that prompt and efficient emergency medical care and transportation is necessary for the health and safety of the people of Nevada, and that minimum standards for such care and all persons providing it must be established." Fulfilling the Legislature's purpose will require updates of the Nevada Revised Statutes, changes to the Administrative Code, and additional budget and personnel resources. The language in the existing Statute and Code does not reflect the authority needed to support a contemporary EMS system. Provisions for EMS system planning and oversight to include specialty care for trauma, stroke and cardiac emergencies should be added to the Statute. Detailed language about professional standards should be moved to Administrative Code. A specific example is the existing language regarding personnel training levels, scope of practice, and licensing that will in the near future be outdated at the national level.

The challenges of unifying a state the size of Nevada where the majority of the population resides in two urban centers and the rest of the land area is rural or frontier is daunting. Describing what every patient should expect from the EMS system will be a challenge. The team was impressed with the understanding that stakeholders have about their current status and the apparent willingness to confront the complex choices that need to be made. A positive spirit of trust and collaboration has been established and makes an excellent foundation for future progress.

Recommendations

- **The Nevada Legislature should update the Revised Statutes and the Health Division should change the Administrative Code to ensure the authority and purpose of improving Nevada's EMS system to modern standards. The statute should include clear language that recognizes the OEMS as the lead agency for all aspects of EMS system design, implementation, regulation and evaluation.**

- The OEMS should, with stakeholder input, establish, publish and update an EMS system plan.

- **The Health Division and the Nevada Legislature should ensure that the necessary funding and staffing support for the OEMS to achieve the objectives of the EMS system plan.**

- The Health Division should establish the position of a physician EMS medical director and work with the Legislature to achieve funding to support it.

- The Nevada Legislature should consider elimination of the large county authority for regulation of EMS activities in favor of true statewide standards. The goal should be for consistent statewide minimum standards that allow the County to exceed those minimums and play an appropriate role in local system development as resources allow.

- **The Nevada Legislature should, through statute, clearly assign responsibility and authority for ensuring the availability of EMS within specific geopolitical boundaries.**

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 events 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 victims 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 provision of emergency medical and trauma services within the State of Nevada is a challenge. The State is large, with the majority of the population concentrated in two counties, and the remaining population is spread across vast areas of the State, separated by mountain ranges and served largely by two-lane highways. In response to these challenges, the citizens of Nevada have developed in essence three separate EMS and trauma systems; one for Clark County, another for Washoe County and a third for the citizens of the other 15 counties.

In Clark and Washoe Counties enhanced 9-1-1 systems are in place and dispatching, with pre-arrival medical instruction, occurs reliably. In the remaining counties, basic 9-1-1 systems are almost universally available and dispatch service is commonly provided by the county sheriff's office, though the caller is unlikely to receive pre-arrival medical instructions.

In the two urban counties a tiered EMS response system is in place with fire agencies being the primary first responder supported by a private or public utility model ambulance service providing transportation to the hospital. In the remaining areas of the state, an organized tiered-response system is less common.

In Clark and Washoe Counties, the citizens receive high quality ambulance service with effective medical and quality oversight. The hospitals have resolved historic diversion issues. In the remainder of the State, EMS is provided by small, largely autonomous, ambulance services located in cities and towns separated by vast distances. Many of these volunteer ambulance services appear to be structured to serve the needs of the emergent patient by transporting them to the closest hospital. The EMS agencies are not prepared for, or capable of, inter-facility transfers of patients to tertiary hospitals without seriously degrading their ability to respond to additional calls for service.

Ground ambulance resources are augmented by fixed-wing and rotor-wing air ambulances. Recently, in response to complaints of long response times to rural areas of the State, Care Flight began stationing rotor-wing units in Truckee (24hrs/day), Gardnerville (24 hrs/day) and Lovelock (12 hrs/day) and Mercy Air plans to station a rotor-wing unit in Mesquite. Additionally, a rotor-wing air ambulance (Summit Air) and a fixed-wing air ambulance (Med Flight) are stationed in Elko. The Nevada Department of Emergency Management has the ability to request the service of medical fixed and rotor wing resources from the Nevada National Guard and Fallon Naval Air Base. Rotor and fixed-wing transport services from Utah and Idaho supplement the Nevada resources. In the event that air transport is contraindicated by weather, Care Flight will utilize a ground ambulance to affect the transfer. Referring hospitals are often reluctant to utilize their limited nursing staff to accomplish ground critical care transports.

There are 33 hospitals with emergency departments in Nevada including four ACS verified and State designated trauma centers, four hospitals with pediatric intensive care units and a burn center. Like most other states, Nevada is experiencing a shortage of nurses. An analysis of certification and recertification data for EMTs suggests that the number of providers in Nevada is, at best, static or trending downward. Many EMTs that achieve certification do not work for permitted EMS agencies. Instead they seek employment in non-clinical settings, primarily in casinos. Hospitals do not have the ability to hire and utilize EMTs to provide clinical care in Nevada.

Recommendations

- The OEMS should explore opportunities to utilize appropriately trained paramedics for ground critical care ambulance transfers.

- The OEMS with the Office of Rural Health should encourage participation of all rural hospitals in the trauma system, and seek funding opportunities utilizing FLEX grants to assist with participation costs.

- **The OEMS should form a task force to perform an assessment of existing ambulance services in rural Nevada to identify services that could be enhanced to provide additional capabilities/resources for regional ground transportation needs. Focus on agencies co-located in towns with hospitals.**

- **The OEMS should form a multidisciplinary task force to consider methods for enhancing the capabilities of rural ambulance services, including but not limited to ambulance service manager training.**

- The OEMS should encourage the trauma centers and air ambulance operators to analyze trauma registry and hospital discharge data to identify optimal placement of fixed or rotor-wing air ambulance services.

C. HUMAN RESOURCES AND TRAINING

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 Education Standards, and other aspects of the EMS Education Agenda for the Future; and
- Monitor and ensure the health and safety of all EMS personnel.

Status

Nevada has established programs for the delivery of First Responder, EMT-Basic, EMT-Intermediate and Paramedic training. The State currently has language in statute and administrative code that references “certified”, and “licensed” personnel. State EMS certification is issued to a person who has successfully completed an approved training program and passed the State’s recognized certification examinations from the National Registry of EMTs. A certified EMT is issued a state license when he/she gains affiliation with a permitted EMS agency.

Nevada currently defines training based on National Standard Curricula with associated scopes of practice described in statute. In the foreseeable future, the system of EMS training nationally will transition from the current model to one described in the *EMS Education Agenda for the Future*. The purpose is to make EMS training consistent with the approach of other allied health professions. While Nevada is committed to and will be well served by adopting this new approach, implementation will require changes in both the statute and the administrative code.

EMS training programs leading to certification and licensure must be sponsored by permitted agencies. For courses to be approved, they must have a qualified instructor. At the EMT-Basic level and above, there must be a course medical director. OEMS has a small granting program to assist with covering training costs but these funds are requested infrequently. Several presenters referenced increasing difficulty with delivering courses in rural areas of the State. These challenges included attracting enough students to justify course delivery, securing a qualified instructor, travel distances and similar logistical issues. The numbers of both new students graduating from training programs and personnel recertifying are in a decline. This trend is consistent with reports heard throughout the assessment about challenges in maintaining an adequate EMS workforce, primarily in rural areas.

Two EMT-Basics or higher are required as staffing for a transporting ambulance in Nevada. There is a provision to waive this requirement and allow staffing with an EMT-Basic and a First Responder driver in rural areas. A few squads are using this provision. No formal assessment of how this strategy is affecting patient care has been made.

The University of Nevada School of Medicine, Office of Rural Health has supported EMS education in a variety of venues for many years. The University has sponsored and organized an annual rural EMS conference. The organizers work hard to provide relevant, quality presentations using a variety of in-state and national instructors. The tuition is subsidized from several different sources. Despite an attractive program with strong content, the attendance has declined in recent years.

Similarly, presenters reported increasing challenges in attracting existing EMS personnel to other continuing education programs. Interactive video has been used to bring programs to rural areas. Instructors have made rather extraordinary commitments to travel so that a variety of programs can be delivered on site in rural areas to predominantly volunteer personnel. Often the courses get cancelled as they cannot meet minimum enrollments of even 10 people.

It is not apparent that the four trauma centers actively participate in supporting education for rural EMS agencies or hospitals.

A few years ago, OEMS moved from a certification testing model using State developed examinations to testing using the National Registry of EMTs (NREMT) examinations. This change was difficult to implement as the cost of the exam increased and pass rates suffered. With some strong support by the OEMS staff and diligence on the part of EMS instructors, Nevada's pass rates on the NREMT exam now meet or exceed national averages. OEMS also engineered a portable computer based testing arrangement that allows the NREMT exam to be administered on site at the same location where the training occurred. The change to the use of a national certification examination is an important quality step that facilitates the interstate movement of personnel both into and out of Nevada. OEMS currently lacks the resources necessary to monitor training programs and analyze data from the NREMT to assess instructor and course performance.

Paramedic level training is currently offered in Las Vegas and Reno. A third program is in the planning stages for the Elko area. All of the programs are either nationally accredited or are in the process of becoming nationally accredited.

The presenter from Nye County described challenges the area faces in attracting and maintaining a qualified volunteer workforce. The causes of these challenges are not unique to Nye County or rural Nevada and are most likely multi-factorial. Nye County is using some innovative strategies and similar approaches could serve to stabilize an essential EMS resource in the rural and frontier areas.

Nursing workforce issues affect the Nevada EMS system. The challenge of securing an adequate nursing staff in hospitals has stressed the ability of these institutions to support critical care transfers made by basic and intermediate level EMS crews.

Recommendations

- **The OEMS should continue efforts to implement the *EMS Education Agenda for the Future* model. This will involve the need to move licensing and certification authorities currently in statute to the administrative code and to update that language to reflect the new model.**

- The OEMS in conjunction with the University of Nevada should provide support for EMS instructors as movement from national standard curricula to education standards occurs.

- The OEMS should sponsor a dialogue with stakeholders to examine opportunities to stabilize the rural EMS workforce. No ideas should be excluded.

- The Health Division and the Legislature should support adequate OEMS staffing to monitor and analyze the quality of EMS training. The goals should be to successfully graduate more candidates and to describe trends in course enrollments.

- The OEMS should sponsor a dialogue with stakeholders about strategies for expanding paramedic involvement in rural settings. Consider roles that paramedics might play in agency management, quality improvement, ground critical care transfers and other functions beyond response to 9-1-1 calls.

- **The University of Nevada School of Medicine should continue needs assessments for rural EMS training and support for innovative program delivery in rural settings consistent with their history of commendable efforts.**

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 provision of EMS transport in Nevada is as diverse as its geography. High quality paramedic level care is consistently provided in the urban areas of Clark County and Washoe County. These services benefit from medical direction, protocols and performance improvement programs. Unfortunately, there are only six EMS agencies operating at the paramedic level outside metropolitan statistical areas in rural Nevada.

Outside the urban areas the majority of EMS care is provided by volunteer services. Most of these services operate at the Intermediate level, which is commendable.

Regrettably many rural EMS services are experiencing a critical loss of volunteer personnel. This is consistent with a national trend, but seems particularly acute in Nevada. There are reports of some services running with as few as four members. Considerable research has been undertaken on a national level to address the difficulties faced by rural EMS services, and resources such as the *Rural and Frontier EMS Agenda for the Future* and the Rural EMS and Trauma Technical Assistance Center (REMSTTAC) are available. Multiple models have been identified to support a sustainable rural EMS agency, such as a combination paid/volunteer service model. There appears to be a very limited use of this particular service model in Nevada.

Nevada has numerous rural/frontier communities that are geographically isolated. The population of these communities is too small to support a transporting EMS service, and EMS care is provided by ambulance services at a significant distance with very long response times. It would seem as though a non-transporting EMS resource in these communities would be desirable, but this has not historically occurred.

The OEMS has the statutory authority to address a number of transportation issues. Regulations provide for minimum qualifications of transporting and non-transporting prehospital services. The state regulates EMS services through the mechanism of granting a permit to an agency to operate as an EMS service. In Clark County the Southern Nevada Health District assumes this role. The State of Nevada has minimum equipment standards for EMS agencies as well as regulations that enable ambulance inspection. Ambulances are inspected annually by the OEMS staff with the exception of Clark County where they are inspected by the Southern Nevada Health District.

Due to long distances between rural hospitals and tertiary care facilities the state relies heavily on air medical resources for interfacility transport, as well as for scene response for trauma. There are three rotor wing programs, two of which have multiple aircraft. There are two fixed-wing programs with 24/7 coverage. These fixed-wing programs utilize twin engine turboprop aircraft. Staffing of all the air medical programs is consistent with national standards for critical care air teams. Despite multiple rotor-wing and fixed-wing programs, air medical response times to much of the State can still be considerably long.

There is some provision for critical care ground transport, but this is primarily accomplished by air medical crews staffing an ambulance when poor weather precludes flying. The historical practice of hospital nurses accompanying a critical patient on an ambulance transport does not appear sustainable based on economics and shortage of nursing personnel. Some EMS agencies in Clark County are considering critical care paramedic transport capability, but it seems as though this will primarily serve the local area and not impact the critical care transport needs of other parts of the state. It appears as though air medical transport (AMT) will be the commonly accepted mode for interfacility transport of moderate to seriously ill patients.

The State has trauma triage and transport protocols. These protocols are in Nevada

Administrative Code, and cite outdated references. Clark County has designated pediatric emergency centers with guidelines for field triage and transport of pediatric patients, including trauma. The rest of the state does not appear to have specific pediatric trauma guidelines. There are no designated specialty care centers other than trauma centers, so guidelines for prehospital triage and transport to STEMI centers, stroke care centers, etc. do not exist.

Recommendations

- The OEMS should promote the concept of non-transporting first responder resources in remote rural communities whose EMS transport needs are covered by ambulance services that may have a very long response time. Both traditional models of community first responders as well as innovative models should be explored.

- The OEMS should update the Trauma Triage Guidelines in Administrative Code to reflect the current American College of Surgeons *Resources for the Optimal Care of the Injured Patient 2006*. The OEMS should consider other ways to reference these guidelines, as administrative codes do not provide flexibility to enable timely update.

- **The OEMS should create a rural/frontier EMS task force to explore the various models of sustaining EMS services. Models of success exist, but no one solution fits all areas.**

- The OEMS should investigate strategies for increasing the number of services that employ paramedic level providers, emphasizing the capability for interfacility transfers in addition to EMS response.

- **The OEMS should convene a multidisciplinary stakeholder group to consider evidence-based regionalization of medical specialty centers, such as STEMI or stroke care centers, with prehospital triage and transport guidelines.**

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, etc.) 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

Nevada has 33 hospitals with emergency departments and 11 centers designated as Critical Access Hospitals. Clark County has three trauma centers and most of the State's community hospitals. A Level I, II and III trauma center reside in that county. The west part of Nevada has a smaller urban community with a Level II trauma center and several community hospitals. Participation in the Nevada trauma system is voluntary.

Most of the Critical Access Hospitals are considered frontier facilities and are located in small communities with low population densities. None of these facilities are designated

as level IV trauma centers. Very little continuing education takes place at the small rural centers. Most education is delivered hundreds of miles from home. At the present time there is very little specialty designation of hospitals other than trauma. The designation of stroke centers is in the planning stages. Four hospitals provide intensive care services for pediatrics.

Ambulance services transport to the nearest appropriate facility and the community hospitals do not go on diversion. Transfer agreements exist between the rural facilities and the larger hospitals. Some patients are transferred to neighboring states.

Staffing at hospitals and clinics is a growing challenge. In the past two years the number of primary physicians has gone down by 20%. The number of physicians per 100,000 population has remained the same over six years. Nurses continue to be in demand.

Communication between facilities is based on different systems at the present time and is not optimum. A new 800 megahertz system has been contracted to be in place in three years to improve statewide hospital communications.

Recommendations

- The OEMS and Office of Rural Health should partner to identify a funding source or means to designate Level IV trauma centers.

- **The OEMS should clearly define criteria for the designation of hospitals providing pediatric care.**

- The OEMS should develop ongoing evaluation of the EMS transfer process to assess delays in access to timely specialty care in the state.

- The rural hospitals should partner with the University of Nevada Office of Rural Health to develop educational offerings at the rural facilities.

- The OEMS should make outreach education a mandate for trauma centers and other specialty centers receiving transfers.

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 9-1-1;
- Strive for quick implementation of both wire line and wireless enhanced 9-1-1 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 9-1-1 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, 9-1-1, 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

Emergency communications is another example of the dichotomy of the EMS system in Nevada. Community access to EMS, via 9-1-1, is well developed in the heavily populated urban areas of the state, while rural and frontier areas cope with a community access system that has not matured. Ambulance to hospital radio communication capability is similar, although major steps have recently been undertaken to improve that condition.

Nevada has almost universal access to 9-1-1. The urban areas enjoy enhanced 9-1-1 capability, while rural areas have basic 9-1-1 coverage at best.

Clark County and Washoe County in addition to enhanced 9-1-1 coverage have emergency medical dispatch (EMD) qualified communicators that provide priority medical dispatch, enabling a more effective and efficient dispatch of resources. Additionally, standardized medical advice provided to the 9-1-1 caller - based on the patient's presenting symptoms - can enable a "virtual" first responder before EMS arrival.

There are inconsistencies in dispatch practices in rural Nevada such as how long a dispatch agency will wait before dispatching a mutual aid unit when the primary EMS unit does not respond, and whether or not an EMS unit is dispatched to a motor vehicle crash with unknown personal injury. There do not appear to be any standards for dispatching agencies to use.

Outside of Clark and Washoe Counties, however, the 9-1-1 system is not as well developed. The public safety answering point (PSAP) for most of the counties is the law enforcement agency in that jurisdiction, generally the sheriff's department. While the minimal needs of the EMS agencies are met, the prioritization of limited resources puts the emphasis on law enforcement dispatching, not EMS communications. While it would be highly desirable to bring the EMD/priority medical dispatching capability to these PSAPs, the reality is that this will require concerted effort of the Nevada 9-1-1 Administrator and all stakeholders.

It is not clear what level of effort there is in Nevada to plan for Next Generation 9-1-1 infrastructure. Next Generation 9-1-1 is a national initiative that addresses the emerging telecommunications technology that current enhanced 9-1-1 systems do not. These technologies include wireless communications, voice over internet protocol (VoIP), text or video from any communications device via internet-like networks, advanced data from personal safety systems, and location-specific emergency alerts to communication devices.

Automatic Crash Notification (ACN) is an evolving technology that, in the event of motor vehicle crash, provides an instant alert to a PSAP via wireless communication or third party intermediary. As the proportion of vehicles with ACN technology increases, it is important that PSAPs and their personnel understand the system, the value of information it provides, and be prepared to receive ACN-related calls. It is not clear to what extent this is the case in Nevada.

Radio communications within the EMS systems in Clark County and Washoe County seem to be very good, including interagency operability, at least within their own regions. The same cannot be said of rural Nevada as most agencies utilize radio systems that are decades old and will soon be obsolete due to federal narrowbanding requirements. Fortunately, Nevada has addressed this issue by supporting a study of EMS communications needs and the planned purchase of an 800 MHz radio system for each rural EMS agency and hospitals with an emergency department.

The consultant's study considered the needs of rural EMS services and the available technologies. The report indicated that Nevada EMS agencies would best be served by adding EMS to the 800 MHz Nevada Shared Radio System (NSRS). This system, owned and maintained by the Nevada Department of Transportation has demonstrated consistent coverage throughout the state, including frontier areas. In addition, EMS participation in the NSRS is an affordable route to accomplish radio system upgrade, both in initial expense as well as annual upkeep. It must be emphasized that the primary role of the NSRS radio is ambulance to hospital communication, although interoperability capability is provided through this radio system that otherwise would not exist. Also Nevada Highway Patrol is on the NSRS. Ambulance to dispatch radio communications is not improved through this initiative. Additionally, Washoe County and Clark County EMS agencies are committed to their own radio systems, which are not compatible with the NSRS system. The study identifies technology to develop a "hybrid" UHF / 800 MHz solution to enable interoperability between the Washoe and Clark County resources and EMS agencies utilizing the NSRS.

Implementation of this program is supported by a grant from ASPR, including funding to reduce the cost of purchasing mobile 800 MHz radios for EMS agencies. The consultant's plan has been endorsed by the Nevada Communications Steering Committee and meets the Nevada State Communications Interoperability Plan. We commend the OEMS and the Office of Public Health Preparedness in their efforts to ensure effective communication for EMS agencies.

Recommendations

- The OEMS should encourage EMS agencies in Clark County and Washoe County to continue to participate in innovation in Enhanced 9-1-1 and emergency medical dispatch in their counties.

- **The OEMS should ensure that conversion to NSRS includes a user-friendly training program to enable EMS providers to develop proficiency with the NSRS.**

- The OEMS should interact with the Nevada 9-1-1 Administrator to monitor ACN technology, which could be of significant benefit in alerting appropriate resources for crash victims located on rural highways.

- The OEMS should strongly encourage Clark County and Washoe County to proactively pursue the highest level of interoperability with EMS agencies utilizing the NSRS.

- **The OEMS should work with the State's PSAPs to establish standards relating to EMS dispatch for 9-1-1 calls.**

- The OEMS should work with the Nevada 9-1-1 Administrator to improve the training and consistent performance of EMS dispatchers.

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

A state EMS public information and education (PI&E) program ought to make the public aware of the EMS system, educate them about their roles in response to an emergency and advocate for prevention. The OEMS does not have a state PI&E plan. There are limited resources within the department, and PI&E has received a low priority. The OEMS has a website with some useful information, but this information is intended for use by EMS providers primarily and is not particularly useful in informing the public about EMS. In addition the OEMS website is not very easy to find.

The OEMS is to be commended for its leadership for the statewide public AED initiative, Operation Heartbeat, which includes a bystander CPR training component. The OEMS helps to facilitate EMS Week. In addition, the OEMS has had some participation in injury prevention organizations.

The majority of EMS participation in injury prevention in Nevada comes from REMSA in Reno and several of the EMS organizations in Clark County. REMSA has significant participation in SafeKids and other pediatric injury prevention initiatives such as child car safety seat inspections. EMS providers are viewed by the public with credibility when participating in injury prevention activities. Participation in injury prevention by these and other EMS agencies is commendable and should be encouraged.

Recommendations

- **The OEMS should devote resources to enhance the information available on its website, and take steps to make the website more accessible to the public. The website should include information for the public on what an EMS system is.**

- The OEMS should develop capability to serve as a conduit of information and resources for EMS agencies expressing an interest in injury prevention initiatives.

- The OEMS should function as a clearinghouse for PI&E resources and programs of hospitals, EMS agencies, private groups, traffic safety, etc., related to EMS and emergency care.

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

Nevada Administrative Code establishes the qualifications and responsibilities for EMS medical directors. All permitted EMS agencies must designate a medical director, and care at and above the EMT-Basic level must be provided with appropriate medical direction. EMS-related education is conducted under the supervision of a physician, but not necessarily an EMS medical director.

There is no state EMS medical director in Nevada. Thus, there is no physician to champion the clinical issues within the state's EMS system, to facilitate and coordinate provision of medical direction within the state's communities, and provide a focal point for resolution of clinical problems and development of clinical innovation. With no state EMS medical director there is missed opportunity to provide vital leadership to a system of medical care acknowledged to involve practice delegated by physicians.

Excluding Clark County, there are approximately 60 EMS medical directors in Nevada who oversee the 90 permitted EMS agencies. Theoretically, each medical director must fulfill nine criteria to be eligible for service, and some are quite specific to this state. Yet, there is no educational program or resource to help physicians acquire the necessary

credentials of knowledge and familiarization. Nor is there a means of evaluating physicians' qualifications beyond their licensure.

The nature of Nevada and its population distribution inherently result in limited options for EMS medical direction in some areas. Recruitment of EMS medical directors may be challenging, especially in rural and frontier areas where the physician supply can be extraordinarily limited. Indeed, some physicians agree to serve as EMS medical directors out of a sense of obligation to their communities and recognition that they are among the few who are available. Again, that does not necessarily make them qualified.

Nevada Administrative Code assigns ten significant and broad responsibilities to EMS medical directors. Diligent discharge of these duties requires substantial attention, time, and effort even for remote, low volume EMS agencies. Yet, there is no incentive offered to EMS medical directors (beyond the reward of community service) or even protection from civil liability related to their roles. Thus, there is general acceptance that many of the proscribed functions of EMS medical directors are going unrealized. Further, there is no system of accountability or relationship with a more senior physician, such as a state EMS medical director.

Exceptions to portions of this discussion exist in Clark and Washoe Counties. In both counties a medical advisory board of sorts exists, some of the EMS medical directors come with exceptional qualifications and experience, and some are compensated to some extent by their EMS agencies. However, for the rest of the state such is not the case. EMS medical directors perform in isolation. There is little to no collaboration with other medical directors, there is not a regular forum to become educated or resolve issues, and yet there is great dependence on them to help maintain the EMS system at a functional level.

Each EMS medical director has discretion to develop protocols for his/her EMS agency so long as they do not exceed defined scopes of practice for EMS providers at their licensed levels. There are no uniformly applied indicators of EMS system performance or clinical care quality.

Recommendations

- **The State Legislature should establish, through statute, and fund the position of state EMS medical director, and the Health Division should appoint to that post a qualified physician who will serve with continuity of medical oversight, vision, and advice with regard to the state's EMS system.**

- The OEMS should develop and implement an educational program for newly appointed EMS medical directors.

- The OEMS should conduct a periodic educational conference for Nevada's EMS medical directors, and the State should reimburse attendees for their associated travel expenses.

- **The OEMS and state EMS medical director should develop and implement a system of regular communication with and among local EMS medical directors, including coordination and oversight of their activities.**

- The State Legislature should establish, through statute, protection for EMS medical directors from civil liability arising from the performance of their associated duties.

- The OEMS and state EMS medical director should continually explore options to create incentives of any sort to recruit EMS medical directors and encourage their active involvement within the EMS system; such efforts may involve creation of regional models for medical direction.

- **The OEMS and state EMS medical director should establish clinical performance indicators (at least a few) that are uniformly monitored throughout the State's EMS system and develop tools that can be used by EMS agencies and medical directors to facilitate that process.**

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

There are four designated ACS trauma centers (Level I, II, III) in Nevada. Three are located in Las Vegas (Level I, II, III) and one is in Reno (Level II). All of the centers are located in Clark and Washoe counties with fifteen other counties in the state having no designated centers.

Western and southern Nevada provide care for trauma patients in a vacuum with regards to one another. Each large metropolitan area controls its own health management authority over its trauma system. These systems are not uniformly over-seen by a state medical director or trauma advisory committee.

The trauma system does not currently include the frontier facilities. These frontier centers send patients to the trauma centers and receive little in return (i.e., education).

Current data from trauma centers are not evaluated by a state QI committee to evaluate the trauma system's effectiveness. This information should be used to assess the system. The trauma database does not capture information from non-designated hospitals nor does it link with the prehospital data system to completely evaluate the continuum of care from the scene to the trauma center and rehabilitation.

Statewide injury prevention efforts supported by the trauma centers are not apparent. One private agency, REMSA, carries on prevention activities within Washoe County but not the rest of northern Nevada. Injury prevention efforts in Clark County are focused locally. Verified trauma centers are obligated by ACS criteria to provide education, prevention and outreach services.

A multi-disciplinary trauma committee with specialty representation including rehabilitation does not exist at the state level. A regional trauma advisory board exists in Clark County but does not consider trauma care in the entire state of Nevada.

Rehabilitation centers are not involved as part of the Nevada trauma system or identified. They represent the final continuum of care and need to participate in the system.

Recommendations

- **The Legislature should provide authority and funding for the OEMS to serve as the lead agency for the Nevada trauma system. Funding should support a trauma program director, a trauma registrar and a physician trauma medical director.**

- **The Legislature should authorize a state trauma advisory board charged with providing recommendations to the Health Division on the development, maintenance and evaluation of a comprehensive state-wide trauma system.**

- The OEMS and the State's designated trauma centers should provide education in rural facilities (e.g., Rural Trauma Team Development Course (RTTDC) provided by the ACS Committee on Trauma).

- The OEMS should implement level IV designation to encourage rural facilities to become a part of the statewide trauma system.

- The designated trauma referral centers in conjunction with the OEMS should cooperate on a state wide trauma conference for doctors, nurses, and EMS personnel.

- The OEMS should include rehabilitation services as part of the multidisciplinary trauma advisory board.

- The OEMS and Office of Rural Health should use innovative techniques such as telemedicine and human patient simulators in rural settings to provide on-site skills training and practice.

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 9-1-1 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

Nevada is approaching a critical juncture in its abilities to pursue meaningful evaluations of its EMS system. Previous investments are now yielding returns in the form of data submitted through NEEDS (Nevada Electronic EMS Data System). Approximately 95% of Nevada's EMS agencies submit data to the system, accounting for approximately 60% of the state's EMS responses. Some busier agencies do not yet submit data due to local software issues. Nevada was among the early states to submit data to the National EMS Information System (NEMSIS). These developments have occurred because of vision and perseverance with amazingly few resources, concessions by many, including software developers, and support from the Office of Traffic Safety.

While data is being accumulated, representing more than 290,000 EMS responses so far, little information is available. The OEMS woefully lacks sufficient expertise and resources to begin the process of querying its database to glean the sort of information necessary to perform meaningful evaluations of the state EMS system.

The responsibility for quality assurance falls to EMS medical directors. With certainty, some medical directors are engaged, with administrative assistance from their agencies, and perform meaningful evaluations of the EMS care they oversee. With just as much certainty, others are not and no meaningful systematic evaluation occurs for EMS care in their areas. There are no statewide defined tracer conditions, evaluation priorities, or tools to help guide local evaluation efforts. From NEEDS, EMS agencies can access their own data. But comparisons to other agencies or statewide norms are not possible without substantial outside assistance and inherent delay.

Evaluation of the EMS system can be considered in three aspects. In increasing meaningfulness and complexity to assess, they are structures, processes, and outcomes. Structure, as the least dynamic, is the least challenging to evaluate. Outside the two major metropolitan areas, OEMS is very aware of parts of the EMS system structure. For example, there is excellent accounting of EMS personnel and knowledge of ambulances. Requirements for EMS personnel to be nationally registered are one aspect of influencing structure. However, the structure of the EMS system is anything but static. For example, there is continual flux as volunteer personnel may or may not be available in various areas, and ambulance services may not be able to answer calls due to lack of personnel. Currently, there is no way to assess how often that dynamic structure affects delivery of EMS.

Process measures can provide additional insight. The assumption is often made that improved processes, as determined by some objective measure, translate to improved outcomes. For example, shorter response times might lead one to believe that survival of certain conditions will be improved. Depending on the process and the outcome, the

link may or may not be valid. The OEMS is at embryonic stages of assessing response time intervals in the state. Clearly, expectations for timely response, or what standards should be, must be predicated to some extent on population density or other factors. Evaluations of response intervals in the context of such factors and comparison to derived benchmarks may provide helpful insight as to the status of the state's EMS system. However, there have not yet been efforts to assess processes of care. Such assessments might include, for example, specific elements of evaluation or treatment that should be delivered to specific patient populations. To this point, OEMS has relied on individual EMS agencies and their medical directors to possibly make such assessments. That is not a reliable strategy.

The most difficult challenge is to evaluate outcomes. Certainly, there are anecdotes of excellence within the system. However, on a statewide basis there have not been efforts to track outcomes, with the exception of traffic-related mortality. Tracer conditions provide one possibility for measuring the effects of EMS in Nevada. For example, evaluation efforts might focus on chest pain, head injuries, or pediatric asthma as indicators of the overall quality of the EMS system. However, the concept has not been developed. Outcomes determinations are beyond the scope of current evaluation efforts in Nevada EMS. Thus, it is not possible to assess the effects of the statewide EMS system.

Part of the impediment to evaluating the statewide EMS system may be a lack of authority or responsibility for such activity at the state level. There is no statutory mandate or administrative code that speaks to the necessity and appropriateness of OEMS to be engaged in system evaluation. Further, there is no legal protection from discovery of peer-review information generated as part of evaluation efforts.

Recommendations

- The OEMS should pursue efforts to ensure that all EMS medical directors, EMS agencies, and EMS personnel fully understand the importance and practical utility of NEEDS.

- **The OEMS should facilitate evaluation at the local levels by preparing and disseminating tools or resources that EMS agencies and medical directors can use to pursue specific evaluation efforts; such efforts might include dissemination of comparative information derived from NEEDS.**

- The OEMS should develop focused evaluation projects, including utilization of tracer conditions.

- The OEMS should continue to encourage currently non-participating EMS

agencies to submit data to NEEDS.

- The OEMS should establish specific goals and timelines with regard to its efforts to evaluate EMS structures, processes, and outcomes throughout Nevada.

- The OEMS and EMS agencies should use evaluation results to assess resource allocation, plan education programs, and educate policy and lawmakers, other health care workers, and the public.

- **The Health Division should allocate funds to support a full-time data analyst and EMS system quality specialist within OEMS.**

- The legislature, through statute, should provide protections from discovery during civil proceedings of peer-review information generated during EMS quality improvement or evaluation initiatives.

- The legislature, through statute, should authorize and direct OEMS to engage in ongoing and systematic evaluation of the statewide EMS system.

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.

Status

The Office of Emergency Medical Systems is co-located with the Office of Public Health Preparedness (OPHP) in the Bureau of Health Statistics, Planning and Emergency Response. Recently, OPHP implemented a significant change, and now distributes 80% of ASPR funds to the counties and tribes. In addition they are responsible for the CDC Pandemic Influenza Planning grant. The OEMS and OPHP programs have demonstrated significant coordination and have partnered to develop resources targeted at increasing Nevada's ability to respond to catastrophic events including:

- Undertaking a communications systems analysis and (planned) funding the purchase of a state-wide 800 MHz ambulance radio system for each ambulance and hospital in the State.

- Development of a web-based platform accessible to every dispatch entity, hospital and ambulance service detailing hospital bed availability.

- Purchasing and distributing a SMART triage kit to every ambulance service in the State.

- Purchasing and distributing pediatric tool kits to every ambulance service and emergency department in the State.

- Purchasing and staging 20 medical surge trailers to cover all counties, accessible in mass casualty situations.

- Conducting mass-vaccination clinics.

As part of the CDC Pandemic Influenza Planning grant, the State's operational plan must include sections outlining emergency medical services and public safety answering point capability to respond to and sustain operations during a pandemic event. The OEMs has a well developed relationship with the Nevada Office of Emergency Management and is considered an important partner in the Nevada preparedness and response process and has an established seat at the Emergency Operations Center.

Recommendations

- The Nevada Legislature and the Nevada Division of Health should modify statutes and administrative code to provide authority to paramedic personnel to administer de-activated influenza vaccine.

- **The OEMS should work with its stakeholder community to develop an EMS specific annex to the Statewide Pandemic Influenza Operational Plan.**

- **The OEMS should reach out to the Nevada 9-1-1 Administrator and provide assistance as they develop a PSAP component to the Statewide Pandemic Influenza Operational Plan.**

- The OEMS should partner with the Office of Rural Health to conduct drills and exercises that meet the needs of rural EMS providers and critical access hospitals.

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Medical Societies and Committees
- Southwestern Surgical Congress
- American Society of Abdominal Surgeons
- Society of Laparoscopic Surgeons
- Arizona Chapter American College of Surgeons
- ATLS-provider and instructor
- American Trauma Society
- Arizona State Committee on Trauma
- AEMS- Standing Medical Committee
- AEMS Board of Directors 1993

Medical Direction Commission, Governor's appointment, 1992-1995
National Surgical Adjuvant Breast/Bowel Project, Committee Clinical Oncology Program
Associate Clinical Professor of Surgery, University of Arizona
Associate Examiner American Board of Surgery 1997
Instructor, Phoenix Integrated Surgical Residency Program, 1976-Present
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Vermont State Firefighters Association
National Registry of EMTs, Board Member
Essex Rescue, EMT-I Captain
Health Care Finance Administration Negotiated Rule Making, Committee Member
National Scope of Practice Model Project – Principal Investigator
American College of Surgeons – Trauma System Assessment Team Member
HCFA Negotiated Rule Making – NASEMSD Representative
EMSC Grant Review Team Member

USDOT, NHTSA EMS Assessment Program, Technical Assistance Team, Member, States of Delaware, Texas, and North Dakota

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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
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Emergency Nurses Association
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NH Association of EMTs
NH Firemen's Association
National Ski Patrol
Lebanon Fire Department - Firefighter Paramedic
Upper Valley Ambulance - Paramedic Crew Chief
USDOT, NHTSA EMS Technical Assistance Team, Reassessment Program, Member,
State of North Dakota