

# STATE OF NORTH DAKOTA

## A REASSESSMENT OF EMERGENCY MEDICAL SERVICES

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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 (and death) on the nation's highways. NHTSA has determined that it can best use its limited resources if its post crash efforts are focused on assisting states with the development of integrated emergency medical services (EMS) programs that include comprehensive systems of trauma care.

To accomplish this goal, in 1988 NHTSA developed a Technical Assistance Team (TAT) approach that 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 uses the same ten component areas with updated standards. The standards now reflect current EMS philosophy and allow for the evolution into a comprehensive and integrated health management system, as identified in the 1996 *EMS Agenda for the Future*. 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 North Dakota Division of Emergency Medical Services (DEMS) in concert with the North Dakota Office of Traffic Safety requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the North Dakota Statewide EMS program. NHTSA developed a format whereby the EMS office staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in Bismarck, North Dakota on April 8-10, 2008. For the first day and a half, over 20 presenters from the State of North Dakota provided in-depth briefings on EMS and trauma care, and reviewed the progress since the original 1992 EMS assessment.

Re-assessment topics for review and discussion included the following EMS system components:

- Regulation and Policy
- Resource Management
- Human Resources and Training
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information and Education
- Medical Direction
- Evaluation
- Emergency 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 North Dakota. The team spent considerable time with each presenter so that it could review the status for each topic.

Following the briefings by presenters from the North Dakota 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.

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 North Dakota Division of EMS, the North Dakota Office of Traffic Safety and the North Dakota EMS Association 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 North Dakota. 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 are extended for the extraordinary efforts taken by Tim Meyer, Director, DEMS and his staff, and all the briefing participants for their well-prepared and forthright presentations. In addition, the Team applauds the well-organized, comprehensive briefing material sent to the team members in preparation for the reassessment.

Special thanks also to Karin Mongeon, Office of Traffic Safety, Tim Wiedrich, Emergency Preparedness and Response Section, and Darleen Bartz, PhD., Health Resources Section.

## INTRODUCTION

A brief visit to North Dakota is all it takes to appreciate and embrace what Frank L. McVey, former President of the University of North Dakota, knew to be true when he wrote, "We believe in North Dakota, in the beauty of her skies, and in the glory of her prairies. We believe in the people of North Dakota, in their strength of body and mind, in their high sense of right, and in their desire to establish a great commonwealth wherein the things that count for human welfare shall be first. We pledge the hand of hospitality and extend a welcome to our Commonwealth where peace and happiness may be found. We, as a people, seek unity of purpose; we desire to lead a richer common life, and hope to render a larger service to the State and the nation."

To the uninitiated, North Dakota might connote an austere land where living is made difficult. They, however, would be clearly unaware of North Dakota's heritage, pride, and noteworthy accomplishments. It is the epicenter of North America. It was a crucial stop for frontier explorers, and historians cannot help but to retrace the steps of many early Americans through North Dakota. North Dakotans are hardy. The state has the greatest proportion of population older than 85 years, and is considered the ninth healthiest state in the nation.

Dakota, the Sioux Indian word for "friend," could not be more apropos. Undoubtedly, friendship, a desire to help one's neighbor, and spirit of volunteerism have driven North Dakota EMS into the 21<sup>st</sup> century. While all desire service and care to be state-of-the-art, interesting dichotomies persist. On the one hand there exists an incredible air of cooperation and vision among State agencies and with the North Dakota EMS Association. On the other hand, the same volunteerism that has fueled the EMS system to date also breeds pride and subsequent difficulty in assimilating novel approaches to improvements.

The geography and population distribution in North Dakota present considerable challenges to providing EMS for the State. At the foundation is a challenge to determine what the goals of the EMS system should be, and how they might be different across the heterogeneous communities of the State. Limited resources create pressures to identify and then deliver optimal EMS in frontier areas.

However, the citizens and visitors of North Dakota are fortunate. In addition to dedicated volunteer and career professionals, they surely benefit from an attentive state government. Agencies cooperate and support one another. The relationship between the Office of Traffic Safety (OTS) and Division of EMS (DEMS) is surely a model worthy of replicating. Within DEMS there is expertise, vision, and energy to serve the State.

The Technical Assistance Team greatly appreciated the commitment of time, expertise, and candor of those it met. The dedication of North Dakota's EMS providers and those

who lead them is clearly evident. We are confident that, no matter how challenged by all the things that make North Dakota a special place to be, those charged with organizing and providing North Dakota's EMS system will innovate and serve the people in the best possible way.

# **NORTH DAKOTA EMERGENCY MEDICAL SERVICES (EMS)**

The TAT revisited the ten essential components of an optimal EMS system that were used in the *State of North Dakota: An Assessment of Emergency Medical Services*, in 1992. Those components provided the basis for an evaluation or quality assurance report founded 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 1997 Reassessment Standards as a basis for recommendations for EMS system improvement. At the request of North Dakota, Emergency Preparedness has been included in this re-assessment.

## **A. REGULATION AND POLICY**

### **Standard**

To provide a quality, effective system of emergency medical care, each EMS system must have in place comprehensive enabling legislation with provision for a lead EMS agency. This agency has the authority to plan and implement an effective EMS system, and to promulgate appropriate rules and regulations for each recognized component of the EMS system (authority for statewide coordination; standardized treatment, transport, communication and evaluation, including licensure of out-of-hospital services and establishment of medical control; designation of specialty care centers; PIER programs). There is a consistent, established funding source to adequately support the activities of the lead agency and other essential resources which are necessary to carry out the legislative mandate. The lead agency operates under a single, clear management structure for planning and policy setting, but strives to achieve consensus among EMS constituency groups in formulating public policy, procedures and protocols. The role of any local/regional EMS agencies or councils who are charged with implementing EMS policies is clearly established, as well as their relationship to the lead agency. Supportive management elements for planning and developing effective statewide EMS systems include the presence of a formal state EMS Medical Director, a Medical Advisory Committee for review of EMS medical care issues and state EMS Advisory Committee (or Board). The EMS Advisory Committee has a clear mission, specified authority and representative membership from all disciplines involved in the implementation of EMS systems.

## Status

The North Dakota legislature has made provisions in N.D.C.C. 23-27 for the Division of Emergency Medical Services (DEMS) within the North Dakota Department of Health (DOH) to serve as the State's lead agency for EMS. Included in the legislation is authority for licensing air and ground ambulance services, licensing of training institutions, authority for administrative rules regarding EMS personnel licensure and the distribution of grant funds. N.D.C.C. 23-01.2 enables DEMS to establish a statewide trauma system, designate hospitals as trauma centers and establish a trauma registry. DEMS has adopted administrative rules specifically addressing the relevant details for which authority is provided in law.

Funding for EMS in North Dakota comes from both State and federal sources. DEMS receives State General Funds for office operations, training and personnel grants. Section 402 funding from the North Dakota Office of Traffic Safety is used to support training, testing and certification activities. DEMS also uses Section 408 funds to support a National EMS Information System (NEMSIS)-compliant EMS information system. DEMS participates in the federal EMS for Children (EMS-C) program and receives grant funding from the Health Resources and Services Administration (HRSA) to support staffing and limited program activity. The total amount of this funding per biennium is approximately:

- \$ 605,000 for EMS Office operations
- \$1,240,000 for EMS training grants
- \$1,250,000 for EMS staffing grants
- \$125,000 for grants to agencies establishing quick response units (QRUs)
- \$ 230,000 for the EMS-C program

North Dakota does not have provision in statute for any oversight group other than the State Health Council that has responsibility for all Department of Health activities. Despite the lack of a specific directive for such a group, DEMS has voluntarily organized relevant stakeholders as an EMS advisory committee. This group includes the key constituencies within the EMS community and serves to assist DEMS with policy development and promulgation of rules. Similarly, DEMS has established an EMS-C advisory committee that exists to coordinate grant activities and advise the EMS-C Coordinator on pediatric EMS issues. There is also a State Trauma Committee. There has been no legislative or regulatory provision that integrates pediatric EMS needs with other system components.

DEMS appears to enjoy a very positive working relationship with the North Dakota EMS Association. This group is publicly committed to improving EMS in the State and advocating in an organized way for legislative and policy changes that support the EMS system.

A few gaps exist in the current infrastructure of policy and regulation. One is the voluntary licensure of QRUs. It appears that the voluntary licensure arrangement accommodates those QRUs that exist with little formal structure and minimal training. While the notion of minimizing demands on volunteers is laudable, the government of North Dakota is not fulfilling its role to assure the safety of vulnerable patients who dial 9-1-1 at a time in their lives when they are in no position to choose who will respond.

Another need is the ability to ensure that EMS agencies are participating with their medical directors in some form of quality improvement program. During the presentations, it was noted that ambulance inspections are not routinely performed due to staff and time limitations. Medical directors described a specific need for support in the physician component of case reviews and quality improvement. Given the extensive voluntary contributions by physicians across the State, this seems like a modest new expenditure in support of the quality improvement process for EMS.

The progress that the North Dakota EMS system has achieved is admirable given the limitations in staff and funding at DEMS. The State has committed considerable resources in areas of training and personnel support. For DEMS to provide the leadership to fulfill the recommendations in this report, they will need both additional personnel and funding.

The State Legislature is interested in defining reasonable metrics for the provision of emergency medical services to meet the needs of the citizens of North Dakota. This matter involves many elements, including cost, access, workforce, and operational control. These are thorny issues that in the end will require an improved level of understanding from ambulance services, QRUs, medical directors, County and State elected officials, and ultimately the public if the State is going to make any significant changes in the current model of service delivery. Sustainability of the current volunteer ambulance model in the most rural and frontier areas was referenced by many presenters as problematic. The commitment of volunteer EMS personnel has been a key element in providing ambulance service in difficult to reach communities for many years and must be acknowledged. The development of specific pathways for future ambulance service delivery will take planning and cooperation to find a model(s) that best fits the preferences of North Dakotans for cost, quality and access. The roles of many different groups including County government in supporting EMS delivery will need to be explored and defined. It is acknowledged that systemic change is never easy and the tendency of local providers to strongly defend the status quo will likely mean that evolution through incremental steps will be necessary.

## Recommendations

- **DEMS and the North Dakota Legislature should work together to establish mandatory licensing for all QRUs.**
- DEMS should take steps to have the EMS Advisory Committee formally recognized in either administrative rule or policy. The relationship of the EMS-C Advisory Committee to the EMS Advisory Committee should be considered in this update.
- DEMS should facilitate a statewide dialogue on public expectations for EMS in North Dakota and development of service delivery model(s) consistent with those expectations.
- **DEMS should formalize and update the current ambulance inspection program to include technical assistance visits for quality improvement and service operations.**
- The North Dakota Legislature should identify resources to support DEMS in establishing quality improvement coordinators that can work with local physician medical directors in preparing case reviews and other quality improvement activities.
- The North Dakota Legislature should take steps to provide resources for the support of EMS-C coordination and activities beyond the federal granting period.
- **The North Dakota Legislature should provide additional staff and financial support to DEMS for them to achieve the recommendations in this report.**

## **B. RESOURCE MANAGEMENT**

### **Standard**

Central coordination and current knowledge (identification and categorization) of system resources is essential to maintain a coordinated response and appropriate resource utilization within an effective EMS system. A comprehensive State EMS plan exists which is based on a statewide resource assessment and updated as necessary to guide EMS system activities. A central statewide data collection (or management information) system is in place that can properly monitor the utilization of EMS resources; data is available for timely determination of the exact quantity, quality, distribution and utilization of resources. The lead agency is adequately staffed to carry out central coordination activities and technical assistance. There is a program to support recruitment and retention of EMS personnel, including volunteers.

### **Status**

DEMS has the statutory and regulatory authority to coordinate, categorize and regulate the components of an EMS and trauma system within the State. That said, DEMS is challenged in accomplishing these tasks due to a number of factors including insufficient staff, the potential for losing service in vulnerable communities, lack of a state medical director, and permissive statutory language allowing some QRUs to avoid regulatory oversight. The current effort to ensure the continued operations of rural/frontier ambulance services and QRUs has placed DEMS in the delicate position of having to choose between enforcement of laws and continuity of service.

While there are four trauma regions which appear to have been developed based upon historic hospital transfer patterns, DEMS has few if any of its program initiatives (except trauma system development) based on these regions. Presentations and documentation suggested that all DEMS activities are centralized. From an operational perspective there appear to be two EMS systems operating in North Dakota. In the larger cities and towns the EMS and trauma system appears to function well. In the rural areas of the state this is not as clearly the case.

DEMS has developed important partnerships with the North Dakota EMS Association, the North Dakota Trauma Foundation and the North Dakota Healthcare Association. These groups along with current DEMS leadership and staff have identified many weaknesses with the EMS and trauma system and together have spent many hours working to identify methods for achieving an improved system. This NHTSA EMS Reassessment along with the anticipated visit by the American College of Surgeons Trauma System Consultation team will inform DEMS response to the legislative assessment. This interest on the part of the Legislature appears to signal a willingness to evaluate and take the steps necessary to

enhance the system.

There exists a statewide central data collection system (SOAR) that continues to mature. This system will ultimately provide a foundation for analysis of appropriate utilization of resources.

DEMS continues to serve as a coordinating entity for Critical Incident Stress Management (CISM) requests from EMS providers across the state. When a request is received, DEMS contacts one of a cadre of trained CISM professionals that is on call in that area of the state. This individual then coordinates and conducts a session(s) as requested. DEMS covers the travel costs for the professional from its budget.

DEMS should be commended for enlisting an excellent staff of trained individuals. Currently there are 8.5 FTE's in the Division. The regulatory responsibilities of the Division are significant, limiting the capacity to provide significant technical assistance to EMS and trauma stakeholders.

## Recommendations

- The North Dakota Legislature should provide DEMS with the financial and staffing resources to ensure it is able to fully meet its regulatory and programmatic responsibilities, including assisting in the provision of QA/QI initiatives with rural ambulance services.
- **DEMS should update the State EMS Plan for North Dakota, adding a pediatric component and utilizing available tools like the Model State EMS Plan developed by the National Association of State EMS Officials.**
- DEMS should identify and share existing technical assistance tools to the EMS provider community, including EMS management/ budgeting courses and data analysis and benchmarking courses available through national technical assistance centers.

## **C. HUMAN RESOURCES AND TRAINING**

### **Standard**

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the State. The State EMS lead agency has a mechanism to assess current manpower needs and establish a comprehensive plan for stable and consistent EMS training programs with effective local and regional support. At a minimum, all transporting out-of-hospital emergency medical care personnel are trained to the EMT-Basic level, and pre-hospital training programs utilize a standardized curriculum for each level of EMT personnel (including EMS dispatchers). EMS training programs and instructors are routinely monitored, instructors meet certain requirements, the curriculum is standardized throughout the State, and valid and reliable testing procedures are utilized. In addition, the State lead agency has standardized, consistent policies and procedures for certification (and re-certification) of personnel, including standards for basic and advanced level providers, as well as instructor certification. The lead agency ensures that EMS personnel have access to specialty courses such as ACLS, PALS, BTLs, PHTLS, ATLS, etc., and a system of critical incident stress management has been implemented.

### **Status**

Through authority established in administrative rule, DEMS has positioned itself as the licensing and certification agency for EMS personnel.

At present there are about 5138 total certified EMS personnel in the system at the following levels:

508 Driver  
48 Red Cross Advanced First Aid  
1972 First Responders  
1809 EMT-Basic  
302 EMT-Intermediate  
388 EMT-Paramedic  
111 Nurse

The overwhelming majority of these personnel are volunteers who serve in fairly low volume agencies.

The North Dakota legislature has provided DEMS with significant financial resources to support the delivery of EMS training. Over \$600,000 each year is available for grants to local agencies in support of training for their personnel. DEMS also accesses \$140,000 of Section 402 funds from the Division of Traffic Safety for training, testing, certification and licensing. DEMS in cooperation with the North Dakota EMS Association offers a

centralized program of practical testing for EMS personnel several times each year.

Most of the courses at or below the EMT-Intermediate level are delivered locally by licensed instructor/coordinators. EMT-Paramedics are trained in one of four programs, two of which are based in academic institutions. The State has established January 2010 as the date by which all Paramedic programs must be accredited.

All of the licensure levels have defined scopes of practice. There is provision for the addition of some enhanced skills for the EMT-Intermediates. EMT-Intermediates and EMT-Paramedics require a documented physician medical control relationship to hold licensure and function at an advanced life support level.

Concern was expressed about the uniformity and quality of some training at or below the EMT-Intermediate level. Many of the licensed EMS instructor/coordinators teach relatively infrequently. Other than monitoring test pass rates, there is little quality improvement applicable to instructor/coordinators. Improving the initial training of these educators was cited by several presenters as an approach to consider for the future.

A relatively recent change has been the opportunity to license training institutions. Currently there are five institutions that have committed through licensing to a series of quality standards in exchange for the ability to organize and deliver initial and continuing education courses without prior approval from DEMS. The licensed institutions can also arrange their own practical testing. The results to date have been very positive with graduates of the licensed institution courses achieving a 90% pass rate on National Registry of EMTs testing compared to 78% from non-licensed programs.

While there has been no formal needs assessment of personnel requirements within the North Dakota EMS system, a number of presenters indicated that deficiencies exist predominantly within the rural/frontier volunteer agencies. By contrast, the larger squads in population centers reported more stable staffs of career personnel that develop with experience in agencies that have stronger internal quality improvement programs.

The phenomenon of paramedics migrating from field duties into management or pursuing other medical training as physicians, nurses, etc. parallels other national reports and represents a challenge for keeping excellent and experienced personnel on the streets.

DEMS approves both initial and continuing education offerings in the State. There were reports that continuing education offerings for courses such as PHTLS, PEPP or PALS are sometimes challenged by the lack of funding and qualified specialty instructors.

North Dakota has wisely chosen to use existing national guidelines and programs in its EMS training infrastructure. That decision has positioned the State well to implement the *EMS Education Agenda for the Future*. Using the Agenda's components of the National EMS Scope of Practice Model, National Education Standards, National

Certification Testing and National Paramedic Program Accreditation represents good policy for both the citizens served by EMS and the provider agencies who depend on a quality workforce. Implementing the *EMS Education Agenda for the Future* will also help make the reciprocity of personnel into and out of North Dakota smooth.

## Recommendations

- **DEMS should continue its plans to implement the *EMS Education Agenda for the Future* and transition existing personnel into the new levels defined in the National EMS Scope of Practice Model.**
- DEMS should expand the licensed training institution model and continue to monitor the success of this approach.
- DEMS, in cooperation with the instructor/coordinator community, should examine the initial and continuing education of EMS instructor/coordinators in an effort to improve the quality and uniformity of course delivery.
- DEMS should consider a formal human resources needs assessment as a component of other planning for future EMS delivery in rural and frontier areas of the State.
- DEMS should enhance its web based listing of courses. Communication with the instructor/coordinator community should occur to encourage participation in this effort.

## **D. TRANSPORTATION**

### **Standard**

Safe, reliable ambulance transportation is a critical component of an effective EMS system. The transportation component of the State EMS plan includes provisions for uniform coverage, including a protocol for air medical dispatch and a mutual aid plan. This plan is based on a current, formal needs assessment of transportation resources, including the placement and deployment of all out-of-hospital emergency medical care transport services. There is an identified ambulance placement or response unit strategy, based on patient need and optimal response times. The lead agency has a mechanism for routine evaluation of transport services and the need for modifications, upgrades or improvements based on changes in the environment (i.e., population density). Statewide, uniform standards exist for inspection and licensure of all modes of transport (ground, air, water) as well as minimum care levels for all transport services (minimum staffing and credentialing). All out-of-hospital emergency medical care transport services are subject to routine, standardized inspections, as well as “spot checks” to maintain a constant state of readiness throughout the State. There is a program for the training and certification of emergency vehicle operators.

### **Status**

The State of North Dakota has 137 ground ambulance services, two rotor wing and two fixed wing ambulance services that responded to a reported 57,000 calls annually. The State has made significant progress towards implementing recommendations provided in the original NHTSA EMS Assessment in 1992. Minimum staffing requirements for a basic life support ambulance now include an EMT and driver. Minimum staffing requirements for an advanced life support ambulance include a paramedic and an EMT. Licensing and inspection standards for air ambulances exist.

Challenges exist that affect the provision of EMS and trauma services in the State. While the entire state has ambulance coverage, presenters indicated that timely service in some parts of the state cannot be ensured. Many counties are served by a single, volunteer BLS ambulance service. Volunteer services across the country are challenged to ensure availability of adequate staff to respond in a timely fashion, and North Dakota is no exception. In some areas of the state, ALS ambulances are few and far between, and there does not appear to be a coordinated, tiered response to ensure the best possible provision of pre-hospital care. The two existing helicopter EMS services do not provide adequate coverage for the vast geography of the State.

Limited staffing at DEMS has made it impossible to complete the required inspection of the ambulance services. This leaves DEMS unable to ensure the reliability or safety of the ambulance fleet.

DEMS has specific plans to overcome several challenges it faces including the development of a regular inspection plan, continuation of a grant program to increase the number of licensed QRUs and opening communications with the PSAPs to better understand the difficulties associated with dispatching resources. Importantly, DEMS now requires that services notify them when an ambulance has been involved in a crash resulting in bodily injury or costs greater than \$1,000.

## Recommendations

- DEMS, with legislative support, should increase the number of staff assigned to inspection of ambulances to ensure that each service is inspected as described in statute/rule. Coordinate the inspection activities with the technical assistance activities described in the Regulation and Policy section of this document.
- The North Dakota Legislature should change the legislation to require licensing of all QRUs. Consider removing the requirement for 24/7 capability.
- DEMS should develop model protocols that facilitate appropriate use of ALS intercepts and rotor wing response to emergency scenes.
- **DEMS should update its pediatric equipment requirements for ambulances.**
- **DEMS should work with the hospital community to formally develop a critical care ground transport network to meet the specialized needs of trauma patients, pediatric patients, or other special populations.**

## **E. FACILITIES**

### **Standard**

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. The lead agency has a system for categorizing the functional capabilities of all individual health care facilities that receive patients from the out-of-hospital emergency medical care setting. This determination should be free of political considerations, is updated on an annual basis and encompasses both stabilization and definitive care. There is a process for verification of the categorizations (i.e., on-site review). This information is disseminated to EMS providers so that the capabilities of the facilities are known in advance and appropriate primary and secondary transport decisions can be made. The lead agency also develops and implements out-of-hospital emergency medical care triage and destination policies, as well as protocols for specialty care patients (such as severe trauma, burns, spinal cord injuries and pediatric emergencies) based on the functional assessment of facilities. Criteria are identified to guide interfacility transport of specialty care patients to the appropriate facilities. 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 another facility. The lead agency has a method for monitoring if patients are directed to appropriate facilities.

### **Status**

In North Dakota, there are 43 licensed hospitals with emergency room capabilities and two Indian Health Service hospitals. Thirty-three of these hospitals are critical access hospitals. North Dakota has 38 hospitals (including out-of-state facilities) voluntarily participating in the statewide trauma system, including:

Level II = 6

Level III = 1

Level IV = 21

Level V = 10

There are currently eight North Dakota hospitals not designated as part of the trauma system, but three plan to be designated in the near future. One trauma center (the single Level III) is reportedly in danger of closing because it is financially stressed and not eligible for critical access hospital status. All hospitals in the state can communicate with each other over the internet with a minimum of T1 connectivity.

Trauma center designation is voluntary in North Dakota. Level II and III trauma centers are designated by DEMS following a successful ACS site visit. Level IV and Level V trauma centers are designated by DEMS following a successful state review and site visit. There is no pediatric-specific trauma center in North Dakota, nor is there a way to

determine pediatric capability or expertise at any trauma center level other than by ACS verification visit.

Ambulances are required to transport patients to the nearest appropriate licensed healthcare facility according to their hospital transport plan with the following exceptions:

- Major trauma patients must be transported to the nearest designated trauma center.
- A patient suffering acute chest pain must be transported to a licensed healthcare facility capable of performing percutaneous catheter insertion or thrombolytic therapy.
- In cities with multiple hospitals, an ambulance service may bypass one hospital to go to another with equal or greater services if the additional transport time does not exceed 10 minutes.

Despite a state requirement that ambulance services transport major trauma patients to the nearest designated trauma center, one identified problem is that ambulances frequently transport trauma patients to the local hospital even if that hospital is not a trauma center. Appropriate transfer agreements between hospitals exist, including those that are out of state but participate in the North Dakota trauma system. Transfer protocols are in place within the EMS regulations.

There are no statewide hospital diversion policies in place. Each individual hospital develops its own policies/procedures for notifying ambulance services and other facilities that the hospital is unable to accept patients.

## Recommendations

- **The North Dakota Legislature should make hospital participation in the trauma system mandatory so that an inclusive trauma system is created.**
  - Ensure appropriate distribution of hospitals vital to the care of injured patients in frontier North Dakota through a statewide needs assessment and the designation process.
  - Encourage each hospital to participate and be designated at the highest level at which it is capable.
  - Update Level IV and V trauma center standards.
- **DEMS should update the trauma triage protocol to be consistent with current ACS standards.**
  - Develop a method to enforce trauma patient transport only to the most appropriate designated facilities.
  - Recognize and plan for the differences that exist in management of and equipment needs for the injured child.

- DEMS should continue to work in concert with the North Dakota Healthcare Association.
- DEMS should develop strategies to improve the trauma education of physicians, nurses, and midlevel providers in Level IV and V trauma centers.
- DEMS should develop standards and guidelines to ensure pediatric needs are met at each hospital. These standards and guidelines should pertain to ED care, interfacility transfer and transport, and rehabilitation.

## **F. COMMUNICATION**

### **Standard**

A reliable communications system is an essential component of an overall EMS system. The lead agency is responsible for central coordination of EMS communications (or works closely with another single agency that performs this function) and the state EMS plan contains a component for comprehensive EMS communications. The public can access the EMS system with a single, universal emergency phone number, such as 9-1-1 (or preferably Enhanced 9-1-1), and the communications system provides for prioritized dispatch. There is a common, statewide radio system that allows for direct communication between all providers (dispatch to ambulance communication, ambulance to ambulance, ambulance to hospital, and hospital to hospital communications) to ensure that receiving facilities are ready and able to accept patients. Minimum standards for dispatch centers are established, including protocols to ensure uniform dispatch and standards for dispatcher training and certification. There is an established mechanism for monitoring the quality of the communication system, including the age and reliability of equipment.

### **Status**

All locations in North Dakota are now served by an enhanced 9-1-1 system. There are 23 Public Safety Answering Points (PSAP) including a statewide PSAP that covers jurisdictions that do not have their own PSAP. There are a few PSAPs that cover a region of multiple communities, but the majority of PSAPs are governmental agencies that cover a single community. The state radio system communications center is capable of backing up all local PSAPs if needed.

North Dakota now requires that all emergency dispatchers complete a course and remain certified, in emergency medical dispatch (EMD). All emergency medical dispatchers utilize standardized call prioritization and pre-EMS arrival telephone instructions according to industry accepted protocols. DEMS certifies EMD personnel based on a state-approved 24-hour course. In addition, all PSAPs require their dispatchers to be trained according to the Association of Public Safety Officers (APCO) 40-hour training course. This is a notable achievement.

Some communities have established reverse 9-1-1 systems, but there does not appear to be any coordinated effort. Some PSAPs are installing proprietary systems that may not interface with others.

North Dakota has long-benefited from a statewide radio system. This system is

supported throughout the state with a network of 36 radio towers. This system supports multiple public service agencies, and enables EMS radio communications virtually anywhere in the State. The statewide radio network has been updated to be APCO Project 25 (P25) compliant. P25 is an industry-wide effort to develop a voluntary standard for uniform digital two-way radio for public safety organizations. The current system is both analog and digital capable, although the digital function has not been activated yet, as only half of the public safety agencies in North Dakota currently have digital equipment. The State Radio coordinator considers the analog equipment to be obsolete and is emphasizing the need to fully convert to all digital. However, costs to upgrade the remainder of the state public safety agencies are estimated at \$25,000,000.

Day-to-day EMS communications appear to run smoothly. Interoperability of the communications system in the event of a large-scale emergency remains untested. The State of North Dakota has been engaged in planning and system upgrades for several years. There is confidence that, in a large scale event, the State Radio system will enable communications of various public safety entities from within the state. However, problems are anticipated in a major event (i.e. one in which agencies from other states and/or the federal government are involved).

North Dakota has a multidisciplinary project advisory committee working on interoperability issues, and is progressive regarding such technologies as Automatic Vehicle Locator (AVL) and Next Generation 9-1-1. EMS has a place at the table, and is represented in many subcommittees and task force groups. It is not clear if there is sufficient feedback from these EMS representatives to the EMS community.

Local PSAPs appear to be functioning adequately, although there is only anecdotal evidence to support this. Local PSAPs are highly sensitive to any efforts toward consolidation of services. There is no consistent performance improvement process for PSAP emergency medical dispatch practice. PSAPs are not required to submit EMD data to DEMS, although DEMS has recently asked PSAPs to provide data regarding delayed response times of EMS agencies in their jurisdictions. The reporting form is online and is a voluntary process at this point, and response has been sporadic. It has been reported that in many jurisdictions once an EMS unit has been dispatched PSAPs do not obtain any further information by radio confirming whether a unit is responding, on scene, etc. There is no consistent mechanism that advises a PSAP about actual availability of EMS resources at any given time.

## Recommendations

- **DEMS should enhance collaborations with PSAPs for data sharing, such as EMS unit failure to respond and delayed response. DEMS should use this opportunity to determine other information and data sharing potential (e.g. auto-population of the SOAR response time fields).**
- DEMS should encourage and provide technical assistance for performance improvement process for PSAP EMD activities.
- DEMS and State Radio should ensure that the needs of the EMS community are fully represented in efforts to establish public safety communications interoperability. DEMS should have direct representation on the State Radio committee doing this work.
- DEMS should have a communications chapter in the state EMS plan if not a separate EMS communications plan.

## **G. PUBLIC INFORMATION, EDUCATION AND PREVENTION**

### **Standard**

To effectively serve the public, each State must develop and implement an EMS public information and education (PI&E) program. The PI&E component of the State EMS plan ensures that consistent, structured PI&E programs are in place that enhance the public's knowledge of the EMS system, support appropriate EMS system access, demonstrate essential self-help and appropriate bystander care actions, and encourage injury prevention. The PI&E plan is based on a needs assessment of the population to be served and an identification of actual or potential problem areas (i.e., demographics and health status variable, public perceptions and knowledge of EMS, type and scope of existing PI&E programs). There is an established mechanism for the provision of appropriate and timely release of information on EMS-related events, issues and public relations (damage control). The lead agency dedicates staffing and funding for these programs, which are directed at both the general public and EMS providers. The lead agency enlists the cooperation of other public service agencies in the development and distribution of these programs, and serves as an advocate for legislation that potentially results in injury/illness prevention.

### **Status**

Public information and education (PI&E) initiatives for EMS in North Dakota are almost exclusively injury prevention activities. There is little to no widespread effort to educate the public about the EMS System.

The North Dakota Office of Traffic Safety (OTS) takes on a number of highway-related injury prevention projects each year. Particularly relevant are data driven efforts at increasing seatbelt usage and reducing drunk driving. There is a close collaboration between OTS and DEMS, with OTS providing funding for several positions within DEMS and supporting data collection and analysis. OTS is proactive in supporting EMS as one of the Four E's of the Strategic Highway Safety Plan (engineering, education, enforcement, EMS). This collaboration is a substantial asset to the North Dakota EMS System.

DEMS has limited involvement in injury prevention. What participation does exist is almost exclusively through the EMS-C project, which is active in a variety of community-based childhood injury prevention activities. The EMS-C Coordinator participated on a task force to consider how to enhance the State's seat belt law to be a primary law. In addition the Division's Trauma Coordinator participates in injury prevention planning activities with trauma centers and other collaborators in the State.

There is little evidence of any consistent effort on a statewide level to provide the public with information about the EMS system beyond the national EMS Week campaign.

DEMS has actively supported this program by distributing the ACEP EMS Week materials to local EMS agencies, facilitating the annual Governor's Proclamation of EMS Week and submitting press releases to that effect. The North Dakota EMS Association recognizes the need to create "value" for EMS in the eyes of the public. As it becomes more involved in legislative initiatives it is increasingly apparent to the leadership that recognition for EMS and trauma systems is important.

DEMS has an educational presentation on its website for NHTSA's Public Information, Education and Relations (PIER) program. This program is designed to instill skills in the EMS community to effectively promote community awareness of EMS and injury prevention, and how EMS can work effectively with the media. DEMS had a person trained to conduct the PIER program at one time, but that resource was not replaced when the person left the Division.

## **Recommendations**

- DEMS should work closely with the North Dakota DOH staff to provide resources for public information on EMS and injury prevention. DEMS does not have to conduct these programs directly, but should develop and promote programs intended to be used by local EMS agencies. An example would be an "Introduction to EMS" video or slideshow that EMS agencies can use for presentations to local groups.
- DEMS should support the provision of PIER training to EMS personnel and facilitate such presentations at the State's EMS conferences.

## **H. MEDICAL DIRECTION**

### **Standard**

EMS is a medical care system that involves medical practice as delegated by physicians to non-physician providers who manage patient care outside the traditional confines of office or hospital. As befits this delegation of authority, the system ensures that physicians are involved in all aspects of the patient care system. The role of the State EMS Medical Director is clearly defined, with legislative authority and responsibility for EMS system standards, protocols and evaluation of patient care. A comprehensive system of medical direction for all out-of-hospital emergency medical care providers (including BLS) is utilized to evaluate the provision of medical care as it relates to patient outcome, appropriateness of training programs and medical direction. There are standards for the training and monitoring of direct medical control physicians, and statewide, standardized treatment protocols. There is a mechanism for concurrent and retrospective review of out-of-hospital emergency medical care, including indicators for optimal system performance. Physicians are consistently involved and provide leadership at all levels of quality improvement programs (local, regional, state).

### **Status**

North Dakota statute establishes the authorities of EMS medical directors. It further stipulates that EMS personnel at basic or advanced levels may not practice without a physician in the chain of command. Advanced providers cannot be licensed without a physician's endorsement. Each EMS medical director has complete and total discretion with regard to who may work with him/her. Each ambulance service must have a medical director in order to be licensed. If they receive from each ambulance service \$10,000 or less for their efforts, EMS medical directors are protected from liability.

The DEMS has promulgated sample EMS protocols. However, each EMS medical director has discretion to develop protocols for his/her ambulance services and EMS personnel. The only stipulation is that protocols may not exceed defined scopes of practice for EMS providers at their credentialed levels.

However, ensuring provision of qualified medical direction for North Dakota's EMS system is a considerable and sometimes unmet challenge. There is no state EMS medical director. Thus, there is no statewide physician champion for the EMS system or EMS physician within DEMS to help guide and support efforts to advance clinical issues. A clinical perspective within DEMS is lacking. 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. Instead, the DEMS relies to some extent on the state's EMS Medical Director Society to provide advice and counsel when needed.

Estimates indicate that 80% of North Dakota's population is served by EMS that benefit from engaged medical direction. This includes the ten largest cities and towns. The remaining 20%, and a disproportionate land mass, are less fortunate. There are no explicit qualifications for EMS medical directors. Without question, some are quite qualified and have been subsequently recruited by multiple ambulance services to serve in this capacity. The nature of North Dakota's population distribution results in limited local options for EMS medical direction. Thus, in cases whereby ambulance services may successfully solicit local physicians to help them satisfy regulatory requirements, these volunteer physicians may be unfamiliar with EMS. They often lack time and resources necessary to fulfill the potential of their roles.

Among EMS medical directors are those who are engaged and participate with their peers. The majority, however, does not attend EMS Medical Director Society meetings or network to address statewide or regional issues. The less than desirable result is substantial heterogeneity in the availability and application of EMS medical direction.

Some services benefit from active and qualified input from physicians for whom EMS is an avocation. Others yearn for such involvement but only have access to physicians willing to provide the air of legality. Likely, there are others who feel fortunate to be free of an engaged EMS medical director and the potential additional accountability that might entail.

EMS personnel must have the ability to obtain on-line medical direction. Yet, recent survey responses indicated that less than half of the state's ambulance services can reach a physician when they need to.

Heterogeneity with regard to EMS medical director involvement translates to similar disparity in terms of review of pre-hospital emergency medical care. There are no uniformly applied indicators of EMS system performance or clinical care quality. Even among physicians motivated to be involved in clinical performance assessment and improvement, several factors limit their efforts. These include their inability to volunteer sufficient time, lack of administrative assistance and resources, lack of regional coordination of efforts, and inconsistent willingness of EMS providers and ambulance services to engage issues.

## **Recommendations**

- **The North Dakota Legislature should establish, through statute, and fund the position of state EMS medical director, and DEMS 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.**

- **DEMS should develop, and the legislature should fund, the roles of regional EMS quality improvement specialists whose principle duties would involve supporting and coordinating efforts of EMS medical directors and facilitating their interactions with ambulance services and EMS personnel.**
- DEMS should ensure that each ambulance service in the state has and is aware of unrestricted access to on-line medical direction; such access may involve development of regional on-line medical direction centers.
- DEMS and the State EMS medical director, in collaboration with the EMS Medical Director Society and North Dakota EMS Association, should establish clinical performance indicators (at least a few) that are uniformly monitored throughout the state's EMS system.
- DEMS and the 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.

## **I. TRAUMA SYSTEMS**

### **Standard**

To provide a quality, effective system of trauma care, each State must have in place a fully functional EMS system; trauma care components must be clearly integrated with the overall EMS system. Enabling legislation should be in place for the development and implementation of the trauma care component of the EMS system. This should include trauma center designation (using ACS-COT, ACEP, APSA-COT and/or other national standards as guidelines), triage and transfer guidelines for trauma patients, data collection and trauma registry definitions and mechanisms, mandatory autopsies and quality improvement for trauma patients. Information and trends from the trauma registry should be reflected in PIER and injury prevention programs. Rehabilitation is an essential component of any statewide trauma system and hence these services should also be considered as part of the designation process. The statewide trauma system (or trauma system plan) reflects the essential elements of the Model Trauma Care System Plan.

### **Status**

DEMS is the lead agency for the North Dakota trauma system. The trauma system began with formation of the State Trauma Committee in 1993; a state trauma plan was then developed. Since that time, a voluntary trauma system within the state has become functional. The State Health Council establishes the standards and regulations for the state trauma system while DEMS has the authority to maintain and enforce them within the system.

The multidisciplinary State Trauma Committee is composed of 19 appointed members. Although State Trauma Committee functions are numerous, to this point the only charge that is routinely addressed by the committee is designation of Level IV and V trauma centers. Lack of steady funding for the trauma system is problematic. North Dakota annually invests only \$30,000 of general funds in addition to only one FTE working on trauma system issues full time. The state does support trauma provider education through partial funding of ATLS and TNCC courses.

The state is divided into 4 hospital regions based on historic referral patterns, four different trauma regions, and eight public health regions. Each trauma region has a Level II trauma center that acts as the lead facility.

Air transport exists but does not cover the entire state in a thoughtful manner based on need. Specifically, Bismarck and Southwest North Dakota have no helicopter

coverage. Current North Dakota triage guidelines are based on the American College of Surgeons *Resources for Optimal Care of the Injured Patient 1999*, which has been supplanted by a 2006 edition. An additional useful resource is the *HRSA Model Trauma System Planning and Evaluation* document.

The North Dakota state trauma registry has collected trauma patient data from both trauma centers and non-participating hospitals alike for many years, but is not functional. Efforts to work through problems with the vendor have been unsuccessful to date. The fact that this wealth of data has been unusable is a problem that is well-recognized by the DEMS. There has been no state trauma system QI activity.

## Recommendations

- **The North Dakota Legislature should update the trauma system legislation to include dedicated funding for trauma system operations and staffing.**
  - Develop a job description for a state trauma medical director and appoint one (may be 0.5 FTE or less).
- **DEMS should purchase functional software for state trauma registry and trauma center use.**
  - Mandate and enforce hospital trauma data submission.
  - Use statewide trauma data to analyze and improve care of the injured patient at all stages of care.
  - Develop and use a unique identifier for each trauma patient for trauma system tracking purposes.
  - Provide statewide, hospital-specific trauma care data to the National Trauma Data Bank (rather than from individual hospitals) and provide feedback to each participating facility.
  - Obtain statewide reliable financial data from prehospital services, hospitals, air transport, and rehabilitation services to better obtain a complete picture of the trauma problem in North Dakota and the effectiveness of system improvements.
  - Provide for deterministic and probabilistic linkage with other datasets such as State Online Ambulance Reporting (SOAR) and Fatality Analysis Reporting System (FARS) for evaluation of the entire clinical course of each trauma patient.
- **DEMS, in conjunction with the State Trauma Committee, should develop a strategy for trauma system QI across North Dakota.**
  - All trauma deaths should be reviewed at the level of the regional trauma committees.

- The State Trauma Committee should meet the goals set in its list of responsibilities, especially the charge to establish a quality improvement process.
  - Incorporate injury prevention activities into trauma system planning and QI.
  - Increase the frequency of trauma autopsies as part of the QI process.
  - Develop a map of trauma mortality rates by county for purposes of prioritizing DEMS activities, education of the state legislature, and establishing a baseline for measurement of intervention effectiveness.
- DEMS, in conjunction with the State Trauma Committee, should revise and update the state trauma system plan.
  - DOH should reconcile the four hospital regions, the four trauma regions, and the eight public health regions.
  - DEMS should discuss use of military helicopter resources with the appropriate authorities for special circumstance trauma patients.
  - DEMS should make use of the public health model of Assessment, Policy Development, and Assurance as described in the HRSA *Model Trauma System Planning and Evaluation* document.
  - DEMS should change its name to more accurately reflect its breadth of responsibility. Consider “Division of Emergency Medical Services and Trauma (DEMST)”.

## **J. EVALUATION**

### **Standard**

A comprehensive evaluation program is needed to effectively plan, implement and monitor a statewide EMS system. The EMS system is responsible for evaluating the effectiveness of services provided victims of medical or trauma related emergencies, therefore the EMS agency should be able to state definitively what impact has been made on the patients served by the system. A uniform, statewide out-of-hospital data collection system exists that captures the minimum data necessary to measure compliance with standards (i.e., a mandatory, uniform EMS run report form or a minimum set of data that is provided to the state); data are consistently and routinely provided to the lead agency by all EMS providers and the lead agency performs routine analysis of this data. Pre-established standards, criteria and outcome parameters are used to evaluate resource utilization, scope of services, effectiveness of policies and procedures, and patient outcome. A comprehensive, medically directed, statewide quality improvement program is established to assess and evaluate patient care, including a review of process (how EMS system components are functioning) and outcome. The quality improvement program should include an assessment of how the system is currently functioning according to the performance standards, identification of system improvements that are needed to exceed the standards and a mechanism to measure the impact of the improvements once implemented. Patient outcome data is collected and integrated with health system, emergency department and trauma system data; optimally there is linkage to data bases outside of EMS (such as crash reports, FARS, trauma registry, medical examiner reports and discharge data) to fully evaluate quality of care. The evaluation process is educational and quality improvement/system evaluation findings are disseminated to out-of-hospital emergency medical care providers. The lead agency ensures that all quality improvement activities have legislative confidentiality protection and are non-discoverable.

### **Status**

North Dakota is at a critical juncture in its intent and abilities to pursue meaningful evaluations of its EMS system. Previous investments are beginning to yield returns in the form of data that are submitted through the SOAR (statewide on-line ambulance reporting) system. The SOAR dataset is compliant with the National EMS Information System (NEMSIS). A research analyst, supported by OTS, is on staff at DEMS. A culture is evolving and tools are developing that will enable questions to be asked and answered about what works, and what does not, in North Dakota EMS. Quality improvement and evaluation products are explicitly protected from discovery in civil matters.

Despite progress, the directives of State statutes have yet to be fulfilled. Among them is provision of a mechanism to review and improve the quality of care rendered by EMS personnel. This responsibility has been relegated to EMS medical directors. But there is general awareness that quality improvement efforts at this level are often inadequate or even non-existent. Further, there is widespread appreciation for the inability of EMS providers within some individual ambulance services to implement their own quality monitoring or improvement initiatives. At the State level there has not yet been a serious effort to evaluate the EMS system.

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. The DEMS is very aware of parts of the EMS system structure. For example, there is excellent accounting of EMS personnel. However, the structure of the EMS system is anything but static and some components of the system are only partially considered. For example, there is continual flux as volunteer personnel may or may not be available in various areas, and ambulance services may provide advanced life support (ALS) care only part of the time. Additionally, DEMS has knowledge of only a fraction of Quick Response Units (QRU), including only those that have voluntarily chosen to become licensed. This is an important consideration, as QRUs undoubtedly represent a crucial part of the capacity of the EMS system.

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 DEMS is able to assess EMS response times, and has even gone to some effort to stratify such information by population density. 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, DEMS has relied on individual ambulance services and EMS medical directors to query the SOAR system on their own volition to possibly make such assessments. However, that is clearly not happening.

The difficult challenge is to evaluate outcomes. Certainly, there are anecdotes of excellence within the system. There are also accounts of miss-queues and sub-standard care. There have not been efforts to track outcomes, with the exception of statewide traffic-related mortality. Tracer conditions provide one possibility for measuring the effects of EMS in North Dakota. 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 North Dakota EMS. Thus, it is not possible to assess the effectiveness of the EMS system. The DEMS has at least four potential assets that should facilitate development of evaluation initiatives. They include SOAR, the statewide trauma registry, a research

analyst, and a full-time Emergency Medical Services for Children (EMS-C) manager. The energy, creativity, skill sets, and resources these include could be aligned to ask and answer serious questions about the EMS system. The resulting information could then be used to plan and implement future system improvements.

## Recommendations

- **DEMS should ensure that all EMS medical directors, ambulance service managers, and EMS personnel fully understand the importance and capabilities of SOAR.**
- DEMS should facilitate evaluation at the local levels, by preparing and disseminating tools or resources that EMS providers can use to develop understanding of the importance of evaluation and help them pursue specific evaluation efforts; such efforts might include dissemination of comparative or normative information derived from SOAR.
- **DEMS should develop focused evaluation projects, including utilization of tracer conditions.**
- **DEMS should assure that EMS providers enter data through SOAR within a defined period after an EMS event.**
- DEMS should establish specific goals and timelines with regard to its efforts to evaluate EMS structures, processes, and outcomes throughout North Dakota.
- DEMS and local EMS providers should use evaluation results to modify resource allocation, plan education programs, and educate policy and lawmakers, other health care workers, other EMS providers, and the public.

## K. EMERGENCY PREPAREDNESS

### **Status**

In the aftermath of 9-11, North Dakota, like other states, initiated a program of preparedness for a broad range of public health emergencies. The State has faced some significant public health emergencies. In 1997 the flooding in Grand Forks displaced over 30,000 people and required an evacuation of a hospital. About one hundred ill and vulnerable people ended up in an auditorium and had to be placed with no particular plan in advance. A train derailment spilled anhydrous ammonia near Minot and threatened that community.

Last year North Dakota received about \$5 million from the CDC for public health preparedness. The State also received about \$1.4 million from the Health and Human Services Assistant Secretary for Preparedness and Response (ASPR). These two programs have decreased their support to the state by 26 and 29% respectively since their inceptions. The State anticipated this erosion and has strategically decided to purchase rather than lease programs and equipment.

Today, the DOH is prepared to stand up an operations center for up to two weeks. This center can be operational within eight minutes. All staff is Incident Command Structure (ICS) trained and the center can be relocated to multiple backup locations.

Video conferencing over a dedicated wide area network is possible from the operations center. This capability does not depend on public networks such as the internet or telephone systems. Redundant backup communications on a public health high frequency radio network, via satellite phones, and through the State Radio system has also been arranged. DOH has purchased a backup communications trailer with various assets. The trailer can be deployed by DOH for off site needs or made available to other local partners.

The State has secured a cache of public health equipment including a large number of N-95 masks and other medical equipment. For assets with expiration dates, the State has contracts with vendors to maintain key inventories in a rotation system.

The National Guard is in place and prepared to assist in countermeasure distribution for equipment and drugs. Arrangements are in place for designated points of dispensing pharmaceuticals, vaccinations, antibiotics, and other important supplies. A near real time inventory control system is available to monitor distributions as they are made. The capability for statewide prophylaxis within 48 hours has been established. There are Chempacks at six North Dakota hospitals. Key hospital equipment resources such as ventilators have been purchased and pre-positioned for distribution.

Hospital surge capacity planning has identified the steps for response and distribution of patient as well as volunteer management. Two EMS physician medical directors reported their hospitals as operating at near capacity on a routine basis and expressed concerns about the ability of the EMS and hospital systems to absorb or relocate a significant number of patients either from a nodal or statewide event.

The DOH has arranged with the various professional licensing boards to transfer personnel data into the Health Alert Network. This allows DOH to reach out to specific professional groups on an as needed basis.

There is a public information communication plan. The DOH has one paid public health communications position. Standard messages in multiple languages have been created if necessary for various public health scenarios. There is a public health information hot line with 30 lines to handle public inquiries.

The ASPR funding has been a primary resource to EMS activities. Since November 2003, this source has distributed \$1.18 million to the North Dakota EMS Association. This has allowed the Association to support a full time Executive Director and participate in a wide range of EMS system improvement initiatives.

EMS surge response capacity has been built on a regional basis. A sponsoring ambulance service is identified as a host in each public health region. The host organization gets a cache of supplies. The host agency agrees to respond when an incident demands the need for the resources. Host agency team members commit to advanced ICS training, response team roles, and other key assignments. Dispatch of the EMS regional surge team can be through the usual host ambulance dispatch or through the DOH case manager.

There is a statewide triage system for patient tracking. The system uses START triage and MCI tags with bar coded capability. Commercial software combined with 90 handheld PDAs at hospitals creates capability for the entry of patients as they arrive at a hospital ED.

## **Recommendations**

- The DOH Emergency Preparedness and Response Section, in cooperation with DEMS, should verify the surge capacity of hospitals and EMS through an ongoing exercise program.
- DEMS, the North Dakota EMS Association and DOH Emergency Preparedness and Response Section should cooperatively identify opportunities to integrate EMS into other emergency planning and preparedness activities.

## **L. CURRICULUM VITAE**

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### **ORGANIZATIONS/APPOINTMENTS**

American Board of Emergency Medicine, Diplomate  
EMSI Regional EMS Council  
    Medical Direction Committee  
National Association of EMS Physicians  
    Chair, Program Committee; Board of Directors  
Society of Academic Emergency Medicine Committee  
American College of Emergency Physicians  
American Public Health Association  
Editorial Board, Assistant Editor  
    Annals of Emergency Medicine  
Principal Investigator  
    EMS Agenda for the Future  
    EMS Agenda for the Future Implementation Guide  
DOT/NHTSA, EMS Assessment Program, TAT, Member,  
    State of South Carolina  
DOT/ NHTSA EMS Reassessment Program, TAT, Member, States of Colorado,  
    Wisconsin, Delaware, Mississippi, and Montana.

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Trauma Center ACS Site Surveyor, ACS Verification & Review Committee  
Trauma Center State Site Surveyor, VA, PA, IL, WA, CO, and OR  
Ad Hoc Committee on Trauma System Consultation, ACS Committee on Trauma  
State Trauma System Reviewer NC, HI, CT, team leader AZ & TN  
HRSA, Division of Trauma and Emergency Medical Systems, Director (1993)  
International Chair, Advanced Trauma Life Support, American College of Surgeons  
Institute of Medicine, Committee on a Vision for Space Medicine Beyond Earth Orbit  
NATO Emergency War Surgery Handbook, 3<sup>rd</sup> US Revision, Editorial Board  
Ambroise Pare Military Surgical Forum of ISS-SIC, Past President  
Society of Apothecaries of London, Diploma in the Medical Care of Catastrophes, Examiner  
Uniformed Services University of the Health Sciences (USUHS), Professor of Surgery  
Oregon Health Sciences University, Clinical Professor of Surgery  
Resources Revision Committee,  
ACS "Resources for Optimal Care of the Injured Patient 2006"  
Oregon State Trauma Advisory Board  
*Journal of Trauma*, Senior Reviewer  
Program Committee, Medicine Meets Virtual Reality  
HRSA Ad Hoc Committee to write Model Trauma Care System Plan, 1992, 2003  
USDOT, NHTSA EMS Reassessment Program, Technical Assistance Team, Member,  
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### **ORGANIZATIONS/APPOINTMENTS**

National Association of State EMS Officials  
Past President  
Past Treasurer  
EMS Evaluation Agenda for the Future of Emergency Care  
Hospital Sub-committee Member  
Past Member Clearinghouse Management Committee  
New England Council for EMS  
Past President  
Executive Committee  
Vermont Strategic Highway Safety Highway Safety Planning Committee  
Steering Committee  
EMS Agenda for the Future  
Co-Chair  
EMS Agenda for the Future Implementation Guide Committee Member  
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  
USDOT, NHTSA EMS Reassessment Program, Member, States of Colorado, Alaska,  
Connecticut, Delaware, Mississippi, Oregon, Michigan and Kansas.  
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DOT, National Highway Traffic Safety Administration  
(March 1996 - to Present)

Director, Office of Emergency Medical Services  
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, Member  
Editorial Reviewer for *A Prehospital and Disaster Medicine*

**Terry Mullins, MBA**

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**ORGANIZATIONS/APPOINTMENTS**

Chief of the Arizona Department of Health Services, Bureau of EMS and Trauma System – 2 years

Manager of the Trauma-EMS Technical Assistance Center Manager, Maryland – 4 years

Manager of Great Falls Emergency Medical Services – 3 years

Director of Operations of Missoula Emergency Medical Services – 2 years

Paramedic – 11 years

Contributor and reviewer for:

*Model Trauma Systems Planning and Evaluation: Health Resources and Services Administration, February 2006*

*An Algorithmic Approach to Prehospital Airway Management: Prehospital Emergency Care, February 2005.*

USDOT, NHTSA EMS Technical Assistance Team, Reassessment Program, Member.

## **Clay Odell, EMTP, RN**

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### **ORGANIZATIONS/APPOINTMENTS**

National Association of State EMS Officials  
Executive Committee  
National Council of State Trauma System Managers  
Chair  
NH Paramedic Association  
Past President  
Society of Trauma Nurses  
Emergency Nurses Association  
Past State Delegate to National Convention  
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.