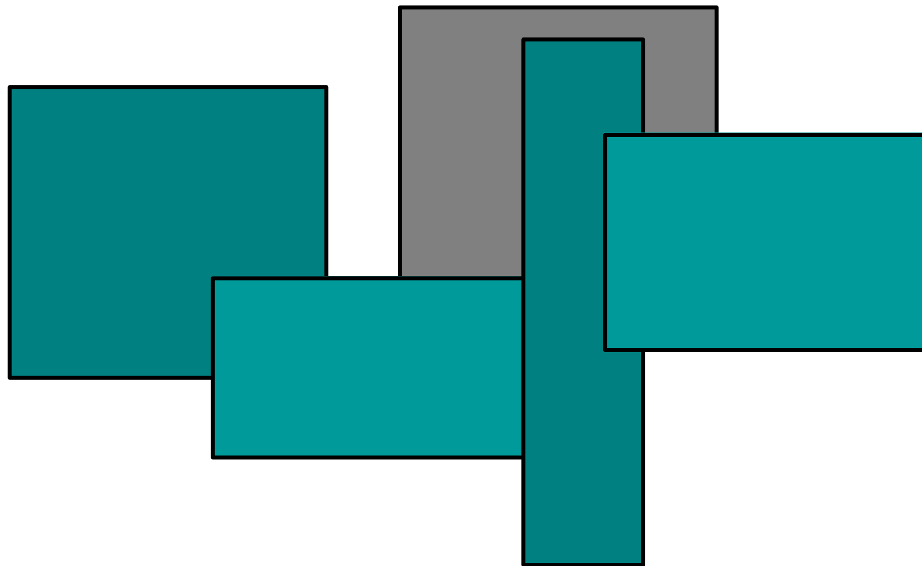

Southern Nevada Trauma System Study

American College of Surgeons
Consultation for Trauma Systems

Pre Review Questions

Submitted by:
Clark County Health District

February 24, 2004

ACS Consultation for Trauma Systems
Pre-Review Questions

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Southern Nevada Trauma System

Overview

The Nevada State Health Division has asked the Clark County Health District to conduct an assessment of the trauma system in the Las Vegas region. This assessment is being conducted partially by a system consultation visit by the American College of Surgeons (ACS) and through a needs assessment being conducted by The Abaris Group, a consulting firm that specializes in assessing trauma systems. In order to assure an objective and unbiased approach to the study, the Clark County Health District created an 11-member Citizens Trauma Task Force. The task force is comprised of business and community leaders in the Las Vegas area. Once the ACS and Abaris assessment have been completed, the Task Force will make recommendations to the Clark County Health District regarding the future trauma system and its configuration. These results will be forwarded to the Clark County Health District who will present its findings and recommendations to the Nevada State Health Division for their ultimate decision.

Currently there is one trauma center in Southern Nevada, the University Medical Center (UMC), which is a state designated and American College of Surgeons verified level I trauma center. In the fall of 2003, two hospitals in SouthernNevada notified the Nevada State Health Division that they would like to be considered for designation (Sunrise Hospital and Medical Center is seeking a level II designation and St. Rose Dominican-Siena is seeking a level III designation). If these two hospitals are to open trauma centers, they must first obtain verification by ACS and then be designated by the Nevada Board of Health.

By law, the State Board of Health is the designating authority with the responsibility for establishing a trauma program for the treatment of trauma. The oversight of this process for the trauma center application, designation and monitoring process is performed by the Nevada State Health Division through its Emergency Medical Services (EMS) Section.

The Southern Nevada assessment will culminate in a written needs assessment and a series of recommendations regarding trauma. Southern Nevada does not have a trauma plan. However, it is anticipated that a recommendation will be made to establish a formal trauma plan. Thus, in responding to the Pre Review Questions, several components have not been developed but will be considered during the assessment phase.

Background

Since 2000, Las Vegas has been host to over 35 million visitors every year. That equates to approximately 96,000 tourists daily. Of these visitors, 43 percent traveled to Las Vegas by motor vehicle.

Not surprising, the resident population growth in the region has responded to this tremendous demand. Nevada, and specifically Clark County, has experienced significant population growth over the years. For example, the nationwide population grew at an average annual rate of 1.0 percent from 2000-2003. In Nevada, the average annual growth rate during that period was 4.3 percent, while in Clark County, growth was even faster, with an average growth rate of 4.7 percent. The tables below show the population and change for the three geographic areas.

U.S. Population Estimates, 1994-2003

Year	U.S.	Percent Change
2000	282,177,754	-
2001	285,093,813	1.0%
2002	287,973,924	1.0%
2003	290,809,777	1.0%
Average % Change	-	1.0%

Source: U.S. Census Bureau

Nevada Population Estimates, 1994-2003		
Year	Nevada	Percent Change
2000	2,023,378	-
2001	2,132,498	5.4%
2002	2,206,022	3.4%
2003	2,295,391	4.1%
Average % Change	-	4.3%

Source: Nevada State Demographer's Office

Clark County Population Estimates, 1994-2003		
Year	Clark County	Percent Change
2000	1,428,690	-
2001	1,498,279	4.9%
2002	1,578,332	5.3%
2003	1,641,529	4.0%
Average % Change	-	4.7%

Source: Southern Nevada Consensus Population Estimate

The Center for Business and Economic Research at the University of Nevada, Las Vegas' most current population projection (published in January 2003) expects Clark County to grow to slightly more than 1.9 million people by 2010.

Trauma

UMC is one of two trauma centers in the state, the other being Washoe Medical Center in Reno, a state-designated and ACS-verified level II trauma center. According to the most current Nevada Trauma Registry report, there were 6,650 trauma cases in Nevada in 2002, with 3,709 of those at University Medical Center in Clark County. Between 2000 and 2001, UMC saw its trauma volume increase by 14.5 percent, and between 2001 and 2002 it increased by another 3.9 percent. Statewide, the increase was 13.1 percent in 2001 and 6.7 percent in 2002.

Nevada Trauma Registry Patients, 2000-2002					
Facility	2000	2001	2002	Percent Change 2000-01	Percent Change 2001-02
University Medical Center	3,117	3,570	3,709	14.5%	3.9%
Washoe Medical Center	2,123	2,120	2,522	-0.1%	19.0%
Other[1]	273	544	419	99.3%	-23.0%
Total Trauma Cases	**5,513**	**6,234**	**6,650**	**13.1%**	**6.7%**

[1] Other: All other Nevada counties, unknown in Nevada, out of state, and unknown.

Source: Center for Health Data & Research, Bureau of Health Planning & Statistics, NV State Health Div.

UMC Trauma Center

Currently, UMC is the only trauma center in Clark County. It was originally verified as a level II trauma center in 1989 and became a level I in 1999. UMC was last re-verified in 2002, with verification set to expire in 2005, and they will be undergoing the re-verification process during or before December 2004.

UMC treated almost 3,900 patients who met trauma criteria in 2003. Most of these are from within 30 miles of the hospital, but they also see patients from outlying areas including California, Arizona and Utah.

Hospitals

There are 12 hospitals in Clark County, all of which have emergency departments, and one of which has a trauma center.

Clark County Emergency Departments & Trauma Center
Emergency Departments (12)
Boulder City Hospital
Desert Springs Hospital
Lake Mead Hospital
Mountain View Hospital
Southern Hills Hospital (Opening 3/1/04)
Spring Valley Hospital
St. Rose Dominican Hospital - Rose de Lima
St. Rose Dominican Hospital - Siena
Summerlin Hospital
Sunrise Hospital
University Medical Center
Valley Hospital Medical Center
Trauma Center (1)
University Medical Center

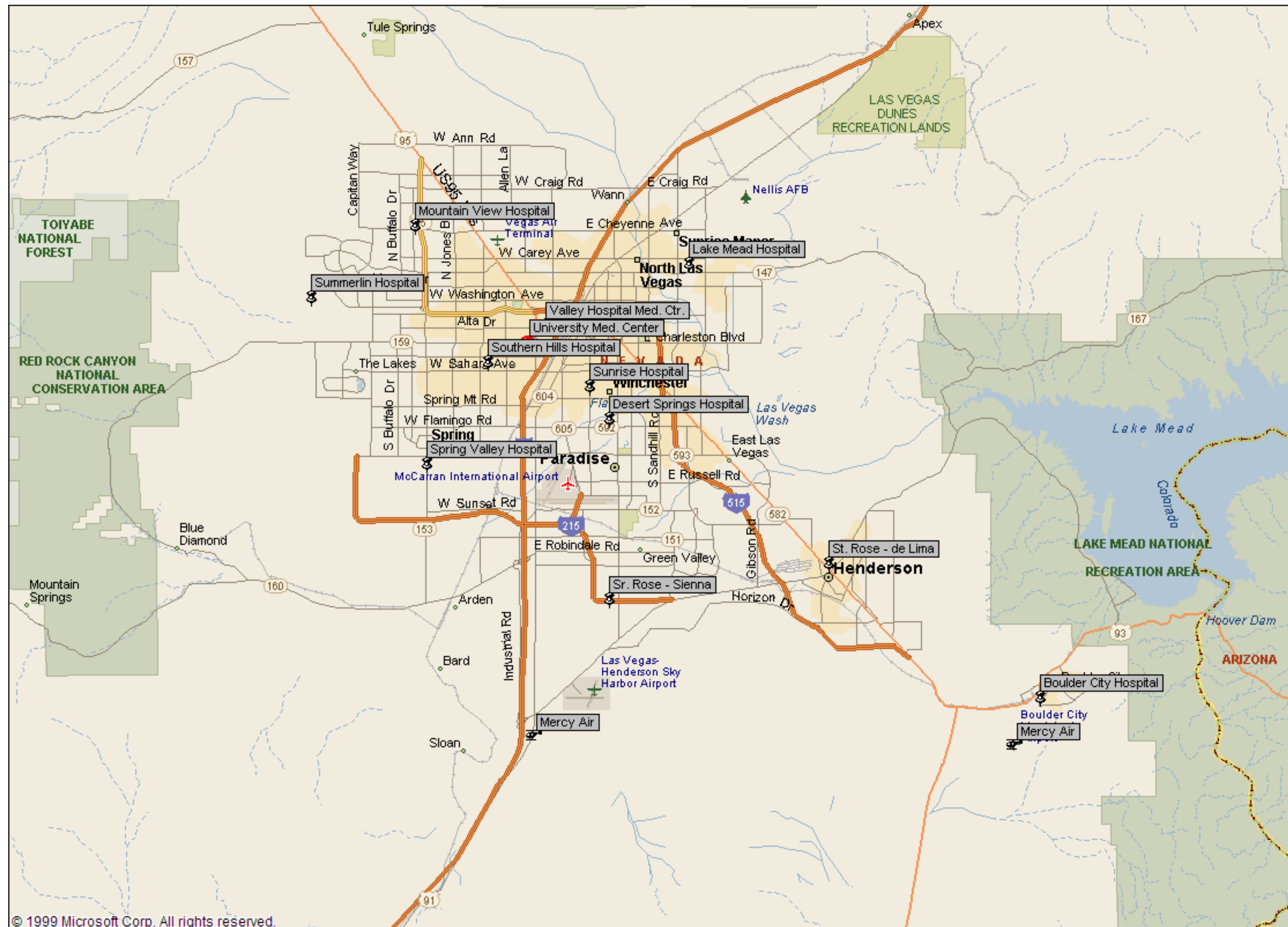
EMS Providers

There are six first responders and three transport agencies in Clark County. The primary air transport is provided by Mercy Air (they have two stations in Clark County).

Clark County EMS Providers
Clark County Agencies (6)
Boulder City Fire Dept.
Clark County Fire Dept.
Henderson Fire Dept.
Las Vegas Fire and Rescue
Mesquite Fire and Rescue
North Las Vegas Fire Dept.
Private Provider Agencies (3)
American Medical Response (AMR) - Las Vegas
AMR - Laughlin
Southwest Ambulance
Air Ambulance Services (3)
Mercy Air Service, Inc. (Helicopter)
Life Guard International, Inc. (Fixed Wing)
Med Flight Air Ambulance, Inc. (Fixed Wing)
Special Purpose Ambulance Agencies (4)
Las Vegas Motor Speedway
Specialized Medical Services, Inc.
Motorsports Medical Services (Volunteer Agency)
So. Nev. Vol. First Aid & Rescue Assn. (SNVFARA)
CCFD Rural Volunteer Ambulance Agencies (11)

Map of Emergency Care Facilities in Clark County

The following map depicts the emergency departments, trauma center, and air ambulance stations in the region.



A. Administrative Components

1) Leadership

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. What is the organizational structure of the lead agency, including reporting requirements?

Under Nevada Revised Statutes (NRS 450B, et seq), the responsibility for establishing a trauma program for the treatment of trauma and designation of trauma centers rests with the State Board of Health. The oversight of this process for the trauma center application, designation and monitoring process is performed by the State Health Division through its EMS Section. The State Health Division’s role is presently set by statute to include:

- Trauma center application process
- Trauma verification and designation
- Trauma center monitoring
- Trauma patient destination policies
- Statewide Trauma Registry

The EMS Section for all areas except Clark County is authorized by NRS 450B to establish and enforce standards for the overall provision of quality hospital emergency medical care, the operation of ambulance services, certification of EMS personnel, licensure of attendants and the delivery of trauma care. The Section also supports the EMS system for Nevada’s rural counties (15 counties) and Washoe County by providing technical assistance, consultation and training to EMS mangers and personnel as well as public officials. The EMS Section maintains a registry of all persons certified in Nevada, with the exception of Clark County. (A registry for Clark County is maintained by the Clark County Health District.) Additionally, the Section is responsible for implementation, monitoring, and maintaining a database for Nevada’s out of hospital emergency care and a statewide EMS radio network.

Other roles of the EMS Section include:

- Evaluate and approve emergency medical service training programs
- Applicant testing for emergency medical technician certification
- Issue certificates to persons demonstrating appropriate knowledge, skills and abilities in emergency medical care
- Issue permits for the operation of ambulances, air ambulances and fire-fighting agency vehicles
- License attendants to staff ambulances, air ambulances and fire-fighting agency vehicles
- Inspect the operations and equipment of ambulances, air ambulances and fire-fighting agency vehicles
- Investigate complaints concerning the operations and personnel of agencies involved in the EMS and Trauma Care system
- Collect and analyze data concerning out of hospital emergency and trauma care

Under state statute (NRS 450B.077), the EMS personnel and clinical supervision of the prehospital system for Clark County has been delegated to the Clark County Health District. The District is governed by a 13-member policy making board composed of representatives from each of the region's six governmental entities, as well as a physician member at-large. As such, it represents a unique consolidation of the public health needs of Boulder City, Las Vegas, North Las Vegas, Mesquite, Henderson, and Clark County into one regulating body. The Clark County District Board of Health, through policy development and direction to staff, identifies public health needs and, as mandated by County Ordinance 163, establishes priorities on behalf of local taxpayers, residents, tourists/visitors, and the commercial service industry, "to establish and conduct a comprehensive program of health to prolong life and promote the well-being of the people of Clark County" (subsection b of Section 6).

2. Is there a Trauma System Advisory Committee?
Who is on the committee (what groups are represented)?
What are the goals and objectives of the committee?
If the committee has met, what has it accomplished to date?
What is the authority, responsibility, and reporting requirement of the committee?

An EMS-Trauma Stakeholders group was established approximately three years ago in response to the federal funding from the Health Resources and Services Administration (HRSA) for the Trauma-EMS Systems Program. This is a 14-member group assembled to provide advice on the key goals of the HRSA grant project. While trauma system planning is an area of focus for this committee and for the State, there are significant resource limitations that have limited the progress of this group towards developing momentum on statewide planning and monitoring of a trauma system.

The EMS-Trauma Stakeholder's group reports to the Trauma Institute, which is a freestanding non-profit organization with a primary focus on injury research.

There is no other trauma system advisory committee. However, the existing group would likely be reconstituted or a new one created upon the recommendation of the needs assessment being conducted by The Abaris Group. The recommendation will include committee representation by a multidisciplinary group of stakeholders including:

- prehospital personnel
- hospital personnel
- rehabilitation personnel
- payors, consumers
- public interest groups

It is likely that the committee will serve to guide system planning activities, define system criteria (number of centers, volume), recommend system standards (triage, timelines), and review system performance. The authority and reporting relationship is not yet known as ongoing lead agency discussions are being studied as part of the needs assessment and recommendations are still pending.

3. Does the lead agency have a Trauma Medical Director?
Are there plans to have a Trauma Medical Director in the future?

The Nevada Division of Health does not have a trauma medical director. The state does have a state health officer, Bradford Lee, MD, JD, MBA, who has significant emergency medicine experience and acts as the state EMS medical director. The local lead EMS agency (Clark County Health District), currently has a Chief Health Officer, Donald S. Kwalick, MD, MPH and an EMS operational medical director, Joseph Heck, DO, who is an emergency medicine physician.

Should the recommendations of the ongoing trauma needs assessment be adopted in its present direction, a state trauma medical director position would likely be developed.

4. What are the role and responsibility of the Trauma Medical Director?
What are the qualifications of the Trauma Medical Director?
What is the authority for the Trauma Medical Director?

Once appointed, the trauma medical director will be qualified to participate in the planning of the trauma system, work with the lead agency on medical policy direction, and assist with the design and implementation of the trauma system, medical accountability, and ensuring an appropriate medical response to the trauma patient.

The role of the trauma medical director will be to manage the overall design of the system and its quality improvement process, including oversight of patient care. Important qualifications of the trauma medical director will be experience as a trauma surgeon and experience in a leadership role.

It is expected that the authority for the trauma medical director may be developed by contract and endorsed through State regulation or local ordinance.

Please see Appendix A for a sample Trauma Medical Director job description.

5. Is there a trauma system administrator with expertise in trauma system development/ implementation?
Are other trauma system support resources (equipment and personnel) available for trauma system implementation and planning?

The current State EMS director, Fergus Laughridge, has experience with EMS and trauma system management given he has been in this role with the responsibility for the past five years. However, a trauma system administrator/coordinator with expertise in trauma system development and implementation has not been appointed but will be considered as part of the needs assessment.

Other trauma system support resources are available for trauma system implementation and planning as well. The state currently has a trauma registry and additional resources may be needed and defined in the needs assessment for this role. Both equipment and personnel resources are currently available either through the State Health Division or through the Clark County Health District.

2) System Development

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. **Has the trauma system completed a needs assessment and identified appropriate trauma system resources?**

   Clark County Health District is currently conducting a needs assessment with the assistance of The Abaris Group, a firm that specializes in trauma system assessments. Appropriate trauma system resources are currently being identified. This study should be concluded in April 2004.

   The Nevada Department of Human Resources (which is over the State Division of Health) is contemplating developing a statewide trauma plan to be completed sometime in the next 12 to 18 months.

2. **Does a process exist for setting realistic time frames for implementing each component of the system?**

   Yes. The Clark County Health District, in collaboration with The Abaris Group, is developing a proposed action plan for implementing each component of the system, including the parties responsible for each component. This draft plan will be presented in the needs assessment report but will only cover the needs of Clark County and will not have benefited from input from all statewide stakeholders or necessarily a statewide view.

3. **Is there a process to build a constituency group and involve prehospital/hospital and other health professionals and consumer groups in planning, developing, and supporting the trauma system?**

   Yes. A public and unbiased constituency group has been formed and has begun meeting regularly to assist with the needs assessment and to make recommendations to Dr. Kwalick, Clark County Health Officer, with ultimate recommendations going to the Clark County Board of Health and eventually the State Division of Health. The input of this group, along with that of the developing Trauma System Advisory Committee mentioned above and the Clark County Health District, will be utilized throughout the system's development once a plan has been approved. All other stakeholder's groups (prehospital, hospital, others) are being consulted as part of the needs assessment and their views and input included into the needs assessment.

4. **Have appropriate trauma care guidelines and system standards of care been developed or adopted, including trauma policies, procedures, and protocols?**

   Patient triage and destination standards for Clark County mirror the language in Nevada Administrative Code (NAC) 450B, which is based on the ACS Optimal Resources document. The sole Southern Nevada trauma center, UMC, also has clinical protocols that drive their care process and as such are used for monitoring quality care.

   However, the current needs assessment is likely to recommend the implementation of additional trauma system care guidelines and system standards of care. These guidelines and standards are expected to be developed and adopted in the near term.

These include trauma quality control policies and more robust prehospital and inter-hospital procedures and protocols.

5. Is the trauma system integrated with the EMS system? With mass casualty and disaster response systems? With managed care programs?

The current trauma center at UMC is totally integrated with the EMS system and the hospital is active with training, education and quality control processes with prehospital care providers in their region. However, there are no written system integration practices and policies and thus current prehospital and trauma system activities including casualty and disaster responses occur in parallel as opposed to a fully integrated manner.

Should a comprehensive trauma system be approved and implemented, the trauma system will be integrated with the EMS system. The trauma system will include a mechanism to interface with and incorporate other EMS plans, such as disaster and mass casualty. It also will have a mechanism to integrate managed care entities in the area.

6. Does the trauma system have a mechanism to integrate managed care entities in the area?

Managed care has been carefully evaluated for their needs and role in the trauma system as part of the needs assessment. As indicated in question 5 above, the trauma system will have a mechanism to integrate managed care entities in the area.

7. How have the incentives changed within the trauma system? Specifically, do you have a mechanism to assess the changes and incentives (risks and benefits) in caring for trauma patients? How has managed care affected reimbursement for trauma care?

The needs assessment in itself is a very potent mechanism to studying the potential needs and changing demands and requirements of the developing trauma system. That is, through this needs assessment and adoption of the recommendations, it is expected that Southern Nevada will have designed an ongoing, clinically competent and stable trauma system sustainable for the future. A mechanism will also be developed to continually assess the changes and incentives (risks and benefits) in caring for trauma patients. The impact of managed care on reimbursement for trauma care is being calculated. Volume is being evaluated as well.

8. Does the system have a plan to deal with patients of all ages?

UMC, the current trauma center has the clear capability to treat trauma victims of all ages including the provision of a pediatric ICU. The needs assessment will be exploring opportunities to improve the current system and assure that it continues to meet these needs into the future. The needs assessment will develop a plan to ensure consideration has been given to both children and the elderly, in terms of both care and injury prevention.

3) Legislation

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Are there comprehensive trauma care legislation and regulations pertaining to the development of the trauma system?

The current statute and regulations (see Appendix B) cover the designation and trauma registry components of a trauma system but by no means could be considered comprehensive and all inclusive of the total trauma system needs.

**2. Does the legislation establish a lead agency with the authority to plan, develop, implement, and evaluate the inclusive trauma care system?
What is the lead agency?**

The current state trauma statute does not provide the authority to plan, develop and implement an entire trauma system. It does authorize the “designation” process and clearly anchors the standards to the ACS standards.

Future legislation, that is likely to be recommended as part of the needs assessment, will be developed to create more robust authority and resources for a lead trauma agency at either the state or local level with the authority to plan, develop, implement, and evaluate the inclusive trauma care system.

3. Does the legislation include provisions for:

- **a. a trauma system plan**
- **b. integration of trauma and EMS systems**
- **c. prevention programs**
- **d. establishment or adoption of standards of care**
- **e. the designation of trauma centers**
- **f. organization of data collection and system evaluation**
- **g. confidentiality protection of data collection or quality improvement records/reports**
- **h. quality management and quality improvement programs**
- **i. anti-trust protection**

Current Nevada regulations include provisions for (e.) “the designation of trauma centers,” (NAC 450B.818-875) and part of (f.) “organization of data collection and system evaluation,” in the form of the trauma registry (NAC 450B.764-768). The regulations also include EMS patient destination standards that are currently managed by delegated authority to the Clark County Health District. However, trauma patient destination criteria are not under the authority of Clark County Health District, but are mandated by the State. As a result, the Clark County Health District has adopted the language from NAC as the trauma field triage criteria protocol.

**4. Does the legislation authorize dedicated and earmarked trauma funding?
Are the funds placed in a special account rather than in a general fund?**

No. However, such stable sources of funding are not prohibited by the statute and clearly will be a target area of focus in the needs assessment.

4) Finances

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. **a. Are there two years of audited trauma system financial reports, as defined by generally accepted accounting principles? Explain the budget review process.**

   The State monitors the financials of each department as part of the budget process and for the trauma lead agency, Department of Human Resources. The level of financial reporting requested (two years of audited trauma system financial reports) do not exist because the trauma system is just now being conceptualized. However, financial reporting from the only current trauma center within the Southern Nevada region, UMC, is available from the trauma registry.

   b. Are costs reported in a standardized model accounting format?

   As noted above, there are no system financial statements because the system has not existed in the past, but costs reported by UMC are reported in a standardized model accounting format.

2. **Does the lead agency report its finances by component, in summary, or both? How are the finances documented for review? Give an example.**

   No. The finances of the state lead agency are documented through the State budget process.

3. **What are the sources and terms of external funding (for example, grants, state/local taxes)? If a funding source is tied to a specific program (for example, drunken driving, registration tax), provide past history and future projections.**

   Funding sources are currently being developed. UMC funds their trauma operations through patient fees for service. The Trauma Foundation, conducted clinical and bench research on injury and is funded primarily from grants.

4. **Does the budget coordinate with the goals and objectives of the trauma plan?**

   There is currently no budget specific for the trauma system. However, the budget developed will directly coordinate with the trauma plan being established. Given limited resources, the budget will be designed to best ensure that the goals of the trauma plan are met.

5. **Does the trauma center track and measure trauma costs by patient, diagnosis, length-of-stay at (ICU) facility, department, physician, and payor?
If yes, how is this information used (for example, feedback to physicians)?
Is this information forwarded to the lead agency?**

   Yes. UMC tracks and measures trauma costs by patient, diagnosis, length-of-stay at (ICU) facility, department, physician, and payor. This information is used to define cost and revenue needs and variations and to plan future resources. This information is not forwarded to outside agencies.

6. Does the trauma system equate costs to relative value gained (cost of utilizing resources)?

As noted above, UMC is currently the only trauma center and they maintain information on costs. However, in the near future, the trauma system will likely include in its budget an estimate of relative value gained in order to equate this value to cost and measure the cost of utilizing resources. This process will also be described in the trauma plan.

7. Does the trauma system or center track payor mix utilization?
If yes, what is the current payor mix, relative collection ratios, and defined trends?

Yes. This data will be provided on site.

B. Operational and Clinical Components

1) Injury Prevention and Control

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Does your system have a system-wide injury control coalition? If yes, what are the member organizations?

There is no formalized system-wide injury control coalition. However, there are two community coalition programs in Clark County – the Clark County Safe Kids Coalition and the Clark County Safe Communities.

In addition to these injury prevention coalition programs, UMC has several trauma programs including Traumaroo, ENA ENCARE, Take Care, Buckle Up Bear, Learning to Care, and Child Passenger Safety.

A key participant in the trauma injury prevention arena is the Trauma Institute. It is a freestanding non-profit organization that is associated with the University of Nevada School of Medicine Department of Surgery. The Trauma Institute is privately funded that applies for grant awards to develop population based studies of injuries and their presentation. They have completed many research projects and have several they are currently investigating. These include:

- CODES (Crash Outcome Data Evaluation System) 10/97-07/03
- Domestic Violence 9/97-9/01
- Suicide Prevention Research Center 10/98-09/04
- EMS-C 3/98-2/06
- Trauma – EMS System 9/02-9/05

And finally, the Henderson Fire Department has a program called Risk Watch sponsored by the National Fire Protection Association that addresses car safety, fire, poison, bicycle safety, fire arms, water, suffocation and falls.

The pending trauma needs assessment will likely include a component on injury prevention and investigate the options for establishing a system-wide injury control coalition.

2. What plans has the coalition developed?

The Clark County Safe Kids program is in the process of developing a strategic plan for its organization. One of the goals of the strategic plan will be to focus on broader coalition development and funding.

3. Which elected officials have been educated about injury and injury control?

The following elected officials who are in prominent positions have participated in educational opportunities on injury and its prevention:

- Las Vegas Mayor Oscar Goodman
- Clark County Commissioner Yvonne Atkinson Gates

- Clark County Commissioner Myrna Williams
- Chief Deputy District Attorney Gary Booker
- All Clark County Health District Board of Health members
- State Senator Dennis Nolan
- State Senator Ray Rawson
- State Senator Ann O'Connell
- State Senator Barbara Cegavske
- State Senator Valerie Wiener
- State Senator Mike Schneider
- Assemblywoman Vonne Chowning
- Senator Harry Reid
- Las Vegas Municipal Court Judge Warren Vanlandshoot
- Las Vegas Justice Court Judge Boyles
- Henderson Municipal Court Judge Proctor

4. How are you involved with public/voluntary organizations to aid system financing?

Most of the injury prevention programs are funded via direct public funding (Nevada Office of Traffic Safety, Clark County Government, etc.) or by grant application (NHTSA, HRSA, CDC, etc.). In addition to public funding, several private organizations have contributed or continue to contribute to various injury prevention projects. These include:

- General Motors
- Health Plan of Nevada
- Valley Health System
- Mainor Harris Lawyers
- American West Homes
- Con Am Management Corp.

5. What local injury surveillance data has the coalition reviewed (mortality data from vital records, police traffic crash data, EMS-run data, E-coded hospital discharge data)? What injury problems and high-risk groups and environments were identified?

Individually the injury prevention programs have reviewed all of the listed databases. While there is no central injury prevention data repository for Clark County, there are several sources of injury data including: the State's Injury Data Surveillance Project maintained by the Nevada State Health Division, motor vehicle crash data collected by the Nevada Department of Transportation, and all hospitals must submit Uniform Billing 92 data on hospital discharges.

In addition, the Trauma Institute engaged in a multiyear CODES (Crash Outcome Data Evaluation System) study from 10/97-07/03 designed to link various injury databases together within the state.

The State maintains a trauma registry that includes data not only from the two trauma centers, but from all hospitals in the state which must report cases that meet the trauma patient criteria. UMC maintains a very robust trauma registry on all trauma patients treated in the trauma center, the State EMS office maintains the Nevada Electronic EMS Data System (NEEDS), and the Office of Vital Records collects vital statistics.

Databases specific to Clark County include a pediatric drowning database maintained by the Clark County Health District and a traffic crash and assault database maintained by the Las Vegas Metropolitan Police Department.

Injury Problems & High-Risk Groups

Clark County has identified a significant problem with drownings of children aged 1 - 4, motor vehicle crashes and suicides. All three high-risk groups have prevention programs in place that were identified through the data screening processes using the databases listed above.

6. Have open community forums been held to identify injury control issues of concern to the community? What key problems were identified?

No. The existing injury control programs have solicited community involvement and have examined epidemiological data to evaluate top concerns, but they have not held open forums to identify injury control issues of concern to the public. Should a system-wide injury control coalition be formed, this coalition will be advised to conduct further interaction with the public, including open forums.

7. What priority injury problems has the coalition identified?

As noted in question 5 above, Clark County has identified a significant problem with drownings of children aged 1 – 4, motor vehicle crashes and suicides and have prevention programs in place.

8. What intervention plan has been developed to address the priority injury control issues?

There are no specific written intervention plans for the priority injury control issues. However, there are many injury prevention efforts in effect. For example, the drowning program implements public service announcements from May to September, distributes brochures, and partners with the Desert Valley Water Safety Council and other organizations like the US Coast Guard and the National Parks Services to distribute material.

The Safe Kids Coalition and Safe Communities have strong components to address motor vehicle safety issue and a suicide prevention program has been initiated statewide, but with an emphasis on Clark County because of the large number of suicides that occur in the county.

9. How will you evaluate the effectiveness of the priority injury control initiatives? What are the results of any completed evaluations?

Each injury prevention program is attempting to evaluate its effectiveness. For example, to evaluate the effectiveness of the drowning program developed by Clark County Health District a small survey was conducted which found the following results.

Clark County Drowning Prevention Survey Summer 2003		
Question	*Spanish*	*English*
Is drowning prevention a topic you are concerned about?		
Yes	100%	88%
No	-	12%
Have you heard drowining prevention messages through local media?		
Yes	78%	76%
No	22%	24%
If so, where did you see or hear the message?		
Radio	18%	10%
Television	68%	65%
Magazine/Newspaper	4%	14%
What was the key message you heard?		
Constant adult supervision prevents drowning	64%	67%
Swimming lessons save lives	32%	14%
Do not let children swim in lakes, river or swimming pools	14%	5%
None of the above	6%	14%
What would be the best way for you to receive drowning prevention information?	Rank	Rank
Television	1	1
Preschool	2	2
Radio	3	3

Note: Total respondents was 144, Spanish = 50 and English = 94.
Source: Clark County Health District, Clark County Safe Kids Coalition.

The suicide prevention program has also recently evaluated a component of its program. The program was connected to the national 1-800 suicide call system in 2003. Public service announcements were run mid-May through mid-June and bus stop advertising was done from mid-June through September. In comparing the call volume for the third-quarter 2002 to the third-quarter 2003, call volume increased 60 percent.

There is also an awareness among the different injury prevention programs that more evaluation needs to take place. Evaluation of injury prevention programs will be recommended as part of the trauma system plan.

2) Human Resources

a) Workforce Resources

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. **Describe your system for evaluating and assessing the adequacy of the work force resources available within and outside of the hospital. Describe the current strengths and weaknesses of your system of evaluating the level and adequacy of human resources for the entire trauma care delivery system.**

   There is no formal system for evaluating and assessing the adequacy of the work force. While the Clark County Health District, UMC and the Clark County Ambulance Oversight Committee provide many of these functions, they lack the full assessment and strategic planning role that will likely be recommended in the needs assessment.

   Outside the Hospital

   The Clark County Ambulance Oversight Committee reviews and monitors the ambulance franchises (AMR and Southwest Ambulance). This oversight includes reviewing the response times of the ambulances and the appropriate number of ambulances needed to match demand. In addition, the ambulance providers use system status planning to add and subtract ambulances based on precise needs. The number of personnel required to staff and be available for staffing an ambulance is regulated by the Clark County Health District.

   Within the Hospital

   UMC employs various volume performance measures for its trauma surgeons. One of those measures is: there will be, on average, 35 patients per surgeon per year with an Injury Severity Score (ISS) equal to or greater than 15 each year. UMC reviews this performance measure and makes adjustments as needed.

   For trauma nurse staffing resource review, UMC assesses patient activity and determines the number of nurses needed in a specific department. Technicians and other hospital staff are reviewed in the same manner. This process is conducted annually.

   Strengths and Weaknesses

   The opportunity exists for the Southern Nevada trauma system to formalize and design a process by which to evaluate and assess the work force needs and to plan to meet these needs before gaps are apparent.

2. **Describe how you have standardized the number and type of human resources to be available for the prehospital management of EMS patients, including the trauma patient.**

   The Clark County Health District EMS office licenses and credentials all EMS providers in the County. Currently there are approximately 3,500 certified EMS providers in Clark County and about 1,500 of those are licensed as either EMT-Paramedics, EMT-

Intermediate, or EMT-Basic. In addition, the Clark County Health District requires the following staffing configurations for all ambulance providers.

Clark County Health District Ambulance Staffing Requirements	
Unit Type	**Single Ambulance Staffing Configuration**
ALS	1 EMT-Paramedic, 1 EMT-Intermediate
ILS	1 EMT-Intermediate, 1 EMT-Basic
BLS	2 EMT-Basic

Clark County Health District Ambulance Staffing Requirements for Each Licensed Unit		
Licensed Ambulance	**First Unit**	**Each Additional Unit**
ALS	9 Attendants w/ minimum of 5 EMT-P Attendants	6 Attendants w/ minimum of 3 EMT-P
ILS	9 Attendants w/ minimum of 5 EMT-I Attendants	6 Attendants w/ minimum of 3 EMT-I
BLS	9 Attendants	6 Attendants

3. Do you have a quality management plan for monitoring availability of prehospital and hospital trauma care resources?

For the prehospital component, the Clark County Ambulance Oversight Committee provides this function via monitoring of the ambulance franchises.

Clark County Health District also has a Medical Advisory Board (MAB), under the umbrella of the District Board of Health. It is made up of representatives from all hospitals, fire and ambulance providers, the trauma center, the University of Nevada School of Medicine, a physician group, a mental health hospital, and the Clark County Health District Chief Health Officer. There are 26 members on the MAB and it meets regularly.

The MAB reviews prehospital protocols and recommends changes to the protocols to the Clark County Health District. At UMC, the trauma center conducts quality improvement and quality assessment for response times for physicians and diagnostics like CT and the operating room.

4. Have you developed a process for evaluating resource usage and matching resource response relative to levels of activity and level of patient care needs and system response? Discuss the sources of information and data for monitoring the system.

Yes. The Clark County Health District has adopted the Clawson System of emergency medicine dispatch standards, specifically deploying the appropriate equipment based on the injury. In addition, a quality assessment meeting on emergency medical dispatch is held monthly to review cases. The cases are randomly selected and then the committee listens to the recording of each case and grades the call for appropriateness. Approximately 10 cases per month are reviewed.

a. Have you identified the need for an increased or decreased number of personnel in the prehospital arena? Discuss strategies for securing needed personnel.

Yes. The region has difficulty staffing for prehospital positions. This is a result of the rapid growth in population for the area, plus the influx of 35 million visitors annually to the area. Fire departments and ambulance providers are aggressively marketing on a national level to fill positions. In addition, several new hospitals have opened or expanded in the region increasing the need for additional staff.

b. Have you identified the need for an increased or decreased number of personnel in the systems administration or hospital arena? Discuss strategies for securing needed personnel.

Yes. There is pressure for additional hospital personnel. Due to population growth three new hospitals recently opened in the region (Summerlin, Spring Valley and St. Rose Dominican-Siena Campus). Another new hospital is opening in March 2004 (Southern Hills), a second in 2005 (a UHS hospital on the northwest side of Las Vegas), and a third in 2006 (St. Rose Dominican-St. Martin Campus). In addition, many hospital EDs are undergoing expansion. This facility expansion has increased the pressure to hire hospital personnel.

<u>Strategies for Adding Personnel</u>

Many hospitals are offering incentives and have implemented aggressive marketing campaigns to recruit nurses. Given the limited supply of nurses in the region, many hospitals are recruiting outside the U.S. for personnel.

5. Outline your plan for flexible response to manage all patients during peak periods of activity that might stress the system. What is your protocol for trauma center divert and prehospital transport responses? How do you evaluate its effectiveness, and what are your options for creating a change?

The Clark County Health District EMS Department has identified casino security personnel as a resource to provide assistance in a situation that would cause a surge of patients in the system. Many casino security personnel are certified at some level of EMT, but are not licensed. In addition, the region's fire departments and ambulance providers have call back procedures in place in the event of a surge. UMC has back up call for trauma surgeons, neurosurgeons and orthopedic surgeons, and has anesthesia backup three deep. There is also a call back system in place for nurses.

<u>Trauma Center Divert & Prehospital Transport Response Protocols</u>

The trauma center does not divert. However, when resources at the trauma center become stressed, the Trauma Field Triage Criteria are followed to the letter. In other words, trauma patients brought to the trauma center must meet the specific criteria defined in the protocol. Please see Appendix C for the Trauma Field Triage Criteria and the complete EMS Protocol Manual.

<u>Evaluating Effectiveness & Options for Change</u>

Issues regarding the EMS system are brought to the MAB for discussion/ recommendation. One of the issues currently before the MAB is diversion. A special subcommittee was created to address the problem and make recommendations. To determine the effectiveness of the committee, a monthly report is produced to track diversion.

A complete list of the MAB's subcommittees is as follows:

- Airway Management Task Force
- Divert Task Force
- Drug and Device Committee
- Education Committee
- Helicopter Medical Advisory Committee
- Priority Dispatch Task Force
- Procedures/Protocols Committee

In addition, the Quality Improvement Directors Committee (under Clark County Health District) reports systemwide issues to the MAB, such as concerns regarding policies and procedures.

Another committee is the Facility Advisory Board (FAB), also under the umbrella of the Clark County Health District Board of Health. The FAB is comprised of chief executives or their representatives from each hospital, a representative from the MAB, plus the Clark County Health District Chief Health Officer. This committee meets as needed on facility issues, including diversion.

Depending on the issue, the appropriate committee addresses the region's needs and solutions are realized through new regulations by the Clark County Health District Board of Health.

The Ambulance Oversight Committee is another avenue the EMS community has to effect change. It is responsible for defining the ambulance contracts and setting time standards. As a result, this committee determines who can provide service and promotes the safe and timely care of ambulance patients.

b) Education

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Have you developed educational standards for all trauma caregiver personnel?

Yes. The trauma center uses the Continuing Medical Education (CME) or Continuing Education (CE) requirements stipulated by the ACS for physicians and nurses. UMC hosts a monthly case review for EMS providers offering Continuing Education Units (CEU). The cases reviewed are complex or pertain to a common problem in the system. UMC also hosts a cadaver training program for EMS providers.

The Clark County Health District requires all prehospital personnel to be either Prehospital Trauma Life Support (PHTLS) or Basic Trauma Life Support (BTLS) certified. Once certified, prehospital personnel are not required to be recertified.

2. **Have you done a trauma system educational needs assessment and identified educational levels of all prehospital providers, as well as the need for additional programs/certifications? Have you assessed all currently available educational programs prior to instituting new programs?**

The Clark County Health District periodically reviews prehospital programs and has maintained their commitment to PHTLS and BTLS. A comprehensive trauma system education needs assessment has not been conducted, but will likely be recommended in the current trauma system assessment study.

3. **Does your trauma plan include central or state certification/recertification/decertification for prehospital providers? If no, what is your plan for certification/recertification/ decertification of prehospital care providers as they relate to the trauma care system?**

The Clark County Health District has the authority to certify, recertify or decertify prehospital personnel irrespective of a trauma plan. However, the Clark County Health District EMS Department does include certification/recertification/decertification authority and credentialing for prehospital providers specifically for trauma issues.

4. **Describe the quality monitoring activity for review of educational requirements for trauma care personnel.**

UMC monitors the review of educational requirements for trauma personnel through their quality assessment efforts. It is also monitored by meeting the requirements for the CME.

The prehospital personnel are monitored by the Clark County Health District EMS Department. The EMS Department audits course records and sits in on classes to ensure material is being presented correctly.

3) Prehospital Care

a) Emergency Medical Services Management Agency

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Is there an EMS agency that has the authority to regulate prehospital care?

Yes. The EMS Department for Clark County is a section of the Clark County Health District, and as such they have the authority to regulate prehospital care as provided in Nevada Revised Statutes Chapter 450B and in the EMS regulations for Clark County.

2. Administration

a. Is the management agency's medical director familiar with, experienced in, and currently involved in prehospital care?

Yes. Joseph Heck, DO, the Medical Director of the EMS Department, completed his emergency medicine residency at Albert Einstein Medical Center in Philadelphia, PA. He holds a Certificate of Added Qualification in EMS by the American Osteopathic Board of Emergency Medicine. Dr. Heck is currently on the Associate Staff at the Department of Emergency Medicine at the University Medical Center. He serves as Medical Director of the Office of Public Health Preparedness for the Clark County Health District and is also the Medical Director for the Las Vegas Metropolitan Police Department. In that capacity he provides medical oversight of tactical, search & rescue, first responder and aviation medical programs. He serves as an Emergency Medicine Physician/Flight Surgeon with the US Army Reserves. Dr. Heck is certified as a Swift Water Rescue Technician in the State of Nevada and has researched and published articles on many prehospital subjects as well.

b. Are the medical director's qualifications commensurate with his/her scope of responsibility in the EMS system?

Yes. Dr. Heck’s qualifications, as described above, meet and exceed the expectations of the position.

c. Is there a quality improvement educational program, and are monitoring functions performed by the medical director or designee?

Yes. The quality improvement program is directed by David Slattery, MD, an emergency physician who is employed part time. Dr. Slattery chairs the Quality Improvement Directors Committee. This committee consists of a director from each of the provider agencies and meets monthly to evaluate safety and compliance issues related to prehospital care and provide input to protocol development and clinical performance measures. The committee reports systemwide issues to the MAB. The committee only does chart review as part of specific studies. However, concerns or complaints regarding a particular instance of patient care are reported to the Clark County Health District EMS agency, and if the EMS agency finds that protocol revision may be necessary, the issue is brought before the committee.

d. Is there support staff, including a system administrator, familiar with and experienced in prehospital management?

Yes. Support staff is provided by Rory Chetelat, MA, EMT-P, who functions as the EMS Manager, and Mary Ellen Britt, RN, BS who is responsible for quality improvement (complaint investigation and chart review), education (program approval) and training (teaching prehospital classes). There is a shared pool of clerical support staff available to them.

3. Education

a. Has the prehospital care management agency integrated care of the trauma patient into the prehospital training program?

Yes. The EMS Department is responsible for approval of all initial training classes of EMT-Basic, Intermediate and Paramedic level providers. They also establish the curriculum, which is inclusive of the care of trauma. The paramedic program includes 46 hours of didactic and 20.5 hours of lab on trauma care. The basic EMT program includes 19 hours of lecture on trauma and the Intermediate program is an additional 68 hours of training beyond the EMT-Basic requirements, including 5 hours on the Clark County Health District EMS Protocols which include triage and trauma care.

b. Has the prehospital care management agency developed ongoing trauma educational programs?

Yes. Paramedics are required to obtain 60 hours of CME every two years of which six hours must be trauma education. EMT-Basic and Intermediates must have one hour of CME related to trauma care every two years. The providers are free to obtain their CME through their agency or by attending other CME classes approved by the Clark County Health District. The educator at each of the provider agencies maintains records of their continuing education. These records must be available for review at the time of the EMS annual audit.

4. Criteria

a. Are there protocols for triage, patient delivery decisions, treatment, and inter-hospital transfer?

Yes. Protocols for all of the above requested items exist. Please see Appendix C.

b. Have you implemented ongoing quality improvement of triage/treatment/inter-hospital transfer criteria?

Yes. Ongoing quality improvement (QI) is performed on prehospital treatment, triage and transfer issues.

c. Have policies, procedures, and/or regulations regarding on-line and off-line medical direction been implemented within the system?

Yes. There are specific policies and protocols that delineate what procedures and medications an EMT-Paramedic and an EMT-Intermediate may perform prior to contacting a physician or a nurse intermediary. These policies also specify which procedures and medications require a voice order prior to implementation.

d. Are standards from the Commission on Accreditation of Ambulance Services and the Commission on Accreditation of Air Medical Services integrated into patient delivery decisions, treatment, and transfer protocols?

Yes. Both the two major ground providers are CAAS accredited and the air ambulance provider is CAAMS accredited. These accreditation standards are incorporated into the processes that form the basis for prehospital patient care decisions, treatments and transfer protocols.

5. Is there a standardized clinical examination for certification and decertification to provide patient care?

Yes. There is a standardized clinical exam for certification of all levels of prehospital providers. This process is defined in the EMS Regulations, Section 300. There is a process for revocation of license defined in the EMS Regulations, Section 400.025 and Section 1800. Reinstatement is defined in the EMS Regulations, Section 1800.300.

6. Is there a system-wide quality improvement program in place?

Yes. A systemwide process is in place for prehospital quality improvement through the QI Directors Committee. This is made up of representatives from each of the ALS provider agencies, and chaired by the Assistant EMS Medical Director, David Slattery, MD. They meet monthly and address issues related to pre-hospital care.

b) Ambulance and Non-Transporting Medical Unit Guidelines

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Are there system-wide guidelines delineating how the type of transportation for the trauma patient is matched to the system's topography and demography, including distance?

Yes. Systemwide guidelines that define the transport of the critical trauma patient exist. Unstable critical trauma patients (airway compromised, etc.) must be within 10 minutes of the trauma center to be transported directly to the trauma center, or they are taken to the closest facility. All other trauma patients who are within 30 minutes of the trauma center must be taken directly to the trauma center. If it is more than 30 minutes from the trauma center, they are to be transported to the nearest facility. The decision to utilize air transportation is not defined in any guideline but is the decision of the paramedic on scene. They notify Fire Alarm Operations (FAO) to dispatch as necessary.

2. Are there statutorily authorized licensing requirements for ground, air, water, and other types of emergency medical transportation?

Yes. There are EMS regulations for both Northern Nevada (State EMS) and Clark County that address the licensing requirements for ground and air ambulance transport units. State statutes only govern counties with populations of less than 400,000 population, except for trauma regulations, where their authority is statewide. Sections 800 through 1000 of the EMS regulations for Clark County address the licensing requirements. There are no defined regulations for watercraft rescue in the SouthernNevada EMS region.

3. What is the minimum level of staffing (number of persons and their level of certification/licensure) of ambulances and non-transporting medical units responding to the scene?

The staffing requirements for all levels of ambulances are defined in EMS Regulations Section 900.300. The minimum requirement for all ambulances is two attendants. Basic ambulances must have two attendants certified at the EMT-Basic level. If they are a Rural Volunteer Ambulance Service at a basic level they may be staffed with one ambulance driver and one attendant. An intermediate ambulance must be staffed with at least one EMT-I and one EMT-Basic. If they are a Rural Ambulance Provider they may be staffed with an ambulance driver and one EMT-I. An advanced ambulance must be staffed with 2 attendants, one of which is an EMT-P or an EMS RN. Critical care ambulances must be staffed with at least one critical care transport nurse who has met the requirements stipulated in Section 900.010 of the EMS Regulations and a second EMS RN or EMT-P.

4. What is the minimum level of staffing of ambulances providing interfacility transfers of a major trauma patient?

The minimum level of staffing required for the transfer of major trauma patients is two paramedic level EMTs, unless the transferring physician deems it necessary to have an RN and or Respiratory Therapist. The requirements are defined in the Paramedic Protocols page 22, “Inter-Hospital Transfer of Patients by Ambulance.”

5. What are the requirements for on-line and off-line medical direction for ambulance services, and non-transporting medical units?

There are specific policies and protocols that delineate what procedures and medications a paramedic and an EMT-Intermediate may perform prior to contacting a Telemetry Physician or a Nurse Intermediary. These policies also specify which procedures and medications require a voice order prior to implementation. The majority of care is off line and driven by protocol.

6. Does the distribution of EMS vehicles allow for appropriate emergency response and transport times (based on patient needs and system resources)?

There are adequate vehicles for timely transport of patients to the appropriate facilities, but a major impact on the resources for ambulance services is the lengthy delays incurred at the hospitals to off load their patients. There may be as many as 5-6 ambulances backed up at any one hospital waiting for a bed to place their patient. Delays may take hours sometimes before the ambulance can be back in service. The County has implemented EMSystem software to track hospital closures and ambulance backup. This has been evaluated at various committees as well as the QI Committee but a long-term workable solution has not been developed.

7. Do the licensing requirements for ambulances and non-transporting medical units specify minimum acceptable patient care equipment for all ages that generally conforms to the recommendations of the American College of Surgeons and/or state lead agency?

Yes. The licensing requirements for all ambulances, both ground and air, stipulate that they must carry “…all the equipment and supplies identified on the District Official Ambulance and Firefighting Agency Inventory as authorized by the Health Officer upon recommendation of the Medical Advisory Board.”

8. Are there standards, policies, and procedures governing hospital destination for ambulances?

Yes. There are protocols for the destination of trauma patients as described in Question 1 above. Non-trauma patients are taken to the hospital of their choice or the closest facility if they do not select a destination facility.

9. Does the licensing of ambulance services and non-transporting units include regular inspections and/or an accreditation process based on continuous quality improvement?

Yes. All ambulances are inspected annually by the EMS Department (including volunteer ambulance services). They must meet all requirements stipulated in the EMS Regulations, Sections 800-1000.

10. Are mutual aid agreements among emergency medical service providers in place?

Yes. Mutual aide agreements exist between providers. There is also an Automatic Aide System established for Clark County. Through the use of a satellite GPS system the closest unit will be dispatched to the scene, which can take them out of their designated service area. Agreements are not maintained at the EMS office but are kept at the provider agencies.

11. Are there protocols for the "interface" between ambulance services and non-transporting medical units?

Yes. Protocols exist that define the interface of a transport and non-transport unit. There are three areas in Clark County that have non-transport ALS responders from the fire department (Clark County FD, North Las Vegas FD and Henderson FD). The designated private ALS ambulance is dispatched on all non-transport responder calls.

12. Does the prehospital system have interagency agreements with public safety agencies (for example, police and fire) that address security and safety of the injury scene?

There are no agreements between the prehospital providers and the public safety agencies. When public safety agencies are on scene they have the responsibility and authority to safely secure the scene prior to the prehospital provider entering the scene. If they are not on scene when the prehospital providers arrive, the prehospital provider may request their support prior to entering the scene if it appears unsafe.

13. Are there written agreements between ambulance services and non-transporting medical units?

Yes. There are written agreements, referred to as Franchise Agreements, between the transport and non-transport units. Clark County FD, North Las Vegas FD, and Henderson FD all have non-transport units that are supported by private ALS ambulance transport. Las Vegas City FD has both transport and non-transport units. They have a total of 37 units, 17 of which are ALS transport units. By agreement, Las Vegas City FD responds with a transport unit for all motor vehicle crashes (MVC). For all other calls, including non-MVC trauma, they send a non-transport unit, which is then supported by a private ambulance transport.

14. Is there a policy concerning air ambulance service/ground ambulance service dispatch, coordination, and rendezvous?

Yes. There are policies that address the dispatch and coordination of ground and air transport including the establishment of landing zones. Air transport generally communicates with the fire first responder but may commuincate with any ground transport as necessary.

c) Communications System

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Do you have a communications network that includes a universal systems access number, prioritized dispatch, post dispatch instructions, dispatch-to-ambulance communication, ambulance-to-ambulance communication, ambulance-to-hospital communication, and hospital-to-hospital communication?

Yes. The communication network includes a universal access number through the use of enhanced 911 (E911), except for cell phone calls and a few telephone companies that do not subscribe to the enhanced service. They have prioritized dispatch and post dispatch instructions provided by all dispatch centers. State regulation requires all dispatchers to be Emergency Medical Dispatch (EMD) certified. Communication between dispatch and the ambulance is provided by the 800-megahertz link for fire departments and by UHF for private ambulances. Similarly, ambulance to ambulance communication is provided by the 800 megahertz for fire departments and by UHF for private ambulances. VHF provides ambulance to hospital communication, and within six months there will be hospital-to-hospital communication through the use of the 800 megahertz system. Air ambulances also are able to communicate with ground ambulances.

2. Does the system have coordination of medical direction and dispatch?

Yes. EMS providers contact the applicable dispatch agency and are patched through to their hospital of choice for telemetry care.

3. Have you implemented an EMS dispatch curriculum to train communications personnel? If no, describe plans for an EMS dispatch curriculum.

Yes. There is an EMS dispatch curriculum. All dispatchers must take the Emergency Medical Dispatch course (EMD). This is defined in the EMS regulations.

4. Do you have a public access communications system (911 or enhanced 911)?

Yes. There is a 911 system throughout the EMS region and there is E911 available except from calls received from cell phones and a limited area served by telephone companies that do not subscribe to the enhanced service.

5. Does the 911-system receive all public calls that request EMS response to trauma patients?

Yes.

6. How frequently are dispatch-to-ambulance, ambulance-to-hospital, and hospital-to-hospital communication attempts unsuccessful? Are there geographic areas where communications cannot be established?

Dispatch to ambulance has not had any communication failures. Ambulance to hospital will utilize cell phones as their communication source and on occasion have used satellite phones in remote areas. With the use of satellite phones there are no areas in the region where communication cannot be established. Hospital to hospital communication has not been consistent and will be rectified with a new 800-megahertz system.

7. Are all dispatch centers, ground and air ambulances, and base stations equipped with adequate communications systems?

Yes. These communications systems are described in the response to Question 1 above. Ongoing improvement of the communication systems is a goal of the Clark County Health District.

8. Are EMS dispatch protocols in place?

Yes, they follow the protocols defined in the EMD Course.

9. Are priority dispatch and post dispatch protocols in place?

Yes.

10. Describe the dispatch-to-ambulance, ambulance-to-ambulance, dispatch-to-hospital, ambulance-to hospital, and hospital-to-hospital communications network.

As stated above, dispatch to ambulance communication is provided through the 800-megahertz system to all public providers. Dispatch to ambulance communication is provided through UHF to all private ambulance providers. Ambulance to ambulance communication is provided the same way, with 800 megahertz for public providers and UHF for all private providers. There is no dispatch to hospital communication as a routine but this can be accomplished by cell phone and soon the 800-megahertz system. Ambulance to hospital communication is done through VHF and hospital to hospital communication is accomplished by land-line and the soon to be activated 800-megahertz system.

The 800-megahertz system does not cover all rural areas. In these areas, satellite phones and cell phones are used as back-ups (although cellular networks have become overloaded during multi-casualty incidents when people in traffic have all begun using their cell phones). In addition, microwave communication is used in the southern part of the valley. The complete range of the microwave system is from Apex in the north to Laughlin in the south. The County currently has grant funding to expand this system, and will be extending it to Indian Springs, Moapa, and Mesquite. The County hopes to further extend the area in the future.

11. Identify and describe how communications systems interrelate during mass casualty and disaster incidents.

In mass casualty and disaster incidents the field providers communicate from unit to unit by using the 800-megahertz system. The ambulance to hospital communication is accomplished by using cell phones and when needed satellite phones. The ambulances and the hospitals do communicate hospital capacity information through the use of the EMSystem web-based program. The hospital-to-hospital communication will soon be utilizing the 800-megahertz system.

12. Is there a communications quality improvement program?

Yes. The dispatch centers have monthly quality improvement meetings to discuss dispatcher quality improvement. They are currently working on including a physician for QI review of prehospital communication issues.

d) Emergency/Disaster Preparedness Plan

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Is the prehospital emergency/disaster preparedness plan integrated with the remainder of the EMS system, local government, private sector, and acute care facilities?

Yes. Although there is no separate EMS Disaster Plan, EMS is part of the area wide plan for mass casualty disaster, which includes plans for terrorist incidents and hazardous materials management. The area wide planning includes EMS, local government, the private sector and acute care facilities. They are all members of the Local Emergency Planning Committee (LEPC). The last update of the Mass Casualty Plan was completed six months ago.

2. Are there periodic educational exercises with post exercise review?

Yes. Although periodic educational exercises have not always been part of the system, there has been about one exercise per year over the past few years. The most recent exercise was conducted on 8/18/03. It was titled “Determined Promise” and involved all types of hazards. A post exercise review was conducted. The Clark County Health District EMS agency and first responders were involved, although other ambulance providers and hospitals were not.

Two events are planned for 2004. One will be a radiation event with an explosion, set for April 1, which will include Clark County Health Districts participation. The Clark County Health District will be the lead agency on the other exercise, which is set for August 27 and will involve EMS and the hospitals as well. In addition to the exercises, all Mass Casualty Incidents have an area-wide critique within three days of the incident.

4) Definitive Care Facilities

a) Trauma Care Facilities

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Are there identified designation standards for trauma centers?

Yes. The standards are anchored to the ACS Optimal Care document. The Nevada Administrative Code (NAC) states the following requirements, under authority of Nevada Revised Statutes (NRS) 450B.120 and 450B.237:

Level I center: Requirements for designation (NAC 450B.838):

To be designated as a level I center for the treatment of trauma, a licensed general hospital must:

1. Meet all of the criteria for a level I center for the treatment of trauma set forth in chapters 16 and 23 and Appendix D of Resources for Optimal Care of the Injured Patient.
2. Receive verification from the American College of Surgeons, or an equivalent medical organization approved by the board, that confirms that the center meets the standards for a level I center for the treatment of trauma.

Pediatric regional resource center: Requirements for designation (NAC 450B.845)

To be designated as a pediatric regional resource center for the treatment of trauma, a licensed general hospital or licensed medical-surgical hospital must:

1. Meet all of the criteria for a pediatric regional resource center for the treatment of trauma set forth in chapters 5, 10, 16 and 23 of Resources for Optimal Care of the Injured Patient.
2. Meet the minimum criteria for a level I center for the treatment of trauma and demonstrate a commitment to the treatment of persons who are less than 15 years of age in accordance with chapters 10 and 23 of Resources for Optimal Care of the Injured Patient.
3. Receive a verification from the American College of Surgeons, or an equivalent organization approved by the board, that confirms that the center meets the standards for a pediatric regional resource center for the treatment of trauma.

Level II center: Requirements for designation (NAC 450B.852)

To be designated as a level II center for the treatment of trauma, a licensed general hospital must:

1. Meet all of the criteria for a level II center for the treatment of trauma set forth in chapters 16 and 23 and Appendix D of Resources for Optimal Care of the Injured Patient.

2. Receive a verification from the American College of Surgeons, or an equivalent organization approved by the board, that confirms that the center meets the standards for a level II center for the treatment of trauma.

Level III center: Requirements for designation (NAC 450B.866)

To be designated as a level III center for the treatment of trauma, a licensed general hospital must:

1. Be located more than 30 minutes from a designated level I or II center for the treatment of trauma.

2. Operate a service for the treatment of trauma or maintain a multidisciplinary committee to provide for the implementation of the requirements of NAC 450B.780 to 450B.875, inclusive.

3. Comply with all of the criteria for a level III center for the treatment of trauma set forth in chapters 16 and 23 and Appendix D of Resources for Optimal Care of the Injured Patient.

4. If the hospital is applying for the renewal of a designation as a level III center for the treatment of trauma, receive a verification from the American College of Surgeons, or an equivalent medical organization approved by the board, that confirms that the center complies with the standards for a level III center for the treatment of trauma.

Level IV center: Requirements for designation (NAC 450B.871)

To be designated as a level IV center for the treatment of trauma, a licensed general hospital must:

1. Be located more than 30 minutes from a designated level I, II or III center for the treatment of trauma.

2. Meet all of the criteria for a level IV center for the treatment of trauma set forth in chapters 16 and 23 and Appendix D of Resources for Optimal Care of the Injured Patient.

3. Ensure that a nurse with experience and training in the care of patients with trauma is present at the hospital at all times.

4. Ensure that there is an adequate number of physicians with experience and training in the treatment of patients with trauma who will be immediately available to provide medical treatment to the patients in the hospital.

5. Have the ability to perform computer axial tomography (CAT) scans or otherwise assess the patient’s traumatic injuries and determine the medical center to which the patient will be transferred.

2. Is there a process for designation of trauma centers?

Yes. The following excerpts from the Nevada Administrative Code outline the process for designation of trauma centers under the authority of Nevada Revised Statutes 450B.120 and 450B.237:

Submission, contents and rejection of applications for designation or renewal of designation; requests for verification (NAC 450B.819)

1. The health division shall reject an application from a hospital wishing to be designated as a center for the treatment of trauma or as a pediatric regional resource center for the treatment of trauma or to renew such a designation if the application is incomplete or if the hospital has not received prior approval to add services in accordance with NRS 449.087.

2. An application must include the following information:

   (a) A description of the qualifications of the hospital's personnel to provide care for patients with trauma;

   (b) A description of the facilities and equipment to be used to provide care for patients with trauma;

   (c) A description of how the hospital's facilities and personnel comply with or exceed the standards set forth in chapters 5 and 23 of Resources for Optimal Care of the Injured Patient or, if applying for designation as a pediatric regional resource center for the treatment of trauma, the standards set forth in chapters 5, 10 and 23 of Resources for Optimal Care of the Injured Patient;

   (d) A statement submitted by the medical director of the proposed program for the treatment of trauma that indicates that the hospital has adequate facilities, equipment, personnel, and policies and procedures to provide care for patients with trauma at the level requested;

   (e) A statement submitted by the chief operating officer of the hospital that the hospital is committed to maintaining sufficient personnel and equipment to provide care for patients with trauma at the level requested; and

   (f) Written policies for:

      (1) The activation of the trauma team;

      (2) The transfer of patients with trauma to other centers for the treatment of trauma which have been designated at a higher level, a pediatric regional resource center for the treatment of trauma or other specialized facilities; and

      (3) Performing evaluations and assessments to ensure that the quality of care for patients with trauma meets the standards set forth in chapter 16 of Resources for Optimal Care of the Injured Patient.

3. A hospital applying for designation as a level I, II, III or IV center for the treatment of trauma or as a pediatric regional resource center for the treatment of trauma, or for the renewal of such a designation, must submit an application to the health division in a form approved by the division. Except as otherwise provided in subsection 4, the application must be submitted to the health division and a written request for verification made to the American College of Surgeons, or another equivalent medical organization or agency approved by the board at least 6 months before:

   (a) The date of the survey of the hospital conducted pursuant to NAC 450B.820 if the application is for an initial designation as a level I or II center for the treatment of trauma or as a pediatric regional resource center for the treatment of trauma; or

(b) The date of the expiration of the designation if the application is for the renewal of a designation of a level I or II center for the treatment of trauma.

4. If the application is for an initial designation as a level III center for the treatment of trauma or for an initial designation or the renewal of a designation as a level IV center for the treatment of trauma, the application must be submitted to the health division 6 months before the date of the survey by the staff of the health division.

<u>Surveys for designation as centers; verification required (NAC 450B.820)</u>

1. Persons appointed to conduct surveys of proposed centers for the treatment of trauma or pediatric regional resource centers for the treatment of trauma must:

    (a) Be knowledgeable in systems for providing treatment for trauma, affiliated with a level I, II, III or IV center for the treatment of trauma which has been verified by the American College of Surgeons or, in the case of a pediatric regional resource center for the treatment of trauma, affiliated with a pediatric regional resource center which has been verified by the American College of Surgeons; and

    (b) Declare no conflict of interest.

2. Except as otherwise provided in subsection 4, the survey team for a level I, II, III or IV center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma must be:

    (a) Appointed by the American College of Surgeons or an equivalent medical organization or agency approved by the board; and

    (b) Composed of:

        1. If the survey team is appointed to conduct a survey for an initial designation or the renewal of a designation as a level I or II center for the treatment of trauma or for the renewal of a designation as a level III center for the treatment of trauma, two trauma surgeons or a trauma surgeon and a surgical subspecialist;

        2. If the survey team is appointed to conduct a survey for an initial designation or the renewal of a designation as a pediatric regional resource center for the treatment of trauma, two pediatric trauma surgeons or a pediatric trauma surgeon and a pediatric surgical subspecialist; or

        3. If the survey team is appointed to conduct a survey for the renewal of a designation of a level IV center for the treatment of trauma, two general surgeons or a general surgeon and a physician with experience in the assessment of injured patients.

3. The health division shall appoint members of its staff to act as staff for the survey team.

4. For a hospital that applies for an initial designation as a level III or IV center for the treatment of trauma, the administrator shall appoint members of the staff of the health division to conduct the survey of the proposed center. The survey must:

    (a) Consist of a review of the personnel, equipment and program criteria set forth in the hospital's application which meets the standards set forth in chapters 5, 16 and 23 of Resources for Optimal Care of the Injured Patient; and

(b) Be conducted at the site of the proposed center for the treatment of trauma.

5. The cost of:

   (a) A survey by the American College of Surgeons, or an equivalent medical organization or agency approved by the board, to verify the proposed center's capability as a level I, II or III center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma; or

   (b) A survey requested by the administrator of the division of health for the renewal of a designation as a level IV center for the treatment of trauma must be borne by the hospital applying for a designation or the renewal of a designation.

6. Except as otherwise provided in subsection 7, a hospital must not be designated as a center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma if it does not receive a verification from the American College of Surgeons or an equivalent medical organization or agency approved by the board.

7. A hospital may comply with the requirements for:

   (a) An initial designation as a level III center for the treatment of trauma; or

   (b) An initial designation or the renewal of a designation as a level IV center for the treatment of trauma without meeting the requirements of subsection 6 if the staff that conducts the survey pursuant to subsection 4 finds that the hospital has the personnel, equipment and program criteria required to meet the standards set forth in chapters 5, 16 and 23 of Resources for Optimal Care of the Injured Patient.

<u>Fees for designation and renewal of designation; exception (NAC 450B.832)</u>

1. A hospital applying for a designation as a level I or II center for the treatment of trauma or to renew such a designation must pay a fee of $12,500 at the time it submits its application to the health division.

2. A hospital applying for designation as a level III center for the treatment of trauma or to renew its designation must pay a fee of $3,000 at the time it submits its application to the health division.

3. A hospital applying for designation as a pediatric regional resource center for the treatment of trauma must pay a fee of $25,000 at the time it submits its application to the health division.

4. A hospital applying for designation as a level IV center for the treatment of trauma or to renew its designation is not required to submit a fee with its application to the health division.

<u>Duration of designation and renewal of designation; provisional designation (NAC 450B.826)</u>

1. Except as otherwise provided in subsection 4, the initial designation of a level I or II center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma is valid for the period verified by the American College of Surgeons or the medical organization or agency which conducted the survey required by NAC 450B.820, but for not more than 3 years.

2. The initial designation of a level III center for the treatment of trauma or the initial designation or renewal of a designation of a level IV center for the treatment of trauma is valid for the period established by the health division, but for not more than 2 years.

3. The renewal of a designation of a level I, II or III center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma is valid for the period verified by the American College of Surgeons, or an equivalent medical organization approved by the board, but not for more than 3 years.

4. If the health division finds that extenuating circumstances exist while an application for the renewal of a designation is pending and that the withholding of the renewal of the designation may have a detrimental impact on the health of the public, it may recommend to the administrator of the health division that a provisional designation be issued. The administrator may issue a provisional designation for not more than 1 year on an application for the renewal of a level I, II, III or IV center for the treatment of trauma. The administrator may impose such conditions on the issuance of the provisional designation as he deems necessary.

3. Do you have an estimate of the number of trauma patients?

Yes. The following table provides a summary of the number of trauma patients from the trauma registry for UMC.

UMC Trauma Patient Statistics

Type	1998	1999	2000	2001	2002	2003
Total Patients	9,573	10,018	9,947	11,439	11,600	12,289
Meeting Trauma Criteria	3,461	3,518	3,114	3,573	3,711	3,894
Admitted	2,788	2,829	2,719	3,009	3,069	3,089
ISS >= 15	719	653	639	686	835	902

Source: UMC.

4. Do you have an estimate of the number of trauma surgeons (general surgeons, neurosurgeons, and orthopedic surgeons)?

Yes. Please see the table below.

UMC Trauma Physician Statistics

Type	Number
Trauma Surgeons	+10
Neurosurgeons	10
Orthopedic Surgeons	+10

Source: UMC.

5. Do you have documentation of the available resources in the acute care facilities?

The documentation is provided via acceptance by the ACS verification process conducted by the College. UMC is ACS verified every three years. They were last re-verified in 2002 and they are due for a verification survey during or before December 2004 for renewal in 2005. The State accepts the ACS verification process and does not independently credential the trauma centers.

6. Are all acute care facilities willing to provide at least a minimum data set on trauma patients?

Yes. All hospitals are required by NAC (NRS 450B.120 and 450B.238) to submit data to the State on trauma patients. The State provides clear definitions on patient types and data fields. Hospitals must submit quarterly reports to the health division within 60 days after the end of the quarter. The health division then publishes an annual report by July 1 for the previous calendar year.

A summary of NAC on data submittal is as follows:

<u>Submission requirements (NAC 450B.768)</u>

1. Each hospital shall submit to the health division quarterly reports which comply with the criteria prescribed by the health division and which contain at least the following information for each patient treated for trauma by the hospital:

   (a) The date and time the patient arrived in the emergency department or the receiving area or operating room, or both.

   (b) The patient's revised trauma score upon arrival in the emergency department or receiving area and upon discharge or transfer from the emergency department, if he is discharged or transferred less than 1 hour after his time of arrival.

   (c) The method of arrival at the hospital. If the patient arrived by ambulance or air ambulance, the information required by subsection 3 of NAC 450B.766 must also be submitted.

   (d) The time the surgeon or the trauma team was requested.

   (e) The time the surgeon arrived at the requested location.

   (f) The patient's vital signs, including his:

      1. Blood pressure;

      2. Pulse rate;

      3. Respiratory rate; and

      4. Temperature.

   (g) The results of diagnostic blood alcohol or drug screening tests, or both, if obtained.

   (h) Other clinical signs which are appropriate to determine the patient's revised trauma score, including the patient's score on the Glasgow Coma Scale and, if appropriate for a pediatric patient, the patient's score on the modified Glasgow Coma Scale.

   (i) The date and time the initial surgery began and the surgical procedures that were performed during the period in which the patient was anesthetized and in an operating room.

   (j) The number of days the patient was in the hospital.

(k) The number of days the patient was in the intensive care unit, if applicable.

(l) Any complications which developed while the patient was being treated at the hospital.

(m) Information concerning the patient's discharge from the hospital, including:

1. The diagnosis of the patient.

2. The patient's source of payment.

3. The severity of the injury as determined by the patient's injury severity score.

4. The condition of the patient.

5. The disposition of the patient.

6. Information concerning the transfer of the patient, if applicable.

7. If the reporting hospital is a center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma, the amount charged by the hospital, including charges for the treatment of trauma.

8. If the hospital is not a center for the treatment of trauma or if the patient was transferred from a center for the treatment of trauma to another center for the treatment of trauma, pediatric regional resource center for the treatment of trauma or other specialized facility:

    (I) The revised trauma score of the patient at the time his transfer was requested.

    (II) The date and time the center for the treatment of trauma, pediatric regional resource center for the treatment of trauma or other specialized facility was notified.

    (III) The time the patient left the receiving hospital or center for the treatment of trauma for a center for the treatment of trauma, pediatric regional resource center for the treatment of trauma or other specialized facility.

(n) The patient's residential code assigned pursuant to the Federal Information Processing Standards, or the city or county and the state of his residence.

7. Is the designation process of trauma centers based on the determination of need?

Yes. The applicable section of the Nevada Administrative Code is as follows:

<u>Addition of centers to system of providing treatment for trauma (NAC 450B.828)</u>

A center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma may be added to the system of providing treatment for trauma on the basis of a demonstrated change in need, including a change in the population and the number of patients in the area being served, if the addition is made pursuant to the requirements of NRS 449.087 and NAC 450B.780 to 450B.875, inclusive.

8. Is there a process and authority for re-designation and/or de-designation?

Yes, the Nevada Administrative Code describes the processes for re-designation and de-designation under authority of Nevada Revised Statutes 450B.120 and 450B.237.

Prerequisites to renewal of designation (NAC 450B.8205)

1. Before the designation of a level I, II, III or IV center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma is renewed, an application for renewal must be submitted to the health division and a survey of the center must be conducted.

2. The survey team for the renewal of a designation as a level I, II or III center for the treatment of trauma or for a pediatric regional resource center for the treatment of trauma must be:
   (a) Appointed by the American College of Surgeons or an equivalent medical organization or agency approved by the board; and

   (b) Composed of:

   1. If the survey team is for a level I, II or III center for the treatment of trauma, two trauma surgeons or a trauma surgeon and a surgical subspecialist; or

   2. If the survey team is for a pediatric regional resource center for the treatment of trauma, two pediatric trauma surgeons or a pediatric trauma surgeon and a pediatric surgical subspecialist.

   3. The survey team for the renewal of a designation as a level IV center for the treatment of trauma must be:

      a. Appointed by the administrator of the health division or a person designated by him; and

      b. Composed of two general surgeons or a general surgeon and a physician with experience in the care of injured patients.

   4. A level I, II or III center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma must:

      a. At least 6 months before its designation expires, submit:

         i. An application for renewal to the health division that contains a proposal for continuing the hospital's designation; and

         ii. A written request for verification to the American College of Surgeons or an equivalent medical organization or agency approved by the board;

      b. Arrange for the survey to be conducted directly with the agency which will conduct the survey; and

      c. Notify the health division of the date of the survey.

   5. A level IV center for the treatment of trauma must, at least 6 months before its designation expires, submit:

a. An application for renewal to the health division that contains a proposal for continuing the hospital's designation; and

b. A written request for verification to the administrator of the health division or a person designated by him.

6. The cost of the survey must be borne by the center for the treatment of trauma or pediatric regional resource center for the treatment of trauma.

7. The designation of a hospital as a level I, II or III center for the treatment of trauma or as a pediatric regional resource center for the treatment of trauma must not be renewed unless the hospital receives verification from the American College of Surgeons, or an equivalent medical organization or agency approved by the board, which indicates that the hospital has complied with the standards for a level I, II or III center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma set forth in chapters 5, 10, 16 and 23 of Resources for Optimal Care of the Injured Patient.

8. The designation of a hospital as a level IV center for the treatment of trauma must not be renewed unless the hospital receives verification from the survey team appointed by the administrator of the health division or a person designated by him for the renewal of a hospital as a level IV center for the treatment of trauma which indicates that the hospital has complied with the standards set forth in chapters 5, 10, 16 and 23 of Resources for Optimal Care of the Injured Patient.

Discontinuance of designation by center; withdrawal of or refusal to renew designation (NAC 450B.830)

1. If a center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma does not wish to continue to be designated as such, it must submit a notice to the administrator of the health division at least 6 months before it discontinues the provision of services as a center for the treatment of trauma or as a pediatric regional resource center for the treatment of trauma.

2. The health division may withdraw or refuse to renew the designation of a center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma if the center:

   (a) Fails to comply with the requirements of its designation or fails to maintain the standard of care which meets the requirements of chapters 5, 10, 16 and 23 of Resources for Optimal Care of the Injured Patient; or

   (b) Does not receive verification from the American College of Surgeons, or an equivalent medical organization approved by the board, indicating that it has complied with the criteria established for a level I, II or III center for the treatment of trauma or a pediatric regional resource center for the treatment of trauma set forth in chapters 5, 10, 16 and 23 of Resources for Optimal Care of the Injured Patient.

Grounds for suspension or revocation of designation (NAC 450B.834)

The health division may suspend or revoke the designation of a center on the following grounds:

1. Any violation of any provision of NAC 450B.780 to 450B.875, inclusive, by the center for the treatment of trauma or pediatric regional resource center for the treatment of trauma.

2. Any conduct or practice detrimental to the health and safety of the patients or employees of the facility.

Notice of intent to deny, suspend or revoke designation; summary suspension of designation; appeal of action (NAC 450B.836)

1. Except as otherwise provided in this section, if the health division intends to deny, suspend or revoke a designation, it shall follow the requirements set forth in NAC 439.300 to 439.395, inclusive.

2. Advance notice is not required to be given if the health division determines that the protection of the public health requires immediate action. If it so determines, the health division may order a summary suspension of the designation pending proceedings for revocation or other action.

3. If a center for the treatment of trauma or pediatric regional resource center for the treatment of trauma wishes to contest the enforcement action of the health division taken pursuant to this section, it must follow the procedure for appeals set forth in NAC 439.300 to 439.395, inclusive.

9. Do you have a definition of major trauma patient?

Yes. The definition is provided in the Nevada Administrative Code as shown below. There is also an approved triage standard for the entire state and for the Clark County Health District. A revised version will go into effect April 1, 2004. Please see Appendix C for all EMS protocols.

"Patient with a major trauma" defined (NAC 450B.796)

"Patient with a major trauma" means a person who has sustained an acute injury which has:

1. The potential of being fatal or producing a major disability; and

2. A revised trauma score of less than 11 or an ISS that is greater than15.

As used in this section, "revised trauma score" has the meaning ascribed to it in NAC 450B.760. [NAC 450B.760 defines "revised trauma score" as "the numerical measure of the severity of an injury computed from coded values that are assigned to specified intervals of the Glasgow Coma Scale, systolic blood pressure and respiratory rate, as described in the article "A Revision of the Trauma Score" set forth in The Journal of Trauma, Vol. 29, No. 5, 1989."

10. Do you have a continuous quality improvement process in place for the trauma system?

UMC conducts a quality improvement meeting for trauma case review (trauma deaths and adverse events). It meets every Tuesday and is mandatory for all trauma surgeons (specialists are invited and routinely attend). One weekly meeting each month is dedicated to trauma case review and policy issues. This meeting is multidisciplinary and all specialists, including trauma surgeons, must attend (neurosurgeons, orthopedic surgeons, emergency medicine physicians, and anesthesiologists). In addition, the

hospital has a quality improvement process that reviews process improvement and outcome measures.

The State periodically reviews trauma registry data, trends and reports. The latest version of that report was published November 2003 (Update on State of Nevada Trauma Registry 2000-2002). There is no regularly scheduled system evaluation or review of cases, care patters or system needs. However, a continuous quality improvement trauma process would be developed for the trauma system should the trauma needs assessment recommendations be approved.

The State's standards are as follows:

<u>Trauma Center Quality Assurance Programs (NAC 450B.875)</u>

Each level I, II, III and IV center for the treatment of trauma and each pediatric regional resource center for the treatment of trauma must establish a program for performing evaluations and assessments to ensure the quality of care for patients with trauma. The program must meet the standards set forth in chapter 16 of Resources for Optimal Care of the Injured Patient.

b) Interfacility Transfer

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Do you have written transfer agreements between trauma centers and other acute care facilities in the system?

Yes. UMC has transfer agreements in place with each acute care hospital that stipulates all trauma patients meeting the criteria should be transferred to its trauma center.

2. Do you have written transfer agreements for injured patients with special problems such as:

- **burns**
- **pediatrics**
- **spinal cord injury**
- **brain injury**
- **rehabilitation**
- **other injuries that cannot optimally be treated at your facility**

Yes. UMC treats all of these categories of special injured patients and has transfer agreements with all acute care hospitals.

3. Do you have written transfer agreements between designated trauma centers and rehabilitation centers for patients with the traumatic diagnoses of SCI, TBI (severe/moderate/mild), multiple trauma injuries, amputations, and burns?

Yes. UMC has its own rehabilitation facility (Rancho Rehabilitation), which admits trauma patients with head injuries (TBI) and spinal cord injuries (SCI). UMC also has transfer agreements with the other rehabilitation facilities in Southern Nevada.

4. Do you have a plan that defines objective criteria for the transfer of injured patients from designated trauma care facilities to contracted hospitals and physicians?

No. However this will be reviewed as part of the trauma assessment.

5. Do your transfer agreements deal with the mode of transportation and the type and qualifications of transport personnel?

No. However, the Clark County Health District EMS Department has a procedure and protocol for interhospital transport of patients by ambulance.

6. Do your transfer agreements comply with COBRA regulations?

Yes. The transfer agreements that UMC has in place do comply with COBRA/EMTALA requirements.

c) Medical Rehabilitation

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Is there a joint liaison committee composed of clinical and administrative representatives from the designated trauma centers and rehabilitation centers?

No. However, UMC has a rehabilitation hospital (Rancho Rehabilitation Center) and representatives from trauma and rehabilitation meet monthly. In addition, the Director of Physical Medicine and Rehabilitation organizes a rotation of community physiatrists through the trauma center.

2. Are there existing trauma system policies and procedures that appropriately address each of the following issues:

a) transfer agreements and documentation

Yes.

b) treatment guidelines for acute and rehabilitation care

Yes.

c) evaluation of patient outcomes and system of care

Yes. Rancho Rehabilitation is joining the Uniform Data Set system in 2004.

d) data exchange procedures

There are no formal data exchange procedures. However, the different rehabilitation centers in Southern Nevada work in an informal collaborative manner with each other.

e) alternative plans for unfunded patients

UMC has hired a physician to accept the care of patients that are unfunded. The physician cares for the patient for the duration the patient is at UMC or until alternative arrangements can be made.

f) long-term outcome research

No.

3. Is there a standardized set of rehabilitation data (for example, patient outcome data) that rehabilitation facilities must collect and report to the trauma system database?

No. However, it will likely be recommended through the needs assessment that data on rehabilitation outcomes be collected and reported to the trauma system.

4. Do the rehabilitation centers have a set of minimum requirements/qualifications that the physician leaders must meet (for example, Medical Director of SCI Program, Medical Director of TBI Program, Medical Director of Rehabilitation)?

Yes. For example, the medical director at Rancho Rehabilitation must be Board Certified and meet other criteria.

5. Is there an exchange of outcome data among the trauma, acute care, and rehabilitation facilities?

Not systemwide, but there is between UMC and Rancho Rehabilitation Center. There is a collaborative environment among the different rehabilitation medical directors and they share information informally.

6. Within the trauma system, what mechanisms are in place to ensure that rehabilitation care is strongly integrated into all phases of acute, primary, and community care?

While there are no systemwide mechanisms in place, UMC and Rancho Rehabilitation do work together as evidenced by the rotation of physiatrists in the trauma center and the fact that the physiatrists conduct rounds in the trauma ICU. Typically a physiatrist will work with a patient in the trauma center and then continue that care with the patient in the Rancho Rehabilitation Center. In addition, patients in the hospital have easy access to a rehabilitation consult and access to speech, physical and occupational therapy while in the hospital setting.

In addition, there are several programs that help ensure rehabilitation is integrated in the community including the Nevada Community Enrichment Program, Rehabilitation Without Walls and many foundations and support groups for TBI and SCI.

5) Information Systems

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Does your system have ready access to:

a. Law enforcement crash and incident reports

Yes. This database is compiled from information obtained from police reports of motor vehicle crashes that occur on public roads and highways in Nevada.

b. Prehospital care reports

Yes and no. Currently the fire departments capture the prehospital care reports in an electronic format, while the ambulance providers provide the prehospital care report in hard copy format. Both stakeholders retain their records and data linkage is inadequate.

In accordance with NRS 450B.810, NAC 450B.620, NAC 450B.645, and NAC 450B.766, State EMS, in cooperation with Clark County EMS, have adopted standards for prehospital data collection. Computer software and a web-based server have been provided for collecting and storing prehospital run reports and data obtained from all Nevada permitted EMS/Fire agencies.

While not every agency is required to install and utilize the provided software, each will be required to submit the required data elements in a format that will allow uploading to the web-based server. The rollout utilizing the web-based server is scheduled for July 2004. Las Vegas Fire and local ambulance providers are expected to adopt a new software system called Roam IT allowing for a standardized electronic reporting of the prehospital care report to be in place by April 2004.

c. Emergency department data

ED data reporting is voluntary and not conclusive. However, State regulation does require the reporting by all hospitals of any trauma care provided. The State publishes a trauma registry report annually. The most current report on the Nevada Trauma Registry was published in November 2003. The data contained in the report covered the time period from 2000 to 2002. In addition to the mandatory trauma reporting, all hospitals must submit the Uniform Billing 92 Hospital Discharge data set.

d. Acute care facility data including:

(1) trauma centers

Yes. Trauma centers are required to report all patients entered into the trauma registry.

(2) other acute care hospitals

Yes. The Uniform Billing 92 Hospital Discharge data set is mandatory in Nevada.

(3) **specialty centers, including burns and rehabilitation**

Yes. UMC maintains databases on burns and rehabilitation. There is no central repository for rehabilitation data.

e. Medical examiner/coroner reports

Yes. The data available from the coroner includes data on the death certificates, toxicology reports, and demographic information contained in the investigation reports.

f. Death certificates

Yes. The Nevada Office of Vital Statistics maintains the State's death certificate database, which includes the data provided by the Clark County Health District. The State's death certificate database is used as part of Nevada's Injury Data Surveillance Project.

g. Payor records

Yes. Payor data is collected by the trauma center for the trauma registry and is also available from Uniform Billing 92 Hospital Discharge data set for all hospitals.

h. Trauma registry

Yes. UMC maintains a detailed trauma registry. The trauma data set collected exceeds the State requirements and the data are readily available.

2. Describe the population of patients that each database includes.

- The law enforcement crash and incident reports contain patients who were involved in crashes or other incidents that were reported to law enforcement.
- The prehospital care reports contain patients who received care from a prehospital care provider.
- The emergency department data reported to the state are for all patients treated for trauma in the emergency department.
- The dataset available from acute care facilities, in addition to the data from emergency departments and trauma centers, is the Uniform Billing 92 Hospital Discharge data set, which includes all patients discharged from all hospitals.
- The medical examiner/coroner reports include all patients who received a medical exam or autopsy by the coroner.
- The Clark County Health District death certificates database includes records of all people who die in Clark County.
- Payor data is available through the trauma registry and the Uniform Billing 92 Hospital Discharge Dataset.
- Both the state and trauma center maintain a trauma registry. The State trauma registry includes all patients treated for trauma at all hospitals, whether in an emergency department or a trauma center. The UMC trauma registry contains data

on those trauma patients who met trauma activation criteria, were admitted or transferred and were treated at UMC.

3. Which of the above databases are kept in computerized format?

All, except for some of the ambulance data, which is in paper format. However, that system is being updated and in April 2004 the prehospital providers will move to a standardized electronic database.

4. Which databases have a system-wide or (partial) standardized format or subset?

Currently, the State trauma registry, the UMC trauma registry, the prehospital patient care reports (which will all be electronic by April 2004), the UB92 Hospital Discharge data set, the State's Vital Statistics data base, and the Nevada traffic crash data are system-wide and standardized.

5. Which of the above databases can be linked?

None.

6. Do you gather E code data?

Yes, via the trauma registry. In addition, collection of E-code data is mandated for hospital admissions by statute via the Uniform Billing 92 Hospital Discharge Dataset.

7. Describe the role and responsibilities of agencies and institutions for collecting and maintaining the data.

Most of the agencies maintaining databases are required to do so by statute or regulation.

8. How is the completeness, timeliness, and quality of the data monitored?

Each database is maintained by a separate organization that is responsible for the completeness, timeliness and quality of the data. For example, the UMC trauma registry is closely monitored by the trauma registrar and the State trauma registry is monitored by the Center for Health Data and Research.

9. What are the standards for data collection and reporting from each data provider?

Most of the agencies maintaining databases are required to do so by statute or regulation.

10. How is the confidentiality of the data ensured and monitored?

The advent of HIPAA now mandates that the confidentiality of all patient data is ensured and monitored. For example, at the Clark County Health District EMS Department staff have received HIPAA training, old records are shredded and current records are kept under lock and key. In addition, NRS 629.061 provides for certain confidentiality and protection of State records including records held in the State's trauma registry.

6) Evaluation

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Describe the concurrent plan for evaluating the individual trauma system components and system operations. This plan should include quality improvement for EMS trauma centers, and so on. How does the system monitor compliance with system standards for each component – prehospital, acute care facilities, trauma center specialty centers, rehabilitation centers?

While there is currently no specific plan, there are mechanisms in place for evaluation of the trauma system. These include the ACS verification process UMC must complete every three years, the EMS training requirements set forth in state law, and the oversight provided by the Medical Advisory Board (members of the MAB are representatives from all hospitals, prehospital providers, the Nevada Division of Mental Health and Development Services, and the Clark County Health District).

A formal plan will likely be created based upon the recommendation of the needs assessment being conducted by The Abaris Group. It is expected that the Trauma System Oversight Committee would address the system and peer/case review. It would be composed of at least the trauma medical director(s) and trauma nurse coordinator(s) from the trauma center(s), representatives from prehospital care, representatives from rehabilitation, and a representative from the Clark County Health District.

2. Is there a quality improvement committee for the system? To whom does it report? Who reports to the committee?

There is no overall quality improvement committee for the current trauma program. However, UMC does have a trauma center focused quality improvement committee that meets weekly. The UMC quality improvement committee focuses on deaths and other serious adverse events. In addition to the trauma center oversight, the MAB provides oversight for the EMS portion of the trauma system.

3. Is there a unified approach to quality improvement throughout the system?

No. This would likely be addressed in the needs assessment being conducted by The Abaris Group.

4. How do the quality improvement programs for each component support the other elements of the system? (For example, does the quality improvement program for prehospital feed into the trauma center and back? Does quality improvement of trauma centers feed into acute care hospitals?)

Currently, there is no formal process in place. However, two quality improvement pieces are conducted that do provide some loop closure. The first one is the submission of prehospital data to UMC's trauma registry for review. If the trauma center finds an issue with a case the EMS provider is notified and appropriate action is taken.

The second piece is the Clark County Health District Quality Improvement Director's Committee, which reviews individual cases as well as systemwide issues. When a systemwide issue is identified by the committee it presents the information to the MAB for

appropriate action. Dr. John Fildes, the trauma center medical director, is a member of the MAB.

It is expected that a formal mechanism will be recommended to exchange quality improvement issues with the trauma center(s) between the acute care hospitals and prehospital providers.

5. What group/body oversees the quality assurance for the whole system?

The Clark County Health District is responsible for the prehospital components in Clark County and the State EMS Section has responsibility through the designation process for trauma centers statewide.

6. Are there standardized filters that each component of the system must audit and report to the system?

No. However it is likely as part of this needs assessment that standardized filters will be established that automatically require an audit and report to a proposed trauma system oversight committee. These filters would include complications with intubation, sentinel events, deaths, etc.

7. How does the system quality management program interface with trauma center quality management programs?

Currently there is some interface between UMC and the prehospital quality improvement committee (i.e., the MAB). The trauma center medical director sits on the MAB.

8. Does the trauma center designation process require trauma centers to demonstrate that they have established authority, responsibility, and organized structure for the quality management program?

Yes. The trauma center designation process is based on the ACS verification process, which includes these components.

9. Is there a system-wide process for monitoring quality of care, including establishment of standard of care, concurrent review, systematic evaluation of audit filters for care review, multidisciplinary case review, and trending of patient-related data (including process and outcome indicators)?

Yes. However, these apply to the single trauma center.

Standard of care: there are written policies and procedures in place for both EMS and the trauma center.

Concurrent review: all deaths are reviewed by the trauma center peer review/ performance improvement committee and if necessary are presented to the monthly multidisciplinary committee at UMC, then to the hospital performance improvement committee. If the case involves a prehospital component, then it is forwarded to the Clark County Health District EMS Department.

Systematic evaluation of audit filters: audit filters are aggregated and reported quarterly at UMC.

Multidisciplinary case review: this is conducted by UMC.

Trending of patient-related data: this is conducted via the UMC trauma registry. Data are reported monthly, quarterly and annually.

10. If there is no system-wide process, provide examples from the trauma center quality assurance program.

See answer above.

11. What data are acute care facilities required to submit for the system quality improvement program?

All hospitals in the state are required to submit trauma registry data on all defined trauma cases.

12. If there is a system trauma registry, how does it contribute to the quality improvement?

The UMC trauma registry is used to help direct process improvement by reviewing data generated from the registry. For example, trauma treatment protocols have been developed based on identified trends in the trauma registry and recommendations for the trauma activation criteria have been made based on data contained in the trauma registry.

13. How have changes and incentives affected the care of the trauma patient, and what are the branching impacts of these changes?

In 2001 the trauma center faced a medical liability crisis with their orthopedic trauma coverage. This caused the trauma center to close its doors for ten days. As a result, the Nevada Legislature passed a medical liability reform act that has since stabilized the system.

Diversion is an ongoing and serious problem in the Southern Nevada region and has ramifications for all trauma stakeholders. At this time, the MAB is currently working to alleviate the problem, but a long-term solution has yet to be identified.

7) Research

Pre-Review Questionnaire

Please provide an explanation for each affirmative response. For each negative response, provide an explanation for the system's plan to comply.

1. Describe the process for gaining access to system data for research purposes.

The UMC trauma registry is used to research topics identified by surgery residents, resulting in numerous posters and presentations. In addition, the surgery residents participate in the ACS Committee on Trauma annual Residents Trauma Paper Competition.

Another significant research entity of trauma in Southern Nevada is the Trauma Institute, which was established with private funding in 1997. The Trauma Institute obtains its data from several sources. Its primary source is the Uniform Billing 92 Hospital Discharge data set collected by the Nevada Division of Health. The Trauma Institute also has a working agreement with a local EMS transport agency to obtain prehospital data.

2. What funding does the system make available for research?

None. However, the Trauma Institute has applied and received grant funding from several entities including: National Highway Transportation Safety Administration (NHTSA), Nevada Attorney General's Office, Centers for Disease Control, Health Resources and Services Administration (HRSA), and Emergency Medical Services for Children (EMSC). The Trauma Institute also receives private funding.

3. Please submit examples of trauma-related research in each of the above categories conducted or facilitated by the system.

Please see Appendix D for a brief overview of the research conducted by the Trauma Institute.

4. Is there a central location in the state where each of the components listed under **Purpose** is collected, and what is the process for gaining access to those data?

Appendix A – Trauma Medical Director Job Description

POSITION DESCRIPTION

POSITION: Trauma System Medical Director
DATE: January 2004
REPORTS TO: To be determined.

POSITION PURPOSE:

This position contributes to the mission and vision of the trauma lead agency by assuring that the overall trauma system delivers care to patients in a timely, high-quality, appropriate fashion, and that each trauma center complies with appropriate standards of medical care and regulatory requirements. This position assures that the entire trauma system is periodically reviewed to ensure the highest quality of care for every patient.

PRINCIPAL ACCOUNTABILITIES:

1. Provides leadership, planning, organization, coordination, and evaluation for the overall trauma system.
2. Provides significant input on the preparation of the State's trauma budget.
3. Monitors community needs and provides significant input into trauma system planning as well as EMS system and disaster planning.
4. Acts as liaison between the trauma system leadership and trauma center medical staff.
5. Assures that medical care provided to trauma patients meets or exceeds the standard of practice and is adequate, appropriate, and timely.
6. Consults with the Trauma System Coordinator, Chief Health Officer and others concerning the organization's ability to meet the needs of patients.
7. Participates in developing EMS and hospital procedures for trauma care.
8. Assures that the trauma registry is complete and meet current standards.
9. Participates in the trauma system's quality review processes.

QUALIFICATIONS:

Experience

Prior trauma leadership experience with at least three years of trauma clinical experience at a designated Level I or II trauma center is required.

Education/Licensure

Must be licensed and board certified.

Knowledge/Skills/Abilities

Well-developed skill in planning, organizing, evaluating, problem solving, and articulation. Must demonstrate high degree of flexibility, team-orientation, professionalism and trust, and must place a high value on treating all others with dignity and respect.

Appendix B – Nevada Revised Statutes and Nevada Administrative Code

Appendix C – EMS Protocol Manual

Appendix D – Summary of the Trauma Institute's Research