OKLAHOMA TRAUMA CARE SYSTEM

ASSESSMENT & RECOMMENDATIONS

December 2006

BISHOP+ASSOCIATES
IRVINE, CALIFORNIA

BISHOP+ASSOCIATES

December 4, 2006

Tom A. Welin
Chief, Medical Facilities PHS
Oklahoma State Department of Health
1000 N.E. 10th Street
Oklahoma City, OK 73117

Dear Tom,

As you know, states across the nation are finding that maintaining trauma care services is increasingly problematic. There is an emerging consensus that market forces can no longer be relied upon to assure that these critical services remain available for those who need them, and that these challenges are spreading steadily to emergency care. In effect, trauma care has become a millstone around the neck of the broader emergency health care sector.

We have addressed these issues throughout the U.S. for over a decade and have found something remarkable in Oklahoma. The many stakeholders in trauma care are working together to strengthen this most vulnerable part of your health care system, and are turning this millstone into a cornerstone for emergency care.

It has been a pleasure working with the trauma community in Oklahoma and sharing and helping further the vision that we found. Attached is our report that addresses the many challenges you are addressing in developing your state's infrastructure supporting trauma and emergency care.

We will be happy to answer questions and comment on issues that arise over the next several months as OTSIDAC, the Department of Health Trauma Division, and all those participating in this process consider our findings and recommendations.

Again it has been a pleasure working with you.

Sincerely,

Greg Bishop

Greg Bishop
President

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Oklahoma Trauma Care System
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I. INTRODUCTION & SUMMARY

Bishop+Associates (B+A) was engaged by the Oklahoma State Department of Health to assess the Oklahoma Trauma Care System and recommend improvements. B+A is the nation's most experienced firm in trauma care economics, finance and organization; this includes developing the Trauma Center Economic Study, Trauma Resource Network and the National Foundation for Trauma Care (NFTC) as well as carrying out a broad variety of other state and regional projects. B+A conducted three workshops during this project and this final report incorporates overall findings and recommendations.

STATUS & VISION OF THE OKLAHOMA TRAUMA CARE SYSTEM

Oklahoma experienced a crisis over several years in the ability of the state's major trauma centers in Tulsa and Oklahoma City to handle overwhelming demand for care of the seriously injured from throughout the state. The most critical issue was the declining number of physicians in major trauma specialties such as neurosurgery and orthopedics who were available to participate in trauma call. Other issues included a substantial proportion of uninsured trauma patients and the lack of a state system to assure that patients received necessary care at the appropriate trauma hospital.

As demonstrated in the NFTC's 2004 U.S. Trauma Center Crisis report, these issues are common in states across the nation. What is uncommon is the highly constructive and collaborative approach that Oklahoma has taken to resolving them. No state has more organizational resources committed to trauma care, and no other has brought all stakeholders together to develop a long term strategy for its trauma system.

Due to strong and effective leadership, Oklahoma's hospitals, physicians, pre-hospital personnel and policymakers have forged a common quest for timely access and excellence in care for the seriously injured. Significant state financial resources have been committed, a series of initiatives have been launched to stabilize the system, and an organizational structure has evolved to carry them out.

At this point, a major objective is to assess the evolving system's strengths and weaknesses and modify it as appropriate to establish a permanent, ongoing support structure that will enable optimum use of trauma care resources, continual development of the trauma system, and expansion into other "time sensitive" emergency services such as stroke and heart attacks.

There is also a common commitment among stakeholders to having a strong trauma system serve as a foundation for the larger at-risk emergency health care sector throughout the state. Evolving problems with facility capacity and physician supply and participation in emergency care go well beyond trauma care and will require its newly developed regionalized support structure to be broadened over the next decade.

ORGANIZATIONAL ASSESSMENT & RECOMMENDATIONS

Trauma systems are collaborative by nature, and broad participation is a key factor in their success. The components of Oklahoma's trauma care system, in addition to the physicians, hospitals and EMS Agencies who provide treatment to those who are seriously injured, include:

- Oklahoma Trauma Systems Improvement and Development Advisory Committee
- Oklahoma State Department of Health Trauma Division
- Regional Trauma Advisory Boards (RTAB)
- Emergency Medical Services Authority (EMSA)
- Trauma Referral Centers (TReC)
- Medical Audit Committee (MAC)
- Oklahoma City/Tulsa Medical Association
- Oklahoma Institute for Disaster & Emergency Medicine (OIDEM)

After three years of organization, planning and initial development and operations, an assessment of these components and their interrelationships indicates the following:

- There is a clear and necessary role for each component of the Oklahoma trauma care system, and no major new components are needed. A realignment of functions and strengthening of core operating components is the appropriate course of action.

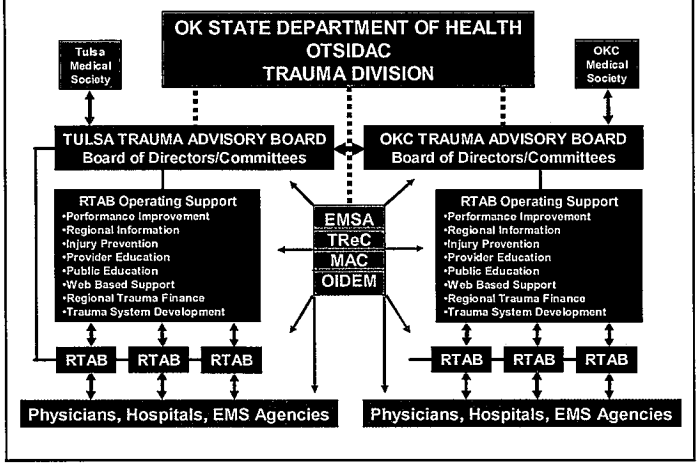
- During this initial phase, planning and development has been necessarily a top down process in which major stakeholders have been brought together at the statewide level to address trauma system issues. In the next phase, the needs of each region should be addressed based upon their unique circumstances and resources.

- While the OSDH Trauma Division has necessarily taken on a broad range of policy and operational functions during the development phase, at this point it should delegate specific operational functions to other system components (e.g., RTABS) to enable a regional focus on solutions.

- The Regional Trauma Advisory Boards should be reorganized into two "Super RTAB's" designed around the established trauma referral "watersheds" surrounding Tulsa and Oklahoma City.

- EMSAs Trauma related functions, such as Trauma Referral Centers and trauma patient transfers should be coordinated with the Super RTAB's to achieve a high level of operational effectiveness.

OKLAHOMA SUPER RTAB STRUCTURE



- The Oklahoma Institute for Disaster and Emergency Medicine and the Medical Audit Committee should strengthen support for the Oklahoma trauma system in terms of education, research, disaster preparedness and quality improvement.

- The Oklahoma and Tulsa Medical Associations should remain involved as needed to support trauma physician call panel development in the urban areas.

- The Oklahoma Trauma Systems Improvement Development Advisory Committee should continue its highly effective collaborative leadership and policy development.

- System development in rural areas should become a major focus to establish a true statewide network for trauma and emergency care.

TRAUMA CENTER ECONOMIC ASSESSMENT

A survey and analysis of the financial performance of Oklahoma's Level I-IV trauma centers in 2005 was conducted, and summary information is presented below:

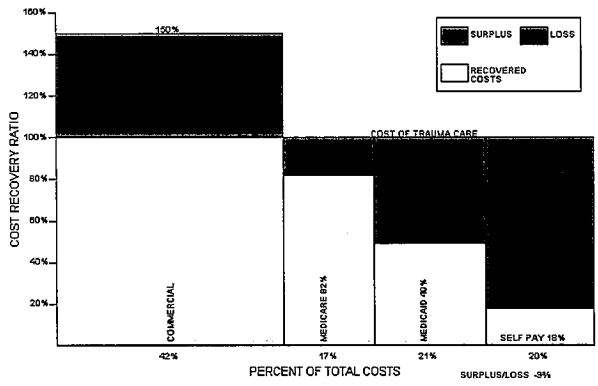
Trauma Center Costs And Reimbursement By Payer Class

Trauma patient care costs and revenue for each payer class were estimated based upon trauma center survey data. The table below indicates the percent of costs for each payer class, as well as the cost recovery rate (CRR), or revenue divided by costs. Forty two percent (42%) of trauma patients were covered by health insurance, compared to a national trauma center norm of 51%, and they produced revenue of 150% of costs, which is comparable to trauma center norms in the southwest.

Trauma Center Costs and Revenue by Payer Class

Payer	Total Costs	Cost %	Revenue	CRR %
Health Insurance	$50,635,028	42%	$75,952,542	150%
Medicare	$20,495,130	17%	$16,806,007	82%
Medicaid	$25,317,514	21%	$12,405,582	49%
Uninsured	$24,111,918	20%	$4,340,145	18%
Total	**$120,559,591**	**100%**	**$109,504,276**	**91%**

This reimbursement profile depicts the payer class table in graphic form. The width of each column reflects the proportion of care costs incurred by patients in each payer class, and the height of each column reflects the proportion of costs covered by each payer class. The green area represents a surplus generated by a payer class, the red area represents a loss, and the yellow area represents recovered costs.



Extraordinary Trauma Center Standby Costs

Trauma centers incur substantial costs over and above patient treatment costs that are not allocated to trauma care by hospital cost allocation formulas. They include a portion of staffing costs necessary to maintain trauma center readiness at night, a portion of direct trauma center administrative, and direct hospital costs to maintain trauma physician availability (trauma call panels) in required specialties.

Trauma center readiness costs were conservatively estimated at $500,000 per Level I-II trauma center, or $1.5 million, and current trauma physician call costs are $11,171,914, for a total of $12.7 million. Based on national trends, trauma physician support costs are expected to escalate over the next several years.

Trauma Center Bottom Line

The table on the right presents the overall financial performance of Oklahoma's trauma centers in 2005. The state trauma fund payments of $12.4 million as well as extraordinary readiness costs of $12.7 million were added.

With revenue of $122 million, average patient treatment costs and a poor payer mix, Oklahoma trauma centers are incurring a loss of $11.3 million.

Oklahoma Trauma Centers	Amount
Patient Care Revenue	$109,504,276
State Trauma Fund	$12,401,798
Total Revenue	**$121,906,074**
Direct Patient Costs	$80,774,926
Indirect Patient Costs	$39,784,665
Trauma Patient Costs	**$120,559,591**
Extraordinary Standby Costs	$12,671,914
Total Costs	**$133,231,505**
Surplus/Loss	**-$11,325,431**

Acute care trauma care costs also include physician care costs, which are not included in the above trauma hospital analysis. They are estimated at $42,195,657, for total acute trauma care costs of $175,427,362.

Cost of Uninsured Trauma Patient Care

Based upon this analysis, the overall costs for treatment of uninsured trauma center patients with an injury severity score (ISS) of 9 or above (patients with an ISS score below 9 are not eligible for trauma fund reimbursement, are as follows:

- Trauma Center Uninsured Patient Care $19.8 million
- Trauma Physician Uninsured Patient Care $ 8.4 million
- Total Uninsured Trauma Pt. Care Costs $28.2 million
- Less cost of ISS<9 Patients (16%) $ 4.5 million
- **Total Cost of Uninsured ISS>8 Patients $23.7 million**

Above totals for uninsured trauma patient care do not include costs for patient transport by Emergency Medical Services, trauma physician readiness, patient rehabilitation, and trauma system support costs.

2006 Medicaid Funding Levels

In 2006, Oklahoma expanded Medicaid payments to Medicare levels, the upper payment limit permitted by federal regulations, for both hospitals and physicians. This is projected to add $8.4 million to payments for trauma care provided by hospitals and $2.9 million for care provided by physicians. This needs to be verified by a review at the end of 2006, and if this actually occurs, it will help Oklahoma trauma centers achieve breakeven financial performance.

TRAUMA CARE REVOLVING FUND ANALYSIS

The Trauma Care Revolving Fund is composed of an estimated $23 million. Of that amount, 90% is allocated to healthcare providers and 10% to the Department of Health-Trauma Division. The overall breakdown in funding has been as follows:

- $18 million per year to support hospital care
- $1.5 million per year to support physician care
- $1.2 million per year to support EMS agencies
- $2.3 million per year for trauma system support by the Trauma Division

Trauma Fund Hospital Payments

The strategy of having the payment follow the trauma patient is generally working well as there is good trauma hospital participation and the payments have brought economic stability to the trauma center and better access to care for the seriously injured. However, the payment process lacks oversight capability and the cost-based payment methodology is outdated and open to gaming.

Consideration should be given to moving to a case rate payment methodology such as that used by the Oklahoma Medicaid system, or to case rates based upon national trauma center cost norms (i.e., National Foundation for Trauma Care's norms for patient treatment costs by patient severity and trauma center level). At the very least, these norms should be used to assess current payments.

Consideration should also be given to contracting with an experienced Third Party Administrator or with Oklahoma Medicaid to provide payment processing.

Trauma Fund Physician Payment Findings

The payment strategy is <u>not</u> working for trauma physicians outside of the three Level I/II trauma centers. This means they are not motivating Level III/IV trauma center medical staffs to participate in trauma care, a fundamental objective of the payments. They apparently deem billing requirements to be more trouble than the payments are worth.

The strategy is also inflexible and cannot accommodate the unique requirements of

different specialties, such as hand and oral surgery, and does not give the RTAB's any financial flexibility in constructing community call panels. Physician payment processing also places major demands on the Trauma Division, and oversight capability is missing.

Flexibility in how trauma physician payments can be spent at the RTAB level is strongly recommended. This would enable the RTAB's to determine regionally specific payment priorities and policies to better address unique specialty needs. This flexibility could include payment methods such as the current fee for-service approach, or stipends, a fee for physician response to the ED, or a hybrid payment mechanism that improves physician satisfaction and participation in trauma care. Consideration should be given to allocating overall physician support funds for both readiness and performance to each region based upon the proportion of overall trauma care it provides.

Consideration should also be given to contracting with a Third Party Administrator or Oklahoma Medicaid to provide fee-for-service payment processing functions.

STRENGTHENING TRAUMA PHYSICIAN CALL

The essential challenge facing trauma care is maintaining and strengthening medical staff support. With 15 different specialties required to be on call, and unique issues among each specialty in each hospital, this is a complex and problematic challenge.

In addition to minimizing the amount of uninsured trauma patient care provided by physicians taking trauma call, and minimizing the flow of inappropriate trauma patient transfers that can overwhelm an already burdened trauma specialty, key steps required to strengthen trauma physician support in Oklahoma include:

Pursue Added Funding For Readiness Pay

In Level I and Level II trauma centers across the nation, daily stipend payments for call are prevalent across multiple specialties. Larger volume Level III trauma centers that serve a region larger than their own community generally provide compensation for some trauma subspecialties. This is not the case with small volume Level III & IV trauma centers where there is little evidence of such payments. An analysis of call payments to physicians supporting the Level I, II, and the backup trauma centers indicates over $11 million per year is being paid, or will be paid in the near future.

Based upon national data, the key factors determining call pay are the level/volume of the trauma center, and the relative burden of the specialty within the trauma center. Major factors for assessing the level of burden for each specialty include:

- Number of physicians in specialty sharing call
- Times physician is called in to the ED when on call
- Intensity of service required in ED or once admitted
- Other factors such as whether physician is private practice or hospital based

Obtaining a minimum of 30% of funds required to support readiness pay for trauma call, or $2,827,702 is essential, and 50%, or $4,712,837 should be pursued. These funds should be generally allocated to Super RTABS based upon the overall proportion of trauma care provided in the greater OKC and Tulsa regions. Within the greater regions, they should be allocated by the super RTAB Board of Directors based upon need, such low supply specialties as hand and oral surgery in OKC, upon national norms for such payments, and also upon the fundamental need to support trauma care in the rural regions, which has been limited to date.

Equip and Empower RTAB Structure To Support Community Call

The RTABs should have the organizational support and flexibility to spend these funds in a variety of manners described in the Community Call section of this report, such as contracting, physician recruitment, etc. Flexibility should also be provided to the RTABs to redirect some current funding for physician payment on uninsured trauma patient care to other mechanisms, including readiness stipends.

This will strengthen the role of RTAB's and enable them to address their region's unique circumstances. This will become increasingly important in rural areas as the system expands to emergency care. Finally, physicians should be encouraged and recognized for participation in trauma and emergency call with awards and newsworthy events. A common lament among physicians frustrated with trauma call is that "no one ever says thank you", and a story in the local newspaper about a particularly heroic save that a surgeon can show a son or daughter can be very motivating.

Maintain & Strengthen Malpractice Protections

The following approach is recommended for Oklahoma:

- Conduct initiative to preserve and strengthen current malpractice protections that will sunset in 2008. This is essential to maintaining physician support for trauma care.
- Request the Medical Associations to take a lead role in pursuing the initiatives to assure strong physician participation.
- Possible strategies for defining malpractice initiatives include tightening restrictions on filing suits, expanding Good Samaritan statutes, lowering non-economic damage caps and using the RTAB structure for extending state malpractice restrictions.
- Measure the actual incidence of malpractice cases involving trauma and emergency care over the last five years to address perception issues.

STRENGTHENING TRAUMA CENTER CAPACITY

A lack of trauma center capacity is the fundamental problem for Oklahoma's trauma system. Capacity needs to expand, particularly, in Oklahoma City, but also in rural areas such as Lawton that have the potential to do so.

Oklahoma City
Oklahoma City, and RTAB 8, has no designated Regional Level II trauma centers. Presently, six of the Level III facilities within the Oklahoma City metro area function in a rotating backup capacity to the Level I trauma center at OU Medical Center. This backup plan is currently functional, yet unstable, and not sustainable over the long term.

Tulsa
Tulsa is the second most populous region in Oklahoma and has no Level I trauma center. There are two Regional Level II trauma centers at St. Francis and St. John's Medical Centers. In addition, Tulsa also has several Level III and Level IV trauma centers to care for less critically injured trauma patients from throughout the region.

Southwest Oklahoma
Southwest Oklahoma is a large region that includes the communities of Lawton, Altus, and Duncan. Comanche County Medical Center in Lawton, a Level III trauma center, cared for 220 trauma patients, with 28 having an Injury Severity Score >15 (major trauma). In conjunction with other facilities in Altus and Duncan, a stronger, higher level trauma center could likely be established.

Rural Oklahoma
Rural Oklahoma is comprised of six regions, or RTAB's. Within these RTABs are a number of community Level III and IV trauma centers that provide initial evaluation and treatment of some trauma patients from within the regions.

Developing Additional Trauma Center Capacity in Oklahoma City

Given the significant pressure on trauma centers to provide physician support in the heavily burdened trauma sub-specialties of trauma surgery, orthopedic surgery, neurosurgery, and facial trauma surgery, it makes economic sense for Oklahoma City to consolidate volume from the six rotating backup hospitals into a minimum number of facilities; either one, two, or three "super" Level III trauma centers.

To provide an indication of the economic viability and impacts of another trauma center in Oklahoma City, registry and survey data was used to construct a rough pro forma for one consolidated Level II/III facility. This also provides a general estimate of the economic viability of two "super" Level III trauma centers.

Below is the projected bottom line for a consolidated Level II/III trauma center in Oklahoma City. Physician support costs are estimated at $2,000,000 and extraordinary costs of $350,000 are anticipated.

Level II/III Trauma Center Pro Forma

Annual	Amount
Revenue	**$14,942,633**
Direct Treatment Cost	$8,943,687
Trauma Physician Call	$2,000,000
Hospital Support Costs	$350,000
Contribution Margin	**$3,648,946**
Indirect Treatment Cost	$4,405,100
Total Costs	**$15,698,787**
Profit/Loss	**-$756,154**

With projected patient revenues of $15 million, less direct patient treatment costs of $9 million, and less $2.4 million in trauma medical staff and hospital support costs, a $3.6 million positive contribution margin could be generated for a trauma center of 1000+ patients. After indirect costs of approximately $4.4 million, the projected loss is $756,000. This could be offset with a state contribution of part of the trauma physician call, or readiness costs.

Conduct Feasibility Study For New Consolidated OKC Trauma Center(s)

The above rough pro forma indicates this trauma facility(s) would be economically justified, and so an in-depth feasibility study and financial/medical staff plan should be prepared and include analysis of the following:

- This feasibility study would include a detailed financial analysis of projected volumes, patient severity, payer mix, revenues, operating costs, startup and development costs, and impacts such as patient days, ICU days and OR demand for 1, 2 or 3 trauma centers.

- An assessment of which hospital(s) are preferred for a trauma center role based upon interest, medical staff resources, hospital resources and geographic location.

- For interested hospitals, an analysis of medical staff resources available to support a regional trauma center and a plan to fill gaps in coverage through contracts, recruiting, reliance on community call panels, etc.

- Strategies for optimizing financial performance of the consolidated trauma center would be evaluated including cost management, managed care carve-outs, service line management, marketing and outreach initiatives, etc.

The result would be a definitive assessment of trauma center capacity alternatives in Oklahoma City, and a rigorous feasibility analysis and financial/medical staff plan that would enable the actual development of the most viable alternative. Subsequent to this project, a similar approach should be considered for Southwestern Oklahoma.

REQUIREMENTS FOR ADDITIONAL FUNDING

Oklahoma is providing the bulk of public support necessary to maintain quality trauma care in a timely manner for the seriously injured throughout Oklahoma. Additional amounts will be necessary to support an adequate system infrastructure, assure trauma physician readiness, and provide adequate support for trauma patient rehabilitation. These capstone amounts are inordinately valuable as they enable the trauma system to expand to other time sensitive emergency services in a highly cost-effective manner.

Estimated Funding Requirements

New funding requirements include the following:

- $4.2 Million Balance For Payment On Uninsured Patient Care
- $2 Million For Strengthened Trauma System Infrastructure
- $2.8 - $4.7 Million For Partial Payment of Readiness Costs
- $1 Million+ To Assure Rehabilitation Services For The Seriously Injured

Total additional funding requirements are $10-12 million

The total amount of funds collected annually is expected to grow up to $25 million, but cigarette tax revenues are expected to decline, so it would be prudent to anticipate $23 to $25 million annually. With total funding requirements of $33-35 million, the annual shortfall is $8-12 million.

Potential Sources of Funding

A variety of potential new funding sources have been assessed as part of this project, including Medicaid matching funds, a provider tax, and the variety of funding measures employed in other states.

There is a broad variety of sources of funding for trauma care that have been utilized throughout the nation. Based upon other state's experience, the revenue that would be generated in Oklahoma by the following fees/fines and sources is defined in the following table:

SOURCE	AMOUNT
Texas DUI & Frequent Offender Fines	$15.6 million
1% Auto Insurance Premium	$19.8 million
$100 Surcharge On DUIs	$0.8 million
$25 Seat Belt Violation	$1.1 million
$20 Speeding	$2.6 million
$5 Driver License Fee	$3.0 million
$5 Car/Truck Vehicle Registration	$13.5 million
$5 New/Used Vehicle Title Fee	$4.1 million

In most cases, state trauma funding strategies are defined by legislative experts who understand the prospects and stakeholders for each funding source. They can point out the path of least political resistance, as well as opportunities to collaborate with other stakeholders to jointly pursue new funding opportunities, thus consolidating political strength. This is the route recommended for Oklahoma's trauma care stakeholders.

Trauma Funding Strategy of Choice

In addition to relying on legislative experts who can handle the "horse trading" that generally accompanies successful funding initiatives, ongoing experience in other states suggests that key factors to stable, long term funding for trauma care are as follows:

- Pursue Funding Sources That Are Trauma Related
- Build A Statewide Network To Pursue Funding
- Build & Sustain A Coalition Of Trauma Stakeholders

OTHER TRAUMA SYSTEM ISSUES

This section addresses additional components of the Oklahoma Trauma Care System.

Oklahoma City & Tulsa Transfer Referral Centers

There has been limited usage of the TReC system to date largely due to confusion on the part of EMS agencies and hospitals, and resistance from the Tulsa region. The confusion is a result of larger hospitals having internal call centers. For example, OUMC has the "One Call Center". Recently OUMC has agreed to route inappropriate calls from EMS agencies and hospitals for trauma patients to the TReC. Between June and September 2006, the volume of calls from hospitals for an interfacility transfer more than doubled.

Tulsa, Region 7, has two Level II trauma centers and four Level III trauma centers. The two Level II trauma centers already function in a backup capacity to one another. Therefore, there is little support from EMS agencies or hospitals needing to transfer a patient to the Tulsa region to call the TReC.

Recommendations

There is a benefit to the major trauma patient and the single Level I trauma center in Oklahoma to not only maintain the TReC system, but to continue to work toward increasing usage of the system by EMS agencies and hospitals.

The operation of the TReC system should remain within EMSA. This is the appropriate agency to operate, manage, and evaluate the effectiveness of this vital part of the Oklahoma Trauma System.

Regional Trauma Advisory Board Assessment

The State of Oklahoma Department of Health established eight Regional Trauma Advisory Boards (RTABs) to provide a structure for the development of regionalized agencies to support trauma system development within each region.

Findings and Recommendations
The Regional Trauma Advisory Boards are the fundamental component of Oklahoma's trauma system network, and their support and structure should be strengthened. Major recommendations for doing so are contained in Section II - Organizational Assessment & Recommendations, and include:

- Formation of Super RTAB structure focused around the greater Tulsa and Oklahoma City regions.

- Empower and support statewide RTAB network with experienced technical and operational support from the Super RTAB, and provide basic level of funding that enables them to address regional needs.

- Do not overwhelm RTABs with bureaucratic activities, or requirements such as forming their own non-profit organization, and use the RTABs as delivery vehicles for all local trauma system support activities, including, quality assurance, education, transfer protocol implementation, etc.

Consider Consolidation or Realignment of Trauma Regions
At this point of trauma system development, the regional configuration should be assessed to assure it is the most effective possible for the next decades. Eight regions is a lot for a population of 3.5 million, but this may work in Oklahoma where the Super RTABs will play a strong supporting role, and can bridge regional lines to address system issues when necessary.

Trauma Patient Rehabilitation

Payment for trauma patient rehabilitation is authorized by Oklahoma's trauma statute but has not been implemented. The key issue is that assuring appropriate rehabilitation services for uninsured, seriously injured patients is cost-effective because they tend to recover and become productive citizens, and if they cannot be placed and discharged to a rehab center, they must remain in the acute care setting and a greater cost.

Recommendations
The challenge for the Trauma Division is to assess the total cost of rehabilitation care for uninsured trauma victims in Oklahoma based upon essential factors:

This approach will enable the development of a realistic analysis of the total cost of adding reimbursement by the Trauma Fund for rehab care. The State of Texas which provides over $60 million in funding for trauma does not reimburse for rehab care. The

recommended strategy for consideration of adding rehab reimbursement would be to only do so if the dollars spent could be used to increase rehab capacity.

Grossly Estimated Cost
While a full analysis will be needed to accurately estimate the costs of adding payment for rehabilitation for uninsured trauma patients, initial information from OUMC, roughly extrapolated statewide, indicates a reasonable gross estimate for use in Trauma Fund planning purposes is $1 million.

EXPANSION TO EMERGENCY CARE & IMPLEMENTATION

Expansion To Emergency Care

A major benefit from constructing a robust, statewide trauma care infrastructure and system is that it can be expanded to address broader emergency care service issues. This enables a highly cost-effective approach to strengthening the entire problematic emergency care sector.

It is important to understand that this is already being accomplished in some respects. Assuring adequate coverage for surgery, neurosurgery, orthopedic surgery, etc. for care of trauma patients also assures the same specialties will be available to care for non-trauma patients requiring their services. An expansion to other time sensitive emergency health care issues such as strokes and heart attacks is also feasibility since they require the same systems approach and components required for trauma care.

Expansion to emergency care will also bring important benefits to the trauma network in that it will substantially broaden the stakeholders that will support it, as well as develop broader interest among legislators who must fund it.

Implementation

One of the frustrations of the trauma system development process to date is that many initiatives, proven and otherwise, were thrown together without a clear sense of what their planning and operational requirements entailed.

At this juncture, careful planning is essential for effective implementation, and this includes a realistic timeline for carrying out the many initiatives involved.

II. ORGANIZATIONAL ASSESSMENT & RECOMMENDATIONS

The Oklahoma Trauma Care System has benefited from significant state resources as well as statewide participation by a variety of interested organizations over the past three years. A series of initiatives have been launched to stabilize the trauma system, and an organizational structure has evolved to carry them out.

At this point, a major objective should be to assess the strengths and weaknesses of the initial organizational structure and modify it as appropriate to establish a permanent, ongoing structure that will enable:

- Optimum use of trauma system resources
- Continual development of the trauma system
- Ongoing expansion of statewide support and participation

This organizational structure should also be expandable to take on the broader issue of time sensitive emergency care.

EFFECTIVE TRAUMA SYSTEM ORGANIZATIONAL EXAMPLES

Several states have developed very effective structures for their trauma systems. The best examples are as follows.

Pennsylvania

The Pennsylvania Trauma System Foundation (PTSF) was created in 1984 by the state's medical, hospital, nursing and emergency services organizations and received a state mandate to develop and oversee the trauma system. Its primary function is to operate a voluntary trauma center accreditation program. It also conducts educational programs and research, and operates the statewide trauma registry.

The PTSF operates as a not-for-profit organization, and is governed by a 19-member Board of Directors. The Board is comprised of professionals representing its sponsoring organization with expertise in emergency care and balanced geographic representation, and representatives of the Pennsylvania legislature's Health and Welfare Committees and the Secretary of the Department of Health.

North Carolina

North Carolina, with a population of 8.7 million, organized its trauma system around eight regions that are anchored by a Level I or II trauma center and overseen by a Regional Advisory Committee. The regions were defined by the clinical referral patterns within the region to the central Level I or Level II facility. The RAC's are supported by the regional trauma center and overseen by the State Trauma Advisory Committee.

The basic function of the RAC's is regional trauma system planning using the template established in the Model Trauma System Planning & Evaluation Tool developed by HRSA. The RAC's have also developed significant responsibility regarding bio-terrorism response which evolved after a multi-year development period and after 9/11.

Texas

Texas, with a population of 20 million, has developed significant funding for trauma care which is used for uninsured trauma patient care as well as an administrative support structure anchored by 22 Regional Advisory Councils. Each region is anchored by a regional trauma center(s); due to large geographic distances, this may be what they characterize as a lead Level III trauma center that has significant trauma volume.

The RAC's were formed in 1992 and charged with the responsibility of establishing a regional trauma system. They took a significant leap forward when they received administrative funding from the state's Texas trauma fund, and they have also since expanded into broader EMS, injury prevention and bio-terrorism responsibilities.

Texas is now moving forward on forming the Texas Foundation for Emergency/Trauma Care with a primary mission of providing operational support to the Texas Department of State Health Services for the EMS/trauma system. The non-profit Foundation will support the implementation of TDSHS rules and regulations and assist its membership, the Texas RAC's, with operational support. The Foundation will also foster inclusive and collaborative system initiatives throughout the state, including a public awareness campaign to build and sustain public support for trauma and emergency care.

Key Lessons

Key lessons from other states' experience in building a strong and effective public good infrastructure to support trauma and emergency care include:

- Bring together all existing statewide stakeholder organizations.
- Build a statewide system that incorporates all local and regional stakeholders and integrate them into a network.
- Define regions by existing patient referral patterns to enable participants within traditional catchment areas to work together with the major referral hospital(s).
- Provide technical assistance to help regional groups organize regional systems.
- Provide basic operational funding for regional organizations.
- Build it for the long term and make it expandable to emergency care and related functions.
- Foster a grassroots network that generates statewide public support.

Oklahoma has initially chosen a course that reflects core lessons from other states, and can now make adjustments based upon both their and its own experience.

CURRENT OKLAHOMA TRAUMA SYSTEM COMPONENTS

Trauma systems are collaborative by nature, and broad participation is a key factor in their success. The components of Oklahoma's trauma care system, which incorporates wide and inclusive participation, include:

Oklahoma Trauma Systems Improvement and Development Advisory Committee
OTSIDAC, with broad representation, reporting to the Commissioner of Health and staffing by the OSDH Trauma Division, has evolved into an effective focal point for statewide policy development on trauma system issues. It enjoys strong leadership, incorporates all major constituencies in a collaborative manner and pursues progress in a well organized fashion.

Oklahoma State Department of Health Trauma Division
Functioning as the state's lead agency for trauma care, the OSDH Trauma Division has an exceptionally broad mandate that includes the development/operation of payment systems for hospitals and physicians, contracting for system components such as the Trauma Referral Centers, organization and support of the Regional Trauma Advisory Boards, support of OTSIDAC, and trauma system policy development.

Regional Trauma Advisory Boards (RTAB)
Oklahoma has been divided into 8 regions based upon existing disaster related regions, and an RTAB has been organized for each. Initially established as a regional Board, each RTAB is expected to organize themselves as a not-for-profit corporation. Key RTAB functions include regional resource assessments, trauma system planning, regional quality improvement, and other regional activities that support trauma care.

Emergency Medical Services Authority (EMSA)
EMSA operates in Tulsa and Oklahoma City and surrounding communities and provides pre-hospital advanced life support and transport. It also contracts with the Division of Health to operate the trauma referral centers.

Trauma Referral Centers (TReC)
TReCs were established to manage the flow of trauma patients from outlining regions into the regional trauma centers in Oklahoma City and Tulsa. Operated by EMSA, the TReCs essentially regulate the "black market" historically involved in trauma patient referrals and bring a rational approach to moving patients to the appropriate facility.

Medical Audit Committee (MAC)
Established to assure high quality trauma care and continuous quality improvement, the MAC integrates the QI functions of trauma hospitals, EMS Agencies and Regional

Trauma Advisory Boards into a statewide quality improvement process that ultimately reports to OTSIDAC.

Oklahoma City/Tulsa Medical Association
The Oklahoma City and Tulsa Medical Associations have been instrumental in pursuing solutions for trauma care, principally regarding physician participation and trauma call. They provide an essential link to the broader medical community and are particularly important in addressing specific trauma specialty shortages.

Oklahoma Institute for Disaster & Emergency Medicine (OIDEM)
Organized recently under the University of Oklahoma Health Sciences Center –Tulsa, the purpose of the OIDEM includes providing education to trauma system participants, establishing an emergency physician residency, and conducting research on trauma, emergency care, and disaster issues. It is designed to support all components of the Oklahoma Trauma Care System.

Of course, the fundamental components of the Oklahoma Trauma Care System are the physicians, hospitals and EMS Agencies who provide treatment to those who are seriously injured.

TRAUMA CARE SYSTEM ORGANIZATIONAL ASSESSMENT

No state has more organizational resources committed to trauma care than Oklahoma, and no other state has brought these resources together to collaboratively develop a long term vision and support structure for its trauma system. Oklahoma also enjoys a strong and effective leadership that has brought together hospitals, physicians, pre-hospital personnel and policymakers into a common quest for stability and excellence in care for the seriously injured.

There is also the recognition that a strong and stable trauma system will serve as an anchor for the larger emergency service sector throughout the state.

After three years of organization, planning and initial development and operations, an assessment of the components of the trauma care system and their interrelationships indicates the following:

- There is a clear and necessary role for each component of the Oklahoma trauma care system, and no major new components are needed. A realignment of functions and strengthening of core operating components based upon experience to date is the appropriate course of action. In essence the systems approach to quality improvement, the major strength of trauma care, should be utilized to continuously strengthen Oklahoma's trauma system.

- During this initial phase, planning and development has been necessarily a top down process in which major stakeholders have been brought together at the statewide

level to address trauma system issues. In the next phase, concerted efforts should be made to balance this with a bottom up approach in which the needs of each region are addressed based upon their unique circumstances and resources versus a statewide template.

- While the OSDH Trauma Division has necessarily taken on a broad range of policy and operational functions during the development phase, at this point it should delegate specific operational functions to other system components (e.g., RTABS) to enable a regional focus on solutions. This will also allow the Division to focus on core functions such as policy making and oversight, continued system development, and the expansion to other time sensitive emergency care issues.

- The eight Regional Trauma Advisory Boards should be reorganized into two "Super RTAB's" designed around the established trauma patient referral "watersheds" surrounding Tulsa and Oklahoma City. The local regional RTAB's should continue within an integrated structure under the leadership of the Super RTAB's. In addition, consideration should be given to modifying geographic boundaries and the number of the "RTAB's" based upon experience to date.

- Trauma related functions of the Emergency Medical Service Authorities, including the Trauma Referral Centers, should be closely integrated with the Super RTAB's for optimum operational effectiveness. This will also allow the differing needs of the regions to be addressed in an effective fashion.

- The Oklahoma Institute for Disaster and Emergency Medicine and the Medical Audit Committee should continue to develop and strengthen support for the Oklahoma trauma system in terms of education, research, disaster preparedness and quality improvement. The Super RTAB structure will enable a more effective operational interface with the regions.

- The Oklahoma and Tulsa Medical Associations should remain involved as needed to support trauma physician call panel development in the urban areas.

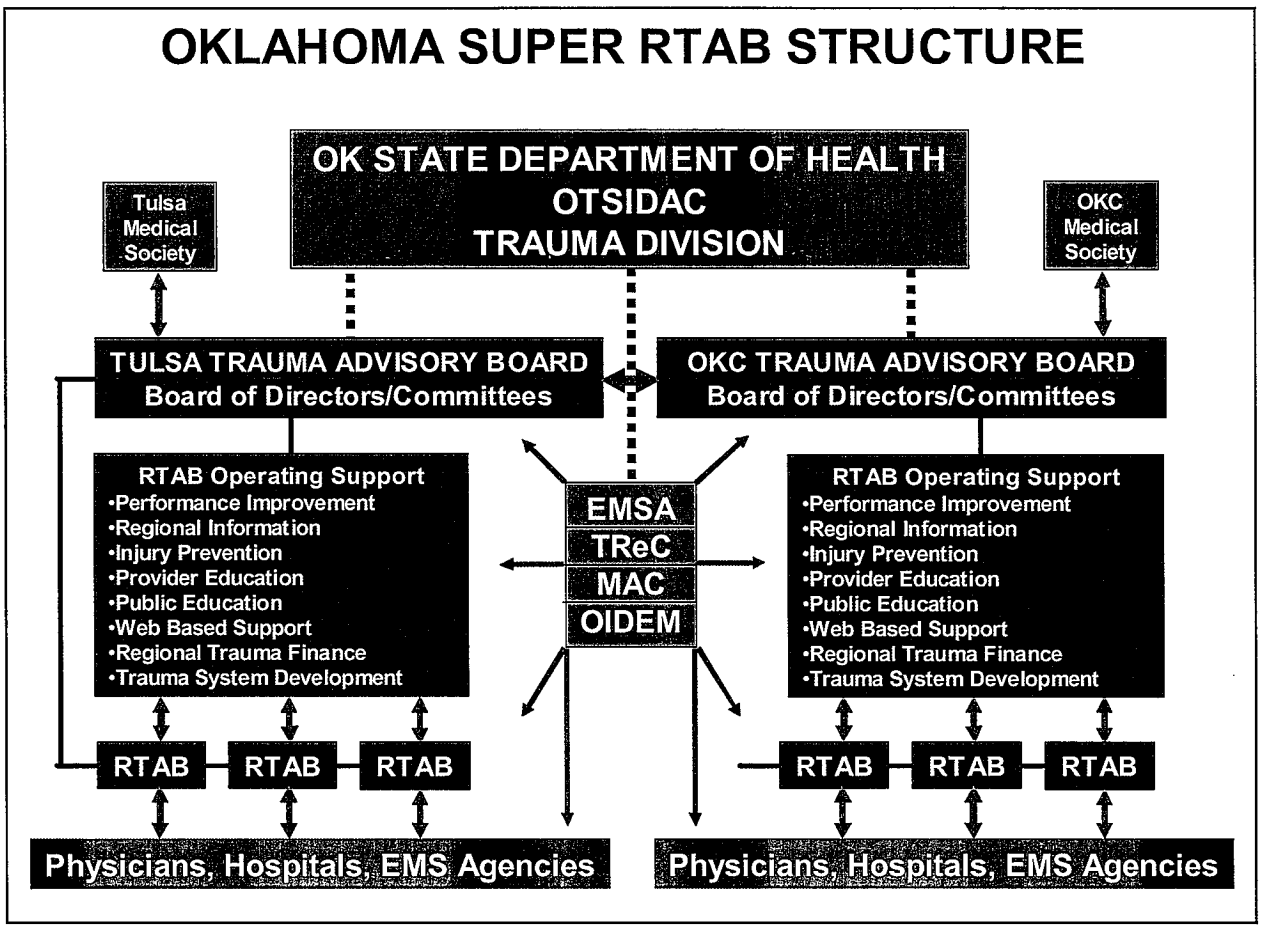
- The Oklahoma Trauma Systems Improvement Development Advisory Committee should continue its highly effective collaborative approach to leadership and policy development.

Finally it's important to continue to build the trust and confidence of the physicians, hospitals, and EMS agencies who actually provide treatment to the seriously injured. This can be done by continuing financial support for uninsured patient care, but also by building support structures and services that are necessary to provide a secure, stable and effective environment for their work.

ORGANIZATIONAL RECOMMENDATIONS FOR OKLAHOMA TRAUMA SYSTEM

The major recommendation is to strengthen the Regional Trauma Advisory Board structure by creating two "Super RTABS" based in Oklahoma City and Tulsa. They would serve as lead agencies that interface with and support the operations of sub-regional local networks formed around the natural catchment areas centered on these urban areas of the state.

This approach will enable the operationalization of strategies and policies produced in trauma system planning, such as community call systems, and develop a strong, grassroots "bottom up" network of provider and public support for trauma/emergency care. The "Super RTABS" will work in concert with other trauma system components to form a well organized statewide network that strengthens the role of each component.



Major Attributes & Functions

Key attributes and functions of this "Super RTAB" structure include the capability to:

- Perform operational functions delegated/contracted by the OSDH Trauma Division such as trauma system development.

- Partner with EMSA, TReC, MAC, OIDEM to enhance the support they provide to the trauma and emergency care sector by strengthening participation and buy-in at the local level for transfer, performance improvement, education and research issues.

- Form community call systems based on the unique needs and opportunities in their regions, with the ability to contract for physician services for participating trauma hospitals for high-demand, low supply specialty support. This would be enhanced with flexibility on policy regarding specific use of funds for physician payment.

- Foster public participation in activities such as injury prevention as well as public education and support for the essential public services of trauma/emergency care.

- Establish a joint telecommunications capability that would enable strong, cost-effective cooperation within super regions and between them at a statewide level.

- Perhaps forming a telemedicine linkage between referring ED's with the Level I & II trauma centers to optimize quality of care and minimize unnecessary transfers (Tucson model).

- Develop an Oklahoma Trauma System website to enable/enhance communications and participation among integrated organizations.

- Perhaps serve as an "Authority" that can extend state malpractice immunity to physicians through their participation in a contracted payment/billing systems.

- Effectively evolve to time sensitive emergency care issues in a relatively seamless manner.

Financing

Core costs will include a Director for each "Super RTAB" and Administrative Assistant with a basic support budget. The minimum will be approximately $200,000 annually for each with additional funding of $50,000 for individual RTABs for programs that address regional needs. Core funding should be provided by the Trauma Division through an enhanced administrative allocation, with grants and participant fees used to supplement support as necessary and available. Resources of major referral hospitals such as technical expertise on use of UB 92 68X trauma revenue code should also be made available to all participating hospitals in the region.

Organizational Structure

Each "Super RTAB" should be organized as a 501 (C)(3) not-for-profit organization. The Board of Directors should include representatives of the individual RTAB's in its region, and each individual RTAB should form a Program Board that operates under the "Super RTAB" with specific proscribed and delegated responsibilities. An integrated committee

structure should be formed with members from the broader region to support functions such as trauma system development, PI, education, injury prevention, etc.

This arrangement provides each RTAB the autonomy to address its own unique regional needs while melding them together into a strong regional network built around and supported by the main referral hospitals. It also provides an efficient, cost-effective, operational structure.

Empower & Support Statewide RTAB Network

Major factors that will determine success in developing a true statewide network, rather than one focused on urban issues, are as follows:

- Nurture each RTAB with experienced technical support that enables them to make clear progress early. Encourage and support their own leadership development.

- Do not overwhelm RTABs with bureaucratic activities, or requirements such as forming their own non-profit organization. Be careful to not present divisive funding decisions that can pit local stakeholders against each other.

- Assure that a significant level of resources reaches each RTAB for use on activities they deem important.

- Use the RTABs as delivery vehicles for all local trauma system support activities. This includes, quality assurance, education, transfer protocol implementation, etc.

III. TRAUMA CENTER ECONOMIC ASSESSMENT

This analysis was conducted on the state trauma registry data and hospital data provided by regional and community trauma centers on patients meeting trauma triage field criteria for the year 2005 who were admitted. Data elements included injury severity scores, severity mix, hospital payer mix, and trauma physician support costs. These elements were used for comparison and to assure accurate data. Revenue estimates were based upon national norms.

TRAUMA CENTER VOLUME, SEVERITY AND LENGTH OF STAY

The table below indicates the breakdown of admitted trauma patients treated in Oklahoma by injury severity score (ISS) along with their patient treatment costs and average length of stay.

Oklahoma Admitted Trauma Patients

Injury Severity	Pts	%	Avg Pt Cost	Avg Cost Per Day	ALOS
ISS 0-8	3,475	35%	$5,334	$2,491	2.62
ISS 9-14	4,057	41%	$10,609	$2,385	4.38
ISS 15-24	1,329	13%	$16,672	$2,056	8.80
ISS >24	1,060	11%	$34,742	$3,048	13.11
Totals	**9,921**	**100%**	**$12,152**	**$2,493**	**5.27**

There were a total of 9,921 admitted trauma patients in Oklahoma. The average patient volume of Oklahoma's Level I and II trauma centers was 1,163, Level III was 430 and IV was 34. The total number of admitted patients with an Injury Severity Score above 15 was 2,389.

The following table indicates the overall hospital average length of stay of admitted Oklahoma trauma patients in relation to national norms. These norms are based upon data from regional/community trauma centers (n=40) participating in the National Foundation for Trauma Care, a national trauma center consortium. Participating trauma centers can be considered relatively proactive on patient management.

Oklahoma Trauma Patient Length of Stay

ISS Score	Oklahoma # Pats	Oklahoma ALOS	National ALOS	Variance
ISS 0 - 8	3,475	2.62	2.97	-0.35
ISS 9 - 14	4,057	4.38	5.23	-0.85
ISS 15- 24	1,329	8.80	8.66	0.14
ISS > 24	1,060	13.11	12.78	0.33
Total/Ave	**9,921**	**5.27**	**5.70**	**-0.43**
Pat Days		**52,284**	**56,550**	**-4,266**

Norms are determined for each of four acuity classes, based upon injury severity scores, which enables an acuity adjustment based upon the Oklahoma patient mix (i.e., weighted average of norms for each acuity class).

The 5.3 day Oklahoma trauma patient average length of stay (ALOS) is below the 5.7 day national norm. This variance of 0.4 days per patient equates to 4,266 less hospital days overall.

Projected Volume based on U.S. Rates

Below are 2 tables, one for the state Oklahoma and the other for New Mexico. Using national rates and the population for each state, projected total patient volume was compared to actual volume. Oklahoma's projected volume was 8,728 and actual volume for 2005 was 9,921, 114% of norms.

Projected Volume for OK Based on U.S. Rates

ISS Score	National Rate	Oklahoma Population	Projected # of Pts	OK 2005 Volume	% of National Norm
ISS 0 - 8	1.34	3,547,884	4,754	3,475	73%
ISS 9 - 14	.69	3,547,884	2,448	4,057	166%
ISS 15- 24	.23	3,547,884	816	1,329	163%
ISS > 24	.20	3,547,884	710	1,060	149%
Total/Ave	**2.45**	**3,547,884**	**8,728**	**9,921**	**114%**
ISS > 15			**1,526**	**2,389**	**157%**

New Mexico's total volume is 92% of norms. If you compare Oklahoma's and New Mexico's patients with an ISS score over 15, both states trauma volume is 157% of norms.

Projected Volume for NM Based on U.S. Rates

ISS Score	National Rate	NM Population	Projected # of Pts	NM 2004 Volume	% of National Norm
ISS 0 - 8	1.34	1,874,614	2,512	1,682	67%
ISS 9 - 14	.69	1,874,614	1,293	1,312	101%
ISS 15- 24	.23	1,874,614	431	833	193%
ISS > 24	.20	1,874,614	375	433	115%
Total/Ave	**2.45**	**1,874,614**	**4,612**	**4,260**	**92%**
ISS > 15			**806**	**1,266**	**157%**

TRAUMA PATIENT CARE COSTS

This section addresses **trauma patient care costs, which totaled $120,559,591** for admitted patients at Oklahoma trauma centers. These costs include the direct costs of treating patients and standard allocations for overhead as determined by each hospital's cost accounting system. Of these costs, $80,774,926 were direct costs and

$39,784,665 allocated overhead. (The next section addresses the additional extraordinary costs related to maintaining a trauma center not included in the costs below.)

Oklahoma Trauma Patient Treatment

ISS	#Pts	%	National Norm Cost/Pt	Total Cost
0 - 8	3,475	35%	$5,334	$18,535,372
9 - 14	4,057	41%	$10,609	$43,041,200
15 - 24	1,329	13%	$16,672	$22,156,849
>24	1,060	11%	$34,742	$36,826,170
Totals	**9,921**	**100%**	**$12,152**	**$120,559,591**

EXTRAORDINARY STANDBY TRAUMA CENTER COST

Trauma centers incur substantial costs over and above patient treatment costs that are not normally allocated to trauma care by hospital cost allocation formulas. These extraordinary costs would be eliminated if the trauma center were to close. Examples include:

- A portion of staffing costs necessary to maintain trauma center readiness in the OR, ED, ICU, and radiology departments at night, on weekends and holidays.

- A portion of trauma center administration costs that include program management, data collection and support.

- Direct hospital costs to maintain trauma physician availability (trauma call panels) in multiple specialties.

These costs are estimated as follows:

- Trauma Center Readiness Costs: Assessments of trauma centers indicates a conservative estimate of non-allocated readiness costs is $1.5 million or $500,000 per LI or LII center (estimate based on national norms)

- Trauma Center Physician Support Costs: Oklahoma's Trauma Centers reported the following total for physician support by specialty:

Oklahoma Trauma Centers
Trauma Physician Support Costs

Specialty	Oklahoma Total
Trauma surgery	$3,228,750
Neurosurgery	$3,386,500
Orthopedic surgery	$1,145,170

Plastic Surgery	$649,500
Anesthesia	$1,966,500
Other	$795,494
Total	**$11,171,914**

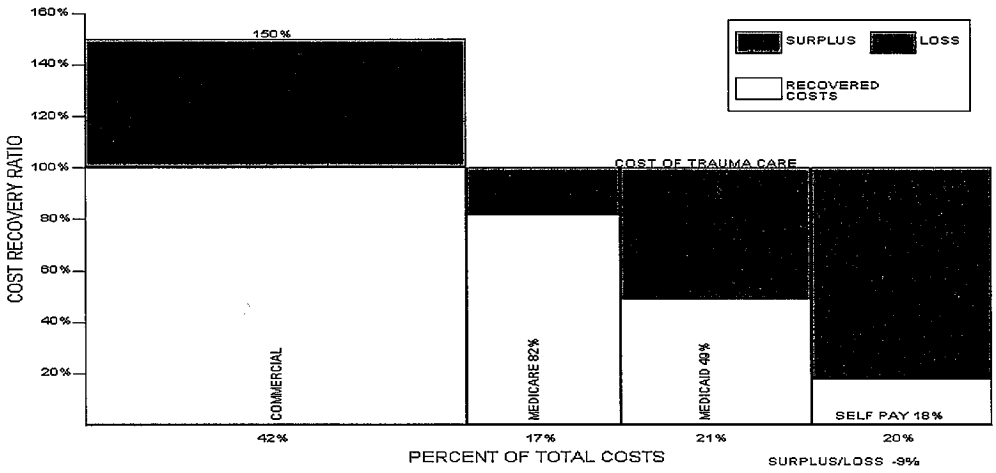
Based on national trends, trauma physician support costs are expected to rapidly escalate over the next three years. There are administrative costs of $1.5 million not included in the above calculations. Based upon these amounts, extraordinary costs to maintain Oklahoma's trauma centers are estimated at $12.7 million.

TRAUMA CENTER COSTS AND REIMBURSEMENT BY PAYER CLASS

The table below estimates total trauma patient costs and revenue for each payer class based upon survey data. For commercial patients, the estimated 150% CRR produces $76 million in revenue. These costs do not include extraordinary cost of being a trauma center.

Trauma Center Costs and Revenue by Payer Class

Payer	Total Costs	Cost %	Revenue	CRR %
Health Insurance	$50,635,028	42%	$75,952,542	150%
Medicare	$20,495,130	17%	$16,806,007	82%
Medicaid	$25,317,514	21%	$12,405,582	49%
Uninsured	$24,111,918	20%	$4,340,145	18%
Total	**$120,559,591**	**100%**	**$109,504,276**	**91%**



The reimbursement profile above depicts the payer class table in graphic form. The width of each column reflects the proportion of full costs incurred by patients in each payer class, and the height of each column reflects the proportion of costs covered by each payer class. The green area represents a surplus generated by a payer class, the red area represents a loss, and the yellow area represents recovered costs.

Profile Comparison between Oklahoma & National

OK's payer mix shows a 42% privately insured population (Commercial + Worker's), which is below the 51% average indicated by the 2002 U.S. Trauma Center Economic Status (TCES) report (prepared for HRSA by B+A). The study was compiled with data from Trauma Centers across the nation to develop a national trauma center financial profile, and a payer mix comparison with OK is as follows:

Payer	OK	National
Commercial/ Work Comp/Auto	42%	51%
Other (e.g., Champus)	0%	3%
Medicare	17%	11%
Medicaid	21%	18%
Self Pay	20%	18%

OK has an uninsured rate of 20%, slightly higher than the TCES average of 18%. The Medicaid rate (21%) is higher than the 18% TCES average. Medicare at 17% is higher compared to TCES at 11%. Overall, this is a poor payer mix.

Bottom Line- Oklahoma Trauma Centers

The table below presents the overall financial performance of Oklahoma's trauma program in 2005 with breakdowns by patient stay. The state trauma fund of $12.4 million and extraordinary physician support costs of $12.7 million were added.

Oklahoma Trauma Centers	Amount	% of Costs	Per Patient
Patient Care Revenue	$109,504,276	82%	$11,038
State Trauma Fund	$12,401,798	9%	$1,250
Total revenue	**$121,906,074**	**91%**	**$12,288**
Direct Patient Costs	$80,774,926	61%	$8,142
Indirect Patient Costs	$39,784,665	30%	$4,010
Trauma Patient Care Costs	**$120,559,591**	**90%**	**$12,152**
Extraordinary Standby Costs	$12,671,914	0%	$1,277
Total Costs	**$133,231,505**	**100%**	**$13,429**
Surplus/Loss	**-$11,325,431**	**-9%**	**-$1,142**

With revenue of $110 million, average patient treatment costs and a poor payer mix Oklahoma trauma centers are experiencing a substantial loss of $11.3 million.

TRAUMA CENTER PHYSICIAN COSTS

In addition to the $121 million in hospital costs for trauma patient care, there are also substantial costs for physician treatment. Major costs are incurred by trauma specialists such as trauma surgery, orthopedic surgery, neurosurgery and plastic surgery. Previous studies indicate that these costs amount to 30% to 40% of the costs incurred

by the hospital. Using a 35% estimate, the result would be $42 million in trauma patient treatment costs for physician care.

The payer mix, including the large amount of uninsured, is also a burden on the physicians. Whereas the hospitals have more leverage to recover these costs through cost shifting to privately insured patients, trauma physicians have a very limited ability to do so. The uninsured care costs are estimated at $8.4 million in 2005.

TOTAL ACUTE TRAUMA CARE COSTS

Total trauma care costs, or those incurred in the acute care phase of trauma patient care, are estimated as follows:

Total Trauma Center Costs	$	133,231,505
Trauma Center Physician Costs	$	42,195,857
Total Acute Trauma Care Costs	**$**	**175,427,362**

OKLAHOMA UNINSURED TRAUMA ACUTE PATIENT CARE COSTS

Based upon this analysis, the overall costs for treatment of uninsured trauma center patients with an injury severity score (ISS) of 9 or above (patients with an ISS score below 9 are not eligible for trauma fund reimbursement, are as follows:

- Trauma Center Uninsured Patient Care $19.8 million
- Trauma Physician Uninsured Patient Care $ 8.4 million
- Total Uninsured Trauma Pt. Care Costs $28.2 million
- Less cost of ISS<9 Patients (16%) $ 4.5 million
- **Total Cost of Uninsured ISS>8 Patients $23.7 million**

Above totals for uninsured trauma patient care do not include costs for patient transport by Emergency Medical Services, trauma physician readiness, patient rehabilitation, and trauma system support costs.

2006 PROJECTED TRAUMA CENTER FINANCIAL PERFORMANCE

Changes in Medicaid funding should substantially benefit Oklahoma's trauma centers. In 2006, Oklahoma expanded Medicaid payments to Medicare levels, the upper limit permitted by federal regulations, for both hospitals and physicians. This is projected to add $8.4 million to payments for trauma care provided by hospitals and $2.9 million for care provided by physicians. This needs to be verified by a review at the end of 2006, and if this actually occurs, it will help Oklahoma trauma centers achieve breakeven financial performance.

REGIONAL TRAUMA CENTERS (LEVEL I, II & Large IIIs)
December 2006

A total of 7 surveys were sent to Level I, II & III designated trauma hospitals. Of the 7 hospitals surveyed, 7 (100%) were completed and returned to Bishop+Associates. Level I Trauma Centers represented 14% (1) and Level III Trauma Centers represented 86% (6) of the completed surveys, respectively. All specific hospital information has been kept confidential and reported on a consolidated basis that precludes the disclosure of individual hospital and trauma program information. The following is an analysis of the survey questions from the Level I, II & III trauma centers.

Summary of Findings

A qualitative survey of trauma centers in Oklahoma, categorized by Level I, Level II and Level III trauma centers produced the following results:

- Two of the respondents indicated that patients are inappropriately transferred to their facility.
- Five of the trauma centers could not accept all transfers at all times due to physician coverage and bed availability.
- Two of the respondents indicated that they had concerns about the timeliness and initial quality of care.
- All of the respondents had no transportation issues that impeded or delayed transfers.

Inter Hospital Transfer Issues

1. *Are the appropriate patients transferred into your hospital?*

Respondents	# of Response	% of Response
Yes	5	71%
No	2	29%
Total Respondents	**7**	**100%**
Reason for No:		
Low severity patients transferred in	1	50%
Some patients have to be admitted to internal medicine service because we are on trauma call	1	50%
Total Response to No	**2**	**100%**

Seventy one percent of the Level I, II & III trauma centers indicated that patients are appropriately transferred to their facility.

2. *Can you accommodate all requests for patient transfers to your trauma center?*

Respondents	# of Response	% of Response
Yes	1	14%
No	6	86%
Total Respondents	**7**	**100%**
Reason for No:		
Physician availability	5	83%
Bed availability	1	17%
Total Response to Yes	**6**	**100%**

Eighty-six percent of the Level I, II & III trauma center's indicated that they could not accommodate all requests for transfers. A few stated that they had no neurosurgery coverage and one with no ENT coverage.

3. *Do you have any concerns about the timeliness and initial quality of care that is provided by the referring hospital before patients are transferred to your trauma center?*

Respondents	# of Response	% of Response
Yes	2	29%
No	5	71%
Total Respondents	**7**	**100%**
Reason for Yes:		
Quality of radiology films, things not done that should be, inaccurate diagnosis	1	50%
No Response	1	50%
Total Response to Yes	**2**	**100%**

Five respondents (71%) indicated they had no problems with the initial quality of care or the timeliness of the transfer.

4. *Are there patient transportation issues (lack of ALS trained staff, ambulances/air medical, etc.) that delay or impede transfers?*

Response	# of Response	% of Response
Yes	0	0%
No	7	100%
Total Respondents	**7**	**100%**

All of the respondents had no problems with transportation issues that may have affected the transfer process.

AREA TRAUMA CENTERS (LEVEL III)
SURVEY
September 2006

A total of 15 surveys were sent to Level III designated trauma centers in Oklahoma. Of the 15 trauma centers surveyed, 8 (53%) were completed and returned to Bishop+ Associates. The following data provides the original questions and analyzed data from the trauma hospitals surveyed and those that responded to the survey.

Summary of Findings

A qualitative survey of trauma centers in Oklahoma, categorized by Level III trauma centers, produced the following results:

- All Level III trauma centers indicated no difficulties with the transfer process.
- Transferring patients to a higher level of care was impeded due lack of neurosurgery coverage and ability to accept patient at higher level of care.

Inter Hospital Transfer Issues

5. *Is there a clear and effective transfer process?*

Response	# of Response	% of Response
Yes	8	100%
No	0	0%
Total Respondents	**8**	**100%**

All of the reporting Level III trauma centers indicated that they had no problems with the transfer process.

6. *Are there any obstacles to transferring patients to a higher level of care?*

Response	# of Response	% of Response
Yes	5	63%
No	3	37%
Total Respondents	**8**	**100%**
Reason for No:		
Neurosurgery coverage	3	**60%**
Local facilities not able to accept	1	**20%**
Perception of care should be provided at this facility, provided within the state, or concern about lack of payor source	1	**20%**
Total Response to Yes	5	**100%**

Trauma centers reported having problems with transferring patients to a higher level of care.

Transfers

3. Transfer Data:

Response	Total Patients	% of Hospital Transfers	Number of Times Hospital Identified as Transfer Facility
Patients Transferred Out	**299**		
OU Medical Center	124	41%	8
St. Anthony	23	8%	1
Comanche County	20	7%	1
St. Francis	20	5%	6
Hillcrest Medical Center	15	5%	3
Norman Regional Hospital	15	3%	4
Integris Baptist	14	3%	3
Mercy Health Center	9	3%	4
St. John	9	2%	2
Childrens Hospital	8	2%	3
Southwestern Medical Center	7	1%	2
Bone & Joint	5	1%	2
Deaconess Hospital	3	1%	3
Edmond	2	1%	1
Integris Southwest	2	1%	1
Park Health & Hospital System	2	1%	2
Southcrest Medical Center	2	1%	2
All others with one admit	19	14%	19
Total Level III	299	100%	67

Level III trauma centers transferred 299 patients to other trauma centers in 2005. Three Level I or III trauma centers, OU Medical Center (41%), St. Anthony (8%), and Comanche County (7%) were the hospitals that accepted the most transfers.

COMMUNITY HOSPITALS (LEVEL IV)
SURVEY
September 2006

A total of 15 surveys were sent to Level IV designated trauma centers in Oklahoma. Of the 15 trauma centers surveyed, 14 (93%) were completed and returned to Bishop+Associates. The following data provides the original questions and analyzed data from the trauma hospitals surveyed and those that responded to the survey.

Summary of Findings

A qualitative survey of trauma centers in Oklahoma, categorized by Level IV trauma centers, produced the following results:

- In general, most of the Level IV trauma centers indicated no difficulties with the transfer process.
- Transferring patients to a higher level of care was impeded due the demographics of the hospital and finding specialists willing to take patient at the receiving facility.

Inter Hospital Transfer Issues

7. *Is there a clear and effective transfer process?*

Response	# of Response	% of Response
Yes	13	93%
No	1	7%
Total Respondents	**14**	**100%**
Reason for No:		
Too much time spent waiting on return calls from rec' hosp for adm acceptance	**1**	**100%**

The majority (93%) of the Level IV trauma centers indicated that they had no problems with the transfer process.

8. *Are there any obstacles to transferring patients to a higher level of care?*

Response	# of Response	% of Response
Yes	8	57%
No	6	43%
Total Respondents	**14**	**100%**
Reason for Yes:		
Hospital on divert	1	**13%**
Hard to find accepting facility	4	**50%**

Demographic, rural facility, wait for air service	2	**25%**
No reason given	1	**13%**
Total Response to Yes	8	**100%**

Trauma centers reported having problems with transferring patients to a higher level of care.

Transfers

3. *Transfer Data*:

Response	Total Patients	% of Hospital Transfers	Number of Times Hospital Identified as Transfer Facility
Patients Transferred Out	**327**		
OU Medical Center	91	28%	9
St. Francis Hospital	41	13%	5
Bone and Joint	32	10%	3
St. Michael	26	8%	1
Hillcrest Medical Center	20	6%	4
Tulsa Regional Medical Center	20	6%	3
St. John	11	3%	2
ETMC	9	3%	1
Integris Baptist	8	2%	3
Duncan	7	2%	1
Paris Regional Medical Center	7	2%	1
Valley View Regional Hospital	7	2%	1
Comanche County	6	2%	2
Mercy Health Center	6	2%	3
Arkansas Children's Hospital	5	2%	1
St. Anthony	5	2%	3
Via Christy	5	2%	1
Unity Health Center	4	1%	2
Wadley Regional	3	1%	1
Childrens Hospital in Dallas	2	1%	1
Integris Southwest	2	1%	2
All others with one admit	10	1%	10
Total Level IV	327	100%	60

Level IV trauma centers transferred 327 patients to other trauma centers in 2005. Three Level I or III trauma centers, OU Medical Center (28%), St. Francis (13%), and Bone and Joint (10%) were the hospitals that accepted the most transfers.

IV. TRAUMA CARE REVOLVING FUND ANALYSIS

The Oklahoma Trauma Care Fund provides support to hospitals, EMS agencies, and physicians providing trauma care to uninsured patients traumatically injured in Oklahoma. Initially, the fund only provided support to hospitals and EMS agencies; however, in the last few years, physician reimbursement was added to the support program.

TRAUMA FUND SOURCES

In 1999, legislation was approved to create a Trauma Care Assistance Revolving Fund which assists in the provision of trauma care services in the state. Initially, the fund was established to provide financial support to offset unreimbursed costs to hospitals and EMS agencies that provide care to uninsured and underinsured trauma patients injured in Oklahoma.

The Trauma Fund was originally supported by a small fee assessed on driver licenses and boat and motor vehicle registrations; however, the funds generated by these fees were grossly inadequate to reimburse the claims made on the fund. Beginning January 1, 2005, deposits to the fund were supplemented with collections received from increased tobacco taxes approved by Oklahoma voters in November 2004. Fifty-five percent of the total dollars recently distributed from the fund were generated as a result of the increased tobacco tax.

As the challenges facing Oklahoma's trauma centers and emergency departments escalated due to the increasing unwillingness of medical staff members to provide on call services, the legislature recognized that financial support to the physician community, in addition to the support already received by the hospital and EMS community was necessary in order to sustain the trauma care system.

The total amount of funds collected annually is expected to be between $23 and $25 million. The Trauma Care Revolving Fund is composed of revenue from the following sources:

- 46% - Cigarette Tax
- 26% - County Funds
- 17% - Motor Vehicle Collections
- 6% - Tribal Cigarette/Tobacco Payments
- 5% - Tobacco Products Tax

TRAUMA FUND PAYMENTS

Of that amount, 90% is allocated to healthcare providers and 10% is allocated to the Department of Health-Trauma Division for operating funds. A summary of how the

estimated $23M in annual funds have been allocated is as follows:

- $18M to support hospital care
- $1.5M to support physician care
- $1.2M to support EMS agencies
- $2.3M for trauma system support by the Trauma Division

Payment Parameters

Eligibility for payment from the Trauma Fund to hospitals has been established including payment only to State of Oklahoma verified trauma centers (Level I through IV), and the trauma patient's Injury Severity Score must be greater than ISS 8.

Eligibility for payment from the Trauma Fund to EMS agencies has been established based upon mileage, and the trauma patient's Injury Severity Score must be greater than ISS 8.

In 2005, the first physician payments were made to physicians providing uncompensated care to trauma victims. To date, there have been two physician distributions, and seven hospital/EMS agency distributions. The allocation provides for 70% of total funds available for distribution to be paid to hospitals and EMS agencies, and up to 30% of funds be paid to physicians. Unused physician funds are available for disbursement to hospitals and EMS agencies. Both physician distributions have had significant levels of unused funds which have been redistributed to hospitals.

Eligibility for payment from the Trauma Fund to physicians has been established including establishment of two tiers of physician specialties, the trauma patient's Injury Severity Score must be greater than 8, and proper documentation and coding guidelines must be followed.

Trauma Revolving Fund Distribution August 2006

Total distributions from the fund for the seventh distribution on August 31, 2006 were $15.5 million. This was the seventh distribution for hospitals and EMS agencies, and the second distribution for physicians for trauma care services provided between January 1, 2005 and June 30, 2005. Eligible uncompensated trauma care claims were reimbursed at 100 percent for the first time in the history of the fund.

- 71 hospitals received $13.5 million (87% of total distributions)
- 39 EMS agencies received $.9 million (6% of total distributions)
- 423 physicians received $1.1 million (7% of total distributions)

The total funding allocated to physicians was $4.95 million. Only 21% of this amount, or $1.1 million, in eligible claims were submitted for reimbursement. The balance of $3.9 million was made available to hospitals and EMS agencies for reimbursement. Over $3 million of this was ultimately paid to hospitals and EMS for eligible claims.

August 2006 Trauma Fund Distribution by Region (RTAB)

Total August 2006 trauma fund distributions by region are as follows:

RTAB	Region	Amount	%
1	Northwest	$198,000	1.3%
2	Northeast	$328,000	2.1%
3	Southwest	$485,000	3.2%
4	East Central	$182,000	1.2%
5	Southeast	$221,000	1.4%
6	Central	$41,000	0.3%
7	Tulsa	$4,700,000	30.0%
8	Oklahoma City	$9,400,000	60.4%
	Totals	**$15,555,000**	**100.0%**

August 2006 Trauma Fund Distribution by Level of Trauma Center

Total amounts allocated by Level of Trauma Center (not including EMS and physician funds) are as follows:

TC Level	#	Amount	%
Level I	1	$6.6 million	49%
Level II	2	$3.7 Million	27%
Level III/IV	68	$3.2 million	24%
Total	**71**	**$13.5 million**	**100%**

Trauma Center Admissions & Severity

An analysis of 2005 trauma patient admissions from the State of Oklahoma Trauma Registry indicates the following:

- Oklahoma's single Level I trauma center located at Oklahoma University Medical Center (OUMC) in Oklahoma City admitted 1,764 (27%) trauma patients with ISS score greater than 8. This represents an average of 5 admissions per day.

- In addition, OUMC, as Oklahoma's only Level I trauma center, with the highest level of resources, costs, and abilities to care for the most critically injured patients, admitted 435 (41%) of the state's trauma patients with ISS score greater than 25, the most severely injured trauma patients. This represents an average of between 1 and 2 admissions per day.

- Oklahoma's two Level II trauma centers located in Tulsa at St. Francis and St. John's Medical Centers, admitted 1,800 (28%) trauma patients with ISS score greater than 8. This represents an average of 5 admissions per day.

- As Oklahoma's only Level II trauma centers, with substantial levels of resources and abilities to care for critically injured patients, St. John and St. Francis admitted 366 (35%) of the state's trauma patients with ISS score greater than 25, the most severely injured trauma patients. This represents an average of 1 admission per day.

- Based on nationwide trauma center benchmarks developed through previous projects of this firm such as the Trauma Center Economic Study and Trauma Resource Network, costs per stay for patients with an Injury Severity Score of greater than 25 are 3 times higher than the costs per stay for patients in the ISS category of 9 to 15. This data supports OUMC, and St. John's and St. Francis Medical Centers, receiving disproportionately higher levels of reimbursement from the Trauma Care Assistance Revolving Fund due to the higher severity level of the patients they care for.

- Sixty-eight of Oklahoma's ninety-nine Level III and IV trauma centers located throughout the state admitted 2,882 (45%) trauma patients with ISS score greater than 8.

State of Oklahoma funding for trauma centers from the Trauma Care Assistance Revolving fund is successfully supporting the hospitals which provide high quality care to trauma patients throughout the state. This is evidenced by the fact that 100% of eligible claim amounts that were submitted for reimbursement for the August 2006 distribution were fully reimbursed. In addition, anecdotal information provided during the scope of this engagement confirms that the hospital reimbursement mechanism is working well and is providing a high level of financial support to the state's hospitals.

August 2006 Trauma Fund Distribution by Physician Specialty

Total distributed to Tier A physicians was $941,000, or 89 percent of the total physician distribution. Tier A sub-specialties represent the most heavily burdened trauma sub-specialists and include orthopedic surgery, trauma and general surgery, critical care medicine, emergency medicine, neurosurgery, anesthesia, and others.

Reimbursement by specialty includes:

- Orthopedic Surgery-$411,000 (39% of total)
- Trauma/General Surgery/Critical Care-$216,000 (20% of total)
- Emergency Medicine-$113,000 (11% of total)
- Anesthesia-$75,000 (7% of total)

Total distributed to Tier B physicians was $120,000. Tier B sub-specialties represent those sub-specialists that are burdened, but to a lesser degree, by the incidence of trauma than Tier A sub-specialists. They include radiology, pulmonary medicine, internal medicine, and others. Reimbursement by specialty includes Radiology receiving $111,000 (10.5% of total physician distribution).

Trauma Fund Hospital Payments Findings & Recommendations

The strategy of having the payment follow the trauma patient is generally working well as there is good trauma hospital participation and the payments have brought economic stability to the trauma center and better access to care for the seriously injured. However, the payment process lacks oversight capability and the cost-based payment methodology is outdated and open to gaming.

Consideration should be given to moving to a case rate payment methodology such as that used by the Oklahoma Medicaid system, or to case rates based upon national trauma center cost norms (i.e., National Foundation for Trauma Care's norms for patient treatment costs by patient severity and trauma center level). At the very least, these norms should be used to assess current payments.

Consideration should also be given to contracting with an experienced Third Party Administrator or with Oklahoma Medicaid to provide payment processing.

Trauma Fund Physician Payment Findings & Recommendations

The payment strategy is <u>not</u> working for trauma physicians outside of the three Level I/II trauma centers. This means they are not motivating Level III/IV trauma center medical staffs to participate in trauma care, a fundamental objective of the payments. They apparently deem billing requirements to be more trouble than the payments are worth.

The strategy is also inflexible and cannot accommodate the unique requirements of different specialties, such as hand and oral surgery, and does not give the RTAB's any financial flexibility in constructing community call panels. Physician payment processing also places major demands on the Trauma Division, and oversight capability is missing.

Flexibility in how trauma physician payments can be spent at the RTAB level is strongly recommended. This would enable the RTAB's to determine regionally specific payment priorities and policies to better address unique specialty needs. This flexibility could include payment methods such as the current fee for-service approach, or stipends, a fee for physician response to the ED, or a hybrid payment mechanism that improves physician satisfaction and participation in trauma care. Consideration should be given to allocating overall physician support funds for both readiness and performance to each region based upon the proportion of overall trauma care it provides.

Consideration should also be given to contracting with a Third Party Administrator or Oklahoma Medicaid to provide fee-for-service payment processing functions.

At the very least, specific CPT-4 codes on single system injury patients with ISS <9 should be eligible for reimbursement for procedures prevalent among those specialties with low supply, such as hand and oral surgery. Given the significant level of unused funds allocated for physicians, (76% of total, or $4.7 million per year), prudent consideration of special circumstances such as hand and oral surgery is warranted.

8/31/06 Distribution
First Distribution in 2006

Total $ in Fund	18,333,756.00		Cigarette Tax	44.1%	8,091,892.00	60%	4,855,135.20
Amount Distributed	90%		Tobacco Products	4.9%	903,576.00	60%	542,145.60
$ Distributed	16,500,380.40		Tribal Cig/Tob Pmts	5.7%	1,046,599.00	60%	627,959.40
Amount to Tr Div	10%		MV Collections	15.6%	2,865,191.00	60%	1,719,114.60
$ to Tr. Div.	1,833,375.60		County $	29.6%	5,426,497.00	60%	3,255,898.20
			Allocation by Source	100.0%	18,333,755.00		11,000,253.00

12/31/06 Distribution
Second Distribution in 2006

	thru 10/31/06	Nov/Dec Proj	6 months		
Total $ in Fund	7,980,574.00	3,990,286.00	11,970,860.00	46.5%	5,566,449.90
Amount to be Distr			90%	4.7%	562,630.42
$ Distributed			10,773,774.00	5.6%	670,368.16
Amount to Tr Div			10%	16.8%	2,011,104.48
$ to Tr. Div.			1,197,086.00	26.4%	3,160,307.04
				100.0%	11,970,860.00

Estimated Total Annual Distributions		**Avg/ Month**		**Estimated Allocation by Source:**		
Total $ in Fund	22,971,113.00	1,914,259.42		Cigarette Tax	46.5%	10,681,567.55
Amount to be Distr	90%			Tobacco Products	4.7%	1,079,642.31
$ Distributed	20,674,001.70	1,722,833.48		Tribal Cig/Tob Pmts	5.6%	1,286,382.33
Amount to Tr Div	10%			MV Collections	16.8%	3,859,146.98
$ to Tr. Div.	2,297,111.30	191,425.94		County $	26.4%	6,064,373.83
				Allocation by Source	100.0%	22,971,113.00
Estimated Hospital Allocation (64.3%)	13,293,383.09	18,006,990.20	87%			
Estimated EMS Alloc. (5.7%)	1,178,418.10	1,252,243.16	6%			
Est. Hosp/EMS Alloc. (70%)	14,471,801.19	19,259,233.36	93%			
Estimated Phys Allocation (30%)	6,202,200.51	1,414,768.34	7%			
Estimated Total Allocated $	20,674,001.70	20,674,001.70	100%			

V. STRENGTHENING TRAUMA PHYSICIAN SUPPORT

The essential challenge facing trauma care is maintaining and strengthening medical staff support. With 15 different specialties required to be on call, and unique issues among each specialty in each hospital, this is a complex and problematic challenge.

Key factors to strong, stable, long term medical staff support are as follows:

- Minimize the amount of uninsured trauma patient care that must be provided by physicians taking trauma call. This is an objective of the Oklahoma Trauma Fund.

- Minimize the flow of inappropriate trauma patient transfers that can overwhelm an already burdened trauma specialty. This is an objective of the Trauma Referral Centers.

- Compensate physicians with heavy trauma call burdens for the sacrifices they make in maintaining "readiness", or availability.

- Empower RTABs to develop structural solutions, including community call systems, for high demand, low supply trauma specialties.

- Constructively address physician perceptions and realities regarding inordinate risks they incur regarding malpractice due to participation in trauma call.

The final three factors of compensation for readiness, community call systems, and malpractice issues are addressed in this section.

Pay or Play

A final issue that needs to be resolved is the concept of "pay of play", in which all physicians are expected to participate in trauma or emergency call, or contribute to a fund that compensates those who do. This is unworkable for the following reasons:

- Physicians uninterested to take call tend to not respond well when called.

- In specialties such as orthopedics, there is a need to concentrate trauma care among a relative few surgeons to optimize their proficiency and establish an economic franchise of professional fees that enables them to focus on trauma care.

- Trauma care is provided by trauma centers, and it is problematic to require surgeons based at other hospitals to join the medical staffs of trauma centers for the sole purpose of participating in trauma care.

At best, the "pay" component of the pay or play concept should be considered as a funding option for the Trauma Fund.

READINESS/CALL PAY IN OKLAHOMA

Current Call Payments in Oklahoma

An analysis of call payments to physicians supporting the Level I, II, and the backup trauma centers indicates over $11 million per year is being paid, or will be paid in the near future. The single Level I and both Level II trauma centers all provide significant levels of compensation to physicians for call coverage, or readiness pay. In addition, several of the Level III trauma centers in the Oklahoma City region, that function as backup trauma centers, are or believe that they will need to begin compensating physicians in order to maintain the level of medical staff support that is required to function in the backup capacity and to handle the level of trauma volume that they currently care for.

Given the need to sustain the trauma care system in Oklahoma for the long term, it will be prudent to give consideration to establishing "readiness" or call compensation for trauma centers. The Level I and Level II trauma centers already compensate the heavily burdened physicians for trauma call; state funding could help offset their existing costs of call compensation.

For Level III trauma centers, including the rotating backup hospitals, a payment mechanism should be considered. Payments could be funded through either the unused physician fund allocation in the Trauma Fund (i.e., pay stipend if the physicians are not participating in the current payment system, the RTAB should have the flexibility to support the hospital's payment of a stipend to them), or through additional sources of funding that may become available in the future.

Tiered Approach to Call or Readiness Pay

An emerging national trend regarding trauma and emergency call compensation is to categorize physicians by the level of "burden" call places upon them into high, medium and low tiers. Compensation is then tied to the level of burden; low call burden physicians receive payment for their care of uninsured patients (i.e., performance pay), and those with higher level call burdens receive per day stipends (i.e., readiness pay) relative to their burden. Under these circumstances, daily call stipends are less than they would be if there were no separate compensation for uninsured patient care.

Using a tiered approach to readiness pay for Oklahoma has many benefits. This type of model will compensate physicians in different specialties or circumstances based upon their relative burden for trauma call. Specific arrangements need to be developed from collaborative processes among hospitals and the medical staffs due to their individual nuances, but the Trauma Fund can play a role in supporting readiness pay as is done in Maryland.

Based upon national data, the key factors determining call pay are the Level/volume of the trauma center, and the relative burden of the specialty within the trauma center.

Major factors for assessing of the level of burden for each specialty include:

- Number of physicians in specialty sharing call
- Times physician is called in to the ED when on call
- Intensity of service required in ED or once admitted
- Other factors such as whether physician is private practice or hospital based

Categorizing Trauma Physicians In Oklahoma

The following table categorizes trauma physicians by the Level/volume of trauma center and by the relative burden of specialties within the trauma center, and indicates whether call pay is warranted based upon national norms:

TC Level & Volume Burden Level	LI & LII Trauma Centers	Regional LIII Trauma Centers	Mod Vol Area LIII Trauma Centers	Sm Vol LIII & LIV Trauma Centers
High Trauma Ortho Neuro	Yes Yes Yes	Yes Yes Yes	Trauma Surgeon Only	Natl Norms Don't Support Payment
Moderate Anesth Plastics Hand OMFS	Yes Yes Yes Yes	Natl Norms Don't Support Payment	Natl Norms Don't Support Payment	Natl Norms Don't Support Payment
Low Low Vol and Hosp Based Specialties	In Some Cases	Natl Norms Don't Support Payment	Natl Norms Don't Support Payment	Natl Norms Don't Support Payment

The diagram includes 4 columns representing the varying levels of trauma centers in Oklahoma. It also includes 3 rows containing different types of specialists providing on call services to trauma centers; heavily burdened trauma specialists (trauma, ortho, and neurosurgery), moderately burdened and in short supply nationwide (plastics, hand, and oral-maxillofacial, anesthesia), and low volume and hospital based physician specialties. Within each of the twelve boxes is a description of the national standard for payments, generally in the form of daily stipends, paid to varying specialists in Level I through Level III trauma centers.

Level I & II Trauma Centers

In Level I and large volume Level II trauma centers across the nation, there is high incidence of call compensation paid to support and sustain physician support for trauma centers. Payments of stipends and/or on care of uninsured patients are prevalent across multiple specialties in this arena. This category includes the high volume trauma

centers at OU Medical Center, St. Francis and St. Johns Hospitals where significant levels of call compensation already are in place. Varying arrangements are required and can include exclusive contracts, employment, recruitment support, and other arrangements. The depth of specialties receiving compensation is high and can include the key trauma and emergency specialties, as well as anesthesia, plastics, hand, oral-maxillofacial, and sometimes low volume specialties.

Regional Level III Trauma Centers

Larger volume Level III trauma centers that function close to a Level II capacity generally provide compensation to the major trauma subspecialties of trauma/general, orthopedic, and neurosurgery. At the four highest volume "regional" Level III trauma centers that care for a substantial volume of trauma patients with ISS > 8 (estimated volume of 300 patients), key trauma specialties would receive moderate daily stipends. This could include 1-2 trauma centers in Oklahoma City (i.e., consolidation of backup trauma centers) and perhaps two others in Norman and Lawton. Key specialties that would be compensated based upon national norms include trauma/general surgery, neurosurgery, and orthopedic surgery.

Area Level III Trauma Centers

Area Level III trauma centers with admitted volumes between 75 and 160 of ISS > 8 trauma patients would be eligible for reimbursement for general surgeon response fees. The surgeons would receive a per response fee of $500 per trauma patient with ISS greater than 8. This would be in addition to the compensation that is currently available from the Trauma Fund for services provided to uninsured or underinsured trauma patients. The objective of this added compensation would be to strengthen the trauma surgeon's role in coordinating care provided by other specialties, which would help minimize the disruptive impact of trauma care upon them

Community Level III/IV Trauma Centers

There is generally no support nationally in small volume Level III/IV trauma centers for payment of daily stipends. The volume of business that occurs in the Emergency Department is generally considered part of a physician's practice and an avenue for practice development. This is enhanced by payment on the uninsured patient of course.

Estimating Costs Of Readiness Pay

To estimate the overall costs of readiness call pay for trauma centers in Oklahoma, national norms for such payments were determined based upon all available data. This includes B+A's proprietary data set, data from the National Foundation for Trauma Care, and surveys on trauma physician compensation such as that from Sullivan & Cotter. Since this compensation for readiness would be in addition to payment on care to uninsured patients with an ISS>8, mid range payment norms were selected from the data sets. This is because call payment data is generally derived from trauma hospitals paying only daily stipends which also incorporate care of the uninsured.

These payment norms are as follows:

Nat'l Norms-On Call Stipends Per Day	Trauma	Ortho	Neuro	Facial	Anesth	Other
Level I & II	1440	1008	1216	794	843	500
Regional LIII/Low Severity Level II	756	389	600	0	0	0
Area Level III (ED response fee only)	*RF	0	0	0	0	0
Community Level III & Level IV	0	0	0	0	0	0

To estimate overall costs, the attached spreadsheet was used to translate the daily payments above into annual costs for each type of trauma center, which was then multiplied by the number of trauma centers of each type. The total is $9,425,675.

Trauma Center Level	Total $	Times #TC's	TotalCost
Level I & II	2,117,402	3	$6,352,205
Regional LIII/Low Severity Level II	636,743	4	$2,546,970
Area Level III (ED response fee only)	526,500	10	$526,500
		Total	**$9,425,675**
		30% of Total	**$2,827,702**
		50% of Total	**$4,712,837**

The only state that directly supports readiness in addition to payment on uninsured patients is Maryland, which reimburses trauma hospitals 30% of the call pay they provide to trauma physicians. In addition, such call payments are often already in place and being paid by trauma hospitals. To offset a substantial portion of such costs, the overall amount necessary to fund 30% and 50% of such costs was determined.

COMMUNITY CALL SYSTEMS/REGIONAL MEDICAL STAFF STRUCTURES

The major factors in maintaining medical staff support for trauma care, and ultimately in emergency care, are an appropriate level of compensation, and the ability, by region, to develop structural solutions for specialties in which supply does not equal demand.

Usually trauma hospitals must address these issues on their own within the constraints of their own medical staff. Oklahoma's model enables a new approach that can use the RTAB to tap the broader medical staff resources in the community.

Each region has unique needs. For example, maintaining neurosurgery, hand and oral surgery are major challenges in Region 8/Oklahoma City, with a community call system a major objective. On the other hand, Region 7/Tulsa currently has adequate coverage due to the fact that there are two Level II trauma centers in Tulsa that function in a backup capacity for one another (essentially a collaborative, community approach to call). However, as call panel circumstances change over time, Region 7 may find it necessary to reach out to the broader medical community for support.

Circumstances in the Lawton area and perhaps others may benefit from community call arrangements for trauma care, and as the trauma care system evolves to take on other

"time sensitive" emergency care services, the capability to arrange community call will become even more important.

Basic RTAB Function: Establishing Community Call Systems

Individual trauma hospitals are very limited in their ability to access trauma physician support outside their own medical staff, and the Regional Trauma Advisory Boards provide a vehicle to do so.

There are a variety of different alternatives for addressing trauma medical staff issues, and combinations there of, that can be considered due to the unique and complex demands of trauma call in each specialty and each region. They will include:

- Joint contract between participating trauma hospitals for high-demand, low supply specialty support (e.g., community, regional or multi-facility call system).
- Development of a joint contracting or group purchasing entity and RFP process.
- Regional pool formed by a private group to provide services at multiple hospitals.
- Directed triage/transfer of patients requiring impacted specialty care (e.g., hand surgery) to specific or rotating facilities.
- Coordinated trauma physician billing service to optimize professional fee reimbursement, which could involve contracting with Emergency Associates, Inc.
- Different compensation models (call stipends, fee-for-service, productivity-based guarantees, hybrid models).
- Joint recruiting/hiring/contracting of surgical specialists to address shortages.
- Premium payment rate for high demand, low supply specialties.

The RTAB with support from the "super RTABs" should have the capability of serving as the regional lead agency and conduct these activities in conjunction with the trauma hospitals. This will also require flexibility in payment arrangements, such as payment of call stipends from funds originally intended for payment on the uninsured for physicians who prefer this.

Community Call Planning

The purpose of this planning tool is to assure adequate availability of all trauma surgical and medical specialties necessary to provide optimum care of those seriously injured in Oklahoma. Due to the concentration of surgical resources and historic referral patterns, the focus is on the regions of Oklahoma City and Tulsa, but as the system matures and expands to emergency call, other regions can follow suit.

The priorities for maintaining trauma medical staff support are as follows:

1. Develop/maintain an adequate number of regional trauma centers in Tulsa and Oklahoma City, and strengthen those in other regions to their highest level of capability.

2. To reduce unnecessary demand on urban trauma care resources, minimize the transfer of lower severity trauma patients from outlying rural regions to the extent local trauma care resources allow.

3. Should a trauma specialty be under-supported in an region, the RTAB, working with the Medical Association, should coordinate efforts of hospitals and specialty physicians to organize a call system of physicians in that specialty.

4. Should additional trauma medical staff resources be necessary, a backup trauma center system, rotating among acute care hospitals, should be operationalized.

Parameters for Physician Participation

As part of the community call planning process, the following information needs to be developed:

- What parameters indicate "eligibility" for taking call (Age, years in service, clinical credentialing, etc.)
- What is the role of physicians on staff at specialty hospitals (i.e., no ED)
- How many eligible physicians in each specialty are available?
- Which physicians are currently taking trauma call?
- Which are taking call at multiple facilities?
- Other related issues.

Regional Demand Model

The following table, based upon demand for response to trauma patient needs and call, will be used to project demand and plan for adequate trauma specialty availability:

Specialty	Available Physicians	Trauma Volume*	Max # Call Days	# Req. On Call	# Req. for Backup	Total Required
Trauma Surg						
Orthopedics						
Neurosurgery						
Plastic Surg						
Oral Surgery						
ENT						
Hand Surgery						
Urology						
Other						

ADDRESSING MALPRACTICE CONCERNS

A major issue among physicians considering participation in trauma call is malpractice risk, or the notion that they will incur an inordinately higher risk of being sued if they do so. While this perception has been widespread across the nation for decades, there is very little evidence to support it, particularly in the form of higher fees by malpractice insurers. One exception is the bifurcation between cranial and spinal care coverage in neurosurgery, in which cranial coverage, which includes significant amounts of trauma care, costs more, but this applies to neurosurgeons in non-trauma hospitals as well.

Still, it is very frustrating for a surgeon participating in trauma care to be sued, and since trauma care incorporates very strong QA systems that provide oversight of physician care, minimizing malpractice risks in trauma care is essential. Clarifying the actual risks and accompanying perceptions will also be important.

Current Oklahoma Statutes

Oklahoma medical malpractice reform was passed in 2003. Key aspects of the legislation include a non-economic damage limit of $300,000 for cases involving emergency room care or medical services provided, as a follow up to such care. The limitations on non-economic damages apply to all physicians, including emergency room physicians and on-call specialists, providing treatment to patients in a hospital emergency department.

This cap is considered a "soft" cap since the legislation allows a judge to lift the cap if the judge makes a finding that there is clear and convincing evidence of negligence. The cap applies regardless of the number of parties against whom the action is brought. The damage limit does not apply in wrongful death cases. The provision is scheduled to sunset in 2008.

Malpractice Experience from Other States

The best examples of malpractice constraints, including those addressing trauma and emergency call include:

California
For more than 25 years, the California Medical Injury Compensation Act (MICRA) has been in effect. This legislation caps non-economic damages at $250,000. In addition, the Act specifies a 3 year statute of limitations on medical malpractice claims, permits defendants to make periodic payments rather than a lump sum, and limits contingency legal fees. This Act has offered protection to physicians from excessive jury verdicts and related malpractice insurance costs.

Nevada
In 2002, Nevada enacted legislation which established a $350,000 cap on civil damages for claims arising from care for a traumatic event demanding immediate attention that is

rendered in good faith to a patient who enters the hospital through the emergency room or trauma center. This limit does not apply to any act or omission in rendering care or assistance that occurs after the patient is stabilized, unless surgery is required within a reasonable time after the patient is stabilized, that is unrelated to the original traumatic injury, or in cases amounting to gross negligence or reckless, willful or wanton conduct.

An initiative passed in 2004 amended Nevada's medical liability reform statute to include reforms similar to California's MICRA. The "Keep our Doctors in Nevada" initiative amended the $350,000 cap on non-economic damages in medical liability cases by deleting the exceptions to the cap on non-economic damages.

West Virginia

A bill enacted in 2003 includes a $250,000 cap on non-economic damages applied per occurrence regardless of the number of defendants or plaintiffs. The cap increases to $500,000 per occurrence for cases involving a permanent and substantial physical deformity. The cap adjusts annually for inflation. The bill also included a $500,000 cap on civil damages for any injury to or death of a patient as a result of health care services rendered in good faith and necessitated by an emergency condition for which the patient enters a health care facility designated as a trauma center.

Malpractice Alternatives For Oklahoma

Malpractice issues related to trauma and emergency care will need to be addressed over the next two years due to the 2008 sunset provision in the current act. Preserving this level of risk mitigation is essential to maintaining physician support for trauma care. Enhancing protection in the process is also recommended, as it will have a positive impact upon physician motivation. This will require a concerted effort due to the political hurdles in malpractice reform, and a specific proposal should be formulated with an action plan for achieving it. The Medical Associations should take a lead role, which is more likely if they are able to hand off their role in community call issues to the RTABs.

As an initial step, the actual incidence of malpractice cases involving trauma and emergency care should be measured over the last five years. It will likely show a lower rate than many physicians assume, which in itself can be an important part of the solution. This would also mean the actual impact on malpractice system stakeholders will be small, which can reduce their opposition. The proposal itself should be tightly focused on enhanced protection for physicians involved in trauma and emergency call, and it should be developed with strong physician participation to address perceptions.

Key issues will be tightening restrictions on filing suits, expanding Good Samaritan statutes, and lowering non-economic damage caps. As Super RTABS develop, it may be possible to use them as a vehicle (e.g., Authority) to extend state immunity to physicians participating in trauma care. This should be considered as an alternative in proposal development, as any meaningful progress in this regard will need legislative approval. It otherwise will be at risk of circumvention by malpractice lawyers, and the threat alone would undermine physician confidence, thus negating the basic objective.

ESSENTIAL TRAUMA PHYSICIAN SUPPORT RECOMMENDATIONS

Key steps required to strengthen trauma physician support include:

Pursue Added Funding For Readiness Pay

Obtaining a minimum of 30% of funds required to support readiness pay for trauma call, or $2,827,702 is essential, and 50%, or $4,712,837 should be pursued. These funds should be generally allocated to Super RTABS based upon the overall proportion of trauma care provided in the greater OKC and Tulsa regions. Within the greater regions, they should be allocated by the super RTAB Board of Directors based upon need, such low supply specialties as hand and oral surgery in OKC, upon national norms for such payments, and also upon the fundamental need to support trauma care in the rural regions, which has been limited to date.

Equip and Empower RTAB Structure To Support Community Call

The RTABs should have the organizational support and flexibility to spend these funds in a variety of manners described in the community call section, such as contracting, physician recruitment, etc. Flexibility should also be provided to the RTABs to redirect some current funding for physician payment on uninsured trauma patient care to other mechanisms, including readiness stipends.

This will strengthen the role of RTAB's and enable them to address their region's unique circumstances. This will become increasingly important in rural areas as the system expands to emergency care. Finally, physicians should be encouraged and recognized for participation in trauma and emergency call with awards and newsworthy events. A common lament among physicians frustrated with trauma call is that "no one ever says thank you", and story in the local newspaper about a particularly heroic save that a surgeon can show a son or daughter can be very motivating.

Maintain & Strengthen Malpractice Protections

The following approach is recommended for Oklahoma:

- Conduct initiative to preserve and strengthen current malpractice protections that will sunset in 2008. This is essential to maintaining physician support for trauma care.
- Request the Medical Associations to take a lead role in pursuing initiative to assure strong physician participation.
- Possible strategies for defining malpractice initiative include tightening restrictions on filing suits, expanding Good Samaritan statutes, lowering non-economic damage caps and using the RTAB structure for extending state malpractice restrictions.
- Measure the actual incidence of malpractice cases involving trauma and emergency care over the last five years to address perception issues.

Physician Readiness Pay @ 30% and 50% of Benchmarked Cost

Nat'l Norms-On Call Stipends Per Day	**Trauma Svc**	**Ortho**	**Neuro**	**Facial**	**Anesth**	**Other**
Level I & II	1440	1008	1216	794	843	500
Regional LIII/Low Severity Level II	756	389	600	0	0	0
Area Level III (Basic Vol Threshold @ $500/response) *	0	0	0	0	0	0
Balance of Community Level III & Level IV	0	0	0	0	0	0

Calculated Stipends/Response Fees Per Year		**Ortho**	**Neuro**	**Facial**	**Anesth**	**Other**	**Total $**	**Times #TC's**	**Total Cost**
Level I & II (OUMC/St. Francis/St. John)	525,600	367,920	443,840	289,737	307,805	182,500	2,117,402	3	6,352,205
Regional LIII/Low Severity Level II	275,940	141,803	219,000	-	-	-	636,743	4	2,546,970
Area Level III (Basic Vol Threshold @ $500/response) *	526,500	-	-	-	-	-	526,500	na	526,500
Balance of Community Level III & Level IV	-	-	-	-	-	-	-	85	-
Total Cost for Stipends & Response Fees	1,328,040	509,723	662,840	289,737	307,805	182,500	3,280,644	92	9,425,675
Recommended Rate of Reim. By OK DOH								30%	50%
Estimated Funding Required at 30% and 50%								$2,827,702	$ 4,712,837

* Volume threhold is between 75 and 160 Patient Admissions with ISS >8 per year

VI. STRENGTHENING TRAUMA CENTER CAPACITY

A lack of trauma center capacity is the fundamental problem for Oklahoma's trauma system. Capacity needs to expand, particularly, in Oklahoma City, but also in rural areas such as Lawton that have the potential to do so.

The compensation that is available through the Trauma Fund of approximately $19 million per year is a significant step forward in supporting trauma care throughout the State. However, structural approaches to solving the capacity problem need to be taken in addition to the compensation from the Trauma Fund.

Trauma center demographics in Oklahoma are unique. The State has urban, suburban, and rural regions; each with unique characteristics and challenges.

Oklahoma City

Oklahoma's single Level I trauma center located in Oklahoma City, provides the highest level of care for severely injured patients with multi-system injuries from throughout the State. The Level I trauma center is located at OU Medical Center, which was formerly the Oklahoma County Hospital, and still functions as the safety net hospital and trauma center for not only Oklahoma City and County, but for the State of Oklahoma as well.

Oklahoma City, and RTAB 8, has no designated Regional Level II trauma centers. However, with Oklahoma's largest population base, Oklahoma City has several designated Level III and Level IV trauma centers to care for trauma patients with less severe and single system injuries.

Presently, six of the Level III facilities within the Oklahoma City metro area and RTAB 8, function in a rotating backup capacity to the Level I trauma center at OU Medical Center. The backup facilities include:

- Integris Baptist Medical Center
- Integris Southwest Hospital
- St. Anthony Hospital
- Deaconess Hospital
- Norman Regional Hospital
- Mercy Health Center

These backup hospitals function as regional Level II trauma centers on the days of each month that they are scheduled to do so. This backup plan is currently functional, yet unstable, and not sustainable over the long term.

In fact, given the financial challenges placed on these hospitals and their respective medical staffs from a limited volume or franchise of trauma, consideration is being given to reducing the number of hospitals within the rotation from six to approximately four in the near term. Within the next several months, the rotation will likely be reduced even further from four hospitals to two. From a geographic standpoint, it would be logical to consider having two facilities in different parts of the city.

Tulsa

The Tulsa region's demographic landscape for trauma capacity is quite different from Oklahoma City.

Tulsa is the second most populous region in Oklahoma and has no Level I trauma center. There are however two Regional Level II trauma centers at St. Francis and St. John's Medical Centers. These are the only designated Level II trauma centers for the State of Oklahoma. The Tulsa region, RTAB 7, cares for a large share of Priority 1 and 2 trauma patients throughout Oklahoma. These two trauma centers function in a backup capacity to one another and work in a collaborative fashion which benefits all parties; the trauma patients, trauma hospitals, and their respective medical staffs.

In addition to the two Level II trauma centers, Tulsa also has several Level III and Level IV trauma centers to care for less critically injured trauma patients from throughout the region.

Given the structure and number of trauma centers located within the greater Tulsa area, trauma center capacity is not an issue for the Tulsa region, or RTAB 7. One critical issue for Tulsa however, is that it does not have a safety net hospital to care for the indigent/uninsured population for the region, like Oklahoma County has at OU Medical Center.

Southwest Oklahoma

Southwest Oklahoma is a large region that includes the communities of Lawton, Altus, and Duncan. Comanche County, located in Southwest Oklahoma, is home to Comanche County Medical Center in Lawton. In the most recent 12 month period, the Level III trauma center cared for 220 trauma patients, with 28 having an Injury Severity Score >15 (major trauma). The trauma center functions at a high level as a regional Level III trauma center in support of trauma patient care. The level of medical staff resources available in Lawton are not typically found in smaller regions, like SW Oklahoma. Comanche County Medical Center has surgical sub-specialists to care for burn, pediatric, hand, and neurosurgical trauma patients.

In conjunction with trauma centers in Altus and Duncan, Lawton in Southwest Oklahoma has an opportunity to strengthen its trauma center by assessing the opportunities for regionalization efforts with the medical staff from the other facilities. There may be a need for a higher level of trauma center designation that would benefit trauma patients and support the other community Level III and IV trauma centers throughout the region.

Given the need to build trauma center capacity in Oklahoma, this effort in Southwest Oklahoma may serve as a model for other regions within the State to ultimately support the single Level I trauma center at OU Medical Center.

Rural Oklahoma

Rural Oklahoma is comprised of six regions, or RTAB's. Within these RTABs are a number of community Level III and IV trauma centers that provide initial evaluation and treatment of some trauma patients from within the regions. In the event a trauma patient is more critically injured than a rural facility has resources to adequately care for the patient, an interfacility transfer protocol has been established to assure the most efficient transfer of the patient to the appropriate destination according to established treatment protocols. The TReC system, implemented for the Oklahoma City and Tulsa regions, is funded by the OKDOH and operated by EMSA, and assists the rural trauma centers in determining the most appropriate destination.

DEVELOPING ADDITIONAL TRAUMA CENTER CAPACITY IN OKLAHOMA CITY

Given the significant pressure on trauma centers to provide physician support in the heavily burdened trauma sub-specialties of trauma surgery, orthopedic surgery, neurosurgery, and facial trauma surgery, it makes economic sense for Oklahoma City to consolidate volume from the six rotating backup hospitals into a minimum number of facilities; either one, two, or three "super Level III trauma centers". This will enable both the hospitals and trauma sub-specialists to be supported from a larger volume or franchise of business than is currently attainable given the large number of rotating facilities today.

In 2005, trauma volume at the six rotating backup trauma centers in RTAB 8 was 1060 admitted trauma patients, with 264 patients having an Injury Severity Score > 15 (major trauma). The combined volume and severity from the six backup facilities equates to that of a strong regional Level II trauma center.

New OKC Trauma Center Pro Forma

To provide an indication of the economic viability and impacts of another trauma center in Oklahoma City, registry and survey data was used to construct a rough pro forma for one consolidated Level II/III facility. This also provides a general idea for the economic viability of two "super" Level III trauma centers.

Trauma Patient Volume & Treatment Costs

Injury Severity Score	#of Patients	OKC Avg Cost Per Patient	Total Patient Cost
ISS 0 - 8	237	$5,334	$1,264,158
ISS 9 - 14	559	$10,609	$5,930,431
ISS 15 - 24	167	$16,672	$2,784,224
ISS >24	97	$34,742	$3,369,974
Total	**1,060**	**$12,593**	**$13,348,787**

The current volume of 264 patients with ISS >15 represents 25% of the total volume, which is above national norms of 20%. Oklahoma's cost per trauma patient stratified by ISS category is used to calculate patient treatment costs.

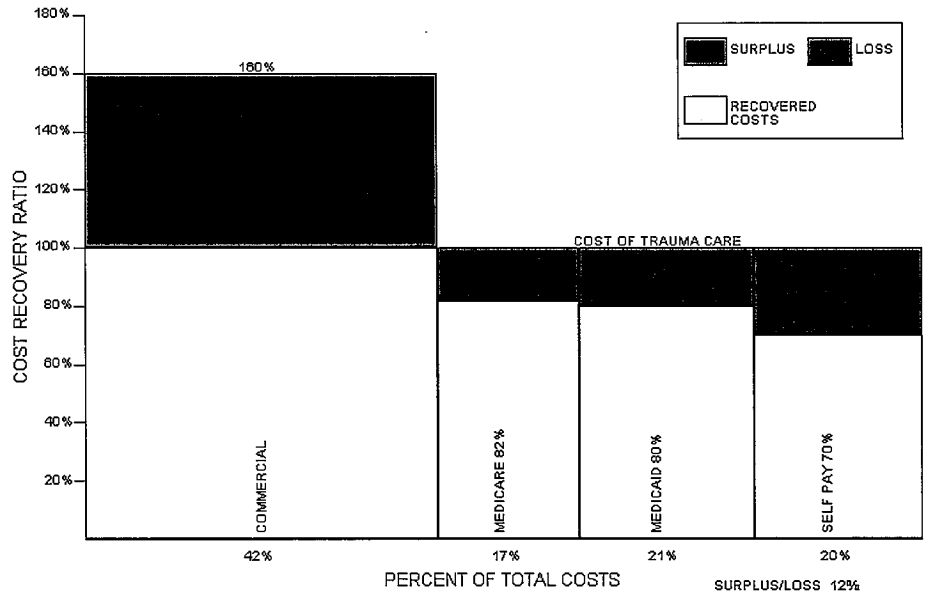
Payer Mix, Projected Costs, Net Revenues, and Cost Recovery Rates

With $13.3 million in patient costs, net revenue is projected at $14.9 million. Based on Oklahoma Trauma Center survey results conducted as part of this engagement, reimbursement for commercially insured patients is estimated at 160% of cost, Medicare 82%, Medicaid 80% and Self Pay 70%. This reflects an overall Cost Recovery Rate of 112%. These costs do not include the extraordinary costs associated with operation of a trauma center.

Payer Mix, Patient Costs, & Cost Recovery Rates

Payer Class	Patients	% of Cost	Total Patient Costs	Net Revenues	CRR
Commercial/WK	445	42%	$5,606,491	$8,970,386	160%
Medicare	180	17%	$2,269,294	$1,860,821	82%
Medicaid	223	21%	$2,803,245	$2,242,596	80%
Self Pay	212	20%	$2,669,757	$1,868,830	70%
Total	**1,060**	**100%**	**$13,348,787**	**$14,942,633**	**112%**

The profile below presents this data in graphic form. The payer mix and the high cost-recovery rates for both commercial/work comp and Medicaid patients needs to be verified, but other wise this is a relatively attractive profile due to these potential rates as well as the payment on uninsured trauma patients with an ISS over 8.



Projected Level II/III Trauma Center Profit/Loss

Below is the projected bottom line for a consolidated Level II/III trauma center in Oklahoma City. Physician support costs are estimated at $2,000,000 and extraordinary costs of $350,000 are anticipated.

Level II/III Trauma Center Pro Forma

Annual	Amount
Revenue	**$14,942,633**
Direct Treatment Cost	$8,943,687
Trauma Physician Call	$2,000,000
Hospital Support Costs	$350,000
Contribution Margin	**$3,648,946**
Indirect Treatment Cost	$4,405,100
Total Costs	**$15,698,787**
Profit/Loss	**-$756,154**

With projected patient revenues of $15 million, less direct patient treatment costs of $9 million, and less $2.4 million in trauma medical staff and hospital support costs, a $3.6 million positive contribution margin could be generated for a trauma center of 1000+ patients. After indirect costs of approximately $4.4 million, the projected loss is $756,000. This could be offset with a state contribution of part of the trauma physician call, or readiness costs.

Overall Patient Days and ICU Days

National norms for average length of stay and ICU days, which are close to those in Oklahoma, were used to estimate total patient days and ICU days. The ALOS for this Level II/III trauma center is estimated at 6.0 days and average ICU days are estimated at 2.0 days. Estimated total patient days is 6314, or 17.3 patients per day, with 2,132 of those days, or 5.4 patients per day, in the ICU.

Overall Patient Days and ICU Days

Payer Class	#of Patients	ALOS	Total Days	Avg ICU	Total ICU
0 – 8	237	2.97	704	0.38	90
9 – 14	559	5.23	2,924	1.28	716
15 -24	167	8.66	1,446	3.53	590
24+	97	12.78	1,240	7.59	736
Total	**1,060**	**5.96**	**6,314**	**2.01**	**2,132**

Conduct Feasibility Study For New Consolidated OKC Trauma Center(s)

Developing the strongest possible secondary regional trauma center(s) in Oklahoma City will assure a high level of long term stability, quality of care and cost-effectiveness. This will support the single Level I trauma center at OU Medical Center and will provide adequate capacity for the most critically injured trauma patients for all of Oklahoma.

The above rough pro forma indicates this trauma facility(s) would be economically justified, and so an in-depth feasibility study and financial/medical staff plan should be prepared and include analysis of the following:

- This feasibility study would include a detailed financial analysis of projected volumes, patient severity, payer mix, revenues, operating costs, startup and development costs, and impacts such as patient days, ICU days and OR demand for 1, 2 or 3 trauma centers.

- An assessment of which hospital(s) are preferred for a trauma center role based upon interest, medical staff resources, hospital resources and geographic location.

- For interested hospitals, an analysis of medical staff resources available to support a regional trauma center and a plan to fill gaps in coverage through contracts, recruiting, reliance on community call panels, etc.

- Strategies for optimizing financial performance of the consolidated trauma center would be evaluated including cost management, managed care carve-outs, service line management, marketing and outreach initiatives, etc.

The result would be a definitive assessment of trauma center capacity alternatives in Oklahoma City, and a rigorous feasibility analysis and financial/medical staff plan that would enable the actual development of the most viable alternative.

This planning process should be carried out with support from the OSDH Trauma Division and the backup trauma hospitals. It should be carried out in coordination with the Region 8 RTAB, with a project Steering Committee established with participation by backup hospital, OTSIDAC, and Oklahoma County Medical Society representatives.

Subsequent to this project, a similar approach should be considered for Southwestern Oklahoma.

VII. REQUIREMENTS FOR ADDITIONAL FUNDING

Oklahoma is providing the bulk of public support necessary to maintain quality trauma care in a timely manner for the seriously injured throughout Oklahoma. Additional amounts will be necessary to support an adequate system infrastructure, assure trauma physician readiness, and provide adequate support for trauma patient rehabilitation. These capstone amounts are inordinately valuable as they enable the trauma system to expand to other time sensitive emergency services in a highly cost-effective manner.

ESTIMATED FUNDING REQUIREMENTS

The Trauma Center Economic Assessment estimated the following annual costs for paying trauma hospitals and physicians for the acute care provided to uninsured trauma patients with an injury severity score of 9 or above:

Trauma Center Uninsured Care	$19.8 million
Physician Uninsured Care	$ 8.4 million
Total Uninsured Trauma Pt. Care Costs	$28.2 million
Less cost of ISS<9 Patients (16%)	$ 4.5 million
Total Cost of Uninsured ISS>8 Patients	$23.7 million

Of this amount, approximately $18 million was paid to trauma centers by the Trauma Fund, and $1.5 million to physicians, for a total of $19.5 million, leaving a shortfall of $4.2 million. The Trauma Care Revolving Fund is composed of an estimated $23 million, and in addition to payment to hospitals and physicians, $1.2 million went to support EMS agencies and $2.3 million was spent on trauma system support by the Trauma Division.

New funding requirements include the following:

$4.2 Million Balance For Payment On Uninsured Patient Care

The $4.2 million shortfall on current uninsured trauma patient care, mostly lying with trauma physicians, needs to be funded to assure a basic level of compensation for acute care providers. This is a relatively conservative payment strategy in that it only covers more serious injuries, leaving the providers to cover the costs of the less injured trauma patients. They are doing their share, and the state needs to do its part as well.

$2 Million For Strengthened Trauma System Infrastructure

Operational and infrastructure funding is limited to 10% of the Trauma Fund, which is not adequate to build a robust statewide trauma network that can be expanded to emergency care. Funding the RTAB's is a clear priority, as well as critical functions like educating trauma system participants, establishing an emergency physician residency,

conducting research, and assuring support for mass casualty events carried out by the Oklahoma Institute for Disaster & Emergency Medicine.

$2.8 - $4.7 Million For Partial Payment of Readiness Costs
Minimum support of 30% for readiness pay for trauma call is $2.8 million and a more reasonable 50% is $4.7 million. Sharing these costs with trauma hospitals enhances their financial viability and helps assure trauma physician availability.

$1 Million+ To Assure Rehabilitation Services For The Seriously Injured
Assuring appropriate rehabilitation services for uninsured, seriously injured patients is cost-effective because they tend to recover and become productive citizens and if they cannot be placed and discharged to a rehab center, they must remain in the acute care setting at a greater cost. This is a gross estimate as additional study is required.

Total additional funding requirements are $10-12 million

CURRENT TRAUMA FUND

The Trauma Care Revolving Fund is composed of an estimated $23 million in revenue from the following sources:

SOURCE	%	AMOUNT
Cigarette Tax	46%	$10.6
County Funds	26%	$6.0
Motor Vehicle Collections	17%	$3.9
Tribal Cigarette/Tobacco Payments	6%	$1.4
Tobacco Products Tax	5%	$1.2
Total	**100%**	**$23.0**

The total amount of funds collected annually is expected to grow up to $25 million, but cigarette tax revenues are expected to decline, so it would be prudent to anticipate $23 to $25 million annually. With total funding requirements of $33-35 million, the annual shortfall is $8-12 million.

POTENTIAL SOURCES OF FUNDING

A variety of potential new funding sources have been assessed as part of this project, including Medicaid matching funds, a provider tax, and the variety of funding measures employed in other states.

Medicaid Matching Funds

The alternative of taking a large portion of the Trauma Fund and contributing it to the state Medicaid program which could then obtain a 3 to 1 match from the federal Medicaid program was extensively discussed with Medicaid experts from both Texas and Oklahoma. The allure is that a $15 million contribution would turn into $45 million.

The results were that since Oklahoma has reached the upper limits on what it can pay Medicaid providers as well as limits on the number of uninsured people who are Medicaid eligible, the remaining uninsured trauma patients which the Trauma Fund is designed to cover would not be eligible under a matched arrangement. Even the Trauma Fund dollars that were contributed could not be spent for the purpose they were intended; i.e., payment on uninsured trauma patients.

Provider Tax

The provider tax is essentially the "pay" portion of the "pay or play" concept. In essence, hospitals and selected physician entities would be taxed to create a fund to compensate those physicians who take trauma call. In actuality, instead "pay or play", it would be a fund into which all providers contributed and in turn would compensate those taking call.

A broader application of the provider tax has been used in several states to fund uninsured patient care in general, but has not been applied to a specific service such as trauma care. The major problem with the provider tax is the opposition it generates from other healthcare providers. This has already been experienced in Oklahoma, although the provider tax should remain on the agenda as a possibility.

Trauma Funding Examples From Other States

There is a broad variety of sources of funding for trauma care that have been utilized throughout the nation. They include:

- DUI/Moving Violation Traffic Surcharge
- Safety Belt Fines
- Vehicle/Driver Licenses Surcharges
- Sales or Property Taxes
- Alcohol Taxes
- 911 Call Tax
- Illegal Discharge of Firearms
- Auto Insurance Tax

Based upon other states' experience, the revenue that would be generated in Oklahoma by the following fees/fines and sources is defined in the following table:

Amounts Generated In Oklahoma

SOURCE	AMOUNT
Texas DUI & Frequent Offender Fines	$15.6 million
1% Auto Insurance Premium	$19.8 million
$100 Surcharge On DUIs	$0.8 million
$25 Seat Belt Violation	$1.1 million
$20 Speeding	$2.6 million
$5 Driver License Fee	$3.0 million
$5 Car/Truck Vehicle Registration	$13.5 million
$5 New/Used Vehicle Title Fee	$4.1 million

In most cases, state trauma funding strategies are defined by legislative experts who understand the prospects and stakeholders for each funding source. They can point out the path of least political resistance, as well as opportunities to collaborate with other stakeholders to jointly pursue new funding opportunities, thus consolidating political strength. This is the route recommended for Oklahoma's trauma care stakeholders.

Trauma Funding Strategy of Choice

In addition to relying on legislative experts who can handle the "horse trading" that generally accompanies successful funding initiatives, ongoing experience in other states suggests that key factors to stable, long term funding for trauma care are as follows:

Pursue Funding Sources That Are Trauma Related

Funds produced by fines related to activities such as drinking and driving and other moving violations have a rational appeal since they can also help diminish such activities. Economic activities related to causes of trauma, such as driver licenses, auto registrations, title fees, and auto insurance (over half of trauma injuries result from motor vehicle crashes) also should be considered. Non-trauma related funding often is reduced in subsequent years.

Build A Statewide Network To Pursue Funding

A common issue in trauma funding is the necessity to bring to bear the clout of rural representatives, which means rural areas cannot be shortchanged by a focus on urban trauma centers. The key to this strategy is building a robust, statewide RTAB network that is expandable to the larger challenge of emergency care.

Build & Sustain A Coalition Of Trauma Stakeholders

Trauma care funding is often precipitated by a crisis, leading to quick, patch-worked funding legislation. The next year, after the crisis has dissipated somewhat, proponents no longer have the clout they once enjoyed, and the results are disappointing. Trauma care needs to learn the lessons of all other "public good" constituencies, which is that you get organized, stay organized, and broaden your constituency to consolidate clout. In this sense, a classic opportunity is presented by the broader emergency care sector.

VIII. OTHER TRAUMA SYSTEM ISSUES

This section addresses additional components of the Oklahoma Trauma Care System, including:

- Transfer Referral Centers (TReC)
- Regional Trauma Advisory Boards (RTABs)
- Trauma Patient Rehabilitation
- Other Suggestions For Consideration

OKLAHOMA CITY & TULSA TRANSFER REFERRAL CENTERS

In 2004, statutes were created which mandated the establishment of Trauma Transfer and Referral Centers in Oklahoma City (Region 8) and Tulsa (Region 7). The purpose of the referral centers is to assure appropriate and efficient transport and transfer of trauma patients to and within Region 7 and 8. All ground and air EMS providers are required to contact the Transfer Center when transporting trauma patients into Region 7 or 8.

Specifically, the goal is to preserve the highest level of care in these Regions for major trauma patients. The two transfer centers were implemented in July 2005. Funding from the Department of Health is provided to EMSA to operate and staff the Transfer Centers.

Due to confusion with hospitals' internal call centers (for example OUMC's One Call Center), the DOH Transfer Centers were renamed TReC in late 2006.

Goals for the Transfer Centers by year of operation were as follows:

1. Establish the centers, educate the providers, and collect data (2005)
2. Increase usage of the Transfer Centers (2006)
3. Evaluate (2007)

Ambulances outside of Region 8 are required to call into TReC prior to delivery of a patient in order to ensure appropriate destination. In addition, hospitals are required to call the center for assistance in identifying the appropriate destination for an interfacility transfer of a trauma patient.

All ambulances within Region 8 are required to report data to the Transfer Center each month. Usage data collected by TReC is provided to OSDH on a monthly basis.

Success to date

There has been limited usage of the TReC system to date largely due to confusion on the part of EMS agencies and hospitals, and resistance from the Tulsa region.

The confusion is a result of larger hospitals having internal call centers. For example, OUMC has the "One Call Center". Recently a meeting was held with DOH and OUMC staff to discuss the issue. OUMC has agreed to route inappropriate calls from EMS agencies and hospitals for trauma patients to the TReC. Between June and September 2006, the volume of calls from hospitals for an interfacility transfer more than doubled from 20 calls in June to 48 calls in September.

Tulsa, Region 7, has two Level II trauma centers and four Level III trauma centers. The two Level II trauma centers already function in a backup capacity to one another. Therefore, there is little support from EMS agencies or hospitals needing to transfer a patient to the Tulsa region to call the TReC. Recently, there have been challenges with Orthopedic Surgery ED coverage in the Tulsa Region. This has resulted in reconsideration of the possible benefits of utilizing a system designed to assist with appropriate and effective destination of trauma patients.

Analysis of September 2006 TReC activity is as follows:

- Tulsa: 6 calls from EMS out of 121 Priority 1 and 2 Patients-5%
- OKC: 142 calls from EMS/Hospitals out of 265 Priority 1 and 2 Patients-54% (100 calls from EMS agencies; 42 calls from hospitals)
- Compared to June 2006 activity, there were 50% more calls received by TRec in September 2006 for Region 8 priority 1 and 2 patients.
- Compared to June 2006 activity, there were 50% fewer calls received by TReC in September 2006 for Region 7 priority 1 and 2 patients.

There has been a significant increase in the volume of calls to TReC for Region 8 between June and September 2006. This is largely attributable to calls from hospitals for interfacility transfers and likely due to the ongoing efforts between DOH and OUMC staff to resolve these issues.

Recommendations

There is a benefit to the major trauma patient and the single Level I trauma center in Oklahoma to not only maintain the TReC system, but to continue to work toward increasing usage of the system by EMS agencies and hospitals.

The operation of the TReC system should remain within EMSA. This is the appropriate agency to operate, manage, and evaluate the effectiveness of this vital part of the Oklahoma Trauma System.

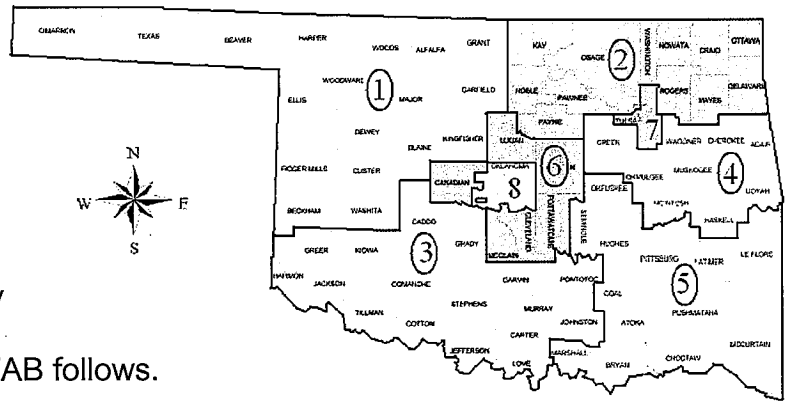
REGIONAL TRAUMA ADVISORY BOARD ASSESSMENT

The State of Oklahoma Department of Health established eight Regional Trauma Advisory Boards (RTABs) to provide a structure for the development of regionalized agencies to support trauma system development within each region. Each RTAB

selects a Chair, Vice-Chair, Secretary, and Treasurer. In addition, the RTAB's have been encouraged to organize as 501©3 non-profit organizations under Federal IRS code.

The RTAB's are organized by county according to U.S. Department of Homeland Security geographic boundaries. The eight RTAB's are as follows:

- Region 1-Northwest
- Region 2-Northeast
- Region 3-Southwest
- Region 4-East Central
- Region 5-Southeast
- Region 6-Central
- Region 7-Tulsa
- Region 8-Oklahoma City



A brief overview of each RTAB follows.

Region1-Northwest

The Chair of Region 1 is C. Michael Ogle, MD. 18 counties representing a population of 229,000 residents, or 6.5% of Oklahoma statewide population comprise this region. County populations within the region vary from a low of 2,897 in Cimarron County to a high of 57,282 residents in Garfield County.

In 2005, there were 694 trauma admissions to the region's 20 Level III/IV trauma centers, or 7.0% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $192,834. Physician receipts from the distribution were $4,996. Total receipts of $197,830 represent 1.3% of the total $15.5 million distributed in August 2006.

Of 19 trauma centers in the region responding (95% response rate) to the Oklahoma Department of Health Resource Assessment, 14 trauma centers (74%) have operating rooms. These 19 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

6 of the 19 (32%) trauma center emergency departments are staffed by physicians 24 hours per day. The total number of unduplicated active medical staff supporting the regions' trauma centers is 52 physicians. The medical staff includes 18 general surgeons, 15 anesthesiologists, and 11 orthopedic surgeons.

General surgeon availability is limited; 10 trauma centers have no general surgeon availability, 3 have less than 24 hour availability, and 6 have 24 hour availability.

Region 2-Northeast

The Chair of Region 2 is Jennie Bible. Twelve (12) counties representing a population of 451,000 residents, or 12.8% of Oklahoma statewide population comprise this region. County populations within the region vary from a low of 10,717 in Nowata County to a high of 79,042 residents in Rogers County.

In 2005, there were 723 trauma admissions to the region's 16 Level III/IV trauma centers, or 7.3% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $326,449. Physician receipts from the distribution were $1,648. Total receipts of $328,096 represent 2.1% of the total $15.5 million distributed in August 2006.

Of 16 trauma centers in the region responding (100% response rate) to the Oklahoma Department of Health Resource Assessment, 14 trauma centers (88%) have operating rooms. 14 of the 16 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

11 of the 14 (79%) trauma center emergency departments are staffed by physicians 24 hours per day. The total number of unduplicated active medical staff supporting the regions' trauma centers is 42 physicians. The medical staff includes 19 general surgeons, 5 anesthesiologists, and 17 orthopedic surgeons.

General surgeon availability is limited; 6 trauma centers have no general surgeon availability, 5 have less than 24 hour availability, and 6 have 24 hour availability.

Region 3-Southwest

The Chair of Region 3 is Randy Segler. Seventeen (17) counties representing a population of 441,000 residents, or 12.5% of Oklahoma statewide population comprise this region. County populations within the region vary from a low of 2,997 in Harmon County to a high of 110,514 residents in Comanche County.

In 2005, there were 643 trauma admissions to the region's 19 Level III/IV trauma centers, or 6.5% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $463,943. Physician receipts from the distribution were $20,862. Total receipts of $484,805 represent 3.1% of the total $15.5 million distributed in August 2006.

Of 19 trauma centers in the region responding (100% response rate) to the Oklahoma Department of Health Resource Assessment, 12 trauma centers (63%) have operating rooms. 16 of the 19 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

9 of the 19 (47%) trauma center emergency departments are staffed by physicians 24 hours per day. The total number of unduplicated active medical staff supporting the regions' trauma centers is 58 physicians. The medical staff includes 25 general surgeons, 7 anesthesiologists, and 20 orthopedic surgeons.

General surgeon availability is limited; 9 trauma centers have no general surgeon availability, 1 has less than 24 hour availability, and 10 have 24 hour availability.

Region 4-East Central

The Chair of Region 4 is Lee Taylor, MD. Nine (9) counties representing a population of 381,000 residents, or 10.8% of Oklahoma statewide population comprise this region. County populations within the region vary from a low of 12,088 in Haskell County to a high of 70,626 residents in Muskogee County.

In 2005, there were 273 trauma admissions to the region's 10 Level III/IV trauma centers, or 2.8% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $175,354. Physician receipts from the distribution were $6,459. Total receipts of $181,814 represent 1.2% of the total $15.5 million distributed in August 2006.

Of 10 trauma centers in the region responding (100% response rate) to the Oklahoma Department of Health Resource Assessment, 10 trauma centers (100%) have operating rooms. 9 of the 10 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

9 of the 10 (47%) trauma center emergency departments are staffed by physicians 24 hours per day. Of the trauma centers responding, the total number of unduplicated active medical staff supporting the regions' trauma centers is 15 physicians. The medical staff includes 9 general surgeons, 1 anesthesiologist, and 3 orthopedic surgeons.

General surgeon availability is limited; 6 trauma centers have no general surgeon availability, 2 have less than 24 hour availability, and 2 have 24 hour availability.

Region 5-Southeast

The Chair of Region 5 is Craig Smith. Thirteen (13) counties representing a population of 287,000 residents, or 8.2% of Oklahoma statewide population comprise this region. County populations within the region vary from a low of 5,928 in Coal County to a high of 49,161 residents in Le Flore County.

In 2005, there were 486 trauma admissions to the region's 13 Level III/IV trauma centers, or 4.9% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in

August 2006 were $220,867. Physician receipts from the distribution were $448. Total receipts of $221,316 represent 1.4% of the total $15.5 million distributed in August 2006.

Of 11 trauma centers in the region responding (85% response rate) to the Oklahoma Department of Health Resource Assessment, 9 trauma centers (82%) have operating rooms. 11 of the 13 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

6 of the 11 (55%) trauma center emergency departments are staffed by physicians 24 hours per day. Of the trauma centers responding, the total number of unduplicated active medical staff supporting the regions' trauma centers is 13 physicians. The medical staff includes 8 general surgeons, 1 anesthesiologist, and 4 orthopedic surgeons.

General surgeon availability is limited; 6 trauma centers have no general surgeon availability, 1 has less than 24 hour availability, and 4 have 24 hour availability.

Region 6-Central

The Chair of Region 6 is Greg Reid. Six (6) counties representing a net population of 317,000 residents, or 9.0% of Oklahoma statewide population comprise this region. Population from residents of the cities of Moore, Norman, and Yukon in Cleveland County are included in Region 8-Oklahoma City for purposes of RTAB distribution. The County populations within the region vary from a low of 29,070 in McClain County to a high of 95,505 residents in Canadian County.

In 2005, there were 405 trauma admissions to the region's 6 Level III/IV trauma centers, or 4.1% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $36,737. Physician receipts from the distribution were $3,977. Total receipts of $40,714 represent 0.3% of the total $15.5 million distributed in August 2006.

Of 6 trauma centers in the region responding (100% response rate) to the Oklahoma Department of Health Resource Assessment, 5 trauma centers (83%) have operating rooms. 5 of the 6 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

4 of the 6 (67%) trauma center emergency departments are staffed by physicians 24 hours per day. Of the trauma centers responding, the total number of unduplicated active medical staff supporting the regions' trauma centers is 9 physicians. The medical staff includes 4 general surgeons, 3 anesthesiologists, and 2 orthopedic surgeons.

General surgeon availability is limited; 2 trauma centers have no general surgeon availability, 3 have less than 24 hour availability, and 1 has 24 hour availability.

Region 7-Tulsa

The Chair of Region 7 is Steven Katsis, MD. Tulsa County, with a population of 569,000 residents, or 16.2% of Oklahoma statewide population makes up this region. Oklahoma's two Level II trauma centers are both located in Tulsa at St. Francis and St. John's Medical Centers.

In 2005, there were 3,045 trauma admissions to the region's 6 Level II/III trauma centers, or 30.7% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $4,309,540. Physician receipts from the distribution were $349,947. Total receipts of $4,659,488 represent 30.0% of the total $15.5 million distributed in August 2006.

Of 6 trauma centers in the region responding (100% response rate) to the Oklahoma Department of Health Resource Assessment, 6 trauma centers have operating rooms. 6 of the 6 trauma centers also maintain blood banks and emergency departments that are staffed 24 hours per day.

6 of the 6 (100%) trauma center emergency departments are staffed by physicians 24 hours per day. Of the trauma centers responding, the total number of unduplicated active medical staff supporting the regions' trauma centers is 217 physicians. The medical staff includes 37 general surgeons, 83 anesthesiologists, 48 orthopedic surgeons, and 26 neurosurgeons.

General surgeon availability is good; all 6 trauma centers have 24 hour on call availability.

Region 8-Oklahoma City

The Chair of Region 8 is Carl Laffoon, RN, ARNP. Oklahoma County, with a population of 681,000 residents, plus 165,000 residents from the cities of Moore, Norman, and Yukon located in Cleveland County, or a total population of 846,000, make up Region 8, and represent 24.0% of Oklahoma statewide population. Oklahoma's single Level I trauma center is located in Oklahoma City at OU Medical Center.

In 2005, there were 3,652 trauma admissions to the region's 12 Level I/III/IV trauma centers, or 36.8% of Oklahoma statewide trauma admissions. Hospital and EMS Agency receipts from the most recent State of Oklahoma Trauma Fund Distribution in August 2006 were $8,702,548. Physician receipts from the distribution were $673,042. Total receipts of $9,375,590 represent 60.4% of the total $15.5 million distributed in August 2006.

Of 12 trauma centers in the region responding (100% response rate) to the Oklahoma Department of Health Resource Assessment, 12 trauma centers have operating rooms.

9 of the 12 trauma centers also maintain blood banks, and 11 of 12 trauma centers also maintain emergency departments that are staffed 24 hours per day.

9 of 12 (75%) of trauma center emergency departments are staffed by physicians 24 hours per day. The total number of unduplicated active medical staff supporting the regions' trauma centers is 383 physicians. The medical staff includes 62 general surgeons, 146 anesthesiologists, 103 orthopedic surgeons, and 27 neurosurgeons.

General surgeon availability is very good; 8 of 12 trauma centers have 24 hour on call availability, and OUMC's Level I has general surgeons in house 24 hours per day.

Findings and Recommendations

The Regional Trauma Advisory Boards are the fundamental component of Oklahoma's trauma system network, and their support and structure should be strengthened. Major recommendations for doing so are contained in Section II - Organizational Assessment & Recommendations, and include:

- Formation of Super RTAB structure focused around the greater Tulsa and Oklahoma City regions.

- Empower and support statewide RTAB network with experienced technical and operational support from the Super RTAB, and provide basic level of funding that enables them to address regional needs.

- Do not overwhelm RTABs with bureaucratic activities, or requirements such as forming their own non-profit organization, and use the RTABs as delivery vehicles for all local trauma system support activities, including, quality assurance, education, transfer protocol implementation, etc.

Consider Consolidation or Realignment of Trauma Regions

At this point of trauma system development, the regional configuration should be assessed to assure it is the most effective possible for the next decades. Eight regions is a lot for a population of 3.5 million, but this may work in Oklahoma where the Super RTABs will play a strong supporting role, and can bridge regional lines to address system issues when necessary.

TRAUMA PATIENT REHABILITATION

Payment for trauma patient rehabilitation is authorized by Oklahoma's trauma statute but has not been implemented. The key issue is that assuring appropriate rehabilitation services for uninsured, seriously injured patients is cost-effective because they tend to recover and become productive citizens, and if they cannot be placed and discharged to a rehab center, they must remain in the acute care setting and at greater cost.

At this time, rehab hospitals are not being reimbursed for care of uninsured and underinsured trauma victims by the Trauma Care Revolving Assistance Fund. These hospitals can select patients, whereas acute care hospitals cannot. Frequently, the few scholarship beds that are made available in these facilities are already occupied. So the predominant problem is a lack of bed capacity in rehab facilities for uninsured trauma patients.

Furthermore, at Oklahoma's single Level I trauma center at OU Medical Center, overall hospital bed capacity is an issue. Therefore, when an uninsured or underinsured trauma patient who could be better served in a rehab facility cannot be transferred to a more appropriate setting, the issue creates additional bed capacity issues for OUMC. There is also evidence of this in Tulsa.

Medicaid reimbursement is considered inadequate due to the limited number of days that are reimbursed compared to the actual length of stay that is often required for these patients, and so these underinsured patients are an issue as well.

Questions To Ask To Determine Funding Requirements

The challenge for the Trauma Division is to assess the total cost of rehabilitation care for uninsured trauma victims in Oklahoma based upon the following factors:

- Number of patients requiring rehabilitation services, with those with an ISS > 8 broken out. Data will be required from OUMC (partially supplied), St. Francis, St. Johns and regional trauma centers that treat a significant portion of major and severe trauma injuries.

- The average length of stay for patients requiring rehabilitation, with consideration for issues like the one year disability requirement for Medicare eligibility, and discharge issues faced by rehab providers on patients with out resources to live independently.

- The costs of rehab care broken down by the costs per day, and standard rehab reimbursement policies, such as those employed by private insurers, Medicare and Medicaid.

- An assessment of rehab facility capacity issue; is there sufficient capacity to handle additional volume, or will funding simply pay them for uninsured patients they are currently caring for.

- Payment mechanism; should rehab providers be funded directly or should trauma centers be given vouchers to pay rehab providers directly on patients otherwise stuck in their facilities. Should Medicaid be used as a payment mechanism?

- Clear eligibility and utilization review policies and the capability to enforce them.

- How much would the trauma fund save by moving patients earlier from the high expense acute care setting to the lower cost rehab setting?

- Other issues that arise when a new health care sector is added to the payment program.

This approach will enable the development of a realistic analysis of the total cost of adding reimbursement by the Trauma Fund for rehab care. The State of Texas which provides over $60 million in funding for trauma does not reimburse for rehab care. The recommended strategy for consideration of adding rehab reimbursement would be to only do so if the dollars spent could be used to increase rehab capacity.

Grossly Estimated Cost

While a full analysis will be needed to accurately estimate the costs of adding payment for rehabilitation for uninsured trauma patients, initial information from OUMC, roughly extrapolated statewide, indicates a reasonable gross estimate for use in Trauma Fund planning purposes is $1 million.

IX. EXPANSION TO EMERGENCY CARE & IMPLEMENTATION

A major benefit from constructing a robust, statewide trauma care infrastructure and system is that it can be expanded to address broader emergency care service issues. This enables a highly cost-effective approach to strengthening the entire problematic emergency care sector.

It is important to understand that this is already being accomplished in some respects. Assuring adequate coverage for surgery, neurosurgery, orthopedic surgery, etc. for care of trauma patients also assures the same specialties will be available to care for non-trauma patients requiring their services. An expansion to other time sensitive emergency health care issues such as strokes and heart attacks is also feasible since they require the same systems approach and components required for trauma care.

Expansion to emergency care will also bring important benefits to the trauma network in that it will substantially broaden the stakeholders that will support it, as well as develop broader interest among legislators who must fund it.

As this trauma care network has been constructed, and in this assessment and re-design process, the capability to incorporate time sensitive emergency services has remained a major objective. Before specific progress can be made in this regard, the system and network for trauma care must be substantially complete. At that time, the following steps should be considered:

- Initial planning and prioritization regarding expansion, including the potential benefits and the interest of providers.
- Expansion of OTSIDAC to include key stakeholders from emergency care service.
- A planning process with the same approach utilized for trauma care.
- Coalition building among all who benefit to assure the funding materializes.

It will be important to take an incremental approach to expanding to emergency care, initially by selecting one time sensitive service to proceed on, as otherwise the demands can threaten the underlying system that will have already been established for trauma.

IMPLEMENTATION

One of the frustrations of the trauma system development process to date is that many initiatives, proven and otherwise, were thrown together without a clear sense of what their planning and operational requirements entailed. At this juncture, careful planning is essential for effective implementation, and this includes a realistic timeline for carrying out the many initiatives involved. See attached example.

Oklahoma Department of Health
Three Year Timeline 2007-2009
Trauma System Development