

Alabama Trauma System Region Three Plan



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I. The Inception of the Alabama Trauma System

At its inception, the Alabama Trauma System (ATS) based its operation on the only existing trauma system in the state, the Birmingham Regional Emergency Medical Services System (BREMSS). A study performed by a group at the University of Alabama at Birmingham (UAB) examined the performance of the BREMSS Trauma System. At that time, there were trauma systems in several states but their attempts to prove positive, measurable benefits were based on improvement in mortality outcomes while avoiding the changes of length of stay and cost of care changes. The perception of most of the medical community at the time was that voluntary systems are less effective and more difficult to implement than those mandated by legislation. The BREMSS study attempted to overcome resistance to voluntary trauma systems with conclusive outcome measurements from traumatic injury patients admitted before and after BREMSS became operational. The UAB study assessed changes in mortality, length of stay, and cost of care at a large, Level I teaching hospital in the BREMSS area after the activation of BREMSS throughout the entire area.

Alabama is divided into six emergency medical services system regions designated by the ADPH for the administration of these services in each specific region. This study was performed on patient records from UAB, which is the largest hospital in the state and covers the region with the greatest population and largest trauma service area in the state. The BREMSS region encompassed 7,264 square miles and included a region whose population at the time was an estimated 1.2 million. There were six counties, Blount, Chilton, Jefferson, St. Clair, Shelby, and Walker, at the time of the study. The BREMSS counties had 24 hospitals, of which 10 hospitals eventually agreed to participate in the BREMSS Trauma System.

The review and analysis of the BREMSS program showed that a trauma system of its type could function effectively using a well-staffed central Trauma Communications Center, i.e. the Alabama Trauma Communications Center (ATCC), which operates 24 hours a day. The ATCC communicates with the paramedics in the field to direct patients to the closest available trauma center with the means, space, and trained personnel to treat the patient.

Outcome statistics from the BREMSS-UAB study yielded a reduction from 5.9 per 100 patients to 3.8 per 100 patients in mortality rates in the treatment group over the controls, or 0.64 percent with a 95 percent confidence interval of 0.46 – 0.89; this represents a 36 percent decline in mortality. A similar decline was noted in the mortality rate in the six counties of the BREMSS region. After adjustment for potential confounding factors, i.e. age, race, gender, injury severity scale (ISS), blunt/penetrating injuries, transfer status, and injury type, the decline in mortality increased to 52 percent with a 95 percent confidence interval of 0.31 – 0.71.

This study demonstrated that a voluntary system of this type can have a beneficial effect on the mortality rate of serious traumatic injury at a Level I trauma center. Additionally, the findings of this study resulted in the application of the BREMSS model to the statewide trauma system used by the ADPH.

II. Goal of the Alabama Trauma System

The primary goal of the ATS and this Regional Trauma Plan is:

To administer a system which continues to decrease trauma mortality and morbidity in the seven counties in the BREMSS Region, and complies with or exceeds all ADPH/OEMS requirements.

In order to accomplish the goal, a number of specific processes are deemed essential. These are:

1. The ability to rapidly and accurately identify victims of incidents who have sustained or have a high probability of sustaining serious or life-threatening injuries.
2. Patients who have sustained serious or life-threatening injuries or have a high probability of such injuries must receive care in a hospital that has a trauma program in place which is capable of providing immediate and comprehensive assessment, resuscitation, and definitive care, plus establishing rehabilitation access when necessary.
3. There must be continuous and effective region-wide coordination of prehospital and hospital care resources so that trauma patients will get to the closest hospital with adequate trauma resources. Trauma patient care must be provided in a manner that is both appropriate and timely while establishing and maintaining continuity. To accomplish this process there must be the ability to track trauma patients.
4. The program must allow all hospitals with the necessary resources to participate in the system (an inclusive system) and receive trauma patients if they are willing to meet the trauma center and operational criteria as established by the State Board of Health after recommendations by the State Trauma and Health Systems Advisory Council (STHSAC) and ADPH/OEMS.
5. The system must have an ongoing and effective continuous Quality Assurance (QA) Program in order to assure trauma centers are providing the highly specialized care necessary to treat trauma patients. This program will include evaluation of prehospital management, hospital management, and overall system function. A standard prehospital dataset and hospital dataset (Alabama Trauma Registry) will be required of all system participants, which will allow uniform system evaluation to document the effectiveness of the function of the ATS. This program must comply with all ADPH/OEMS requirements inclusive of data sharing at all levels.

III. Regional ATS Overview

This system will operate in Blount, Chilton, Jefferson, Shelby, St. Clair, Walker, and Winston counties.

The ATS requires an oversight authority to meet State Board of Health requirements, as well as project concept, overall responsibility, developmental aspects, implementation, and evaluation of continuing activities. Such an entity is commonly referred to as a lead agency and in this program the lead agency is BREMSS. The authority of this agency is derived from specific

activity goals and plans approved by the ADPH/OEMS and the State Board of Health. The ATS involves organization of already existing resources into a program providing comprehensive care for trauma patients from the moment of injury through rehabilitation. Trauma patients may have injuries that cause vital function instability with an immediate threat to life that may or may not be obvious. The program must provide for rapid movement of patients through all initial phases of management with the provision of optimal care at any time a critical situation is present or any significant changes develop in the patient status.

The two basic patient management components to this system are the prehospital providers and individual hospital organizations. ATS function requires compliance with protocols, which are developed by the Regional Advisory Council (RAC), STHSAC, and ADPH/OEMS, and are included in this plan. Patient entry criteria are intended to identify patients with actual or a high potential for serious or critical injury. It is estimated that only approximately 10 to 12 percent of injured patients would fit these criteria. Hospitals participating in the ATS would not incur any special obligations to patients who do not meet criteria for being entered into the system. Upon determination that a patient is in the small percentage of actual or possible major or critical injury victims and would benefit from specialized trauma center management, specific entry into the ATS will be accomplished.

The medical care provider reports all ATS patients to a centralized communication center, the ATCC. The ATCC monitors the trauma resources of all trauma centers on a minute-to-minute basis. With this system status knowledge and the application of specific secondary triage protocols based on physiologic status, anatomic injuries, and trauma mechanism severity, a determination can be made as to the relative potential intensity of care needed for that patient. The closest system hospital with available trauma resources meeting the level of need can then be selected as the appropriate destination for that patient using previously established protocols as part of the Regional Trauma Plan.

Hospitals participating in this system and receiving trauma patients through the ATCC must have organized response systems to provide management for major trauma patients entered into the system. These response systems include equipment and facilities, in addition to trained and committed personnel using organized management plans, such as protocols of the American College of Surgeons Advanced Trauma Life Support (ATLS) course.

A regional trauma database is in operation which allows monitoring of the magnitude and scope of trauma in our region. This database is used to document appropriateness and quality of care and also in the determination of teaching and training needs in trauma. It will be used in conjunction with other ambulance service and hospital evaluations in a continuous quality assurance program to provide compliance with all ADPH/OEMS rules and requests.

The emergency department plays a critical role in trauma management, but surgery and critical care are pivotal services in determining the survival and recovery of trauma patients. Surgical leadership of hospital trauma programs is essential in order for hospitals to participate in the ATS. This leadership role must be clearly defined within the Hospital Trauma Plan, along with specific, appropriate authority to carry out that leadership role. Evidence of continuing

leadership must be demonstrated through surgeon participation in Regional ATS activities and through the individual hospital QA programs.

IV. Components and Organization

The ATS is comprised of a number of separate components, which are organized and work together as a system. The individual components and elements which make up the system will be described in this section.

Prehospital Component

Emergency Medical Services (EMS) units are an integral part of the ATS and their organization is not changed under the ATS plan. All licensed EMS personnel (EMSP) are required to have a basic knowledge and awareness of ATS elements and system function. This specifically refers to patient entry criteria and communications. If they are unclear about entry criteria or system function, this information can be easily obtained on a 24 hour a day basis from the ATCC so that they can then apply the system trauma protocols in field care situations.

Hospital Component

Hospitals may participate in this system on a voluntary basis. Standards have been developed by the STHSAC and ADPH/OEMS based on the American College of Surgeons' *Resources for Optimal Care of the Injured Patient*. These are presented in Appendix A and have been approved by the State Board of Health. Each hospital is able to determine whether they are on-line (have adequate resources currently available and are able to receive patients based on system operations protocols) or are off-line (do not have adequate resources currently available and do not wish to receive patients per the ATS). Trauma centers are able to go on-line and off-line at will. Each hospital must have a general/trauma surgeon primarily responsible for oversight of the trauma program. These responsibilities include:

1. Working with administration to maintain resources for that level of trauma center.
2. Assuring that call schedules providing physician availability according to their chosen trauma center level are prepared on a monthly basis.
3. Establishing/maintaining basic trauma care protocols for the hospital.
4. Overseeing the Hospital Trauma QA Program including database collection and reporting to the RAC and ADPH/OEMS, oversight responsibility for the trauma center QA Program according to ADPH/OEMS requirements, and participation in regional ATS administrative and QA activities as outlined in the Regional Trauma Plan.

Participation in the ATS is accomplished as follows:

1. The decision to participate or to continue to participate must be a joint effort between hospital administration and medical staff.
2. Hospital administration and the medical staff will carefully re-evaluate the Regional Trauma Program.
3. A joint decision is made (hospital administration and medical staff) that the hospital wishes to apply to participate, continue participation at the current recognized level, or change its level commensurate with their resource capabilities and the revised approved Trauma Center Designation Criteria (see Appendix A).
4. Application is provided by ADPH/OEMS, and returned documenting the hospital's desire to continue participation or to change level of participation. ADPH/OEMS must have an application on file for each hospital if the hospital is going to participate at the same level.
5. An on-site inspection at each facility requesting a change in status is to be held to review system design and function, and to evaluate the hospital based on the criteria for the requested level. The OEMS will perform this inspection.
6. The findings of the inspection will be forwarded to the RAC. The RAC will review the application and on-site inspection report to document compliance with requirements and provide a report and recommendation to the STHSAC for consideration.
7. The STHSAC will make recommendations to the State Board of Health regarding hospital participation as a trauma center in the ATS. If approved, the hospital will become part of the system by executing a Memorandum of Understanding (MOU) with ADPH documenting its willingness to actively participate in the ATS and maintain trauma center resources according to its chosen and evaluated level.

Hospitals, therefore, must decide whether to participate in this system or not based upon ability to meet resource standards for a chosen trauma center level, medical staff desire to participate and support this program, and hospital administration's desire to participate in and support the ATS.

Communication Component

Communication is critical to the function of the ATS. Communication provides: (1) essential knowledge of the overall status of prehospital trauma activities and trauma center resource availability on a continuous basis, (2) access to system organization and function protocols whenever such information is requested by prehospital personnel or hospital-based personnel, (3) a link between the field and trauma centers for the rapid exchange of information resulting in efficient prehospital care provision and hospitals being able to best prepare for trauma patient arrival, and (4) collection of uniform system wide data for both QA activities and development of a regional trauma database. Providing all of these functions to the entire system on a continuous basis requires a central communication facility with constant communication capabilities to all prehospital units and participating hospitals, and the ability to immediately and directly link the prehospital providers to the trauma centers. This entity is the ATCC.

The ATCC is staffed 24 hours a day by personnel with specific in-depth knowledge of ATS design, function, and protocols. It is the primary responsibility of the ATCC to coordinate ATS activities by maintaining and providing information whenever needed on the field status and trauma center status so this data can be used by the prehospital and trauma center personnel in providing care to patients meeting system entry criteria. The ATCC operates through system operations protocols. The ATCC makes no primary decisions, but provides information about patient management and destination as established by protocols for system function. The ATCC serves as a resource for such protocol information to EMSP that may not be familiar with the protocols, or the ATCC simply provides the direction of prehospital and trauma center resource utilization for trauma management. The ATCC performs the following functions:

1. Assigns unique system I.D. number for each patient meeting system entry criteria for tracking throughout the system.
2. Collects brief patient information.
3. Provides information on system entry criteria based on preset protocols as requested by EMSP, when it is not clear if a patient meets trauma entry criteria.
4. Maintains knowledge of the functional status of all system hospitals at all times.
5. Maintains knowledge of the activity status in the prehospital setting at all times.
6. Coordinates patient destination, when patient meets system entry criteria based on preset protocols as to the closest, currently operational designated trauma hospital.
7. Coordinates resources for optimal utilization using pre-established protocols for system function, when there are multiple simultaneous events in the region.
8. Establishes an automatic communications link between the EMSP and the receiving facility, as requested.
9. Records and enters prehospital data for the ATS database.

In addition to the above functions, in the event of a mass casualty situation, the ATCC would serve as an established vital coordination link between on-site control and all ATS hospital resources in the region for the most rapid and efficient patient distribution in such circumstances.

An Emergency Resource Display (ERD) is also part of the communication component. The ERD provides each participating hospital and the ATCC with the continuous real-time functional status display of all trauma centers. The ERD is a simple computer system with terminals at each participating facility and the ATCC. This system will provide a display grid listing each individual hospital, its ATS designation level, the primary resource components indicating the availability or non-availability of these individual components in each hospital, and its current trauma activity status. Each system hospital will maintain the status notation of the primary trauma resources in that hospital. Trauma centers will be able to change their resource availability status and activity level at any time. A record of trauma center activity status for the entire system will be maintained through the ERD at the ATCC and in each trauma center workstation. Any change in hospital status as made by hospital personnel at its own display terminal will be automatically communicated to the central system monitoring station at the ATCC.

The ATCC maintains a consolidated system wide display status indicating the individual resource availability at the trauma centers and their overall functional status at any given time. This consolidated information table will be transmitted back to trauma centers. The system is maintained automatically by computers with automatic polling and display refresh. The ERD is similar to the following example:

Trauma/Stroke/Cardiac Emergency Resource Display																				
Level																				
Hospital	T ¹	S ²	C ³	ED-T	ED	ANES	OR	X-RAY	TICU	TS	SS	OS	NS	CT	SICU	NEURO	CCU	CARD	Clab	
A	1	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green
B	3	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
C	3	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red	Green	Green	Green	Green
D	2	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green
E	1	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
F	2	Green	Green	Green	Green	Green	Yellow	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Numbers are color-coded: Green for available, yellow for resource unavailable (but still accepting some patients), red for not available. Hospital abbreviations are automatically color-coded for on-line status: Green for active, yellow for resource unavailable (but still accepting some patients), red for inactive, based on individual resource availability in the hospital at that time. ¹Trauma ²Stroke ³Cardiac (ED-T: emergency department trauma, ED: emergency department, ANES: anesthesiology, OS: orthopedic surgeon, TICU: trauma intensive care unit, TS: trauma surgeon, SS: secondary surgeon, NS: neurosurgeon, CT: computed tomography, SICU: stroke intensive care unit, NEURO: neurology, CCU: critical care unit, CARD: cardiology, Clab: cardiac laboratory).

The equipment for the ERD consists of a color video monitor, a computer, a VPN connection to the hospital, and a modem connected to a dedicated line which does not enter the facility through the switchboard. The software allows simple keystroke changes of resource status by designated trauma center personnel. This change is then transmitted to the central system monitoring station at the ATCC with the information being immediately updated on all resource display monitors in the system. The central monitor station automatically polls the individual monitor stations in the system. If there is an isolated failure at a hospital resource display that was not caused by a total system fault, that hospital will be noted on the ATCC screen and the ATCC will call to request information directly. The system integrity is not dependent upon operation of any single station.

Maintenance of adequate and prompt communications is essential to the function of the ATS. In all instances, trauma survival or maximum outcome potential can only be achieved with efficient and rapid movement of the patient through the system of prehospital assessment and treatment, transport, and hospital resuscitation, evaluation, and definitive care. Communication throughout the system is vital to this activity occurring in an efficient and complete manner. Knowledge of the system-wide prehospital trauma activities and the current (and possibly changing) status of the functional capabilities of the various hospitals in the system are important at all times, as it is possible multiple trauma activities are occurring simultaneously. Communication allows differential system resource utilization, when there are multiple trauma activities ongoing simultaneously. The key to system function is full knowledge

of ongoing activities in all parts of the ATS at all times. The ATCC will note the closest appropriate available trauma center for the EMSP from the database.

Continuous Quality Assurance

This component is absolutely essential for the ATS to function. In virtually any serious trauma/injury situation, the patient has a very limited ability to meaningfully select prehospital, hospital, and physician care. The efficacy of the initial care in these patients may have a pivotal role in determining their outcome. Therefore, there is a responsibility to evaluate the system function to determine continuing effectiveness in the management of these major trauma patients. The ATS Plan is designed with this component to be able to generate an overall system wide trauma database which would provide an overall look at trauma incidents, significance, care and outcomes, information for use in determining and developing trauma teaching programs, information for use in potential trauma studies, and utilization in evaluation of system function in the QA Program.

There are three basic elements of this component. The first is a standard trauma dataset that will be used to establish a regional trauma database at the ATCC. The second element is the continuous quality assurance program of the ATS at the ATCC. The third element is the trauma registry data at each hospital. All data from these three data sources is available to ADPH/OEMS to use in statewide trauma QA activities and to the Regional EMS Agency provided by the State EMS Director. The trauma QA dataset for hospitals is set forth in ADPH/OEMS rules requiring each trauma center to collect and report data for the trauma registry. This program is necessary to the ATS to document continuing function and allows the implementation of improvements in a system where the patients may not have the ability to make their own personal medical care choices and depend on the system for adequacy and completeness of care. This program will be system-wide with individual agencies doing their own QA evaluations and reporting to a regional QA committee as well as the ADPH/OEMS. The appropriateness, quality, and quantity of all activities in the system must be continuously monitored in the areas of prehospital care, medical care of patients in hospitals, and overall system function. The basic QA process involves numerous specific steps to be performed by each individual entity. These steps are:

1. Assign a QA manager to oversee the process in the organization.
2. Develop a written QA program to evaluate patient care with regard to appropriateness, quality, and quantity and as part of that program, patient care standards are established for use in the evaluation process. For prehospital programs, this simply may be the regional prehospital protocol. For hospitals, this may be a combination of ATLS protocols, plus additional standards as necessary or an individual set of patient care standards (protocols) developed by that hospital. These programs are reviewed and approved by the Regional QA Committee and the ADPH/OEMS, and as part of becoming an ATS participating hospital under the direction/extension of the QA activities of ADPH/OEMS.
3. Establish a method for QA data collection by ADPH/OEMS.
4. Evaluate QA activities undertaken by the individual system participants - EMSP or trauma centers. This first involves the determination of specific audit filters. Mandatory trauma

center audit filters include major trauma (ISS > 15) and others as may be determined by the ADPH/OEMS. Other appropriate audit filters may also be evaluated. For trauma centers, external outcome comparisons are part of the evaluation process.

5. Determine the presence of QA issues through the data evaluation process.
6. Discuss QA issues at the formal QA conference of each individual system participant - EMSP or trauma center.
7. Develop a corrective action plan. In general, action activities can be placed under the categories of professional resolution or administrative resolution.
8. Re-evaluate to document the results and effectiveness of the corrective action plan. This is commonly called "closing the loop."

Adequate documentation of these activities is essential. In trauma centers, a multi-disciplinary peer review process must occur. In trauma center QA Programs, both medical care and trauma center functions must be evaluated.

The RAC QA Committee has the goal of review of all regional trauma program activities for appropriateness, quality, and quantity of activities and to report such to all participants and ADPH/OEMS. That review is to include system administration/organization activities, to include prehospital care and hospital care review. The RAC QA Committee will document effectiveness of hospital and EMS QA evaluations through routine reports of these QA activities provided by each participating entity. The RAC QA Committee will perform a focused review of specific items as determined appropriate, but these reviews will include evaluation of both prehospital and hospital activities. Death audit review is mandatory. It is expected that most issues will be resolved by developing an action plan in conjunction with the various ATS entities. A re-evaluation for results is to be undertaken. If it is determined that a change in system configuration or standard function should occur, a recommendation will be sent to the RAC for evaluation and reported to the STHSAC and ADPH/OEMS.

RAC QA Committee Make Up

The Regional Medical Director and Chair of each RAC will determine and select the RAC QA membership to assure all stakeholders are represented. The Vice-Chair of the RAC is to be the Chair of the RAC QA Committee.

Regional Advisory Council

The RAC was established by the STHSAC for the purpose of operation of the Regional Trauma Plan and to fulfill the legislative and rules requirements of a statewide trauma system. This is done under the authority of the ADPH/OEMS with action plans developed and recommendations presented.

RAC appointments will occur in the following manner:

1. The RAC shall have a minimum of 11 members. The membership shall be appointed in the same manner as the STHSAC is appointed and shall be composed of representatives of the same groups.
2. Four representatives of hospitals, who shall be appointed by the Board of Trustees of the Alabama Hospital Association (AlaHA). Two of the appointees shall be from hospitals located in urban areas and two shall be from hospitals located in rural areas of the region. At least two of the appointees shall be from hospitals that are currently trauma centers in the system.
3. Four representatives who shall be licensed physicians appointed by the Medical Association of the State of Alabama (MASA).
4. One member of the board who shall be the Medical Director of the region or his/her designee.
5. One member who shall be a licensed EMSP from the region who shall be appointed by the State Health Officer.
6. The State Health Officer or his designee.
7. Additional members may be appointed pursuant to rules promulgated by the State Board of Health. The additional members to be appointed by the STHSAC are as follows:
 - A representative of each hospital in the region except for the four hospital representatives already appointed in number two above. This will be a total of 13 additional hospital representatives.
 - Thirteen representatives who shall be licensed physicians within the region.
 - Two representatives who shall be a licensed EMSP from the region. One shall be from a ground transport service and one from a helicopter transport service.
8. The chair and vice chair of the RAC shall be elected by the members to serve for four years.
9. All members of the RAC shall be appointed for a term of four years, except initial members shall be appointed to terms from one to four years and shall serve such staggered terms so that members appointed by AlaHA and MASA may be appointed subsequently each year. Vacancies shall be filled in the manner provided for the original appointments. Persons appointed to fill vacancies shall serve the unexpired portions of the terms.
10. The RAC shall meet at least twice a year, but may meet more frequently upon the call of the Chair. The RAC may meet by electronic means and shall establish rules of procedure for its meetings.
11. The RAC may appoint subcommittees and workgroups. Subcommittees shall consist of council members and workgroups may consist of non-council members.
12. All other governance requirements of the RAC shall be established by rule of the Board.

13. Members shall serve without compensation, but shall be entitled to reimbursement for expenses incurred in the performance of their duties at the same rates as state employees.
14. The members shall represent the demographic composition of the state to the extent possible.
15. The duties of the RAC are those assigned by this plan and by ADPH/OEMS rules, requests, or contracts.

V. System Operation

Communication

Maintenance of adequate and prompt communication is essential to the function of the ATS. In many instances trauma survival or maximum outcome potential can only be achieved with efficient and rapid movement of the patient through the system of prehospital assessment and treatment, transport, hospital resuscitation, evaluation, and definitive care.

Communication throughout the system is vital to this activity occurring in a most efficient and complete manner. Knowledge of system-wide prehospital trauma activities and the current (and possibly changing) status of the functional capabilities of the various hospitals in the system is important at all times as it is possible multiple trauma activities are occurring simultaneously. This function is essential for maximum mass casualty incident/disaster response. Communication allows differential system resource utilization when there are multiple trauma activities ongoing simultaneously and also allow maximum response preparation by receiving trauma centers. The key to system function is full knowledge of ongoing activities in all parts of the system at all times.

The ATCC will note the closest trauma center for the EMSP and the database. It is essential to establish radio communication as soon as possible in patients meeting system entry criteria to provide a baseline level of the patient's status. After determination that a patient meets system entry criteria, the highest level EMSP should contact the ATCC at the earliest practical time to enter the patient into the system. The reporting EMSP should identify himself/herself and provide the following information:

1. Basic patient data (number of victims, age, and sex).
2. Injury mechanism data.
3. Major anatomic injuries.
4. Current primary survey status (airway, breathing, circulation, level of consciousness, and vital signs).
5. Incident location.
6. Estimated scene departure time.
7. Proposed mode of transport (if ground, state transporting unit number).

If radio failure should occur, direct contact between the EMS unit and its dispatch should be established with relay of information to the ATCC by telephone.

Secondary Triage

Secondary triage involves a determination of the severity status once a decision has already been made that a patient is to be entered into the system (primary triage). Secondary triage is used in conjunction with estimated transport time and current trauma center activity status to determine trauma center destination. The ATCC coordinates the application of the approved secondary triage protocols utilizing the patient assessment and transport time estimated by the field EMSP combined with the current trauma center activity status as noted on the ERD to determine the trauma center destination. Secondary triage is based on physiologic status, mechanism of injury, anatomic criteria, the potential use of EMSP discretion, and evaluation of co-morbid factors. Secondary triage standards are:

A. Physiologic Entry Criteria

1. Physiologic entry criteria take precedence over other criteria, except Glasgow Coma Score (GCS), even if patients also meet mechanism and/or anatomic criteria.
2. Any patient entered into the system meeting physiologic criteria is to be transported to the closest available Level I trauma center if the transport time is under 60 minutes. If the Level I trauma center is yellow because of no trauma surgeon (backup surgeon green), the patient should still be taken there unless a closer Level II trauma center is within 20 minutes transport time. If the Level I trauma center is yellow due to neurosurgical services or commuted tomography (CT) is red, then transport the patient to the closest Level II trauma center or Level III trauma center enrolled in the stroke system with green neurosurgical services and CT.
3. Any patient who is entered under the altered central nervous system (CNS) status physiologic criteria with a GCS < 9 is to be transported to the closest available Level I trauma center if transport time < 60 minutes. If the patient is GCS > 9, then the patient is to be transported to a Level II or III. If transport time is > 60 minutes, then to the closest Level II or III.
4. In the following situations, the patient should be transported IMMEDIATELY to the closest hospital with full-time emergency physician coverage (trauma center preferably) as coordinated by the ATCC:
 - a. The EMSP is unable to effectively manage the airway or ventilate the unstable patient.
 - b. The EMSP is unable to stop the bleeding of a patient with severe external hemorrhage.
 - c. The EMSP is unable to establish/maintain an IV/IO to provide volume resuscitation in an unstable hypovolemic patient.

Hospital transfer to an adult or pediatric specialty center can proceed as soon as the patient is stable enough for transport (not necessarily full and complete resuscitation or evaluation/initial care). For expediency (time savings), data collection purposes, and

adherence to ATS standards, OEMS prefers that hospital transfers be coordinated by the ATCC.

B. Anatomic Entry Criteria - for stable patients (for unstable patients see Physiologic Entry Criteria above):

1. Flail Chest
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if > 60 minutes total transport time to Level I
2. Long bone fracture
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if > 60 minutes total transport time to Level I
3. Penetrating head injury (intracranial penetration thought present): Level I as long as patient remains stable
4. Combination of burn and trauma: closest available Level I
5. Amputation (amputated part recovered and not mangled)
 - a) Closest available Level I with Implant Service if <60 minutes transport
 - b) Closest available Level II or III if >60 minutes total transport time to Level I
6. Amputation (amputated part not recovered or is mangled)
 - a) Closest available Level I if < 60 minutes transport
 - b) Closest available Level II or III if > 60 minutes transport
7. Paralyzed limb(s)
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if > 60 minutes total transport time to Level I
8. Pelvic fracture
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if > 60 minutes total transport time to Level I

C. Mechanism of Injury Entry Criteria - for stable patients (for unstable patients see Physiologic Entry Criteria above):

1. Death in same passenger area
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if > 60 minutes total transport time to Level I
2. Ejection
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if >60 minutes total transport time to Level I

3. Motorcycle/bicycle: closest available Level I, II, or III
4. Auto versus pedestrian: closest available Level I, II, or III
5. Fall
 - a) Closest available Level I if < 60 minutes total transport time
 - b) Closest available Level II or III if > 60 minutes total transport time to Level I

D. EMSP Discretion

If a patient has been entered into the system and does not meet specific secondary triage criteria or the EMSP has a specific reason to upgrade the triage decision, the EMSP may do so and transport the patient to the closest available Level I, II, or III trauma center if there is less than 60 minutes transport time. The EMSP is to specifically note on the e-PCR the reason for utilization of this discretion process. The EMSP is to specifically inform the ATCC at the time the decision is made using EMSP discretion criteria.

1. Age 15 years or younger
 - a) Closest available Pediatric Level I trauma center if transport < 60 minutes
 - b) Closest available Level I, II, or III trauma center if > 60 minutes transport time to available Pediatric Center
2. Pregnancy
 - a) Closest available Level I trauma center if < 60 minutes total transport time
 - b) Closest available Level II trauma center or Level III trauma center if > 60 minutes total transport time to Level I
3. Age greater than 55, no change.
4. Environmental extremes, no change.
5. Previous medical disease history, no change.
6. Extrication time > 20 minutes, no change.
7. Motorcycle crash, no change.

Notes

1. Transport time is the time which the field EMSP estimates considering the mode of transport, weather, traffic, and other variables and incorporates the time from scene departure to trauma center arrival.
2. Transport mode (ground versus air) will be determined by the field EMSP. Medical Direction may wish to modify the transport mode.
3. Based on prehospital trauma activity, transport needs, and resource availability, the ATCC will assist in direction of patient destinations as well as ground and air transport between the on-site EMSP, trauma centers, and the helicopter service.
4. Should a trauma center destination be changed from the original destination chosen at the time of ATCC contact, a QA will be initiated. A quarterly report of all of these issues will be made to the RAC.

Hospital Destination

Hospital destination will be determined by secondary triage evaluation and the current activity status of hospitals in the system at the time the injury occurs. The hospital status is tracked by the ERD at the ATCC. That equipment is described in the component section and details the status of individual resources in the hospital and, therefore, the activity status of the hospital. Hospitals will usually be either at a green (available), yellow (conditional), or a red (unavailable) status.

Green status means the hospital has all service line resources available and may receive trauma patients based on location and secondary triage criteria at that time. Green status requirements involve the following:

1. All levels of trauma centers must have the following resources (which are on the ERD grid) active and available at that time as pertains to their trauma center level: emergency department (if Level I), anesthesia, operating room, X- ray, ICU, and orthopedic surgery (orthopedic surgery not required for Level III).
2. For Level I trauma centers, the neurosurgical services and CT must be actively available.
3. The primary call trauma surgeon must be actively available at that time for all trauma designation levels.
4. If a hospital has a secondary surgeon call schedule (backup surgeon), the lack of the primary trauma surgeon will only change the hospital to "yellow."

Yellow status can occur under certain circumstances. Yellow status means at that moment some service line resources are not available and patients should be triaged to that trauma center only under certain specific conditions. Criteria for yellow status include:

1. A Level I trauma center that does not have neurosurgical services or a CT available.

2. A trauma center with a secondary surgeon backup call schedule may be at yellow status if the primary trauma surgeon is unavailable, but the secondary backup surgeon is available. A trauma center that does not have a secondary backup surgeon call schedule cannot be at a yellow status based on trauma surgeon availability.

Red status indicates at least some primary trauma care service line resources in that hospital are not actively available and the hospital is not to receive trauma patients at that time. Red status criteria are:

1. If any of the following resources are unavailable: emergency department (ED-T if Level I), anesthesia, operating room, X-ray, ICU, and orthopedic surgery (Level I).
2. Trauma surgeon is unavailable and there is no secondary surgeon backup call schedule or secondary surgeon is also unavailable.
3. Patients with neurologic injuries will not be triaged to a Level I center with no neurosurgical services or a CT scanner actively available at that time (NS or CT red status).

Hospital Destination Notes

1. Hospital destination for patients entered into the system will be the closest appropriate available trauma receiving facility based on secondary triage and trauma center availability.
2. When a hospital is on yellow status for the trauma surgeon/secondary backup surgeon status, trauma patients are directed to that hospital only when equivalent facilities are unavailable or beyond the routine 60 minute transport time, or there are multiple casualties requiring care at that level.
3. A yellow status due to the unavailability of neurosurgical services, or a CT scanner at a Level I or II facility, means patients with neurologic trauma are to be transported to another facility.
4. No facility should receive more than one unstable patient at one time if there are other Level I trauma centers on green status within a reasonable transport time.
5. In the event a patient or family member requests transport to a specific facility that does not meet system guidelines, efforts will be made to clarify and encourage the advantage of using the ATS and a specific request to follow the established ATS plan will be made of the family. The patient's wishes will, however, ultimately prevail.
6. If an event occurs where there are multiple patients meeting ATS entry criteria, the patient who is most critically injured (yet potentially salvageable) should go to the nearest appropriate green trauma center based on secondary triage criteria. The other patients should go to appropriate green and yellow trauma centers as coordinated through the ATCC.
7. In the following situations, the patient should be transported IMMEDIATELY to the closest hospital with full time emergency physician coverage (trauma center preferably) as coordinated by the ATCC.
 - a) The EMSP is unable to effectively manage the airway or ventilate the unstable patient.
 - b) The EMSP is unable to stop the bleeding of a patient with severe hemorrhage.
 - c) The EMSP is unable to establish/maintain an IV/IO to provide volume resuscitation in an unstable hypovolemic patient.

Final destination will be routed by the ATCC:

1. In a situation where ATCC notification has occurred and no medical direction is needed, the ATCC will notify the receiving trauma center of the patient transport and provide information of condition, mechanism of injury, estimated arrival time, etc.
2. If the patient meets physiologic criteria and the appropriate level trauma center determined by protocol based destination is not available, the patient should be transported to nearest currently active (green) trauma center.
3. If the patient is stable and the trauma center is not available, according to the secondary triage destination protocol, the patient may be taken to the nearest actively available (green) trauma center.
4. If, in the attending trauma surgeon's judgment, a Level I trauma center is nearing capacity, the surgeon may place the Level I trauma center on trauma system overload (TSO). The Level I trauma center will appear yellow on the trauma center resource screen. The Level I trauma center will remain available for trauma patients entered into the system under physiologic criteria, but patients entered under any other criteria will be routed as if the Level I trauma center is unavailable. Patients routed in this manner will be reported to the RAC and to ADPH/OEMS.

Prehospital System Activities

Prehospital care will be carried out following the guidelines of the Regional Medical Control Plan. The state prehospital care protocols will be used for primary guidance in prehospital trauma management. Patients entered into the ATS will receive their medical direction from the receiving trauma center, which will be immediately accessible through the communications link between the ATCC and that destination hospital as required by regional secondary triage protocols and the activity status of the hospitals in the system at that time. Any significant patient condition changes are to be communicated directly to the ATCC and the receiving trauma center as those changes may result in updating the orders and altering the destination Trauma Center Team activation.

Field time should be kept to a relative minimum, as trauma patients may be in a state of temporary compensated physiologic response at which time they appear stable, but may rapidly advance into an uncompensated and unstable status at any time resulting in a significant threat to life. Frequently trauma resuscitation maneuvers can only be carried out in a hospital emergency department or in an operating room. Therefore, "free field time" (time following extrication during which the EMSP are free to either stay in the field to perform additional evaluations and management procedures, or they are free to initiate transport to the destination trauma center) should be kept to a minimum. Initiation of transport should occur within 10 minutes following extrication completion in cases of major trauma.

Hospital System Activities

Hospital trauma management is an essential part of any trauma system. This phase of trauma care requires adequate resources (equipment and facilities) and personnel with adequate

training and commitment to carry out rapid initial assessment, stabilization, and definitive care including surgery, critical care, and recuperative care as necessary. In addition, rehabilitation services must be initiated as appropriate. Resources necessary to provide care are documented through the trauma center standards, while patient care management protocols as described in the ATLS course are considered the standard of care for emergency department resuscitation.

System Compliance, Evaluation, and Action

The ATS is designed to provide specialized care to patients with actual or a significant probability of serious or critical injury. The system is based on hospital requirements to participate as a trauma center and follow system function protocols. Compliance with the requirements and protocols is essential for proper trauma patient management. Therefore, a specific program for monitoring compliance with requirements and with function protocols will be a part of the ATS. This program will be a function of the RAC.

Reports regarding compliance issues will be made to the ADPH/OEMS. Maintenance of compliance with requirements, standards, and system function protocol activities for individual personnel and agencies involved in the ATS means:

A. Maintaining Component and Organization Standards

1. Prehospital Component: prehospital entities have the responsibility to assure their individual EMSP have a basic knowledge and awareness of the ATS including entry criteria and basic operations.
2. Hospital Component
 - a) Continue to meet all trauma center resource requirements for its trauma center designation level, inclusive of trauma registry requirements.
 - b) Maintain a designated general/trauma surgeon as the trauma program leader with written responsibilities as indicated in the Regional Trauma Plan.
3. Communications Component: each entity is responsible for maintaining communications equipment used in the ATS in proper working order.
4. Data/QA Component
 - a) Each entity is responsible for maintaining and providing data to the ATS as indicated in the Regional Trauma Plan. For prehospital EMS services, this means providing data to the ATCC which is then placed in the ATS database. For hospitals, this means maintaining and providing the hospital based information in the Trauma Registry dataset.
 - b) Participating entities need to maintain their individual Trauma QA Programs as specified in the Regional Trauma Plan. They are to provide reports of these activities to the RAC on a timely basis as required.
 - c) Active continuing participation in the Regional Trauma QA Program is expected.

Individual entities are to support the regional focused review of individual topics by providing data and participating in the evaluation process. Information (dataset, trauma death audit, etc.) is to be provided as required in a timely manner to ADPH/OEMS through the trauma center's trauma registry involvement.

- d) Personnel from prehospital and hospital organizations are to participate in RAC activities as required by membership. It is expected there will be 75 percent attendance of meetings by members.

B. Maintaining System Function

1. System entry criteria, as specifically defined in the plan by ADPH/OEMS, or active protocols, are to be used by EMSP to determine patient entry into the ATS.
2. Communication, as outlined in the plan and currently approved ADPH/OEMS protocols, is to be initiated and maintained by EMS units. This involves providing information, participating in the use of system operations protocols, and following ATCC direction of prehospital trauma care activities (including patient entry into the system). Determination of trauma center destination will be done in conjunction with medical direction orders for provision of care using the ADPH/OEMS Medical Direction Accountability Committee approved prehospital care protocols.
3. System operations are provided by individual entities outlined in the Regional Trauma Plan including currently approved ADPH/OEMS protocols. This includes the use of secondary triage protocols to determine trauma center destination, accurate maintenance of trauma care resource status by trauma centers participating in the ATS, and adherence to other system prehospital and trauma center activity protocols.

Failure of compliance with contract performance criteria or requirements, standards, or adherence to system function protocols as stated in the most current version of the written Regional Trauma Plan will result in specific actions to be taken by the RAC. Questions of compliance will be generated by system oversight review by the RAC. Issues regarding a question of compliance, when brought to the attention of RAC may be directed to the ADPH/OEMS for evaluation. The RAC will evaluate questions of compliance and, if a compliance infraction has occurred, a report will be forwarded to the ADPH/OEMS.

The prehospital component requirements, standards, and system function protocols are part of the Regional Medical Control Plan and deviation from that plan may result in the following actions by the ADPH/OEMS.

1. First breach of activity standards will result in a call and letter of explanation to the prehospital service indicating there has been a breach of activity standards with an explanation of the situation and an indication of the need for corrective action to be taken. There will be a one-month time period for implementation of the corrective action.

2. The second breach of the same activity (or failure to respond to the first breach) will result in another letter to the prehospital service with a copy to ADPH/OEMS indicating that a second breach has occurred and again allowing a one-month period for corrective action.
3. A third breach of the same activity will result in investigation and action by the OEMS. The OEMS will send a report of findings and action to the RAC.

Hospital participation in the system is governed by the contract between ADPH/OEMS and each hospital. Deviations from requirements, standards or system function protocols governed by the contract may result in the following actions by the OEMS upon the advice of the RAC:

1. The first breach of an activity standard will result in a call and/or letter of explanation indicating there has been a breach of an activity standard with an explanation and an indication that there is a need for corrective action. A one-month period for corrective action implementation will be allowed.
2. If a second breach of the same activity occurs a letter to the responsible entity indicating that a second breach has occurred with a warning that a third breach in that activity standard will result in suspension from the ATS for a 30-day period of time. A one-month period for corrective action implementation will occur.
3. A third breach of the same activity will result in contract failure and suspension of that facility from the ATS for a period of 30 days as by decision of the RAC with the suspension time doubled for subsequent deviations of the same standard.

It will be the duty of the ADPH/OEMS to carry out these predetermined actions in cases of violation of requirements, standards, or failure of adherence to system function protocols.

APPENDIX A: ATS Trauma Center Designation Criteria

Please see the ADPH/OEMS website at <http://adph.org/ats/Default.asp?id=3598>

APPENDIX B: Trauma QA Dataset

1. Identification number: provided by the ATCC upon initial contact by prehospital provider. The same number would follow the patient through the system.
2. Location of the incident (city, county)
3. Prehospital unit(s) responding
4. Times
 - a. Prehospital
 - 1) Incident
 - 2) Unit dispatch
 - 3) Unit scene arrived
 - 4) Extrication ended (if applicable)
 - 5) Unit scene departure
 - 6) Unit hospital arrival
 - b. Communication
 - 1) Initial contact with ATCC
 - 2) ATCC contact/link to receiving trauma center
 - 3) Additional contacts to ATCC by EMSP
5. Receiving hospital
6. System entry data:
 - a. Primary entry triage criteria
 - b. Secondary entry criteria, if present co-morbid criteria
 - c. EMSP discretion
 - d. Patient age
 - e. Patient sex
 - f. GCS
 - g. Scene vital signs
7. Prehospital outcome:
 - a. Loss of vital signs and time
 - 1) Lived
 - 2) Expired (time)
8. Hospital readiness:
 - a. Hospital trauma score
 - b. Physician arrival time in E.D.
 - 1) ED attending
 - 2) General/trauma surgeon
 - 3) Neurosurgeon
 - 4) Orthopedist

5) Other: state _____

9. Procedures done within the first 24 hours (includes all procedures performed by initial receiving trauma center or receiving hospital if patient is transferred)

10. Disposition

a. Emergency department disposition

1) Disposition time - patient goes to initial hospital care location (not just leaves ED - i.e. to CT)

2) Disposition location

a) Discharged

b) Admitted - ICU, OR, Ward

c) Transferred

i. Equal level trauma center

ii. Lower level trauma center

iii. Reason _____

3) Expired

b. Final hospital disposition/date/location

1) Home

2) To rehabilitation center

3) To another acute care facility

4) To extended care facility

5) Expired

APPENDIX C: Continuous Quality Assurance

- A. Quality assurance is a vital part of the ATS. It is used to document continuing proper function of the system and evaluation of that function to implement improvements in system function and trauma patient management. In an emergency, patients have virtually no time to make specific choices regarding acute and critical medical care and, therefore, the system itself has a moral responsibility to provide evaluation functions to assure that the highest level of care is being provided and that improvements are implemented whenever possible in a timely manner. All QA activities are to be provided in compliance with and under the auspices of the ACPH/OEMS.

- B. The program is system-wide. There is to be individual agency efforts on the part of all participating agencies. Every participating trauma center will be represented on the RAC QA Committee and continuing participation of all the various entities involved in trauma care is mandatory.

- C. The appropriateness, quality, and quantity of all activities of the system must be continuously evaluated.
 - 1. Medical care
 - 2. Prehospital care
 - 3. System function (dispatch activities, scene time, triage process and destination, response level, etc.)

- D. Prehospital Inter-Hospital Care
 - 1. Items evaluated:
 - a. Patient assessment
 - b. Protocol adherence (when applicable)
 - c. Procedures initiated/completed
 - d. On-scene time
 - e. Medical control interaction
 - f. Transport mode (ground/air)
 - g. Resource availability/needs match
 - h. Arrival report
 - i. Record/documentation
 - j. Inter-facility care/transport

 - 2. Process - primarily performed by EMS organizations
 - a. Each organization assigns QA person to oversee process
 - b. Standards established - regional/authorized
 - c. Determine audit filters
 - d. Collect data
 - e. Evaluate data
 - f. Determine QA issues present

- g. Develop corrective action plan
 - 1) Professional resolution
 - 2) Administrative resolution
 - h. Re-evaluation to document results/effectiveness of corrective action plan
- E. Trauma Care QA inclusive of participation in the statewide trauma registry
1. Medical care
 - a. Complications
 - b. Deaths
 - c. Outcome review
 - 1) Internal review
 - 2) External comparison
 - d. Process for medical care QA (performed by each institution)
 - 1) Establish written care standards
 - 2) Collect data
 - a) Trauma data elements
 - b) Complications or events lists
 - 3) Data QA evaluation
 - a) Establish audit filters (indicators)
 - b) Determine presence of potential QA issues
 - c) Primary review (permissible)
 - d) Multi-disciplinary peer review of QA issue
 - 4) Corrective action
 - a) Professional resolution
 - b) Administrative resolution
 - 5) Re-assess for effectiveness of corrective action
 - 6) Documentation essential utilizing QA tracking flow sheet
 2. Trauma Center Function
 - a. Trauma center operations via audit filter review
 - 1) Continuous
 - 2) Intermittent
 - 3) Focused audit filter review
 - b. Specific event evaluation when event problem noted by trauma team member
 - c. Medical nursing audit
 - d. Utilization review
 - e. Tissue review
 - f. Divert utilization review
 - g. Process same as for Medical Care Review with the addition of some form or method for noting events that occur that need evaluation in order to improve trauma center functions.

F. Regional System Function

1. Primarily performed by Regional EMS staff QA individual
2. Evaluation of overall regional system function
3. Process
 - a. Establish standard
 - b. Collect data
 - c. Evaluate data - determine audit filters
 - d. Devise plan of corrective action for QA issues
 - e. Re-evaluate to determine effectiveness of corrective action
 - f. Participation on RAC Trauma QA Committee

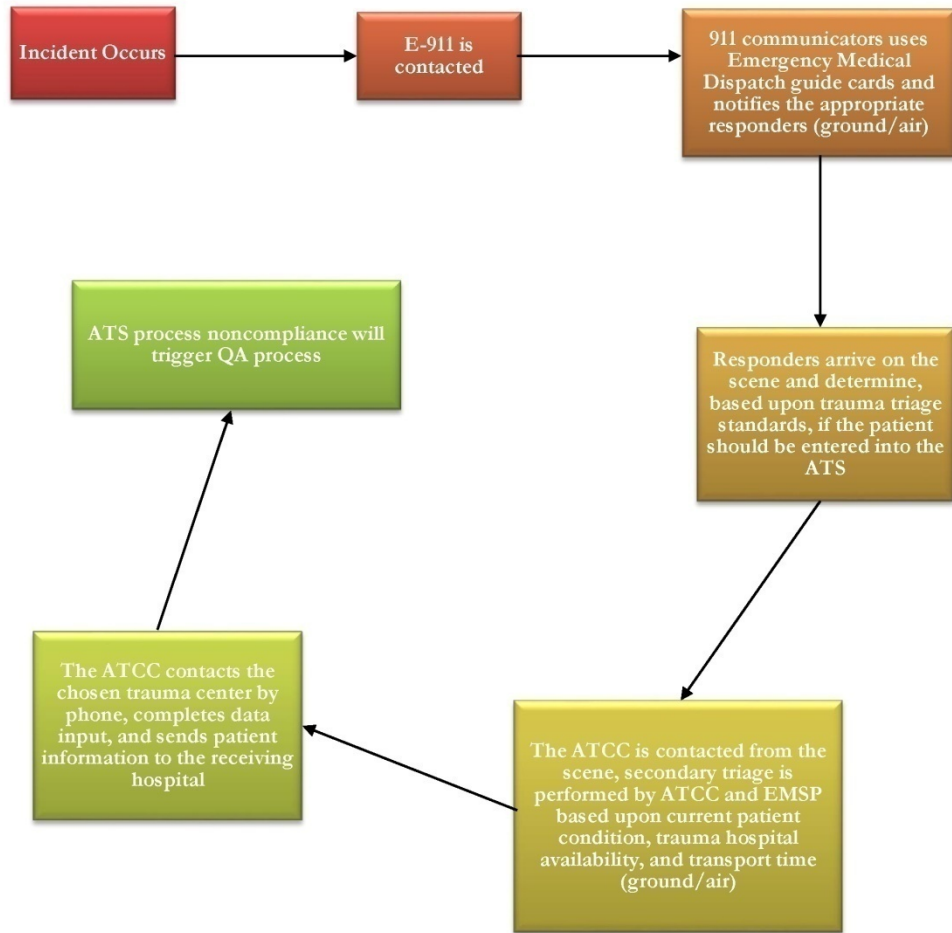
G. RAC QA Committee (staffed by BREMSS)

1. Goals - review entire Regional Trauma Program
 - a. System administration/organization/activities
 - b. Prehospital care
 - c. Hospital care
2. Members

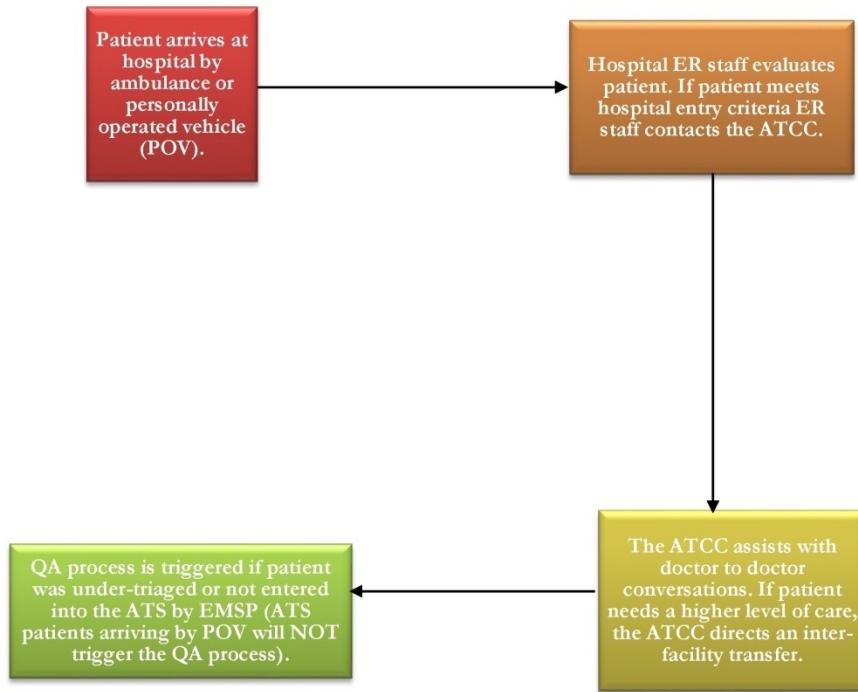
The Regional Medical Director and Chair of each RAC will determine and select the RAC QA membership to assure all stakeholders are represented. The Vice-Chair of the RAC is to be the Chair of the RAC QA Committee.
3. Process
 - a. Brief report of QA activities from each participating county/EMS organization and hospital
 - b. General system information
 - c. Focused review of items of major concern/impact including selected cases
 - d. Develop consensus of issues that represent QA concerns
 - e. Develop action plan
 - f. Have re-evaluation process to determine effectiveness of action plan results
 - g. Complete documentation of all activities including any recommendations for change or action to the RAC and the ADPH/OEMS.
4. Trauma Center Medical Care Review Workgroup
 - a. Members
 - 1) Trauma Director from each participating trauma center
 - 2) Emergency Department Medical Director from each active trauma center
 - 3) Regional EMS Medical Director
 - 4) Coroner/Medical Examiner
 - 5) Trauma Coordinator from Level I trauma center as recorder
 - 6) The chairman of this workgroup will be the Vice-Chairman of the RAC.
 - b. Activities are to review the trauma medical care issues including specific death audit review and major complications review as determined by the workgroup chairman.

- Other QA issues will be reviewed as deemed appropriate.
- c. The process used will be the same process as outlined in the QA Section of the Regional Trauma Plan.
 - d. Reports of a summary nature will be made to the RAC QA Committee. Individual physician medical care issues will initially only be reported to the trauma director of the facility providing care in that situation and be made by personal communication. In general, discussions at the trauma center Medical Care Review Workgroup meeting will fulfill this notification requirement. If a persistent individual problem trend occurs, this situation will be referred to the appropriate hospital QA Committee.
 - e. All members are expected to attend at least 75 percent of the Regional QA Committee meetings and the Trauma Center Medical Care Review Workgroup meetings.

Appendix D: ATS Pre-hospital Patient Entry Flowchart



Appendix E: ATS Hospital Patient Entry Flowchart



Appendix F: System Entry Criteria (Protocol 1.16)

POLICIES	REVISION A OCTOBER 2013
Trauma System (continued)	1.16

GUIDELINE (continued)
<p>ENTERING A PATIENT INTO THE ALABAMA TRAUMA SYSTEM (continued)</p> <p>For helicopter EMS (HEMS) it is preferable to request a preliminary receiving facility from ATCC prior to arrival on the scene and then later enter the patient into the ATCC as soon as is logistically possible. After assessing a trauma situation and making the determination that the patient should be entered into the Alabama Trauma System, the EMSP licensed at the highest level should contact the ATCC at the earliest practical time before the receiving facility is selected and provide the following information. The highest level EMSP on the scene may delegate the call to ATCC to a lower level EMSP if patient care duties require the higher level EMSP's attention:</p> <ol style="list-style-type: none">1) EMSP service2) Location of Trauma Scene3) Age and Sex of the patient(s)4) Reason for Entry and Mechanism of Injury5) Patient assessment<ol style="list-style-type: none">a) Airway Statusb) Vital signs and GCSc) Areas of Injuryd) Environmental issues or co-morbid factors6) Transportation type7) Transportation timing <p>ATCC will provide a unique identification number that must be entered into the e-PCR.</p> <p>Notify the ATCC of any change in the patient's condition. The receiving trauma center or ATCC should be updated by the transporting unit 5-10 minutes out. This update should only consist of any patient changes and patient's current condition. A repeat of information used to enter the patient into the Alabama Trauma System is not necessary since this information will be relayed by the ATCC to the receiving trauma center.</p> <p>After the patient is delivered to the trauma center, the transporting provider should call the ATCC with the Patient Care Report times.</p>

PURPOSE

To provide patient entry criteria and system guidance for the Alabama Trauma System.

GUIDELINE**ALABAMA TRAUMA SYSTEM ENTRY CRITERIA****Physiological criteria:**

1. A systolic BP < 90 mm/Hg in an adult **or child 6 years or older < 80 mm/ Hg in a child five or younger.**
2. Respiratory distress - rate < 10 or >29 in adults, **or < 20 or > 60 in a newborn. < 20 or > 40 in a child three years or younger. < 12 or > 29 in a child four years or older.**
3. Head trauma with Glasgow Coma Scale score of 13 or less **or head trauma with any neurologic changes in a child five years or younger.**

Anatomical Criteria:

1. The patient has a flail chest.
2. The patient has two or more obvious proximal long bone fractures (humerus, femur).
3. The patient has a penetrating injury of the head, neck, torso, or groin, associated with an energy transfer.
4. The patient has in the same body area a combination of trauma and burns (partial and full thickness) of fifteen percent or greater.
5. See Burns Protocol (3.08) for criteria to enter a burned patient into the trauma system.
6. The patient has an amputation proximal to the wrist or ankle.
7. The patient has one or more limbs which are paralyzed.
8. The patient has a pelvic fracture, as evidenced by a positive “pelvic movement” exam.

Mechanism of the patient injury:

1. A patient with the same method of restraint and in the same seating area as a dead victim.
2. Ejection of the patient from an enclosed vehicle.
3. Motorcycle/bicycle/ATV crash with the patient being thrown at least ten feet from the motorcycle/bicycle.
4. Auto versus pedestrian with significant impact with the patient thrown, or run over by a vehicle.
5. An unbroken fall of twenty feet or more onto a hard surface. **Unbroken fall of 10 feet or 3 times the height of the child onto a hard surface.**

GUIDELINE

ALABAMA TRAUMA SYSTEM ENTRY CRITERIA**EMSP Discretion:**

1. If the EMSP is convinced that the patient could have a severe injury which is not yet obvious, the patient should be entered into the Alabama Trauma System.
2. The EMT's suspicion of severity of trauma/injury may be raised by the following factors:
 - a. Age > 55
 - b. **Age < five**
 - c. Environment (hot/cold)
 - d. Patient's previous medical history
 - e. Insulin dependent diabetes or other metabolic disorder
 - f. Bleeding disorder or currently taking anticoagulant medication (coumadin, heparin)
 - g. COPD/Emphysema
 - h. Renal failure on dialysis
 - i. Pregnancy
 - j. **Child with congenital disorder**
 - k. Extrication time > 20 minutes with heavy tools utilized
 - l. Motorcycle crash
 - m. Head trauma with history of more than momentary loss of consciousness.

ENTERING A PATIENT INTO THE ALABAMA TRAUMA SYSTEM

1. **Regions that are not yet operating under the Alabama Trauma System**
Patients should be transported to a hospital with a trauma response program if such is available in the region, per the region's Medical Control and Accountability Plan.
2. **Regions that are currently operating under the Alabama Trauma System should call the Alabama Trauma Communications Center (ATCC) to determine patient destination:**

ATCC contact numbers:

Toll-Free Emergency: 1-800-359-0123, or

Southern LINC EMS Fleet 55: Talkgroup 10/Private 55*380, or Nextel: 154*132431*4

The initial unit on-scene should enter the patient into the Alabama Trauma System but if they have not done so, it becomes the responsibility of the transporting service (ground or air) before the receiving facility is selected.

Appendix G: Hospital Entry Criteria

ALABAMA TRAUMA SYSTEM

Hospital Entry

ATCC (Alabama Trauma Communications Center)

Phone #: 1.800.359.0123 NEXTEL #: 154*132431*4
Southern LINC #: Fleet 55 Talk group 10 or Private 55*380

ENTRY CRITERIA FOR HOSPITALS

Physiological

Systolic B/P: ADULT < 90mm (no radial pulse)

CHILD Age 6 or less <80mm (no radial pulse)

Resp. Distress:

Adult: < 10 or > 29

Newborn: < 20 or > 60

Child (3 or younger): < 20 or > 40

Child (4 or older): < 12 or > 29

HEAD TRAUMA: GCSS < 13

Any neurological changes in child 5 or less

ANATOMICAL

*Flail Chest

*2 or more proximal long bone fractures

*Penetrating injury (high energy)
Head – Neck – Torso – Groin

*Combined trauma/burn > 15% or Burn Center Criteria

*Amputation
Proximal to wrist or ankle

*Paralyzed limb(s)

*Pelvic Fx / unstable pelvis demonstrated by x-ray

***Significant internal injuries found & hospital does not have needed resources.**

BURN CRITERIA

*Partial thickness burn of < 10% of total body surface area.

*Burns that involve face, hands, feet, genitalia, perineum or major joints.

*3rd degree burns in any age group.

*Electrical burns, including lightning injury.

*Chemical burns

*Inhalation injury

*Burn injuries in patients w/pre-existing medical disorders that could complicate management, prolong recovery or affect mortality.

*Any patient w/burns & concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient's condition may be stabilized initially in a trauma center before transfer to a burn center.

*Burned children in hospitals w/o qualified personnel or equipment for the care of children.

*Burn injury in patients who will require special social, emotional or rehabilitative intervention.

NOTES

*If the patient does not meet physiologic criteria, then a Doctor to Doctor conversation must occur.

*Mechanism of Injury is not a reason for hospital entry of a trauma patient.

*ATCC will only assist in transfer of ATS patients.

ALABAMA TRAUMA SYSTEM

Hospital Entry

ATCC (Alabama Trauma Communications Center)

Phone #: 1.800.359.0123 NEXTEL #: 154*132431*4
Southern LINC #: Fleet 55 Talk group 10 or Private 55*380

PROCEDURE: System Entry (CALL ATCC EARLY)

HOSPITAL ROLE

A – IDENTIFY

- You / Your organization
- Location of Trauma Scene
- Age & Sex of the patient(s)
- Reason for entry & MOI
- How did patient arrive at the hospital

B – Assessment

- A – Airway: is it clear, non patent, intubated
- B – RR Rate, Pulse Ox. Reading, symmetry
- C – Peripheral Pulses present or not? Pulse Rate
- D – GCSS (ATCC will score if needed) / Area(s) of Injury - why do you want to put the patient in the trauma system
- E – Any Environmental Issues – age, sex, co-morbids

C – Decisions

- Chose closest appropriate Trauma Center & request availability
- Chose Transportation type (air/ground)
- Estimate Time of transport
- Request patient ATCC ID #

TRANSPORT DECISION NOTES

- Transferring Doctor selects transport mode – air or ground
- Consult with ATCC, if transport assistance needed

ATCC ROLE

A – Listen to Caller

- Record the information
- Place the patient in ATS if entry criteria is met.

B – Record

- Request & record needed information for ATS & receiving hospitals
- Provide an ATCC # to the hospital.

C – Contact

- Contact the chosen available trauma hospital & provide the info.
- Link the Transferring & receiving doctors if patient is stable.
- Link the transferring and receiving Doctors upon request of either party as requested (stable or unstable).

D – Transport

- Assist transferring hospital w/locating transport agency, if requested.
- Monitor transport agency transport times & update receiving hospital