Medical Direction & Accountability Plan

for

Alabama EMS Region Two

June 2010

East Alabama Emergency Medical Services, Inc.

Medical Direction and Accountability Plan

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I. INTRODUCTION

Under the authority of the State Committee of Public Health and the Alabama Department of Public Health, the Office of EMS and Trauma (OEMS&T) has defined six emergency medical services (EMS) regions to assure excellence and efficiency in the delivery of emergency care throughout the state. Each region is contracted to coordinate EMS activities and support state EMS and trauma initiatives. The EMS region serves as facilitator, communicator, data collector, and coordinator for and between the OEMS&T and to all EMS System components. The EMS System components include, but are not limited to EMS agencies, EMS personnel, hospitals, Emergency Management Agencies (EMA), 9-1-1, and Public Safety Answering Point agencies (PSAP). Each EMS region has the responsibility to provide a Medical Direction and Accountability Plan (MDAP) for each component of the EMS System. The regional EMS organization for the ten counties of East Alabama is Alabama EMS Region 2, East Alabama EMS, Inc. (EAEMS).

II. PURPOSE & SCOPE

The purpose of the MDAP is to provide a single document that can be used as a resource identification and documentation tool. The scope of the MDAP is deliberately broad and is intended to include the activities and capabilities of all organizations, government agencies, and businesses that may have a role in anticipating or responding to emergency care events, major threats to health and safety (natural or man-made), or any other significant hazards which may present themselves in the region.

The mission of the regional agencies and the MDAP is to ensure the highest level of emergency medical care is provided to the citizens of Alabama through an enhanced EMS system. The system components include, but are not limited to trauma, stroke, and cardiac through the utilization of a statewide centralized communications center.

Key goals of the MDAP include:

- Facilitating educational needs identified for the improvement of patient care.
- Identifying the medical direction capabilities of all hospitals within the region.
- Establish mechanisms for reporting and validating the quality of care issues between EMS agencies, EMS System components, and the OEMS&T.
- Facilitating the signing of memorandums of understanding (MOUs) between the OEMS&T and the medical direction hospitals (MDH) within each region.
- Establishing a Medical Direction and Accountability committee (MDAC) to provide a forum to share ideas and express concerns.
- Providing guidelines for mediating issues involving EMS system and its components.
- Creating and maintaining a Regional Resource Guide (RRG).
- Providing MDAP revisions and MDAC reports to the OEMS&T.

The MDAP and MDAC are not regulatory in nature, nor do they create a regulatory authority. Elements of the MDAP should not be considered rules or regulations.

III. REGION TWO OPERATIONAL STRUCTURE

A. Regional Authority

Alabama EMS Region Two (EAEMS) has a contractual obligation with the ADPH to coordinate EMS activities in Region Two. Regional personnel answer directly to ADPH officials in matters regarding Region Two activities. As required by the ADPH contract, Region Two shall schedule and coordinate quarterly meetings with representatives from the Alabama EMS staff, each of the region's medical direction hospitals, and EMS provider services in the region to discuss medical direction and other relevant issues.

EMS Region Two is composed of 10 counties, as defined by ADPH:

- Calhoun
- Chambers
- Cherokee
- Clay
- Cleburne
- Coosa
- Etowah
- Randolph
- Talladega
- Tallapoosa

B. Regional Office

The Alabama Region Two office is located at 58 Speedway Industrial Drive in Lincoln, Alabama. The main phone number is 205.763.8400, and the e-mail address is eaems@centurytel.net. Official office hours are 8 a.m.-5 p.m. Monday through Friday.

EAEMS's mailing address is:

P.O. Box 700
Lincoln, AL 35096

C. Regional Medical Director

The regional agency shall nominate a regional Medical Director and the OEMS&T shall approve the nominee. The Medical Director is a medical control physician (MCP) and also serves as an off-line source of medical information. See Appendix B-9.

D. Medical Direction

Medical direction must be provided by a medical direction hospital or the service's designated Medical Director if he/she has a current Medical Control Physician Identification (MCPI) number.

D1. Hospital Designations

Medical direction hospitals are defined as those hospitals that provide online medical direction by physicians with current medical control physician certification and MCPI numbers. Medical direction hospitals have full-time licensed emergency physician coverage with medical direction physicians possessing a current MCPI number in the emergency department, 24 hours per day, 7 days per week. Hospital designations will be recognized through voluntary MOU documents established between the hospitals and the ADPH. Hospitals that do not provide On Line Medical Direction are referred to as non-medical direction hospitals. All medical direction for patients transported to non-medical direction hospitals must come from a medical direction hospital or from the service's designated medical director if he/she has a current MCPI number. See Appendix B-8-A for hospital designations and facility information.

D2. Memorandums of Understanding

Success of the MDAP depends upon effective cooperation, organization, coordination and planning among hospitals, EMS agencies and the OEMS&T. Therefore, medical direction hospitals within each region agree to sign a MOU establishing medical direction designation with the OEMS&T. Region Two will assist the OEMS&T in obtaining MOUs from hospitals within the East Alabama region.

D3. Licensed Services

All licensed services have an offline medical director who is approved by ADPH OEMS&T. This offline medical director is responsible for all patient care provided

under the approved protocols. Drugs and Procedures (Category A & B) are signed by the ordering or receiving medical direction physician or by the service's designated off-line medical director. Medical direction is obtained from the receiving hospital if that hospital is a medical direction hospital or from the service's designated medical director if he/she has a current MCPI number. A medical direction hospital or the service's designated medical director (if he/she has a current MCPI number) may be contacted if the receiving hospital is a non-medical direction hospital. See Appendix B-8-B for Region 2 Licensed Services and Appendix B-8-E for Region 2 Offline Medical Directors.

D4. Medical Accountability

The OEMS&T is responsible for all EMS issues related to medical accountability in Region Two and throughout the state. Unless otherwise specified in the State's EMS System components, all complaints or patient care issues are handled in accordance with the policies established by the OEMS&T.

E. Medical Direction and Accountability Committee (MDAC)

Region Two will establish a regional medical direction and accountability committee made up of EMS System components to be chaired by the region's medical director. The committee will hold meetings at least once a year (normally in the second quarter) providing a forum to express concerns and share ideas.

The committee should encompass a broad representation of the region's EMS system component participants. Membership of this committee should consist of a representative from:

The Regional Medical Director (chairperson).

- The On Line Medical Director or their designee of each hospital providing medical direction.
- The off-line medical director of each licensed EMS provider service.
- Each licensed EMS provider service.
- Each county EMA office.
- Each 9-1-1 agency.

- Each PSAP.

The MDAC is not a regulatory committee. Its purpose is to provide access to the regional medical director and to provide a forum for discussions on how to improve emergency medical care throughout Region Two. See Appendix B-8-H for MDAC membership.

F. Quality Assessment/Quality Improvement

All hospitals and EMS agencies in the region should have QA/QI processes in place to ensure that they are delivering quality emergency care. The state's EMS System components also have QA processes embedded in them.

G. Alabama EMS System Components (Triage Agreements)

Alabama EMS System Components plans establish responses to unique emergency situations. Region Two will support all state EMS system component plans in accordance with the ADPH OEMS&T contract, which currently include:

- Alabama Trauma System – see Appendix B-4
- Air Medical Plan – see Appendix B-5
- STEMI (Cardiac) – see Appendix B-6
- STROKE – see Appendix B-7

IV. MEDICAL DIRECTION AND ACCOUNTABILITY PLAN UPDATES

Region Two will review and modify the Regional Resource Guide (RRG) as needed and report modifications to the ADPH OEMS&T. The ADPH OEMS&T must approve all MDAP revisions. The OEMS&T Director will sign the revised document. The entire document will be updated and redistributed, with a revision letter summarizing the changes. The release date should be indicated on each page of the MDAP. Region Two will archive all versions of the MDAP in its Lincoln office.

V. REGIONAL RESOURCE GUIDE (RRG)

EAEMS Region 2 Resource Guide can be found in Appendix B-8.

It provides a look at the region's resources such as:

- Hospital designations, facility information, and ER personnel information
- Licensed and Unlicensed Services contact information
- Regional 911 contact information
- Regional EMA contact information
- Regional Offline Medical Director contact information

The RRG shall be updated and reported to the OEMS&T quarterly.

APPENDICES

Appendix A: Acronyms

Appendix B: Reference Documents

Appendix B-1 ADPH EMS RULES

Appendix B-2 ADPH / OEMS&T Patient Care Protocols

Appendix B-3 ADPH EMS REGION 2 CONTRACT

Appendix B-4 EAEMS Regional Trauma System Plan

Appendix B-5 EAEMS Regional HEMS Plan

Appendix B-6 EAEMS Regional STEMI Plan

Appendix B-7 EAEMS Regional STROKE Plan

Appendix B-8 REGIONAL RESOURCE GUIDE

Appendix B-8-A EAEMS Region 2 Hospitals

Appendix B-8-B EAEMS Region 2 Licensed Services

Appendix B-8-C EAEMS Region 2 911 Contacts

Appendix B-8-D EAEMS Region 2 EMA Contacts

Appendix B-8-E EAEMS Region 2 Offline Medical Directors

Appendix B-8-F EAEMS Region 2 Hospital ER personnel

Appendix B-8-G EAEMS Region 2 Unlicensed Services

Appendix B-8-H EAEMS Region 2 MDAC Members

Appendix B-8-I EAEMS Agency Fact Sheet

Appendix B-9 EAEMS Region 2 Medical Director Resume

APPENDIX A: Acronyms

ACLS…….Advanced Cardiac Life Support
ATLS……. Advanced Trauma Life Support
ADPH……. Alabama Department of Public Health
AERO……. Alabama EMS Region One
BREMSS……Birmingham Regional EMS
BLS……Basic Life Support
EAEMS…….. East Alabama EMS
WAEMSS…..West Alabama EMS System
GEMSS……..Gulf Regional EMS System
MDP……Medical Direction Physician
MDH…….. Medical Direction Hospital
MDAP……Medical Direction and Accountability Plan
OEMS&T….. Office of Emergency Medical Services and Trauma
RRG……Regional Resource Guide
EMS……Emergency Medical Services
EMA……. Emergency Management Agency
MCPI Medical Control Physician ID
PSAP……. Public Safety Answering Point Agencies
SEAEMS……Southeast Alabama EMS System

APPENDIX B: Reference Documents

Appendix B-1 ADPH EMS RULES

Appendix B-2 ADPH / OEMS&T Patient Care Protocols

Appendix B-3 ADPH EMS REGION 2 CONTRACT

Appendix B-4 EAEMS Regional Trauma System Plan

Appendix B-5 EAEMS Regional HEMS Plan

Appendix B-6 EAEMS Regional STEMI Plan

Appendix B-7 EAEMS Regional STROKE Plan

Appendix B-8 REGIONAL RESOURCE GUIDE

- Appendix B-8-A EAEMS Region 2 Hospitals
- Appendix B-8-B EAEMS Region 2 Licensed Services
- Appendix B-8-C EAEMS Region 2 911 Contacts
- Appendix B-8-D EAEMS Region 2 EMA Contacts
- Appendix B-8-E EAEMS Region 2 Offline Medical Directors
- Appendix B-8-F EAEMS Region 2 Hospital ER personnel
- Appendix B-8-G EAEMS Region 2 Unlicensed Services
- Appendix B-8-H EAEMS Region 2 MDAC Members
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EAST ALABAMA

REGIONAL TRAUMA SYSTEM PLAN

Approved by
East Alabama Regional Trauma Advisory Council
On
11.20.2008

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EAST ALABAMA REGIONAL TRAUMA PLAN

BACKGROUND

Passage of legislation by the Alabama Legislature in 2007 to create a statewide trauma system necessitates the writing, adoption, and implementation of a regional trauma plan for the East Alabama Region to encompass the counties of Calhoun, Chambers, Cherokee, Clay, Cleburne, Coosa, Etowah, Randolph, Talladega and Tallapoosa Counties. Compliance with the trauma legislation and subsequent rules developed by the State Trauma Advisory Council (STAC) and

the Alabama Department of Public Health – Office of Emergency Medical Services & Trauma (ADPH/OEMS&T) are included in this plan.

TRAUMA SYSTEM GOALS

The primary goal of this Regional Trauma System plan is:

Develop a plan which provides a system to decrease trauma mortality and morbidity in Alabama's EMS Region 2 which includes Calhoun, Chambers, Cherokee, Clay, Cleburne, Coosa, Etowah, Tallapoosa, Talladega, and Randolph counties and that meets or exceeds all ADPH/OEMS&T requirements.

In order to accomplish this, 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 (trauma center) that has a trauma response program in place which is capable of providing immediate and comprehensive assessment, resuscitation, and definitive care, plus establishing rehabilitation access when needed.
3. There must be continuous and effective region-wide coordination of prehospital and trauma center care resources. This will ensure trauma victims will most expeditiously get to the closest trauma center with adequate trauma resources. Their care can be provided in a manner that is both appropriate and timely while establishing and maintaining continuity. To accomplish this process there must 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 the hospital is willing to meet the systems Trauma Center and Operational Criteria as established by the Alabama Board of Health after recommendation by the State Trauma Advisory Council (STAC) and ADPH/OEMS&T.
5. The system must have an ongoing and effective Continuous Quality Improvement (CQI) Program in order to assure continuing appropriate function in providing the highly specialized care necessary in cases of serious and critical injuries. This program will include evaluation of prehospital patient management, trauma center patient management, and overall system function. A standard prehospital dataset and trauma center dataset (Trauma Registry) will be required of all system participants, which will allow uniform system evaluation to document the effectiveness of the function of the trauma program. This program must comply with all ADPH/OEMS&T requirements inclusive of data sharing at all levels.

This program involves the care of only a small percentage of the total trauma population as only those patients who have actually sustained or have a high probability of having sustained serious or critical injuries will be entered in the Trauma System.

It is estimated that approximately 10 to12 percent of the total trauma population would meet these requirements. The remaining + or - 90 percent of the estimated trauma cases are not entered into the system and will continue to be cared for at their local community hospitals. Specific trauma center function obligation of hospitals as part of this system would only relate to those trauma victims entered into the system.

REGIONAL TRAUMA SYSTEM OVERVIEW

This plan, when approved, will operate in Calhoun, Chambers, Cherokee, Clay, Cleburne, Coosa, Etowah, Randolph, Talladega and Tallapoosa counties.

Systems require an oversight authority to meet Alabama Board of Health requirements as well as project concept, overall responsibility, developmental aspects, implementation, operation, and evaluation of continuing activities. Such an entity is commonly referred to as a lead agency and in this program the lead agency is East Alabama Emergency Medical Services, Inc. (EAEMS). The authority of this agency is derived from specific activity goals and plans approved by the ADPH/OEMS&T and thus, the State Board of Health.

The system involves organization of already existing resources into a program providing comprehensive care for trauma patients through all phases of their management from the moment of injury through rehabilitation. Trauma patients may well have injuries that cause vital function instability with an immediate threat to life that may or may not be obvious. Thus 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 in the patient status develop.

The two basic patient management components to this system are the prehospital providers and individual hospital organizations. The system function involves the compliance with protocols, which are developed by the STAC and ADPH/OEMS&T and are included in this plan. The entry criteria are intended to identify patients with actual or a high potential for serious or critical injury. It is estimated that approximately ten to twelve percent of injured patients would fit these criteria. Injured patients that do not meet trauma system entry criteria (approximately 90% of injured patients) do not have actual or significant potential for serious injury and would not need protocol directed specific transport to or treatment by a trauma center. The system protocols for triage and transport with specific hospital destination would not apply to trauma patients who do not meet trauma system entry criteria. Hospitals participating in the Trauma System would not incur any special obligations to patients who do not meet criteria for being entered into the trauma system.

When it is determined that a patient meets the trauma system criteria and would benefit from specialized trauma center management, specific entry into the Trauma System will be accomplished. Entry into the system means that a patient meets specific primary triage criteria indicating an actual or high probability of major or critical injury and the specialized Trauma System resources will be used in their care. The medical care provider reports all trauma system patients to a centralized communication center, the Alabama Trauma Communications Center (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 trauma center 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. Trauma centers participating in this system and receiving trauma patients through the ATCC must have organized response systems. 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 course in providing management for major trauma victims entered into the system.

A regional trauma database is in operation which allows monitoring of the magnitude and scope of trauma in the East region. This database is used to document appropriateness and quality of care as well as determine teaching and training needs in trauma. It will be used in conjunction with other ambulance service and trauma center evaluations in a continuous quality improvement program to provide compliance with all ADPH/OEMS&T rules and requests.
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:

1. The EMS provider is unable to effectively manage the airway or ventilate the unstable patient.

2. The EMS provider is unable to stop the bleeding of a patient with severe hemorrhage.

3. The EMS provider is unable to establish/maintain an IV to provide volume resuscitation in an unstable hypovolemic patient.

Secondary transport 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). This secondary transport is to be coordinated by the ATCC.
Finally, it is important to emphasize that Trauma is a surgical disease. 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 therefore, essential in order for hospitals to participate in the Trauma System. 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 the Regional Trauma System Activities and through the individual trauma center CQI programs.

COMPONENTS AND ORGANIZATION
The Trauma System 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.

I. PREHOSPITAL COMPONENT

EMS units are an integral part of the Trauma System and their organization is not changed under the trauma system plan. There are, however, two specific issues regarding the prehospital component of the Regional Trauma System.

A. All licensed EMS personnel are required to have a basic knowledge and awareness of the Trauma System elements and system function. This specifically refers to the 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.

B. BTLS and/or PHTLS certification is recommended for all EMT-I/EMT-P in the region. It is expected that the system find the means to accomplish this for all EMT-I/EMT-P in the region within one year of the start of the system. The regional EMS agency will strive to assist all providers in the Region in fulfilling this goal.

II. HOSPITAL COMPONENT

Hospitals may participate in this system on a voluntary basis. Standards have been developed by the STAC and ADPH/OEMS&T based on the American College of Surgeons' Resources for Optimal Care of the Injured Patient Document. These are present 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 Trauma System). The trauma centers are able to go on-line and off-line at will. Each trauma center must have a General/Trauma Surgeon primarily responsible for oversight of the Trauma Program. This responsibility includes:

1. Working with administration to maintain resources for that level of Trauma Center.

2. Assuring that call schedules providing physician availability as per their chosen Trauma Center level are prepared on a monthly basis.

3. Establish/maintain basic trauma care protocols for the trauma center.

4. Overseeing the trauma center Trauma CQI Program including database collection and reporting to the Regional Trauma Advisory Council (RTAC) and ADPH/OEMS&T, oversight responsibility for the trauma center CQI Program per ADPH/OEMS&T requirements, and participation in Regional Trauma System administrative and CQI activities as per the Regional Trauma Plan.

Participation in the Regional Trauma system 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 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.
4. Application is provided by ADPH/OEMS&T and returned, documenting the hospital's desire to participate.

5. An on-site evaluation at each facility requesting a trauma center level is to be held to review the system design and function, and to evaluate the hospital based on the criteria for the requested trauma center level.

6. The RTAC will review the application and on-site evaluation report to document compliance with requirements and provide a report and recommendation to the ADPH/OEMS&T, who will forward the report to the STAC.

7. The STAC will make recommendations to the State Board of health regarding hospital participation as a Trauma Center in the system. If approved, the hospital

will become part of the system by executing a contract with ADPH/OEMS&T documenting their willingness to actively participate in the system and maintain Trauma Center resources as per their 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 individual Trauma Center level, medical staff desire to participate and support this program, and hospital administration desire to participate in and support the Regional Trauma Program.

III. COMMUNICATIONS COMPONENT

Communications are critical to the function of the Trauma System. Communications provide (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 trauma centers being able to best prepare for trauma victim arrival, (4) collection of uniform system wide data for both CQI activities and development of a regional trauma database. Providing all of these functions to the entire system on a continuous basis requires a central communications facility with constant communications capabilities to all prehospital units and trauma centers, plus the ability to immediately and directly link the prehospital providers to the Trauma Centers. This entity is the Alabama Trauma Communications Center (ATCC).

The ATCC is staffed 24 hours a day by personnel with specific in-depth knowledge of the Trauma System design, function, and protocols. It is the primary responsibility of the ATCC to coordinate the Trauma System 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 provide information about patient management and destination as per pre-established protocols for system function. The ATCC serves as a resource for such protocol information to EMS providers that may not be familiar with the protocols or the ATCC simply provides the coordination of prehospital and trauma center resource utilization for trauma management. Therefore, the general functions of the Alabama Trauma Communications Center are:

1. Assigns unique system I.D. number for each patient meeting system entry criteria for tracking throughout the system.

2. Collects brief prehospital database information.

3. Provides information on system entry criteria based on OEMS&T protocols as requested by EMS providers when it is not clear if a patient meets entry criteria.

4. Maintains knowledge of the functional status of all system trauma centers at all times.

5. Maintains knowledge of the activity status in the prehospital setting at all times.

6. Provides information regarding secondary triage status of the patient based on approved protocols.

7. Coordinates patient destination, when patient meets system entry criteria, based on OEMS&T protocols as to the closest currently operational Trauma Center utilizing the secondary triage status of the patient and the system.

8. Coordination for optimal resource utilization using pre-established protocols for system function when there are either multiple victims in one event, or there are multiple simultaneous events in the region (which, of course, neither EMS providers nor individual hospitals could know about).

9. Establishes automatic communication link between EMS provider and receiving facility if requested or at the discretion of the ATCC operator.

10. Records and enters prehospital data for Regional Trauma database and makes data available per the direction of the ADPH/OEMS&T.

11. Arranges inter-facility transfers of trauma system patients who are entered in the system by EMS or hospitals.

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 Trauma System trauma center resources in the region for the most rapid and efficient patient distribution in such circumstances.

An Emergency Resources Display (ERD) is also part of the communications component. The Emergency Resources Display provides each participating trauma center and the ATCC with the continuous real-time functional status display of all Trauma Centers. The Emergency Resources Display is a simple computer system with terminals at each trauma center and the ATCC. This system will provide a display grid listing each individual trauma center, their Trauma Center level, and the primary resource components indicating the availability or non-availability of these individual components in each trauma center and therefore, their current trauma activity status.

Each system trauma center will maintain the status notation of the primary trauma resources in that trauma center and therefore, their overall trauma activity level. The 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 Emergency Resources Display at the ATCC. Any change in trauma center status as made by trauma center personnel at its own display terminal will be automatically communicated to the central system monitoring station at the ATCC and also maintained in the trauma center computer.

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. Each Regional EMS Agency will be able to access the ERD of its regional

Trauma Centers through an internet link. ADPH/OEMS&T will be able to access the ERD of each of the regions through an internet link.

Resources are color-coded – green for available, yellow for conditionally available, and red for not available. Trauma center abbreviations are automatically color coded for on-line statues (green-active, red-inactive) based on individual resource availability in the trauma center at that time.

The equipment for the Emergency Resources Display (ERD) will consist of a color video monitor, a computer and a modem connected to a dedicated line, which does not enter the facility through the switchboard. The software will allow simple keystroke change of resource status by the Trauma Center personnel. This change will be transmitted to the central system monitoring station at the ATCC. The information will then be immediately updated on all resource display monitors in the system.

The central monitor station automatically polls the individual monitor stations in the system. If a station's computer fails to acknowledge the poll, that trauma center's information will be so noted on all resource display monitors in the system. If there is an isolated failure at a resource display at a trauma center, that will not cause a total system fault but that trauma center will be so noted and the ATCC will call requesting the information directly. The system integrity is not dependent upon the operation of any single station. At least one level of redundant communications is available (land phone line, wireless data transmission, or VPN).

IV. DATA/CONTINUING QUALITY IMPROVEMENT COMPONENT

This component is absolutely essential for function of the Trauma System. In virtually any serious trauma/injury situation, the patient has a very limited ability to meaningfully select prehospital, trauma center, 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 victims. The Trauma Plan is designed with this component to be able to generate an overall system wide trauma database which would provide an encompassing look at trauma incidents, significance, care and outcomes, provide information for use in determining and developing trauma teaching programs, provide information able to be used in potential trauma studies, and utilization in evaluation of system function in the CQI 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 ATCC. The second element is the continuous quality improvement program of the trauma system at ATCC. The third element is the trauma registry data at each trauma center. All data from these three data sources is available to ADPH/OEMS&T to use in statewide trauma QI activities and to the Regional EMS Lead Agency per the director of the ADPH/OEMS&T.

The Trauma CQI Dataset for trauma center is that set forth in ADPH/OEMS&T rules requiring each trauma center to collect and report data for the trauma registry. This information is presented in Appendix B.

The second entity in this component is the continuous quality improvement (CQI) program for the Trauma System. This program is necessary to the Trauma

System 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 the individual agencies doing their own CQI evaluations and reporting to a regional CQI workgroup as well as the ADPH/OEMS&T. The appropriateness, quality and quantity of all activities in the system must be continuously monitored in the areas of prehospital care, medical care of the patients in the trauma center and overall system function. A trauma system CQI program outline is presented in Appendix C.

The basic CQI process involves numerous specific steps to be performed by each individual entity. These steps are:

1. Assignment of a CQI manager to oversee the process in the organization.

2. Develop a written CQI 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 trauma centers this may be a combination of ATLS protocols, plus additional standards as deemed necessary or an individual set of patient care standards (protocols) developed by that trauma center. These programs are reviewed and approved by the Regional CQI Workgroup and the ADPH/OEMS&T and as part of becoming a Trauma System participating trauma center under the direction/extension of the CQI activities of ADPH/OEMS&T.

3. A method for CQI data collection is established by ADPH/OEMS&T.

4. CQI evaluations are undertaken by the individual system participants - EMS providers or Trauma Centers. This first involves the determination of specific audit filters. Mandatory Trauma Center audit filters include major and others as may be determined by the ADPH/OEMS&T. 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 CQI issues through the data evaluation process.

6. Discussion of CQI issues at the formal CQI Conference of each individual system participant - EMS provider or Trauma Center.

7. Develop a correction action plan. In general, action activities can be placed under the categories of professional resolution or administrative resolution.

8. Re-evaluation must occur 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 CQI programs both medical care and trauma center function must be evaluated.

The Regional Trauma Advisory Council (RTAC) CQI Workgroup has the goal of review of the entire Regional Trauma Program activities for appropriateness, quality, and quantity of activities and report such to all participants and ADPH/OEMS&T. That review is to include system administration/organization activities, plus prehospital care and trauma center care review. The Regional Workgroup will document effectiveness of trauma center and EMS CQI evaluations through routine reports of CQI activities provided by each participating entity to the Regional Workgroup. The Regional Workgroup will perform focused review of specific items as deemed appropriate, but these reviews will include evaluation of both prehospital and trauma center 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 Trauma System 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 Regional Trauma Advisory Council (RTAC) for evaluation and report to the STAC and ADPH/OEMS&T.

V. REGIONAL TRAUMA ADVISORY COUNCIL (RTAC)

The RTAC will be established by the STAC for the purpose of operation of the Trauma Plan and to fulfill the legislature and rules requirements of a statewide trauma system. This is done under the authority of the ADPH/OEMS&T with action plans developed and presented as recommendations to the ADPH/OEMS&T.

RTAC appointments will occur in the following manner:

1. The RTAC shall have a minimum 11 members. The membership shall be appointed in the same manner as the STAC 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. 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 shall be licensed physicians appointed by the Medical Association of the State of Alabama.

4. One representative of the board shall be the Medical Director of the Region or his/her designee.

5. One member who shall be a licensed emergency technician 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 STAC are as follows:

   A. A representative of each hospital in the region except for the four hospital representatives already appointed in #2 above. This will be a total of 11 additional hospital representatives.

   B. Eleven representatives who shall be licensed physicians within the region.

   C. Two representatives who shall be licensed emergency medical technicians from the region. One shall be from a ground transport service and one from a helicopter transport service.

      1. The chair and vice chair of the RTAC shall be elected by the members to serve for four years.

      2. All members of the RTAC shall be appointed for a term of four years, except initial members who, shall be appointed to terms from one to four years, and shall serve such staggered terms so that members appointed by the Alabama Hospital Association and Medical Association of the State of Alabama 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 un-expired portions of the terms.

      3. The RTAC shall meet at least twice a year, but may meet more frequently upon the call of the Chair. The RTAC may meet by electronic means and shall establish rules of procedure for its meetings.

      4. The RTAC may appoint subcommittees and workgroups. Subcommittees shall consist of council members and workgroups may consist of non-council members.

      5. All other governance requirements of the regional trauma advisory councils shall be established by rule of the board.

      6. 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.

      7. The members shall represent the demographic composition of the state to the extent possible.

8. The duties of the RTAC are those assigned by this plan and by ADPH/OEMS&T rules, requests, or contracts.

TRAUMA SYSTEM FUNCTION

General function of the system will follow the scenario of:

1. Injury occurs

2. Field evaluation done by EMS provider who determines if the patient meets the system criteria (if EMS provider is unsure of entry criteria that information may be immediately obtained from the ATCC).

3. Communication is established with the ATCC with brief basic information provided to the ATCC about all trauma patients to be transported to a trauma center.

4. Secondary triage (categorization of severity status, either physiologic, specific injury or mechanism) is made by the field EMS provider (with ATCC assistance as necessary) on patients entered into the Trauma System.

5. The secondary triage status and the current Trauma Center activity status (from the Emergency Resources Display) determine trauma center destination.

6. A direct patched communications link to the closest active trauma center is provided by the ATCC to the field EMS provider, **if requested** or at the discretion of the ATCC communicator.

7. Medical direction is established with the receiving Trauma Center by the communications link, if needed. Orders are provided as needed.

8. Prehospital care is completed and transport to the destination Trauma Center is initiated.

9. If a patient, who meets criteria established by STAC and ADPH/OEMS&T, arrives by EMS or private vehicle at a trauma center or non-trauma center, the hospital agent should notify the ATCC and enroll the patient in the trauma system, even if the hospital does not plan to transfer the patient.

10. The ATCC will, if requested, arrange inter-facility transfers of any patient needing services not available at the receiving hospital or trauma center to a higher level trauma center with the needed service line resources currently available.

Specific functions relative to the Trauma System are described in the following sections.

I. SYSTEM ENTRY CRITERIA

Patients are to be entered into the Trauma System following a trauma incident based on the following criteria:

A. Physiological criteria:

1. A systolic BP < 90 mm/Hg in an adult or < 80 mm/Hg in a child five or younger.
2. Respiratory distress - rate < 10 or >29 in adults, or < 20 or > 40 in a child one year or younger.
3. Head trauma with Glasgow Coma Scale score of 13 or less.

B. 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. The patient has an amputation proximal to the wrist or ankle.
6. The patient has one or more limbs which are paralyzed.
7. The patient has a pelvic fracture, as evidenced by a positive "pelvic movement" exam.

C. 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.

D. EMS Provider Discretion:

1. If, the EMS provider is convinced the patient could have a severe injury which is not yet obvious, the patient should be entered into the trauma system.
2. The EMS provider's suspicion of severity of trauma/injury may be raised by the following factors:
    a. Age > 55 years of age
    b. Age < five years of age
    c. Environment (hot/cold)
    d. Patient's previous medical history
        1. Insulin dependent diabetes
        2. Cardiac condition
        3. Immunodeficiency disorder
        4. Bleeding disorder

5. COPD/Emphysema

e. Pregnancy

f. Extrication time > 20 minutes with heavy tools utilized

g. Motorcycle crash

h. Head trauma with history of more than momentary loss of consciousness.

Entering A Patient Into The Trauma System:
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

After assessing a trauma situation and making the determination the patient should be entered into the Trauma System, the EMS provider licensed at the highest level (**Note: the initial responding EMS provider should enter the patient into the system but the transporting service has the absolute responsibility to be sure the patient has been entered into the trauma system**) should contact the ATCC at the earliest time that is practical, and provide the following:

1. Identify yourself and your agency by name, unit number and county. If on-line medical direction is necessary; the receiving trauma center becomes medical direction. The ATCC will help coordinate on-line medical direction with a physician immediately.
2. Give your geographic location.
3. Give age and sex of patient (**patient name is not necessary**).
4. Assign patient number if more than one patient.
5. Give criteria for entry into Trauma System.
6. Give vital signs: Airway, respiratory rate and pulse oximeter reading, pulse rate, blood pressure, and GCS.
7. The ATCC Communicator will offer available trauma centers based on the information given above.
8. Give unit number of transporting unit, mode of transport, and time of transport from the scene.
9. **You will be given a unique identification number that must be entered into the chart when you generate your e-PCR.** The CQI process will use this to identify the charts for quality improvement studies. (**Note to the transporting service: if the patient does not has a TCC number, he/she has not been entered into the trauma system**)

Notify the ATCC of any change in the patient's condition. The receiving trauma center (or ATCC, who can relay to trauma center) should be updated by the transporting unit 5-10 minutes out of the destination trauma center. This update need only consist of any patient changes. A repeat of information used to enter the patient into the Trauma System is not necessary since this information will be relayed by the ATCC to the receiving trauma center. After the patient is

delivered to the trauma center, the transporting provider should call the ATCC with the Patient Care Report times.

II. COMMUNICATIONS

Maintenance of adequate and prompt communications is essential to function of the Trauma System. 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, and trauma center resuscitation, evaluation and definitive care. Communication throughout the system is vital to this activity occurring in a most efficient and complete manner. Knowledge of the system-wide pre-hospital trauma activities and the current (and possibly changing) status of the functional capabilities of the various trauma centers in the system are important at all times as it is possible multiple trauma activities are occurring simultaneously. This function also is essential for maximum mass casualty incident/disaster response. Communications allow 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 and centralized coordination of patient destination by the ATCC.

ATCC will note the closest trauma center for the EMS provider and the database. It is essential to establish communications 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 EMS provider should contact the ATCC at the earliest practical time to enter the patient into the system.

The reporting EMS provider 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 their dispatch should be established with relay of information to the ATCC by telephone.

III. SYSTEM OPERATIONS

System operations refers to the activities that occur once it is determined a patient meets system entry criteria and communications have been established within the system. These activities include performance of secondary triage, trauma center destination

determination, continuing communication, provision of field care, patient transport, and Trauma Center management.

1. **Secondary Triage** (use of system protocols to determine trauma center destination).

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 estimate by the field EMS provider combined with the current Trauma Center activity status as noted on the resource display to determine the trauma center destination. Secondary triage is based on physiologic status, mechanism of injury, and anatomic criteria, plus the potential use of EMS provider discretion and evaluation of co-morbid factors.

Secondary triage standards are:

A. Physiologic entry criteria

1) Physiologic entry criteria take precedence over other criteria 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 a 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 patient is to be taken to a Level I Trauma Center in the BREMSS region and it is yellow due to Neurosurgical services or 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 CNS status physiologic criteria with a GCSS of $\leq$ 9 is to be transported to a Level I Trauma Center, unless a closer Level II is available with neurosurgical services available (green). A patient with a GCSS of > 9 is to be transported to the closest level II or Level 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.

1. The EMS provider is unable to effectively manage the airway or ventilate the unstable patient.
2. The EMS provider is unable to stop the bleeding of a patient with severe hemorrhage.
3. The EMS provider is unable to establish/maintain an IV to provide volume resuscitation in an unstable hypovolemic

patient. Secondary transport 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). This secondary transport is to be coordinated by the ATCC.

B. Anatomic Criteria – for **stable patients** (for unstable see A. Physiologic Entry Criteria above)

1) Flail Chest

a. Closest level __I___ if < __60___ minutes TXP

b. Closest level __II_ or __III___ if > __60_ min TXP LEVEL __I__.

2) Multiple Long bone fracture (Humerus / Femur)

a. Closest level __I___ if < _60__ minutes TXP

b. Closest level __II___ or _III____ if > __60___ min TXP to level ___I__

3) Penetrating head injury:

Transport to Level _I_ as long as patient remains stable

4) Major Burn with BSA > 15 percent or trauma in same areas as burn. (FOR STABLE PATIENTS)

a. Transport to closest Level _I_with Burn Center

5) Amputation (amputated part recovered and not mangled)

a. Closest level __I___ with Implant Service as long as patient remains stable.

6) Amputation (amputated part is not recovered or is mangled)

a. Closest Level __I___ if < _60___ minutes TXP
b. Closest Level __II___ or __III___ if > _60__ minutes TXP to Level __I___

7) Patient with acute paralysis:

a. Closest level __I___ if < _60__ minutes TXP
b. Closest Level __II___ or __III___ if > _60_ minutes TXP to Level __I___

8) Patient thought to have a fractured pelvis as evidenced as unstable with crepitus.

a. Closest level __I___ if < _60____ minutes TXP

b. Closest Level __II___ or __III___ if > _60__ minutes TXP to Level __I___

C. **Mechanism of injury criteria** - for **stable patients** (for unstable patients see A. Physiologic Entry Criteria above):

1) Death in the same passenger area
   a. Closest level __I___ if < _60____ minutes TXP
   b. Closest Level __II___ or __III___ if > _60__ minutes TXP to Level __I___

2) Ejection (for stable patients)
   a. Closest level _I__ if < __60___ minutes TXP
   b. Closest Level __II___ or __III___ if > _60__ minutes TXP to Level __I___

3) Motorcycle/Bicycle/ATV (for stable patients)
   a. Closest Level I, II, or III

4) Auto versus Pedestrian (for stable patients)
   a. Closest Level I, II, or III

5) Fall > than twenty feet (for stable patients)
   a. Closest level __I___ if < _60__ minutes TXP
   b. Closest level __II___ or __III___ if > _60__ minutes TXP to Level __I___

D. **EMS Provider Discretion / Upgrade**

If a patient has been entered into the system and does not meet specific secondary triage criteria or the EMS provider has a specific reason to upgrade the triage decision, the EMS provider may do so and transport the patient to the closest Level I, II, or III Trauma Center if there is less than __60___ minutes transport time. The EMS provider is to specifically note on the e-PCR the reason for utilization of this discretion process. The EMS provider is to specifically inform the ATCC at the time the decision is made using the EMS provider discretion criteria.

E. **Special Circumstances / Co-Morbid Factors**

Any patient entered into the Trauma System who is **stable** but has many of the following factors may have a change in protocol based destination as listed below. Unstable patients follow the unstable physiologic criteria (see A above).

No change indicates no change from standard secondary triage protocol.

1. Age 14 years or younger

a. Pediatric Level __I___ center if transport < __60___ minutes

b. Closest Level I, II, or III trauma center if transport time to Pediatric Center is > 60 minutes.

2. Pregnancy

a. Level ___I__ if < __60___ minutes TXP

b. Level __II___ or __III___ if > __60___ minutes TXP to Level ___I__ facility

3. Age greater than 55.....……....no change

4. Environmental extremes.....……..no change

5. Previous medical disease history.....……...no change

6. Extrication times >20 minutes.....……no change

7. Motorcycle crash.....……....no change

NOTES:

A. Transport time is the time which the field EMS Provider estimates considering the mode of transport, weather, traffic, and other variables and incorporates the time from scene departure to trauma center arrival.
B. Transport mode (ground versus air) will be determined by the field EMS provider. Medical Direction may wish to modify the transport mode.
C. Based on prehospital trauma activity, transport needs, and resource availability, the ATCC will assist in coordination of patient destinations plus ground and air transport between the onsite EMS provider, Trauma Centers, and the helicopter service.
D. Should a trauma center destination be changed from the original destination chosen at the time of ATCC contact, a CQI will be initiated. A quarterly report of all of these issues will be made to the RTAC.

2. **<u>Trauma Center Destination</u>**

Trauma Center destination will be determined by secondary triage evaluation and the current activity status of trauma centers in the system at the time the injury occurs. The trauma center status is tracked by the Emergency Resources display at the ATCC. That equipment is described in the component section and details the status of individual resources in the trauma center and therefore, the activity

status of the trauma center. Trauma centers will usually be either at a green (available), yellow (conditional), or a red (unavailable) status.

Green status means the trauma center has all service line resources available and may receive trauma victims 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 Emergency Resources display grid) active and available at that time as pertains to their Trauma Center Level:

   Emergency department (if Level I ED-T), anesthesia, operating room, X-ray, ICU, and orthopedic surgery (orthopedic surgery not required for Level III).
2. For Level I 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 levels of Trauma Center.

4. If a trauma center has a secondary surgeon call schedule (backup surgeon), the lack of the primary trauma surgeon will only change the trauma center to "yellow."

Red status indicates at least some primary trauma care service line resources in that trauma center are not actively available and the trauma center is not to receive trauma victims 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 not actively available at that time (NS or CT red status).

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 facility 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 Scanner 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 backup 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.

The green, yellow, and red status for combinations of Trauma Surgeon and secondary surgeon are summarized in the following table:

Trauma Surgeon	2nd Call Surgeon	Trauma Center Status
G	G	G
G	R	G
R	G	Y
R	R	R

TRAUMA CENTER DESTINATION NOTES

A. Trauma Center destination for patients entered into the system will be the closest appropriate trauma center receiving facility based on secondary triage and Trauma Center availability.

B. When a trauma center is on yellow status for the trauma surgeon/secondary backup surgeon status, trauma patients are directed to that trauma center only when equivalent facilities are unavailable or beyond the routine _60__ minute transport time, or there are multiple casualties requiring care at that level.

C. 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.

D. 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.

E. 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 Trauma System and a specific request to follow the established Trauma System plan will be made of the family. **The patient's or family members' wishes will, however, ultimately prevail.**

F. If an event occurs where there are multiple patients meeting Trauma System 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.

G. 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.

1. The EMS provider is unable to effectively manage the airway or ventilate the unstable patient.
2. The EMS provider is unable to stop the bleeding of a patient with severe hemorrhage.
3. The EMS provider is unable to establish/maintain an IV to provide volume resuscitation in an unstable hypovolemic patient.

Final destination will be coordinated by the ATCC.

H. 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.

I. 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.

J. If the patient is stable, and the trauma center per the secondary triage destination protocol is not available, the patient may be taken to the nearest actively available ("green") trauma center.

K. If, in the attending trauma surgeon's judgment, a level I trauma center is nearing capacity, the surgeon may place the level one trauma center on trauma system overload. The level I trauma center will appear yellow on the 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 one trauma center is unavailable. Patients routed in this manner will be reported to the RTAC and to ADPH/OEMS&T.

3. 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 Trauma System 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 trauma center per regional secondary triage protocols, and the activity status of the trauma center in the system at that time. Any significant patient condition changes are to be communicated directly to ATCC and the receiving Trauma Center, as those changes may result in updating the orders and altering the destination trauma center Trauma 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 trauma center Emergency Department or in an operating room. Therefore, "free field time" (time following extrication during which the EMS providers 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.

4. Trauma Center System Activities

Trauma center 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 plus 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 American College of Surgeons Advanced Trauma Life Support

course are considered the standard of care for emergency department resuscitation.

IV. SYSTEM COMPLIANCE EVALUATION AND ACTION

This Trauma System 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 victim management. Therefore, a specific program for monitoring compliance with requirements and with function protocols will be a part of the Trauma System. This program will be a function of the RTAC. Reports regarding compliance issues will be made to the ADPH/OEMS&T. Maintenance of compliance with requirements, standards, and system function protocol activities for individual personnel and agencies involved in the Trauma System means:

A. Maintaining component and organization standards as established by the plan.

1. Prehospital
   Prehospital entities have the responsibility to assure their individual EMS providers have a basic knowledge and awareness of the Trauma System including entry criteria and basic operations.

2. Hospital Component
   a. Continue to meet all Trauma Center Resource requirements for their level Trauma Center 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 System Plan.

3. Communications Component - Each entity is responsible for maintaining communications equipment used in the Trauma System in proper working order.

4. Data/CQI Component
   a. Each entity is responsible for maintaining and providing data to the Trauma System as indicated in the Regional Trauma System Plan. For prehospital EMS services this means providing data to the ATCC which is then placed in the Alabama Trauma System Database. For trauma centers this means maintaining and providing the trauma center based information in the Alabama Trauma Registry dataset.

   b. Participating entities need to maintain their individual Trauma CQI Programs as specified in the Regional Trauma System Plan. They are to provide reports of these activities to the RTAC on a timely basis as required.

c. Active continuing participation in the Regional Trauma CQI program is expected (all individual personnel from participating organizations must attend at least 75% of the Regional CQI meetings). 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&T through the trauma center's trauma registry involvement.

5. Personnel from prehospital and hospital organizations are to participate in RTAC activities per membership responsibilities. It is expected there will be 75% attendance of meetings by members.

B. Maintaining system function as noted in the Regional Trauma System Plan.

1. System entry criteria as specifically defined in the plan and by ADPH/OEMS&T or currently active protocols are to be used by EMS providers to determine patient entry into the Trauma System.

2. Communications as outlined in the plan and currently approved ADPH/OEMS&T protocols are to be initiated and maintained by EMS units. This involves initiating communications, providing information and participating in the use of the system operations protocols along with the ATCC for coordination of prehospital trauma care activities including patient entry into the system, determination of Trauma Center destination, and in conjunction with Medical Direction orders for provision of care using the ADPH/OEMS&T MDAC approved prehospital care protocols.

3. System operations are provided by individual entities as per the Regional Trauma System plan including currently approved ADPH/OEMS&T protocols. This includes the use of secondary triage protocols to determine trauma center destination, accurate maintenance of trauma care resource status by trauma center participating in the Trauma System, and adherence to other system prehospital and trauma 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 System Plan will result in specific actions to be taken by the RTAC. Questions of compliance will be generated by system oversight review by the RTAC. Issues regarding a question of compliance when brought to the attention of RTAC may be directed to the ADPH/OEMS&T for evaluation. The RTAC will evaluate questions of compliance and if a compliance infraction has occurred a report will be forwarded to the ADPH/OEMS&T.

C. 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&T.

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&T 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 a letter to the ADPH/OEMS&T Office for investigation and action. The ADPH/OEMS&T will send a report of findings and action to the RTAC.

D. Trauma center participation in the system is governed by the contract between ADPH/OEMS&T and each trauma center. Deviations from requirements, standards or system function protocols governed by the contract may result in the following actions by the OEMS&T upon the advice of the RTAC:

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 Trauma System 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 Trauma System for a period of 30 days as per decision of the RTAC with the suspension time doubled for subsequent deviations of the same standard.

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

SUMMARY

An organized system of care to improve trauma survival and outcome is a vital part of an overall healthcare plan.

This Regional Trauma plan, when approved, will bring the East Alabama Medical Direction & Accountability Plan and the East Alabama EMS Regional Trauma plan in compliance with all existing legislative and ADPH/OEMS&T rules and requirements.

APPENDIX A

Alabama Trauma Center Designation

Trauma Facilities Criteria: APPENDIX A Trauma Rules

*The following table shows levels of categorization and their **essential (E)** or **desirable (D)** criteria necessary for designation as a Trauma Facility by the Alabama Department of Public Health*

	Level I	**Level II**	**Level III**
INSTITUTIONAL ORGANIZATION			
Trauma Program	E	E	E
Trauma Service	E	E	-
Trauma Team	E	E	E
Trauma Program Medical Director	E	E	D
Trauma Multidisciplinary Committee	E	E	D
Trauma Coordinator/ TPM	E	E	E
HOSPITAL DEPARTMENTS/ DIVISIONS/ SECTIONS			
Surgery	E	E	-
Neurological Surgery	E	-	-
Neurological trauma liaison	E	-	-
Orthopedic Surgery	E	E	-
Orthopedic trauma liaison	E	E	-
Emergency medicine	E	E	-
Anesthesia	E	E	-
CLINICAL CAPABILITIES			
Published on-call schedule	E	E	E
	Level I	**Level II**	**Level III**
General Surgery (attending surgeon promptly available[1] 24 hours/day)	E	E	D
Published back-up schedule or written back-up method[2]	E	D	-
Dedicated to single hospital when on-call	E	D	-
Anesthesia (promptly available[3] 24 hours/day)	E	E	D
Emergency Medicine (Immediately available in-house 24 hours/day)	E	E	E
On-call and promptly available 24 hours/ day . . .			
Cardiac surgery	E	-	-
Hand surgery (does not include micro vascular/re-implantation)	E	D	-

Micro vascular/replant surgery	D	-	-
Neurologic Surgery	E	D	-
Dedicated to one hospital or back-up call	E	D	-
Obstetrics/gynecologic surgery[4]	E	D	-
Ophthalmic surgery	E	D	-
Oral/maxillofacial surgery	E	D	-
Orthopedic	E	E	D
Dedicated to one hospital or back-up call	E	D	-
Plastic surgery	E	D	D
Critical care medicine	E	D	-
Radiology	E	E	D
Thoracic surgery	E	D	-
	Level I	**Level II**	**Level III**
CLINICAL QUALIFICATIONS			
General/ trauma surgeon			
Current board certification	E	E	-
Average of 6 hours of trauma related CME/year[5]	E	D	D
ATLS completion	E	E	E
Peer review committee attendance > 50%	E	E	-
Multidisciplinary committee attendance	E	E	-
Emergency Medicine			
Board certification[6]	E	D	D
ATLS completion[7]	E	E	E
Average of 6 hours of trauma related CME/year[5]	E	D	-
Peer review committee attendance > 50%	E	E	-
Multidisciplinary committee attendance	E	E	-
Neurosurgery			
Current board certification	E	-	-
Average of 6 hours of trauma related CME/year[5]	E	D	D
ATLS completion	D	D	D
Peer review committee attendance > 50%	E	E	-
Multidisciplinary committee attendance	E	E	-
Orthopedic surgery			
Board certification	E	D	-

Average of 6 hours of trauma related CME/year[5]	E	D	D
ATLS Completion	D	D	D
	Level I	**Level II**	**Level III**
Peer review committee attendance > 50%	E	E	D
Multidisciplinary committee attendance	E	E	-
FACILITIES/ RESOURCES/ CAPABILITIES			
Volume Performance			
Trauma admissions 750/ year	E	-	-
Presence of surgeon at resuscitation	E	E	D
Presence of surgeon at operative procedures	E	E	E
Emergency Department (ED)			
Personnel - designated physician director	E	E	D
Equipment for resuscitation for patients of all ages			
Airway control and ventilation equipment	E	E	E
Pulse oximetry	E	E	E
Suction devices	E	E	E
Electrocardiograph-oscilloscope-defibrillator	E	E	E
Internal paddles	E	E	-
CVP monitoring equipment	E	E	D
Standard IV fluids and administration sets	E	E	E
Large-bore intravenous catheters	E	E	E
Sterile surgical sets for:			
Airway control/ cricothyrotomy	E	E	E
Thoracostomy	E	E	E
Venous cutdown	E	E	E
	Level I	**Level II**	**Level III**
Central line insertion	E	E	-
Thoracotomy	E	E	-
Peritoneal lavage	E	E	D
Arterial catheters	E	D	D
Ultrasound	D	D	D
Drugs necessary for emergency care	E	E	E
X-ray available 24 hours/ day	E	E	D
Cervical traction devices	E	E	D
Broselow tape	E	E	E
Thermal control equipment:			

For patient	E	E	E
For fluids and blood	E	E	D
Rapid infuser system	E	E	D
Qualitative end-tidal CO_2 determination	E	E	E
Communications with EMS vehicles	E	E	E
OPERATING ROOM			
Immediately available 24 hrs/day[7]	E	D	D
Operating Room Personnel			
In house 24 hrs/ day[8]	E	-	-
Available 24 hrs/ day		E	E
Age Specific Equipment			
Cardiopulmonary bypass	E	-	-
	Level I	**Level II**	**Level III**
Operating microscope	D	D	-
Thermal Control Equipment			
For patient	E	E	E
For fluids and blood	E	E	E
X-ray capability, including c-arm image intensifier	E	E	E
Endoscopes, bronchoscopes	E	E	D
Craniotomy instruments	E	D	-
Equipment for long bone and pelvic fixation	E	E	D
Rapid infuser system	E	E	D
Post Anesthetic Recovery Room (SICU is acceptable)			
Registered nurses available 24 hours/day	E	E	-
Equipment for monitoring and resuscitation	E	E	E
Intracranial pressure monitoring equipment	E	D	-
Pulse oximetry	E	E	E
Thermal control	E	E	E
Intensive or Critical Care Unit for Injured Patients			
Registered nurses with trauma education	E	E	-
Designated surgical director or surgical co-director	E	E	D
Surgical ICU service physician in-house 24 hours/day Emergency physician will satisfy this requirement	E	D	-
Surgically directed and staffed ICU service	E	D	-
Equipment for monitoring and resuscitation	E	E	-
Intracranial monitoring equipment	E	-	-

	Level I	Level II	Level III
Pulmonary artery monitoring equipment	E	E	-
Respiratory Therapy Services			
Available in-house 24 hours/day	E	E	D
On-call 24hrs/day	-	-	D
Radiological services (available 24 hours/day)			
In house radiology technologist	E	E	D
Angiography	E	D	-
Sonography	E	E	D
Computer Tomography (CT)	E	E	D
In house CT technician	E	-	-
Magnetic Resonance Imaging (Technician not required in house)	E	D	-
Clinical laboratory services (Available 24hours/day)			
Standard analyses of blood, urine, and other body fluids, including microsampling when appropriate			
Blood typing and cross-matching	E	E	E
Coagulation studies	E	E	E
Comprehensive blood bank or access to a community central blood bank and adequate storage facilities	E	E	E
Blood gasses and pH determinations	E	E	
Microbiology	E	E	E
Acute Hemodialysis	E	E	E
In-house (staff not required in-house 24 hours)	E	-	-
	Level I	**Level II**	**Level III**
Transfer agreement (written document not required)	--	E	E
Burn Care – Organized			
In house or transfer agreement with Burn Center (See above)	E	E	E
Acute Spinal Cord Management			
In-house or transfer agreement with Regional Acute Spinal Cord Injury Rehabilitation Center (See above)	E	E	E
REHABILITATION SERVICES			
Transfer agreement to an approved rehabilitation facility (See above)	E	E	E

Physical therapy	E	E	D
Occupational therapy	E	D	D
Speech therapy	E	D	-
Social Service	E	E	D
PERFORMANCE IMPROVEMENT			
Performance improvement programs	E	E	E
Trauma registry			
In house	E	E	D
Participate in state, local or regional registry	E	E	E
Orthopedic database	D	-	-
Audit of all trauma deaths	E	E	E
Morbidity and mortality review	E	E	E
Trauma conference-multidisciplinary	E	E	D
	Level I	**Level II**	**Level III**
Medical nursing audit	E	E	E
Review of pre-hospital trauma care	E	E	D
Review of times and reasons of trauma-related bypass	E	E	E
Review of times and reasons for transfer of injured patients	E	E	E
Performance improvement personnel dedicated to care of injured patients	E	D	D
CONTINUING EDUCATION/OUTREACH			
General Surgery residency program	D	-	-
ATLS provide/ participate	E	D	D
Programs provided by hospital for:			
Staff/community physicians (CME)	E	E	D
Nurses	E	E	D
Allied health personnel	E	E	-
Pre-hospital personnel provision/ participation	E	E	D
PREVENTION			
Collaboration with other institutions for injury control and prevention	E	D	D
Designated prevention coordinator-spokesman for injury control	E	D	-
Outreach activities	E	D	D
Information resources for public	E	D	-
Collaboration with existing national, regional and state programs	E	D	-

Coordination and/or participation in community prevention activities	E	E	D

	Level I	Level II	Level III
RESEARCH			
Trauma registry performance improvement activities	E	E	E
Research committee	D	-	-
Identifiable IRB process	D	-	-
Extramural educational presentations	D	D	-
Number of scientific publications	D	-	-

[1] In both Level I and Level II facilities 24-hour in-house availability is the most direct method for the attending surgeon to provide care. In hospitals with residency programs, a team of physicians and surgeons that can include the Emergency Department Physicians, Surgical Residents, or Trauma Residents may start evaluation and treatment allowing the attending surgeon to take call outside the hospital if he/she can arrive. For hospitals without residency programs, the attending surgeon may take call from outside the hospital but should be promptly available. Compliance with these requirements must be monitored by the hospital's quality improvement program.

[2] If there is no published back-up call schedule there must be a written procedure of how to identify or locate another surgeon when needed and this should be monitored by the quality improvement plan.

[3]Timeliness of anesthesia response should be monitored by the hospital's quality improvement program.

[4] AL licensed specialty pediatric facilities, which are PPS exempt under Title 42 USC Section 1395ww(d)(1)(B)(iii) and receive funding under Title 42 USC 256e shall not be required to have an obstetric/gynecologic surgery service but should have a transfer agreement for OB-GYN surgery services.

[5] An average of 18 hours of trauma CME every three years is acceptable.

[6] Physicians may be board certified in Emergency Medicine or Pediatric Emergency Medicine by an ABMS- or AOA-recognized board, or may be board certified in a primary care specialty if they have extensive experience in management of trauma patients.

[7] Physicians not board certified in Emergency Medicine or Pediatric Emergency Medicine by an ABMS- or AOA-recognized board must maintain their ATLS certification. There will be a three year grace period for emergency department staff to become compliant with this requirement

[8]An operating room must be adequately staffed and immediately available in a Level I trauma center. This is met by having a complete operating room team in the hospital at all times, so if an injured patient requires operative care, the patient can receive it in the most expeditious manner. These criteria cannot be met by individuals who are also dedicated to other functions within the institution. Their primary function must be the operating room.

An operating room must be adequately staffed and available when needed in timely fashion in a Level II trauma center. The need to have an in-house OR team will depend on a number of things, including patient population served, ability to share responsibility for OR coverage with other hospital staff, prehospital communication, and the size of the community served by the institution. If an out-of-house OR team is used, then this aspect of care must be monitored by the performance improvement program.

APPENDIX B

TRAUMA CQI DATA SET

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 - possibly information from a city map grid (needs further investigation).
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 EMS providers
5. Receiving hospital
6. System entry data:

a. primary entry triage criteria

b. secondary entry criteria, if present

c. co-morbid criteria

d. EMS provider discretion - Narrative field for why

e. patient age
f. patient sex
g. GCS*
h. scene vital signs*
(*ATCC will compute Trauma Score from this data)

7. Prehospital outcome:

a. loss of vital signs and time

1) lived

2) expired (time)

8. Trauma center readiness:
a. 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 - higher level Trauma Center
- equal level Trauma Center
- lower level Trauma Center
- reason _____

d) expired

b. Final trauma center disposition/date/location

1) Home
2)
2) to rehabilitation center
3) to another acute care facility

4) to extended care facility
5) expired

APPENDIX C

CONTINUOUS QUALITY IMPROVEMENT

A. Continuous quality improvement is a vital part of a Trauma System. It is used to document continuing proper function of the system and evaluation of that function to implement improvements in system function and trauma victim management. In a Trauma System 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 CQI activities are to be provided in compliance with and under the auspices of the ADPH/OEMS&T.

B. Such a 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 RTAC QI Workgroup 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 QI person to oversee process

b. Standards established - regional/authorized

c. Determine audit filters

d. Collect data

e. Evaluate data

f. Determine QI 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 Center Care QI 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 QI (performed by each institution)

1) Establish written care standards

2) Collect data

a) trauma data elements
b) complications or events lists

3) Data QI evaluation

a) establish audit filters (indicators)

b) determine presence of potential QI issues

c) primary review (permissible)

d) multi-disciplinary peer review of QI issue

4) Corrective action

a) professional resolution

b) administrative resolution

5) Re-assess for effectiveness of corrective action

6) Documentation essential utilizing QI 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 QI 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 QI issues

   e. Re-evaluate to determine effectiveness of corrective action

   f. participation on RTAC Trauma QI Workgroup

G. RTAC QI Workgroups (staffed by East Alabama EMS)

1. Goals - review entire Regional Trauma Program

   a. System administration/organization/activities

   b. Prehospital care

   c. Hospital care

2. Members

   a. ADPH/OEMS&T

   b. ATCC Director

   c. Regional EMS Off-Line Medical Director

   d. Regional EMS Executive Director

   e. Regional EMS Office QI Coordinator

   f. Regional EMS Office Data Coordinator

   g. Prehospital provider representation - the designated QI coordinator for each county, (from an EMS organization)

h. Participating hospital representation

1) Trauma Director

2) QI Coordinator

i. Coroner

3. Process

a. Brief report of QI 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 QI 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 RTAC and the ADPH/OEMS&T.

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 a Trauma Center in region as recorder
6) The chairman of this workgroup will be the vice chairman of the RTAC.

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 CQI issues will be reviewed as deemed appropriate.

c. The process used will be the same process as outlined in the CQI Section of the Regional Trauma System Plan.

d. Reports of a summary nature will be made to the RTAC QI Workgroup. 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 trauma center QI Workgroup.

5. All members are expected to attend at least 75% of the Regional QI Workgroup meetings and the Trauma Center Medical Care Review Workgroup meetings.

EAST ALABAMA EMS, INC.
REGION 2
HELICOPTER ACTIVATION/UTILIZATION PLAN

PURPOSE

The purpose is to set forth a plan for the Emergency Medical Services Personnel (EMSP) in Region 2 regarding the activation and utilization of Helicopter EMS (HEMS) within Region 2. The EMSP will utilize the current edition of the Alabama Department of Public Health, Office of EMS and Trauma Emergency Medical Services Patient Care Protocols at all times and nothing in this plan will deviate or cause the EMSP to deviate from said Patient Care Protocols. The regional Medical Direction and Accountability Plan and Trauma Plans shall also be followed. Online Medical Direction should be consulted anytime there is a question related to use of HEMS.

PROCESS

EMSP may contact HEMS prior to arrival at a scene for early activation based on information obtained from caller(s). It should also be noted that other persons (i.e. law enforcement, first responders, family members or bystanders) may have contacted HEMS prior to arrival of EMS.

EMSP shall contact HEMS for air transport if in the professional judgment of the highest level licensed EMS Personnel on the scene air transport will significantly reduce the transport time to an appropriate medical facility or the specialized services offered by the HEMS would benefit the patient prior to arrival at the hospital. Online Medical Direction should be consulted anytime there is a question related to use of HEMS.

An EMS unit should not unduly delay transport or wait on a scene for HEMS. If the EMS unit is ready to transport the patient and HEMS is not yet at the scene, a landing zone should be determined that will allow the HEMS to intercept the EMS unit while traveling in the direction of the destination hospital.

All ground services should work with the HEMS to pre-determine landing zones within their service area. The pre-determined landing zones should be strategically placed throughout the service area for ease of use and safety for the HEMS. The ground units, dispatch service and HEMS should know the location of the pre-determined landing zones and have the physical address and latitude/longitude coordinates readily available.

Patients entered into the Trauma System who require transport to a Level 1 trauma center should be transported either by ground EMS unit or HEMS if they are within 60 minutes of the Level 1 trauma center. If the transport time is greater than 60 minutes to the Level 1 trauma center, then HEMS should be contacted to attempt to transport the patient by HEMS to a Level 1 trauma

center. If HEMS is unable to transport the patient, the ground EMS unit should transport the patient to the appropriate facility based on the regional trauma plan.

The EMS Service and the HEMS in partnership, should review all HEMS runs QA/QI issues. Any unresolved issues should be brought to the MDAC for review. The MDAC reserves the right to QA/QI any and/or all HEMS runs within Region 2.

East Alabama EMS Regional STEMI System Plan

June 17, 2010

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EAEMS Regional STEMI Plan: Rationale

- ST Elevation Myocardial Infarction (STEMI) patients should be recognized as quickly as possible to identify those eligible for thrombolytic or invasive therapy. Copious data have shown that both morbidity and mortality can be optimized by an approach of rapid interventional reperfusion targeted to within ninety minutes of hospital arrival. Further data have demonstrated that in-the-field recognition by pre-hospital providers utilizing 12-lead ECG coupled with pre-hospital notification of the receiving facilities can further reduce time to reperfusion, and is associated with further improvement in outcomes. If all hospitals currently providing acute interventional therapy within the EAEMS region opt to participate in the plan, the proximity to interventional centers is close enough that routine triage to hospitals capable of providing acute interventional reperfusion would generally be indicated. EMS personnel must be trained to recognize, treat and transport STEMI patients in a timely manner. Although this diagnosis may be confirmed by physicians in the emergency departments, it should be recognized by prehospital care providers competent to apply STEMI diagnostic criteria through the use of their 12 lead monitor defibrillators.

- Every hospital providing care to cardiac patients will have a recognized STEMI Plan that defines the optimal treatment pathways appropriate for that particular institution.

- Response systems, including optimal time frames, must be established, maintained, and monitored in the region from EMS recognition to Emergency Department arrival to cardiac catheterization lab intervention. The goal should be to (a) recognize potential STEMI patients in the field and rapidly conduct a 12 lead ECG (b) identify when criteria is met for the presence of a STEMI on the initial ECG as recognized by their 12 lead monitor defibrillators (c) enter the patient in STEMI system with ATCC (Alabama Trauma Communications Center) and transport to the closest available facility capable of PCI (percutaneous coronary intervention) (d) establish a system to rapidly transfer STEMI patients in need of PCI if at a non-PCI facility.

- Patients who have chest pain should be evaluated with an initial ECG within 10 minutes of hospital arrival. Patients who meet thrombolytic or invasive cardiac care criteria should have access to cardiology expertise within 30 minutes of hospital arrival (phone or physical presence) and invasive cardiac expertise within 90 minutes of hospital arrival.

- Health professional training programs should be enhanced to include a focus on standards of STEMI recognition and management.

EAEMS Regional STEMI Plan: Goals

The primary goal of the East Alabama EMS Regional STEMI Plan is:

To develop a STEMI Emergency Care System that, when implemented, will result in decreased cardiac mortality and morbidity in the EAEMS region.

In order to accomplish this, a number of specific processes are essential. These are:

1. The ability to rapidly and accurately identify patients suffering from STEMI*.

*This term used throughout the plan refers to the current STEMI definition by the American College of Cardiology (ACC) and American Heart Association (AHA) guidelines of ST segment elevations greater than or equal to 1mm in 2 or more contiguous limb leads or greater than or equal to 2mm in 2 or more contiguous precordial leads lacking features of non-infarction causes of ST-segment elevation (e.g. early repolarization, pericarditis, left ventricular hypertrophy, incomplete bundle branch block.) However, if future ACC/AHA definitions of a STEMI patient change, the plan and system will be amended to reflect any approved change.

2. Patients who have sustained a STEMI event must receive care in a hospital that has a STEMI treatment program in place which is capable of providing immediate and comprehensive assessment, resuscitation, intervention, and definitive care. Additionally, receiving hospitals must provide access to rehabilitation programs and participate in data collection.

3. There must be continuous and effective region-wide coordination of pre-hospital and hospital care resources, so that STEMI patients will be most expeditiously transported to the closest available interventional center or facility capable of performing PCI, so patient care can be provided in a manner that is both appropriate and timely, while establishing and maintaining continuity. To accomplish this process there must be a method of tracking the care capability for STEMI patients and reviewing the quality of the process itself.

4. The program must provide all hospitals in the region the opportunity to participate in the system (an inclusive system), and to receive STEMI patients if they are willing to meet the system and operational criteria, as established by this plan.

5. The system must have an ongoing and effective Quality Improvement (QI) Program, in order to assure continuing appropriate function in providing the highly specialized care necessary in the management of STEMI. This program will include evaluation of: pre-hospital management, hospital management, and overall system function. Collection of a standard pre-hospital dataset and hospital dataset will be required of all system participants, allowing uniform system evaluation to document the effectiveness of the function of the STEMI system.

EAEMS Regional STEMI Plan: Overview

A plan has been developed for a STEMI System that meets the goals set forth in the previous section. A system is a group of individual components brought together to

function in a unified manner to achieve a specific end result. In this case, the end result is improvement in STEMI patient survival and outcome in the EAEMS region. The components to some degree have separate and individual identities and functions; however, there should be an understanding, a desire, and willingness to work together in a unified effort to reach the end result. The system requires a uniquely strong commitment to STEMI patients and their care. The Regional System consists of the hospitals designated as STEMI Centers and the protocols to be implemented for pre-hospital and hospital treatment of patients that have a STEMI event. These patients will be selected based upon the presence of STEMI system entry criteria included in the Regional STEMI Plan. If patients meet the primary triage criteria for system entry, the STEMI Centers will be utilized for their care. Patients who do not meet the primary triage protocols for entry into the system will not be designated as STEMI System patients and any reference to "STEMI System Patients" in this document does not pertain to this group of patients.

Systems require oversight of 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 East Alabama Emergency Medical Services System (EAEMS). This body has the responsibility for coordinating pre-hospital EMS and hospital Emergency Department activities in our region. The authority of this agency is derived from specific activity goals and plans approved by the ADPH/OEMS&T office, the State Emergency Medical Control Committee, and the State Board of Health. Also, the willingness of pre-hospital and hospital healthcare providers in our region to allow EAEMS to serve as the lead agency, so that STEMI care in our region is systemically improved, is the key to this program's success. The Medical Direction and Accountability Committee (MDAC) of EAEMS will serve as the leadership body for this organization and therefore will serve as the oversight body for this program.

The EAEMS Regional STEMI System involves the organization of already existing resources into a program providing comprehensive care for STEMI patients through all phases of their management from the moment of onset through rehabilitation. The two basic patient management components of this system are the pre-hospital providers and individual hospital organizations.

The system function involves the establishment and implementation of the protocols and STEMI triage criteria included in this Plan. Based upon need, modifications and additions may be developed at a later date. The entry criteria are intended to select patients with actual STEMI events. However it is recognized that not all patients with a positive pre-hospital 12 lead ECG are candidates for reperfusion therapy due to current medical/trauma problems, past or present medical history, co-morbid factors, patient preference, or a false positive monitor interpretation and these patients will be excluded from any system, hospital, or EMS performance studies. Upon determination that a patient has had a STEMI event and would benefit from interventional management, specific entry into the STEMI System will be accomplished and resource availability will be surveyed. Protocol directed STEMI Center destination will be determined and the care of these patients will be evaluated through the QI Program.

Once a patient is entered into the System, the closest system hospital with available resources matching the level of patient need can then be selected as the appropriate destination for that patient, using the Regional STEMI Plan criteria and protocols. Hospitals participating in this system and receiving STEMI system patients will have organized response systems, including 1) equipment and facilities; 2) trained and committed personnel; and 3) organized management protocols. An EAEMS Regional STEMI System database will be established using the LifeTrac STEMI documentation sheet (appendix B), which will provide the region with insight into the Quality Improvement needs in the care of STEMI patients in the EAEMS region. Furthermore, this system will allow documentation of modifications implemented to improve care of STEMI patients in the EAEMS region.

Finally, it is important to emphasize that STEMI is an emergent cardiovascular disease. The Emergency Department plays a critical role in STEMI management. Rapid availability of a cardiologist and the ability to perform interventional cardiology care are absolutely pivotal services in determining the survival and recovery of STEMI patients. Emergency Medicine and Cardiology leadership of hospital STEMI programs is, therefore, essential in order for hospitals to participate in the STEMI System. This leadership role must be clearly defined within the Hospital STEMI Plan along with specific appropriate authority to carry out that leadership role. Evidence of continuing leadership should be demonstrated through emergency physician and cardiologist participation in the EAEMS Regional STEMI System activities and through the individual hospital QI programs.

EAEMS Regional STEMI System: Components and Organization

The EAEMS Regional STEMI System 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.

I. PRE-HOSPITAL COMPONENT

EMS Units are an integral part of the EAEMS Regional STEMI System. All EMS personnel need to have a basic knowledge and awareness of the EAEMS Regional STEMI System elements and system function. This specifically refers to the entry criteria (identification of a STEMI) and communications procedures. On-line and off-line medical control physicians within the region will also need to be aware of the

EAEMS Regional STEMI System elements and system function. . If either pre-hospital providers or medical control physicians are unclear about entry criteria or system function this information can be easily obtained on a 24 hour a day basis from the Alabama Trauma Communications Center (ATCC).

II. HOSPITAL COMPONENT

Hospitals will participate in this system on a voluntary basis. Standards are present in Appendix A. Each hospital will be able to determine whether they are on-line (have adequate resources currently available and receive patients based on system operations protocols), are off-line (do not have adequate resources currently available and do not receive patients per the STEMI System), or are conditionally available (have resources available for certain STEMI patients). The participating hospitals will be able to go online and off-line at will.

Each STEMI hospital must have an Emergency Physician and Cardiologist responsible for oversight of the STEMI Program. This responsibility includes:

1. Working with administration to maintain the resources necessary to be a recognized STEMI Center.
2. Establishing and maintaining basic STEMI care protocols for the hospital.
3. Oversight responsibility for the Hospital STEMI QI Program per Plan standards, and participation in EAEMS Regional STEMI System administrative and QI activities as per the EAEMS Regional STEMI Plan, including data collection and reporting to EAEMS.

Hospital participation in the EAEMS Regional STEMI System is accomplished as follows:

1. The decision to participate must be made jointly by both Hospital Administration and Medical Staff, with the commitment of human and physical resources. An application is obtained from EAEMS, completed and returned, documenting the hospital's desire to participate.

2. An on-site orientation meeting at each applying facility is to be held to review the system design and function, plus the requirements to assure there is a full and complete understanding on the part of the hospital and the medical staff. This meeting must be attended by a minimum of the Emergency Medicine and Cardiologist leader of the STEMI program in that hospital, the Medical Director of the Emergency Department and a Hospital Administrator.

3. The EAEMS Regional office will review the application and on site visit report to document compliance with requirements and knowledge of system design and

function and provide a report to the EAEMS Medical Direction and Accountability Committee.

4. The EAEMS Medical Direction and Accountability Committee will make the final decision regarding hospital participation as a STEMI Center in the System. If approved, the hospital will become part of the System by executing a Memo of Understanding (MOU) with EAEMS documenting their willingness to actively participate in the System.

Hospitals, therefore, must elect whether or not to participate in this system based upon their individual ability to meet the standards for a STEMI Center, the desire of the Medical Staff to participate and support this program, and the willingness of the Hospital Administration to support the EAEMS Regional STEMI Program.

III. COMMUNICATIONS COMPONENT

Communications are critical to the function of the STEMI System.

Communications provide:
(1) essential knowledge of the overall status of pre-hospital STEMI activities and hospital resource availability on a continuous basis;

(2) access to system organization and function protocols whenever such information is requested by pre-hospital personnel or hospital based personnel;

(3) a link between the field and STEMI Centers for the rapid exchange of information including 12 lead ECG findings resulting in efficient pre-hospital care provision and hospital preparation for STEMI patient arrival;

(4) collection of uniform System-wide data for both QI activities and development of a EAEMS Regional STEMI database;

Providing all of these functions to the entire System on a continuous basis requires a central communications facility with constant communications capabilities to all pre-hospital units and participating hospitals, plus the ability to immediately and directly link the pre-hospital providers to the STEMI Centers. This central communications will be facilitated by the existing Alabama Trauma Communications Center (ATCC).

The ATCC is staffed 24 hours a day by personnel who will be provided with specific in-depth knowledge of the EAEMS Regional STEMI System design, function, and protocols. It will be the primary responsibility of the ATCC to coordinate the EAEMS Regional STEMI System activities by maintaining and providing information whenever needed on field status and hospital status so this data can be used by the pre-hospital and hospital personnel in providing care to patients meeting system entry criteria. The ATCC, a part of the EAEMS Regional STEMI System, will be managed by BREMSS, and oversight of the day-to-day operations of the ATCC is the responsibility of the

BREMSS Executive Director. The ATCC will operate through the system operations protocols. The ATCC will serve as a resource for such protocol information to EMS personnel who may not be familiar with the protocols. The ATCC will provide the coordination of pre-hospital and hospital resource utilization for STEMI management. Therefore, the general functions of the ATCC are:

1. Assigns unique system I.D. number for each patient meeting system entry criteria for tracking throughout the system.
2. Collects brief pre-hospital data including the pre-hospital 12 lead ECG findings.
3. Provides information on system entry criteria based on preset protocols as requested by EMS Personnel when it is not clear if a patient meets STEMI entry criteria.
4. Maintains knowledge of the functional status of all system hospitals at all times.
5. Maintains knowledge of the STEMI patient activity status in the pre-hospital setting at all times.
6. Coordinates patient destination based on preset protocols as to the closest currently operational Regional STEMI Center.
7. Coordination for optimal resource utilization using pre-established protocols for system function when there are multiple simultaneous events in the region.
8. Establish communication links between EMS provider and receiving facility.
9. Records and enters pre-hospital data for EAEMS Regional STEMI database.

An Emergency Resources Display is also part of the communications component. The Emergency Resources Display provides each participating hospital and the STEMI Communications Center with the continuous real-time functional status display of all STEMI Centers. The Emergency Resources Display is a simple computer system with terminals at each participating facility and the ATCC. This system provides a display grid listing each individual hospital, and the primary resource components indicating the availability or non-availability of these individual components in each hospital, including their current STEMI capability status.

The STEMI Centers will be able to change their resource availability status and activity level at any time. A record of STEMI hospital activity status for the entire system will be maintained through the Emergency Resources Display at the ATCC. 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 STEMI Centers and their overall functional status at any given time. This consolidated information table will be transmitted back to hospitals. The system is maintained automatically by central monitoring computers with automatic polling and display refresh. If a station's computer fails to acknowledge the poll, that hospital's information will be blanked out on all resource display monitors in the system. If there is an isolated failure at a resource display at a hospital that will not cause a total system fault, rather that hospital will be blacked out and the ATCC will call requesting the information directly. The system integrity is not dependent upon any single station's operation.

IV. DATA QUALITY IMPROVEMENT COMPONENT

This component is absolutely essential for function of the EAEMS Regional STEMI System. The efficacy of the initial care in STEMI patients plays a pivotal role in determining their outcome. Therefore, there is a need to evaluate the system function to determine continuing effectiveness in the management of STEMI. This component uses a system-wide STEMI database, which provides an overall look at STEMI emergencies, care and outcomes, provides information for use in determining and developing STEMI teaching programs, and provides information for use in potential STEMI research studies.

The STEMI QI Dataset is designed as a small dataset, with only twelve fields, and it is intended to fulfill the goals of this component as stated in the previous paragraph. A unique STEMI identification number will allow unification of pre-hospital and hospital data which will increase the data usefulness. The data fields are noted in the following list:

1. Incident location
2. Pre-hospital unit(s)
3. Activity times of pre-hospital
4. Co-morbid factors, current patient vitals and medications.
5. Receiving hospital
6. Patient and system demographics
7. Pre-hospital outcome
8. Hospital status/response
9. Emergency Department disposition
10. Initial (within the first 24 hours) procedures
11. Disposition within first 24 hours
12. Disposition at discharge

A more thorough listing of the STEMI QI Data set is present in Appendix B.

In addition to data collection, the quality improvement (QI) program is a component of the STEMI System. This program is necessary to the STEMI System 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 the individual agencies and hospitals performing their own QI evaluations and reporting to the EAEMS Medical Direction and Accountability Committee. The appropriateness, quality and quantity of all activities in the system must be continuously monitored in the areas of pre-hospital care, medical care of the patients in the hospitals and overall system function.

The basic QI process involves specific steps to be performed by each individual entity. These steps are:

1. Assignment of a QI manager to oversee the process in the organization and coordinate all STEMI system QI activities.

2. Development of a written QI program to evaluate STEMI patient care.
3. Establishment of a QI data collection method.
4. Completion of QI evaluations by the individual system participants. Cases to be evaluated include specific automatic audit filters such as major complications and death as well as those cases which are requested for review by those involved in the care of the patient.
5. Determination of the presence (or absence) of QI issues through the data evaluation process.
6. Discussion of QI issues at the formal QI Conference of each individual system participant.
7. Development and implementation of a corrective action plan.
8. Re-evaluation of the efficacy of the corrective action plan.

Adequate documentation of these activities is essential. In STEMI Centers a multidisciplinary peer review process must occur. In STEMI Center QI programs both medical care and STEMI Center function must be evaluated.

The MDAC has the goal of reviewing the entire Regional STEMI Program activities for appropriateness, quality, and quantity of activities. That review is to include system administration/organization activities, pre-hospital care and hospital care. The MDAC will document effectiveness of hospital and EMS Service QI evaluations through routine reports of these QI activities provided by each participating entity. The MDAC will perform focused review of specific items as determined appropriate, but these reviews will include evaluation of both pre-hospital and hospital activities. It is expected that most issues will be resolved by developing an action plan in conjunction with the various STEMI System 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 MDAC for evaluation and report to EAEMS Board of Directors. A more detailed outline of the Regional Quality Improvement Program is available in Appendix B. If the above procedure/process is not in compliance with an approved ADPH/OEMS&T State-Wide QI Plan the plan is automatically amended to reflect compliance with the approved plan.

V. STEMI SYSTEM IMPLEMENTATION

The STEMI System will be implemented by EAEMS and will utilize the State of Alabama Protocols. The Medical Direction and Accountability Committee will provide oversight of the implementation and operations of the STEMI System.

VI. STEMI SYSTEM OPERATIONS

Monitoring and primary management of system function during the continuing operation of the STEMI System will be the responsibility of the MDAC. This committee will be directly responsible and report to EAEMS Board of Directors.

The MDAC will have a specific accountability for direct on-going system governance which will occur by evaluation of issues/situations/ideas and standard system data

regarding operations and configuration. Recommendations for action will be developed by the committee based on analysis of data/information evaluated during committee function.

The duties of the MDAC include the review of the overall function of the STEMI program including hospital and pre-hospital activities. This includes review of criteria, data, or reports. This information will be evaluated regarding adequacy of these various activities and for development of system function reports and recommendations regarding the hospital or prehospital components or functions, including responsibilities, standards, and activities. If recommendations directly involve pre-hospital aspects of the STEMI program, they will be referred to the MDAC for review and comment and then the recommendation in final form will be sent to the Executive Committee for action.

Areas of responsibilities include:

1. STEMI Center resource requirements criteria
2. STEMI Center membership in the System
3. STEMI Center removal from the System
4. Communications within the System
5. Pre-hospital and hospital dataset
6. Pre-hospital and hospital quality improvement programs
7. Patient entry criteria into the STEMI System
8. Pre-hospital activities in the System
9. Monitoring of ongoing system requirements/standards/activities and use of system function protocols

EAEMS Regional STEMI System: Function

General function of the System will follow the scenario of:

1. STEMI event occurs or warning signs/symptoms are present and 911 is called.
2. Field evaluation done by EMS personnel, who determines if the patient meets system entry criteria as determined by 12 lead ECG. When a patient meets system entry criteria, ATCC will be contacted.
3. Communication is established with the ATCC and brief basic information, including 12 lead ECG findings, is provided to the ATCC on all STEMI patients to be transported to a hospital.
4. The current STEMI Center activity status (from the Emergency Resources Display) and patient location determine hospital destination. Patient choice shall always be honored, however if a STEMI patient makes a hospital destination choice that is not in his/her best interest, the EMS personnel may request that the On-Line medical control physician speak with the patient.
5. A direct patched communications link to the closest available STEMI Center or

STEMI center of patient choice is provided by the ATCC to the field EMS personnel if needed.
6. Medical direction is established with the receiving STEMI Center by the communications link; orders are provided as needed.
7. Pre-hospital care is completed and transport to the destination STEMI Center is initiated.
8. Destination STEMI center initiates care following their approved care plan.
9. Data points on the ATCC form are completed by the receiving hospital and returned via fax to ATCC. ATCC will enter the data in the data base and forward to EAEMS; EAEMS will forward a copy to the EMS organizations involved with the patient.
10. At thirty days or less the hospital data responsible party will be contacted by EAEMS to determine the patient discharge data points.
11. Data is reviewed by hospital QI committee as well as MDAC and any needed system changes are recommended to the EAEMS Executive Committee.

Specific functions relative to the STEMI System are described in the following sections.

A. SYSTEM ENTRY CRITERIA

Patients are to be entered into the STEMI System based on the following criteria:

1. STEMI as identified by 12-Lead ECG monitor/defibrillator.
2. Possible STEMI –EMS personnel will be given some discretion to alert ATCC of a "Possible" STEMI based upon ECG findings and clinical presentation, allowing the patient to be preferentially triaged to the nearest STEMI capable hospital after consultation with the receiving emergency physician. For purposes of this document,

"STEMI" patients and "Possible STEMI" patients will be cared for in the same manner.

B. COMMUNICATIONS

Maintenance of adequate and prompt communications is essential to function of the STEMI System. Knowledge of the system-wide pre-hospital STEMI 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 STEMI activities are occurring simultaneously. Communications allow differential system resource utilization when there are multiple STEMI activities ongoing simultaneously. The key to system function is full knowledge of ongoing activities in all parts of the system at all times.

Knowledge and coordination of the continuous status of STEMI Center activity will be monitored by the ATCC. All STEMI patients requiring transport are to be called in to the ATCC. The responding EMS personnel will provide basic system entry data to the ATCC and the ATCC will thereby assist the EMS personnel with locating the closest appropriate STEMI Center.

If the transporting EMS personnel determine in his/her best judgment the patient is/will be a STEMI patient, ATCC will determine the closest available STEMI hospital and link the EMS personnel and Physician. The Physician's decision to place the patient in/out of the STEMI system is final.

The ATCC will establish a direct patched communications link with the receiving STEMI Center hospital, and provide them with the basic information. The field EMS personnel will then be able to communicate any additional pertinent data and receive medical control while the hospital is simultaneously activating its STEMI response system. The transporting EMS personnel will maintain contact as appropriate with the receiving STEMI Center hospital, and provide information updates if changes in the patient's status or transport plan occur. The EMS personnel are to reconfirm STEMI Center ETA once transport has been initiated. If radio failure occurs, direct contact between the EMS unit and their dispatch should be established with relay of information to the ATCC by phone.

C. SYSTEM OPERATIONS

System operations refers to the activities that occur once it is determined a patient meets system entry criteria and communications has been established within the system. These activities include STEMI Center destination determination, continuing communications, provision of field care, patient transport, and STEMI Center management.

1. Hospital Destination

Hospital destination will be determined by the closest available STEMI Center or the patient choice. The hospital status is determined by the Emergency Resources Display at the ATCC. That equipment is described in the Communications Component, 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 (active), yellow (conditional), or red (inactive) status.

Green status means the hospital has all resources available and may receive STEMI patients based on location. Green status requirements involve the following resources be available: Emergency Department (ED), Cardiac Care Unit (CCU), Catheterization Laboratory (CATH Lab), Cardiologist (CARD). Hospitals may self-designate their STEMI status as available even if on ED diversion. This decision must be made at the individual hospital level.

Yellow status indicates that the Catheterization Lab and or the cardiologist are not immediately available (but is/are promptly available), but the ED and CCU are available.

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

In the event that 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 STEMI System and a specific request to follow the established STEMI System Plan will be made of the patient. The patient's wishes will, however, ultimately prevail.

In situations where EMS-to-PCI time will likely exceed 90 minutes due to delays such as prolonged transport times, EMS personnel with the assistance of the ATCC communicator will screen STEMI patients for thrombolytic eligibility using the State of Alabama EMS Protocols Thrombolytic Checklist for Cardiac Symptoms (Protocol 10.1). If cardiogenic shock or an absolute contraindication to thrombolytic therapy is present, the patient will be routed to the nearest available PCI center with a goal of EMS-to-balloon time of 90 minutes or less, although this may not always be practically achievable. If thrombolytic therapy is the chosen reperfusion modality, the goal will be to administer this with an EMS-to-drug time of thirty minutes or less. When any uncertainty exists about the most appropriate routing for a particular STEMI patient, EMS personnel will seek online medical direction with the assistance of the ATCC as to appropriate routing.

If the patient is unstable (inadequate spontaneous ventilations without a secured airway or in cardiac arrest) the patient should be transported to the closest hospital with full time Emergency Physician coverage as coordinated by the ATCC. A secured airway includes any airway device that allows adequate ventilation and oxygenation.

2. Interfacility Transfers

In the event that a STEMI patient is received by a non-STEMI hospital or a STEMI hospital without current capacity for the patient, ATCC will assist with arranging an inter-facility transfer to a hospital with active STEMI capabilities. This will be performed by arranging physician to physician communication. Any hospital participating in the STEMI system which is STEMI ready, agrees to accept the STEMI patient upon ATCC's request.

3. Pre-hospital System Activities

Pre-hospital care will be carried out following the guidelines of the Regional Medical Direction and Accountability Plan. The ADPH/OEMS&T pre-hospital care protocols will be used for primary guidance in pre-hospital STEMI management. Patients entered into the STEMI System will receive their medical control from the STEMI receiving hospital, which will be immediately accessible through the communications link between the ATCC and that destination hospital. Any significant patient condition changes are to be communicated directly to medical direction at the receiving STEMI Center as those changes may result in updating the orders and altering the destination hospital STEMI Team activation. Field time should be kept to a relative minimum; however pre-hospital care should not be sacrificed for less time on scene. In transit treatment of STEMI patients should be considered. STEMI patients are best served by rapid transport to the most appropriate facility.

4. Hospital System Activities

Hospital STEMI management is an essential part of any STEMI System. This phase of STEMI 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 invasive treatment plus critical care and recuperative care as necessary. In addition, cardiac rehabilitation services should be initiated as appropriate. Resources necessary to provide care are documented through the STEMI Center standards.

SYSTEM COMPLIANCE EVALUATION AND ACTION

Compliance by participating agencies and hospitals with the requirements and protocols of this STEMI system is essential for proper patient management. Therefore, a specific program for monitoring compliance with requirements and function protocols will be a part of the STEMI System. This will be a function of the MDAC. Reports regarding compliance issues will be made to the EAEMS Board of Directors. Maintenance of compliance with requirements, standards, and system function protocol activities for individual personnel and agencies involved in the STEMI System means:

A. Maintaining component and organization standards as established by the Plan.

1. Pre-hospital: Pre-hospital entities have the responsibility to assure their individual EMS personnel have a basic knowledge and awareness of the STEMI System including entry criteria and basic operations. This includes ability of EMS personnel use their monitor/defibrillator to identify STEMI on a 12 lead ECG.

2. Hospital Component: Continue to meet all STEMI Center resource requirements for their status.

3. Communications Component: Each entity is responsible for maintaining communications equipment used in the STEMI System in proper working order.

4. Data/QI Component: Each entity is responsible for maintaining and providing data to the STEMI System as indicated in the EAEMS Regional STEMI System Plan. For pre-hospital EMS services this means providing data to the STEMI Communications Center which is then placed in the STEMI System Database. For hospitals this means maintaining and providing the hospital based information in the STEMI QI dataset. Participating entities need to maintain their individual STEMI QI Programs. They are to provide reports of these activities to the MDAC on a timely basis. If the above procedure/process is not in compliance with an approved ADPH/OEMS&T State-Wide QI Plan the plan is automatically amended to reflect compliance with the approved plan.

5. Personnel from pre-hospital and hospital organizations are to participate in MDAC activities per membership responsibilities. It is expected there will be 75% attendance of meetings by members.

B. Maintaining system function as noted in the EAEMS Regional STEMI System Plan.

1. System entry criteria as specifically defined in the Plan or currently active protocols are to be used by EMS personnel to determine patient entry into the STEMI System.

2. Communications as outlined in the Plan and currently approved protocols are to be initiated and maintained by EMS units. This involves initiating communications with and providing information to the ATCC and compliance with the system operations protocols.

3. System operations are provided by individual entities as per the Regional STEMI System Plan including currently approved protocols.

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

C. The pre-hospital component requirements, standards, and system function protocols are part of the EAEMS Regional Medical Direction and Accountability Plan and deviation from that plan will result in the following actions by the EAEMS Board of Directors:

1. First breach of activity standards will result in a letter to the pre-hospital 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 will result in another letter to the pre-hospital service with a copy to the ADPH/OEMS&T 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 a letter to the ADPH/OEMS&T Office for evaluation and action.

4. If the above procedure/process is not in compliance with an approved ADPH/OEMS&T State-Wide QI Plan, the plan is automatically amended to reflect compliance with the approved plan.

D. Hospital participation in the System is governed by the MOU between EAEMS and each hospital. Deviations from requirements, standards or system function protocols governed by the MOU may result in the following actions by the EAEMS Board of Directors:

1. The first breach of an activity standard will result in a letter 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 STEMI System 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 MOU failure and suspension of that facility from the STEMI System for a period of 30 days as per decision of the EAEMS Board of Directors with the suspension time doubled for subsequent deviations of the same standard.

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

APPENDIX A: STEMI CENTER STANDARDS

A hospital to be recognized as a STEMI Center must have available the following minimum personnel, facility, and plans:

HOSPITAL ORGANIZATION

1. STEMI Service Line or Equivalent
2. STEMI Service Director
3. Hospital Department/Sections
    a. Cardiology
    b. Catheterization Lab
    c. Emergency Medicine
    d. Cardiac Care Unit or beds set aside specifically for STEMI patients
4. STEMI treatment protocols or care plan in place

CLINICAL CAPABILITIES

1. Specialty availability (means contact made and care plan determined) upon notification of patient need:
    a. Emergency Medicine (10 minutes)
    b. Cardiology (30 minutes after notification by the Emergency physician, or by hospital plan)
    c. Catheterization Lab and with intervention capability, within 30 minutes of notification by the cardiologist

2. Consultants availability (on-call):
    a. Internal Medicine
    b. Neuroimaging

FACILITIES & RESOURCES

1. Emergency Department
    a. Personnel
        1) Designated Physician Director
        2) Emergency Medicine Specialists present
        3) Nursing personnel with expertise (ACLS) to provide continuous monitoring to cardiac patients until their admission to a hospital unit
    b. Equipment
        1) Airway control & ventilation equipment
        2) Pulse oximetry
        3) End-tidal CO2 determination
        4) Suction devices
        5) Electrocardiograph - 12 lead
        6) Cardiac marker capability to collect and read
        7) Standard intravenous fluid administration equipment

8) Sterile sets for percutaneous vascular access (venous & arterial)
9) Gastric decompression
10) Drugs necessary for emergency cardiac care
11) Two-way communication with emergency vehicles

2. Intensive Care Unit-bed (CCU) for STEMI Patients
   a. Personnel
      1) Designated medical director
      2) Specialists with privileges in critical care, in-house or immediately available

   b. Equipment -- Appropriate cardiac monitoring equipment

3. Catheterization Lab
   a. In-house lab technical personnel capable of assisting in all phases of cardiac catheterization and appropriate cardiac invasive techniques. Must be available within 30 minutes of notification by the cardiologist.

4. Rehabilitation
   a. Rehabilitation services protocol for cardiac patients
   b. Full in-house service or transfer agreement with cardiac rehabilitation facility

5. Clinical Laboratory Services
   a. Standard analyses of blood, urine, etc.
   b. Blood typing and cross-matching
   c. Comprehensive blood bank or access to equivalent facility
   d. Blood gases and pH determinations
   e. Comprehensive coagulation testing
   f. Cardiac Marker Testing

CONTINUING EDUCATION

Formal programs on Acute Coronary Syndrome-STEMI provided for:
1. Staff physicians
2. Nurses
3. Allied health personnel
4. Community physicians

STEMI SERVICE SUPPORT PERSONNEL

STEMI coordinator
LifeTrac STEMI information coordinator

APPENDIX B: STEMI QI DATA SET

Data will be collected and placed on the LifeTrac STEMI sheet and faxed to ATCC. This data will then be entered by ATCC on the individual ATCC data sheet and the hospitals data base will also be updated .Predetermined query programs will be installed on each hospitals computer as well as at ATCC. This information is listed below and the information faxed to EAEMS:

STEMI – ATCC – Hospital Admission Data Points

To be completed by hospital on the ATCC STEMI form and faxed to ATCC

EAEMS to provide CC to EMS organization, ATCCC involved, and enter into the database

- Hospital performed 12 Lead STEMI positive - Yes, No, LBBB, Inconclusive

- Thrombolytics used - □ Yes, □ No

- Patient emergently sent to cath. lab - □ Yes, □ No

- Cath. Lab. Outcome – Was PCI attempted □ Yes, □ No
Was PCI successful □ Yes, □ No
Door to PCI time in minutes _____
Did the patient have an ACS? □ Yes, □ No

- Patient sent to Cardiac Surgery - □ Yes, □ No

- Patient admitted to - □ CCU, □ ICU, □ Floor, □ Home, □ Other

- Patient alive - □ Yes, □ No _____ Date _____Time

STEMI Hospital Discharge Data Points

To be completed by the hospital data responsible party, who will be contacted by EAEMS 30 days after admission to determine the following data points based on discharge information:

Alive or dead
Discharge date _____
Coronary Artery Bypass surgery - □ Yes, □ No
Percutaneous re-intervention on same vessel - □ Yes, □ No
Percutaneous re-intervention on another vessel(s) - □ Yes, □ No

APPENDIX C: CONTINUOUS QUALITY IMPROVEMENT

A. Quality improvement is a vital part of a STEMI System. It is used to document continuing proper function of the system and evaluation of that function to implement improvements in system function and STEMI victim management. In a STEMI System 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 perform evaluation functions to assure that the highest level of care is being provided and that improvements are implemented whenever possible in a timely manner.

B. This QI program will be System-wide. There will be individual agency efforts on the part of all participating agencies. Every participating facility or organization will be represented on the MDAC and continuing participation of all the various entities involved in STEMI care is mandatory.

C. The appropriateness, quality, and quantity of all activities of the System must be continuously evaluated. Specific audit filters will be established and re-assessed by the MDAC.

D. In general the following processes should be performed by each agency or institution. The results of these reviews are to be reported to the MDAC.

a. Each organization assigns QI person to oversee process
b. Standards established
c. Determine audit filters
d. Collect data
e. Evaluate data
f. Determine QI 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. Pre-Hospital Specific Items for Evaluation (included but not limited to):

a. Accuracy of patient assessment and 12 lead ECG interpretation via the monitor/defibrillator
b. Protocol adherence
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

F. Hospital Care Items for Evaluation (included but not limited to):

a. Complications
b. Deaths
c. Outcome Review
d. Achievement of Time-sensitive goals (e.g. door to balloon time)

G. Regional System Items for Evaluation (included but not limited to):

a. Communications Function and Appropriateness
b. Triage matching of needs/resources

H . MDAC: QI Function

1. Goals – The MDAC will be responsible for the QI oversight of the EAEMS Regional STEMI Plan. All agencies and organizations have representation on the MDAC and are expected to actively participate, as previously outlined.

2. STEMI System QI Process

a. Brief report of QI activities from each participating agency and organization
b. General system information
c. Focused review of items of major concern/impact including selected cases
d. Develop consensus of issues that represent QI concerns
e. Develop action plan
f. Have re-evaluation process to determine effectiveness of action plan results
g. Complete reports of a summary nature including any recommendations for change or action will be made to the EAEMS Executive Committee. Individual physician medical care issues will initially only be reported to the STEMI director of the facility providing care in that situation and be made by personal communication from the MDAC Chair.

3. An individual appointed by the ADPH/OEMS&T will be invited to participate in all STEMI meetings involving QI issues to act as a liaison to the State-Wide QI process.

4. If the above procedure/process is not in compliance with an approved ADPH/OEMS&T State-Wide QI Plan the plan is automatically amended to reflect compliance with the approved plan.

APPENDIX D: MDAC NOMINATION FORM

Hospital Name _____

Area of Representation	Name of Nominee
Emergency Medicine Physician	_____
Emergency Nursing	_____
Hospital Administration	_____
Cardiologist	_____
Cardiac Surgeon	_____
STEMI Nursing	_____
STEMI Registry Personnel	_____

Pre-hospital agency

Name _____

Area of Representation	Name of Nominee
EMS personnel	_____
Fire service administration	_____
Ambulance Service administration	_____

East Alabama Regional Stroke System Plan

JUNE 17, 2010

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STROKE PLAN BACKGROUND

Stroke is a serious and common illness. Data on the incidence of stroke, collected by the American Heart Association, indicated that in the United States there is a stroke about every minute and a person dies of stroke about every 3 ½ minutes. At the moment, there are 3 to 4 million Americans who had a stroke yet are still alive. The death rate is approximately 30% of all stroke victims. This rate has declined significantly over the last several decades, not due to therapy for stroke, but due to excellent treatment of the complications that occur after a stroke.

We can put the stroke problem into perspective by comparing it to other neurological illnesses. For example, Parkinson's disease affects about 50,000 new patients every year, and there are now at least 350,000 Americans with Parkinson's disease. Every year about 400,000 new cases of Alzheimer's disease are diagnosed; there are about 1 million people alive with the disease. About 125,000 new cases of epilepsy occur each year and about 2 million Americans are currently affected. Traumatic brain injury affects 300,000 cases each year; new brain tumors are found in 25,000 people each year. Clearly, stroke affects more people every year than any of these other illnesses, with Alzheimer's disease coming closest - about 400,000 new cases compared to 500,000 new cases of stroke. And in terms of survivors - patients who require care and patients who require resources - the 3 to 4 million stroke patients far and away present the biggest problem.

What happens to stroke survivors? Recent studies of acute stroke using the modified Rankin disability scale, in which the worst outcome is death (a Rankin score of 5), show that the percentage of patients who die is between 16% and 23% in the first 3 months. On the Rankin scale, a score of 0 or 1 indicates a good outcome, or normal recovery, after stroke. In these studies, only 25% of patients recover fully. Considering the 20% who die, this leaves approximately 55% of stroke patients (those with a Rankin score of 2,3, or 4) with varying degrees of disability at 3 months after stroke. These numbers are approximately the same at 1 year after the stroke. It is this group that creates an ongoing burden to society, to the patient, and to their families. These patients are impaired in basic activities of daily living such as feeding, bathing, and grooming. What other limitations do handicapped stroke survivors face? The most interesting finding is that 40% of handicapped survivors feel they can no longer visit people. Other significant handicaps include impairments in walking, helping around the house, doing dishes, and cooking. Almost 70% of handicapped stroke survivors report that they can't read. Life for stroke survivors can be bleak: they are no longer as mobile as they once were; they can't read books or the newspaper; they can't enjoy hobbies as they once did; they can't help with the shopping or the gardening. Almost 100% can't help out with the housework. The magnitude of the problem to the individual is enormous.

Stroke can result from several different diseases. Of the 500,000 strokes that occur each year, 400,000 are caused by infarctions (most are first-time strokes, some are second time strokes), and 100,000 are hemorrhagic, either intracerebral or subarachnoid. A hemorrhagic stroke can be a hematoma, a disease that occurs in the

same age group and is associated with the same risk factors as infarction. But unlike patients with infarctions, about 60% of patients with a hematoma die. And most of the survivors are left gravely disabled. Subarachnoid hemorrhage is a disease of young and middle-aged adults. There are about 30,000 of these cases every year: 80% of them are due to a ruptured berry aneurysm, 50% of which are fatal, and half of the survivors are left disabled. These patients, since they are only 30 or 40 years old at the time of the stroke, require the same services as older stroke patients but for a much longer period of time. Serious complications of subarachnoid hemorrhage include vasospasm, which can be treated.

Stroke is a very expensive disease. Of the first-year costs, 50% accrue during inpatient hospitalization. The distribution of costs among patients, though, is skewed: 10% of people account for about 30% of the total cost. And although 80% of strokes are from infarctions, only half of the costs are due to infarction, indicating that hemorrhages account for a disproportionate share of the cost of stroke. Medical costs for a patient with a mild stroke are approximately $8,000. For patients with more severe strokes, including patients with intracerebral hemorrhage, the cost is approximately $15,000 for an admission for the first year. For patients with subarachnoid hemorrhage, the cost is almost $30,000. These patients are more seriously ill. They spend more time in intensive care units and require more care after discharge from the hospital. Dying from a stroke doesn't save money. If a patient dies of a stroke, the cost is approximately the same as the cost of caring for a stroke inpatient. A TIA costs about $4,000, on average, for an inpatient. A fatal intracerebral hemorrhage is slightly less expensive than a stroke, and a fatal subarachnoid hemorrhage is about $10,000 less.

References

1. Anderson CS, Linto J, and Stewart-Wynne EG. A population-based assessment of the impact and burden of
caregiving for long-term stroke survivors. Stroke 1995;26:843-849.
2. Solomon NA, Glick HA, Russo CJ, et al. Patient preferences for stroke outcomes. Stroke 1994;25:1721-1725.
3. The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. Tissue plasminogen
activator for acute ischemic stroke. N Engl J Med 1995;333:1581-1587.

The announcement, in late 1995, that acute ischemic stroke can be successfully treated with thrombolytic agents created the need for a national plan on how to make this treatment available to eligible patients as rapidly as possible. While thrombolytic therapy of ischemic stroke with t- PA was the impetus for care changes, it was recognized from the outset that the successful treatment of any type of stroke will require rapid response to all stroke types.

Specifically:

- Prehospital emergency response systems must train personnel to correctly identify potential candidates for treatment and work closely with hospital emergency departments to transport these patients rapidly to appropriate stroke centers. Thrombolytic therapy for ischemic stroke requires an especially rapid response in the first few minutes after a patient arrives at a hospital.

- Emergency departments must have specialized protocols in place for identifying candidates for therapy and treating those that require therapy within a narrow therapeutic time window.

- Hospitals must develop comprehensive acute stroke plans that define the specialized roles of nursing staffs, diagnostic units, stroke teams, and other treatment services such as pharmacy and rehabilitation.

- To take full advantage of effective stroke treatment, all health care systems involved in managing eligible patients must be carefully integrated, taking into consideration the wide diversity of health care that exists throughout the United States, from rural settings with minimal access to specialized care to urban settings with a high volume of emergency patients.

- Public education is critically important in ensuring that all of the efforts cited above are successful. The public must learn that a brain attack is a medical emergency, that a treatment is now available for some stroke patients, and that this treatment is only effective when given within a few hours of the onset of symptoms.

Prehospital Emergency Medical Care Systems:

- EMS personnel must be trained to treat stroke as a time-dependent, urgent medical emergency, similar to acute myocardial infarction.
- A Chain of Recovery - beginning with the identification (either by the patient or an onlooker) of a possible stroke in progress and ending with a rehabilitation plan - must be established in every community of the country.
- New educational initiatives must be developed and implemented for all medical personnel in the Chain of Recovery, including 911 dispatchers, EMS personnel, and air medical transport personnel. This will require the creation of task forces to develop model educational initiatives, and standardized data sets to help ensure effective research and outcomes analyses.

Emergency Department:

- Acute stroke patients should be classified as quickly as possible to identify those eligible for thrombolytic therapy. Although this classification will often be done by physicians in emergency departments, it may also be accomplished by others, e.g., prehospital care providers, triage nurses, or other individuals competent to apply categorization criteria. Patients deemed ineligible for thrombolytic therapy will undergo a different rapid categorization to establish what treatment they should receive.
- Response systems, including optimal time frames, must be established, maintained, and monitored in all emergency departments. The goal should be to
  (a) perform an initial patient evaluation within 10 minutes of arrival in the emergency department,
  (b) notify the stroke team within 15 minutes of arrival,
  (c) initiate a CT scan within 25 minutes of arrival,
  (d) Interpret the CT scan within 45 minutes of arrival, and
  (e) transfer the patient to an inpatient setting within 3 hours of arrival.

- Although medical management of blood pressure remains a controversial and complex topic, general guidelines were outlined at the Symposium. For example, for acute stroke patients who are candidates for thrombolytic therapy, antihypertensive treatment should not be given if systolic blood pressure is less than 185 mm Hg or diastolic pressure is less than 105 mm Hg. Acute stroke patients with a diastolic pressure greater than 140 mm Hg or a systolic pressure greater than 220 mm Hg on two readings are generally not candidates for thrombolytic therapy, although antihypertensive treatment should be given.

Acute Hospital Care:

- Every hospital providing care to stroke patients should develop a Stroke Plan that defines the optimal treatment pathways appropriate for that particular institution.
- Patients who meet thrombolytic treatment criteria should have access to stroke expertise within 15 minutes of hospital arrival and neurosurgical expertise within 2 hours of hospital arrival. Other timeframe recommendations are outlined above under “Emergency Department.”
- A Stroke Toolbox containing guidelines, algorithms, critical pathways, NIH Stroke Scale training tapes, and other stroke templates should be created, updated, and made easily available through the NINDS.
- Health professional training programs should be modified to include standards of acute stroke care and the Acute Health Care Panel endorsed specialty-specific continuing medical education related to acute stroke.
- Criteria for primary, intermediate, and comprehensive stroke centers should be established.
- Communities should be encouraged to create local and regional stroke networks encompassing all levels of acute stroke care.

Health Care Systems:

Creating an efficient stroke care delivery system should start with identifying committed prehospital and hospital leaders who will act as “champions.” The task of these champions will be to develop and sustain teams for managing stroke patients through the various phases of care. Champions should use flow-charting techniques to help them understand the current components of care, decide on necessary modifications, and implement these modifications.

All components of the stroke care delivery system must be integrated functionally, financially, and legally so they work together seamlessly. Those who activate the acute stroke treatment system should work with the approach that “one call does it all,” with everyone on the team linked with pagers or cellular phones.

Key indicators for acceptable outcomes of acute stroke care must be identified. Indicators should be established for the prehospital setting, the emergency department, and the acute stroke care unit within the hospital, as well as for the variety of discharge settings, including rehabilitation facilities.

Public Education:

- Behavior change is achievable, as demonstrated by many past public education successes. But change occurs slowly, so those implementing public education campaigns must be persistent and patient.
- Big, comprehensive programs that employ many communications vehicles are the most effective.
- Motivation to change occurs when the public perceives that the benefits of change exceed the cost of change. The messages about seeking prompt health care after a stroke must be simple, clear, and repeated often.
- We must understand our audience, which is comprised of many subgroups with different backgrounds and different methods of learning. Messages must be tailored to these various groups.
- Success is most likely if public educators follow a Madison Avenue approach to delivering messages. In this approach, strategy always precedes execution, and the best strategy tool to use is the creative brief, a document that defines the target audience, identifies the desired actions to be taken by that audience, presents current consumer beliefs and barriers to taking action, and establishes long-term goals.

EAEMS STROKE SYSTEM GOALS

The primary goal of this EAEMS Regional Stroke System Plan is:

To develop a Stroke Emergency Care System that, when implemented, will result in decreased stroke mortality and morbidity in the region. In order to accomplish this, we have identified a number of specific processes deemed essential. These are:

1. The ability to rapidly and accurately identify stroke patients.

2. Patients who have sustained or are likely to sustain a stroke must receive care in a hospital that has a stroke treatment program in place (i.e. a Stroke Center) which is capable of providing immediate and comprehensive assessment, resuscitation, and definitive care, plus establishing rehabilitation access when needed.

3. There must be continuous and effective region-wide coordination of pre-hospital and hospital care resources, so that stroke patients will be most expeditiously transported to the closest stroke center, so their care can be provided in a manner that is both appropriate and timely, while establishing and maintaining continuity. To accomplish this process there must be a method of tracking the care of stroke patients.

4. The program must provide all hospitals in the region the opportunity to participate in the system (an inclusive system), and to receive stroke patients if they are willing to meet the system and operational criteria, as established by this task force.

5. The system must have an ongoing and effective QI Program, in order to assure continuing appropriate function in providing the highly specialized care necessary in the management of stroke. This program will include evaluation of pre-hospital management, hospital management, and overall system function. A standard pre-hospital dataset and hospital dataset will be required of all system participants, allowing uniform system evaluation to document the effectiveness of the function of the stroke system.

EAEMS REGIONAL STROKE SYSTEM OVERVIEW

A plan has been developed for a Regional Stroke System that meets the goals set forth in the previous section. A system is a group of individual components brought together to function in a unified manner to achieve a specific end result. In this case, the end result is improvement in stroke survival and outcome in our region. The components to some degree have separate and individual identities and functions; however, there should be an understanding, a desire, and willingness to work together in a unified effort to reach the end result. A voluntary system requires a uniquely strong commitment to stroke. The Regional Stroke System is constituted by the hospitals designated as Stroke Centers and the protocols to be implemented for pre-hospital and hospital treatment of patients that have a stroke or a high probability for stroke.

These patients will be selected based upon primary triage criteria (system entry criteria) included in the Regional Stroke Plan. If patients meet the primary triage criteria for system entry, the system function protocols and specialized stroke care resources at the Stroke Centers will be implemented for their care. Patients who do not meet the primary triage protocols for entry into the system will not be Stroke System patients and any reference to Stroke System Patients in this document does not pertain to this group of patients.

Systems require oversight of 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 proposed lead agency is East Alabama Emergency Medical Services, Inc (EAEMS). This body has the responsibility for coordinating pre-hospital EMS and hospital Emergency Department activities in our region. The authority of this agency is derived from specific activity goals and plans approved by the ADPH/EMS office and the State Board of Health, and the willingness of pre-hospital and hospital healthcare providers in our region to allow EAEMS to serve as the lead agency so that stroke care in our region is systemically improved. The Board of Directors of EAEMS serves as the leadership body for this organization and therefore, will serve as the oversight for this program. The Regional Stroke System basically involves the organization of already existing resources into a program providing comprehensive care for stroke patients through all phases of their management from the moment of onset through rehabilitation. The two basic patient management components of this system are the pre-hospital providers and individual hospital organizations (i.e. Stroke Centers). The system function involves the establishment and implementation of the protocols included in this Plan. Based upon need, modifications and additions may be developed by the MDAC for system operations.

The entry criteria are intended to select patients with actual or a high potential for having a stroke. It is estimated that two to three patients per a 24-hour period will be entered in the system. Upon determination that a patient has had or has a high probability for a stroke and would benefit from specialized Stroke Center management, specific entry into the Stroke System will be automatically accomplished and resource availability will be surveyed. Entry into the system means that a patient meets specific triage criteria indicating an actual or high probability of a stroke and the specialized Stroke System resources will be used in their care. Protocol directed Stroke Center destination will be determined and the care of these patients will be evaluated through the QI Program. A Stroke System which reports stroke patients into a centralized facility enables the most appropriate resource utilization and the most appropriate care to be provided.

Once a stroke patient is entered into the System, the closest system hospital (i.e. Stroke Center) with available resources matching the level of need can then be selected as the appropriate destination for that patient, using the Regional Stroke Plan criteria and protocols. Hospitals participating in this system and receiving stroke patients will have organized response systems, including 1) equipment and facilities 2) trained and

committed personnel 3) organized management protocols such as that in the Advanced Cardiac Life Support.

A regional stroke database will be established, which will allow generation of overall knowledge of the magnitude and scope of stroke in our region, determination of teaching and training needs in stroke, and will be used in conjunction with other ambulance services and hospital evaluations in a continuous quality improvement program to evaluate the stroke care and be able to document appropriateness and quality, with implementation of improvements utilizing this evaluation process. The MDAC will oversee the program during its continuing function. The MDAC will be directly responsible to the lead agency. They will make recommendations regarding the Stroke System to the lead agency for action. The MDAC will specifically review the continuing function of the Stroke System and prepare routine reports regarding system function and QI review summaries for the lead agency.

Finally, it is important to emphasize that Stroke is a neurological disease. The Emergency Department plays a critical role in stroke management, but Neurological and Neurosurgical Care are absolutely pivotal services in determining the survival and recovery of stroke patients. Neurological leadership of hospital stroke programs is, therefore, essential in order for hospitals to participate in the Stroke System. This leadership role must be clearly defined within the Hospital Stroke Plan along with specific appropriate authority to carry out that leadership role. Evidence of continuing leadership should be demonstrated through neurologist's participation in the Regional Stroke System activities and through the individual hospital QI programs.

COMPONENTS AND ORGANIZATION

The Regional Stroke System 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.

PRE-HOSPITAL COMPONENT

EMS Units are an integral part of the Regional Stroke System. However, their organization will not be changed by the Regional Stroke System. Conversely, changes in the make-up of EMS Units will not affect the functional status of the Regional Stroke System. There is, nevertheless, a specific issue regarding the pre-hospital component of the Regional Stroke System:

All EMS personnel need to have a basic knowledge and awareness of the Regional Stroke System elements and system function. This specifically refers to the 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 Trauma/Stroke Communications Center so that they can then apply the system stroke protocols in field care situations.

HOSPITAL COMPONENT

Hospitals will be able to participate in this system on a voluntary basis. Standards have been developed by the MDAC. These are present in Appendix A. Each hospital will be able to determine whether they are on-line (have adequate resources currently available and receive patients based on system operations protocols) or are offline (do not have adequate resources currently available and do not receive patients per the Stroke System). The participating hospitals (i.e. Stroke Centers) will be able to go on-line and off-line at will. Each hospital must have a Neurologist primarily responsible for oversight of the Stroke Program. This responsibility includes:

1. Working with administration to maintain the resources necessary to be a designated Stroke Center.

2. Assuring that call schedules that provide physician availability are prepared on a monthly basis.

3. Establishing and maintaining basic stroke care protocols for the hospital.

4. Oversight responsibility for the Hospital Stroke QI Program per Plan standards, and participation in Regional Stroke System administrative and QI activities as per the Regional Stroke Plan, including data collection and reporting to EAEMS.

Participation in the Regional Stroke System is accomplished as follows:

1. The decision to participate must be made jointly by both Hospital Administration and Medical Staff, under the commitment of human and physical resources.

2. An application is obtained from EAEMS, completed and returned, documenting the hospital's desire to participate.

3. An on-site orientation meeting at each applying facility is to be held to review the system design and function, plus the requirements to assure there is a full and complete understanding on the part of the hospital and the medical staff. This meeting must be attended by a minimum of the Neurologist leader of the stroke program in that hospital, the Medical Director of Emergency Department and the Hospital Administrator.

4. The MDAC will review the application and on site visit report to document compliance with requirements and knowledge of system design and function and provide a report to the EAEMS Board of Directors.

5. The EAEMS Board of Directors will make the final decision regarding hospital participation as a Stroke Center in the System. If approved, the hospital will become part of the System by executing a contract with EAEMS documenting their willingness to actively participate in the System.
Hospitals, therefore, must elect whether or not to participate in this system based upon their individual ability to meet the standards for a Stroke Center, the desire of the Medical Staff to participate and support this program, and the willingness of the Hospital Administration to support the Regional Stroke Program.

COMMUNICATIONS COMPONENT

Communications are critical to the function of the Stroke System. Communications provide:

(1) essential knowledge of the overall status of pre-hospital stroke activities and hospital resource availability on a continuous basis,
(2) access to system organization and function protocols whenever such information is requested by pre-hospital personnel or hospital based personnel,
(3) a link between the field and Stroke Centers for the rapid exchange of information resulting in efficient pre-hospital care provision and hospitals being able to best prepare for stroke patient arrival,
(4) collection of uniform System-wide data for both QI activities and development of a Regional Stroke database.

Providing all of these functions to the entire System on a continuous basis requires a central communications facility with constant communications capabilities to all pre-hospital units and participating hospitals, plus the ability to immediately and directly link the pre-hospital providers to the Stroke Centers. This central communications will be the existing Alabama Trauma Communications Center (ATCC).

This decision is made because of an already existing funded infrastructure which may be utilized. The ATCC is staffed 24 hours a day by personnel who will be provided with specific in-depth knowledge of the EAEMS Regional Stroke System design, function, and protocols. It will be the primary responsibility of the ATCC to coordinate the Regional Stroke System activities by maintaining and providing information, whenever needed, on the field status and hospital status, so this data can be used by the pre-hospital and hospital personnel in providing care to patients meeting system entry criteria.

The ATCC, as part of the Regional Stroke System, will be managed by BREMSS, and the oversight of the day-to-day operations of the ATCC is the responsibility of the BREMSS Executive Director. The ATCC will operate through the system operations protocols. The ATCC will make no primary decisions themselves, but provide information about patient management and destination as per pre-established protocols for system function. The ATCC will serve as a resource for such protocol information to EMS personnel that may not be familiar with the protocols or the ATCC may simply provide the coordination of pre-hospital and hospital resource utilization for stroke management.

Therefore, the general functions of the Stroke Communications Center are:
1. Assigns unique system I.D. number for each patient meeting system entry criteria for tracking throughout the system.
2. Collects brief pre-hospital database information
3. Provides information on system entry criteria based on preset protocols as requested by EMS personnel when it is not clear if a patient meets Stroke 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 pre-hospital setting at all times.
6. Coordinates patient destination, when patient meets system entry criteria, based on preset protocols as to the closest currently operational Regional Stroke Center.
7. Coordination for optimal resource utilization using pre-established protocols for system function when there are multiple simultaneous events in the region (which, of course, neither EMS personnel nor individual hospitals could know about).
8. Establishes automatic communication link between EMS provider and receiving facility.
9. Records and enters pre-hospital data for Regional Stroke database.

An Emergency Resources Display is also part of the communications component. The Emergency Resources Display provides each participating hospital and the Stroke Communications Center with the continuous real-time functional status display of all Stroke Centers. The Emergency Resources Display 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, and the primary resource components indicating the availability or non-availability of these individual components in each hospital. Each system hospital will maintain the status notation of the primary stroke resources in that hospital and therefore, their overall stroke activity level. The Stroke Centers will be able to change their resource availability status and activity level at any time. A record of stroke hospital activity status for the entire system will be maintained through the Emergency Resources Display at the ATCC.

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 Stroke Centers and their overall functional status at any given time. This consolidated information table will be transmitted back to hospitals. The system is maintained automatically by computers with automatic polling and display refresh.

Numbers are color coded - green for available, red for not available. Hospital abbreviations are automatically color coded for on-line status (green-active, red-inactive) based on individual resource availability in the hospital at that time.

Resources available for stroke system patient:
The equipment for the Emergency Resources Display will consist of a color video monitor, a computer and a modem connected to a dedicated line which does not enter the facility through the switchboard. The software will allow simple keystroke change of resource status by the Stroke Center personnel and this change will be transmitted to the central system monitoring station at the ATCC with this information then 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 a station's computer fails to acknowledge the poll, that hospital's information will be blanked out on all resource display monitors in the system. If there is an isolated failure at a resource display at a hospital that will not cause a total system fault, that hospital will be blacked

out and the ATCC will call requesting the information directly. The system integrity is not dependent upon any single station's operation.

DATA QUALITY IMPROVEMENT COMPONENT

This component is absolutely essential for function of the Regional Stroke System. In virtually any serious stroke emergency, the patient has a very limited ability to meaningfully select pre-hospital, 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 need to evaluate the system functioning to determine continuing effectiveness in the management of stroke. This component uses a system-wide stroke database, which would provide an overall look at stroke emergencies, care and outcomes provide information for use in determining and developing stroke teaching programs, provide information able to be used in potential stroke studies, and utilization in evaluation of system function in the QI Program.

There are two basic elements of this component. The first is a standard stroke dataset that will be used to establish a regional stroke database. The second element is the continuous quality improvement program of the Stroke System. The Stroke QI Dataset is designed as a small dataset, with only 10 fields, and it is intended to fulfill the goals of this component as stated in the previous paragraph. A unique stroke identification number will allow uniting pre-hospital and hospital data which will increase the data usefulness. The data fields are noted in the following list:

1. Incident location
2. Pre-hospital unit(s)
3. Activity times
4. Receiving hospital
5. Patient and system demographics
6. Pre-hospital outcome
7. Hospital status/response
8. Emergency Department disposition
9. Initial (within the first 24 hours) procedures
10. Final disposition

A more thorough listing of the Stroke QI Data set is present in Appendix B.

The second entity in this component is the quality improvement (QI) program for the Stroke System. This program is necessary to the Stroke System 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 the individual agencies basically doing their own QI evaluations and reporting to a regional oversight committee. The appropriateness, quality and quantity of all activities in the system must be continuously monitored in the areas of pre-hospital care, medical care of the patients in the hospitals and overall system function.

The basic QI process involves specific steps to be performed by each individual entity.

1. Assignment of a QI manager to oversee the process in the organization.

2. Develop a written QI 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 pre-hospital protocols. These programs are reviewed and approved by the MDAC and lead agency as part of becoming a Stroke System participating hospital.
3. A method for QI data collection is established. For Stroke Centers this must include a morbidity and mortality list.
4. QI evaluations are undertaken by the individual system participants – EMS providers or Stroke Center hospitals. This first involves the determination of specific audit filters. Mandatory Stroke Center audit filters include major complications and deaths. Other appropriate audit filters are also evaluated. For Stroke Centers, external outcome comparisons are part of the evaluation process.
5. Determine the presence of QI issues through the data evaluation process.
6. Discussion of QI issues at the formal QI Conference of each individual system participant - EMS provider or Stroke Center.
7. Develop a correction action plan. In general, action activities can be placed under the categories of professional resolution or administrative resolution.
8. Re-evaluation must occur 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 Stroke Centers a multidisciplinary peer review process must occur. In Stroke Center QI programs both medical care and Stroke Center function must be evaluated. The MDAC has the goal of reviewing the entire Regional Stroke Program activities for appropriateness, quality, and quantity of activities. That review is to include system administration/organization activities, pre-hospital care and hospital care. The MDAC will document effectiveness of hospital and EMS Service QI evaluations through routine reports of these QI activities provided by each participating entity. The MDAC will perform focused review of specific items as determined appropriate, but these reviews will include evaluation of both prehospital and hospital activities. It is expected that most issues will be resolved by developing an action plan in conjunction with the various Stroke System entities. A reevaluation 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 by the MDAC for evaluation by the lead agency. A more detailed outline of the Regional Quality Improvement Program is available in Appendix C.

STROKE IMPLEMENTATION

The MDAC will be established by the lead agency for the purpose of implementation of the Stroke Plan. This is done under the authority of the lead agency with action plans developed and presented as recommendations to the lead agency. As part of the implementation plan, operational protocols for the Stroke System will be developed and forwarded to the lead agency. This committee will function only during the implementation period.
Committee development will occur in the following manner.

A. The Regional Medical Director will be the chairman of the MDAC. The chairman will be a physician.

B. MDAC Duties

The duties of the MDAC include the review of the overall function of the stroke program including hospital and pre-hospital activities. This includes review of criteria, data, or reports. This information will be evaluated regarding adequacy of these various activities and for development of system function reports and recommendations regarding the hospital or pre-hospital components or functions, including responsibilities, standards, and activities. If recommendations directly involve pre-hospital aspects of the stroke program, they will be referred by the MDAC and then, the recommendation in final form will be sent to the Board of Directors for action.

Areas of responsibilities include:

1. Stroke Center resource requirements criteria
2. Stroke Center membership in the System
3. Stroke Center removal from the System
4. Communications within the System
5. Pre-hospital and hospital dataset
6. Pre-hospital and hospital quality improvement programs
7. Patient entry criteria into the Stroke System
8. Pre-hospital activities in the System
9. Monitoring of ongoing system requirements/standards/activities and use of system function protocols

STROKE SYSTEM FUNCTION

General function of the System will follow the scenario of:

1. Stroke occurs or warning signs/symptoms are present.
2. Field evaluation done by EMS personnel who determines if the patient meets the system criteria (if EMS personnel is unsure of entry criteria, that information may be immediately obtained from the ATCC).
3. Communication is established with the ATCC with brief basic information provided to the ATCC on all stroke patients transported to a hospital.
4. The triage status and the current Stroke Center activity status (from the Emergency Resources Display) determine hospital destination.
5. A direct patched communications link to the closest active Stroke Center is provided by the ATCC to the field EMS personnel.
6. Medical control is established with the receiving Stroke Center by the communications link; orders are provided as needed.
7. Pre-hospital care is completed and transport to the destination Stroke Center is initiated.

Specific functions relative to the Stroke System are described in the following sections.

SYSTEM ENTRY CRITERIA

Patients are to be entered into the Stroke System following a stroke incident based on the following criteria:

If the patient is unresponsive and there is no history of trauma:

1. A. Glasgow Coma Score
2. Any Evidence of weakness of either side of the body

If the patient is able to respond and follow commands:

A. Facial Droop (have patient show teeth or smile):

1. Normal - both sides of face move equally well
2. Abnormal - one side of face does not move as well as the other side

B. Arm Drift (patient closes eyes and holds both arms out):

1. Normal - both arms move the same or both arms do not move
2. Abnormal - one arm does not move or one arm drifts down compared with the other

C. Speech (have the patient say "you can't teach an old dog new tricks"):

1. Normal - patient uses correct words with no slurring
2. Abnormal - patient slurs words, uses inappropriate words, or unable to speak

D. EMT Discretion:

1. If the EMT is convinced the patient is likely to have a stroke, which is not yet obvious, the patient may be entered into the Stroke System.

2. The EMT's suspicion of stroke may be raised by the following factors (but these situations alone do not constitute reason for Stroke System entry):
a. Symptoms of stroke occurred and disappeared within a few minutes, even if the patient is presently normal.
b. Awake patient with spontaneous inability to remember, to understand what is said or to express himself.

3. The EMT is to immediately inform the ATCC when a decision is made to enter a patient into the Stroke System using discretion and inform the ATCC of the reason for that decision.

4. It is to be specifically noted in the run report that EMT discretion is being used to enter a patient into the Stroke System and the reason or basis for that decision is to be written on the Pre-hospital Patient Care Report (PHPCR).

COMMUNICATIONS

Maintenance of adequate and prompt communications are essential to function of the Stroke System. In all instances stroke survival or maximum outcome potential can only be achieved with efficient and rapid movement of the patient through the system of pre-hospital assessment and treatment, transport, and 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 the system-wide prehospital stroke 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 stroke activities are occurring simultaneously. Communications allow differential system resource utilization when there are multiple stroke activities ongoing simultaneously. The key to system function is full knowledge of ongoing activities in all parts of the system at all times.

In order to maintain the goal of decreased stroke mortality and morbidity in the region and a program having continuous and effective region-wide system status, knowledge and coordination of the continuous status of stroke activity must be monitored. This is a function of the ATCC. All stroke patients requiring transport are to be called in to the ATCC. The ATCC notes the date and time. The responding EMT provides the following data.

1. Age and sex
2. Entry criteria (signs/symptoms)
3. Estimated Time of Onset (ETO)
4. Major obvious problems
5. Confirmation that the patient does or does not meet system entry criteria
6. Level of care provided, that is actually used for this patient - ALS vs. BLS
7. Hospital destination-- ATCC will note the closest hospital for the EMT from the database.

It is essential to establish radio communications 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 EMS personnel should contact the ATCC at the earliest practical time to enter the patient into the system. The reporting EMS personnel should identify himself/herself and provide the following information:

1. Basic patient data - age, and sex.
2. Entry criteria (signs/symptoms).
3. Current primary survey status - airway, breathing, circulation, level of consciousness, and vital signs.
4. Incident location.
5. Estimated Time of Onset (ETO).
6. Estimated scene departure time.
7. Proposed mode of transport; if ground state transporting unit number.

The ATCC will establish a direct patched communications link with the receiving Stroke Center hospital, and provide them with the basic information. The field EMT will then be

able to communicate any additional pertinent data and receive medical control while the hospital is simultaneously activating its stroke response system. The transporting EMT will maintain contact as appropriate with the receiving Stroke Center hospital, and provide information updates if changes in the patient's status or transport plan occur. The EMS personnel are to reconfirm Stroke Center ETA once transport has been initiated. If radio failure occurs, direct contact between the EMS unit and their dispatch should be established with relay of information to the ATCC by phone.

SYSTEM OPERATIONS

System operations refers to the activities that occur once it is determined a patient meets system entry criteria and communications has been established within the system. These activities include Stroke Center destination determination, continuing communications, provision of field care, patient transport, and Stroke Center management.

A. Hospital Destination

Hospital destination will be determined by the closest available Stroke Center or the patient choice. The hospital status is traced by the Emergency Resources Display at the ATCC. That equipment is described in the Communications Component, 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 (active) or red (inactive) status.

Green status means the hospital has all resources available and may receive stroke patients based on location. Green status requirements involve the following:

1. All levels must have the following resources (which are on the Emergency Resources Display grid) active and available at that time as pertains to their Stroke Center status:
2. The primary call neurologist must be actively available.

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

1. If any of the following resources is unavailable: Emergency Department, ICU, CT Scan, or Neurologist.

HOSPITAL DESTINATION NOTES

A. Hospital destination for patients entered into the System will be the closest appropriate stroke receiving facility based on Stroke Center availability.

B. 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 Stroke System and a specific request to follow the established

Stroke System Plan will be made of the family. The patient's or family members' wishes will, however, ultimately prevail.

C. If the patient is unstable (cannot be effectively ventilated by the EMS personnel or needs volume replacement, but an IV sufficient to provide volume resuscitation cannot be established/maintained) and is over 60 minutes transport time from a green Stroke facility, the patient should be transported to the closest hospital with full time Emergency Physician coverage as coordinated by the ATCC.

D. In a situation where ATCC notification has occurred and no medical direction is needed, the ATCC will notify the receiving hospital of the patient transport and provide information of condition, estimated arrival time, etc.

1. Pre-hospital System Activities
Pre-hospital care will be carried out following the guidelines of the Regional Medical Direction and Accountability Plan. The ADPH/EMS pre-hospital care protocols will be used for primary guidance in pre-hospital stroke management. Patients entered into the Stroke System will receive their medical control from the stroke receiving hospital, which will be immediately accessible through the communications link between the ATCC and that destination hospital. Any significant patient condition changes are to be communicated directly to medical control at the receiving Stroke Center as those changes may result in updating the orders and altering the destination hospital Stroke Team activation. Field time should be kept to a relative minimum. Stroke patients are best served by rapid transport to the most appropriate facility.

2. Hospital System Activities
Hospital stroke management is an essential part of any Stroke System. This phase of stroke 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 invasive treatment plus critical care and recuperative care as necessary. In addition, rehabilitation services should be initiated as appropriate. Resources necessary to provide care are documented through the Stroke Center standards.

SYSTEM COMPLIANCE EVALUATION AND ACTION

This Stroke System is designed to provide specialized care to patients with actual or a significant probability of stroke. The System is based on hospital requirements to participate as a Stroke Center and system function protocols. Compliance with the requirements and protocols is essential for proper stroke victim management. Therefore, a specific program for monitoring compliance with requirements and function protocols will be a part of the Stroke System. This will be a function of the Medical Direction and Accountability Committee. Reports regarding compliance issues will be made to the EAEMS Board of Directors. Maintenance of compliance with requirements, standards, and system function protocol activities for individual personnel and agencies involved in the Stroke System means:

A. Maintaining component and organization standards as established by the Plan.

1. Pre-hospital

a) Pre-hospital entities have the responsibility to assure their individual EMS personnel have a basic knowledge and awareness of the Stroke System including entry criteria and basic operations.

2. Hospital Component

a) Continue to meet all Stroke Center resource requirements for their status.

b) Maintain a designated Neurologist as the Stroke Program leader with written responsibilities as indicated in the Regional Stroke System.

3. Communications Component - Each entity is responsible for maintaining communications equipment used in the Stroke System in proper working order.

4. Data/QI Component

a) Each entity is responsible for maintaining and providing data to the Stroke System as indicated in the Regional Stroke System Plan. For pre-hospital EMS services this means providing data to the Stroke Communications Center which is then placed in the Stroke System Database. For hospitals this means maintaining and providing the hospital based information in the Stroke QI dataset.

b) Participating entities need to maintain their individual Stroke QI Programs as specified in the Regional Stroke System Plan. They are to provide reports of these activities to the Regional Stroke QI Committee on a timely basis.

c) Active continuing participation in the Regional Stroke QI program is expected (all individual personnel from participating organizations must attend at least 75% of the Regional MDAC meetings). Individual entities are to support the regional focused review of individual topics by providing data and participating in the evaluation process.

5. Personnel from pre-hospital and hospital organizations are to participate in MDAC activities per membership responsibilities. It is expected there will be 75% attendance of meetings by members.

B. Maintaining system function as noted in the Regional Stroke System Plan.

1. System entry criteria as specifically defined in the Plan or currently active protocols are to be used by EMS personnel to determine patient entry into the Stroke System.

2. Communications as outlined in the Plan and currently approved protocols are to be initiated and maintained by EMS units. This involves initiating communications, providing information and participating in the use of the system operations protocols along with the ATCC for coordination of prehospital stroke care activities including

patient entry into the system, determination of Stroke Center destination, and in conjunction with medical control orders for provision of care using the ADPH approved pre-hospital care protocols.

3. System operations are provided by individual entities as per the Regional Stroke System Plan including currently approved 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 EAEMS Regional Stroke System Plan will result in specific actions to be taken by the EAEMS Board of Directors. Questions of compliance will be generated by system oversight review by the Stroke Operations Committee. Issues regarding a question of compliance when brought to the attention of EAEMS will be directed to the MDAC for evaluation. The MDAC will evaluate questions of compliance and if a compliance infraction has occurred a report will be forwarded to the EAEMS Board of Directors.

C. The pre-hospital component requirements, standards, and system function protocols are part of the Regional Medical Direction and Control Plan and deviation from that plan will result in the following actions by the EAEMS Board of Directors:

1. First breach of activity standards will result in a letter to the pre-hospital 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 will result in another letter to the pre-hospital service with a copy to the ADPH, OEMST 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 a letter to the ADPH, OEMST for evaluation and action.

D. Hospital participation in the System is governed by the contract between EAEMS and each hospital. Deviations from requirements, standards or system function protocols governed by the contract may result in the following actions by the EAEMS Board of Directors:

1. The first breach of an activity standard will result in a letter 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 Stroke System 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 Stroke System for a period of 30 days as per decision of the EAEMS Board of Directors with the suspension time doubled for subsequent deviations of the same standard. It will be the duty of the EAEMS Board of Directors to carry out these predetermined actions in cases of violation of requirements, standards, or failure of adherence to system function protocols.

APPENDIX A - STROKE CENTER STANDARDS

A hospital to be recognized as a Stroke Center must have available the following minimum personnel, facility, and plans:

A. HOSPITAL ORGANIZATION

1. Stroke Service or Equivalent
2. Stroke Service Director
3. Hospital Department/Sections
    a. Neurology
    b. Neurologic Surgery, or Transfer Agreement
    c. Emergency Medicine
4. Stroke treatment protocols in place

B. CLINICAL CAPABILITIES

1. Specialty availability (means contact made and care plan determined) upon notification of patient need:
    a. Emergency Medicine (10 minutes)
    b. Neurology (15 minutes after notification by Emergency physician, or by hospital plan
    c. Neurologic Surgery, or Transfer Agreement

2. Consultants availability (on-call):
    a. Internal Medicine
    b. Critical Care
    c. Cardiology
    d. Neuroimaging

C. FACILITIES & RESOURCES

1. Emergency Department
    a. Personnel
        1) Designated Physician Director
        2) Emergency Medicine Specialists present
        3) Nursing personnel with expertise to provide continuous monitoring to stroke victims until their admission to a hospital unit
    b. Equipment
        1) Airway control & ventilation equipment
        2) Pulse oximetry
        3) End-tidal CO2 determination
        4) Suction devices
        5) Electrocardiograph
        6) Standard intravenous fluid administration equipment
        7) Sterile sets for percutaneous vascular access (venous & arterial)
        8) Gastric decompression
        9) Drugs necessary for emergency care
        10) X-Ray availability
        11) CT availability and interpretation in 45 minutes

12) Angiographic suite available
13) Two-way communication with emergency vehicles
14) Sterile ventriculostomy tray readily available in facilities with NS coverage.

2. Operating Suites Adequately Staffed

3. Postanesthetic Recovery Room Available

4. Intensive Care Unit-bed for Stroke Patients
    a. Personnel
        1) Designated medical director
        2) Specialists with privileges in critical care, in-house or immediately available

    b. Equipment-appropriate monitoring equipment

5. Neuroimaging Special Capabilities
    a. In-house radiology technical personnel capable of brain CT imaging
    b. Angiography
    c. Neurovascular sonography
    d. Computed tomography
    e. Magnetic Resonance Imaging (not time specific)

6. Rehabilitation
    a. Rehabilitation services protocol appropriate for stroke patients
    b. Full in-house service or transfer agreement with rehabilitation facility

7. Clinical Laboratory Services
    a. Standard analyses of blood, urine, etc.
    b. Blood typing and cross-matching
    c. Comprehensive blood bank or access to equivalent facility
    d. Blood gases and pH determinations
    e. CSF examination capabilities
    f. Comprehensive coagulation testing

D. CONTINUING EDUCATION
Formal programs provided for:
    1. Staff physicians
    2. Nurses
    3. Allied health personnel
    4. Community physicians

E. STROKE SERVICE SUPPORT PERSONNEL
Stroke coordinator

APPENDIX B - STROKE QI DATA SET

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 - possibly information from a city map grid (needs further investigation).

3. Prehospital unit(s) responding

4. Times
    a. Prehospital
        1) incident
        2) unit dispatch
        3) unit scene arrival
        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 Stroke Center
        3) additional contacts to ATCC by EMS personnel

5. Receiving hospital

6. System entry data:
    a. primary entry triage criteria
    b. co-morbid criteria
    c. EMT discretion - Narrative field for why
    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 stroke score
    b. physician arrival time in E.D.
        1) ED attending
        2) Neurologist
        3) Neurosurgeon
        4) Orthopedist

5) Other: state _____

9. Procedures done within the first 24 hours (includes all procedures performed by initial receiving hospital 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 - higher level Stroke Center
                - equal level Stroke Center
                - lower level Stroke Center
                - reason _____
            d) 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 IMPROVEMENT

A. Quality improvement is a vital part of a Stroke System. It is used to document continuing proper function of the system and evaluation of that function to implement improvements in system function and stroke victim management. In a Stroke System 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 perform evaluation functions to assure that the highest level of care is being provided and that improvements are implemented whenever possible in a timely manner.

B. Such a program will be System-wide. There will be individual agency efforts on the part of all participating agencies, plus a Regional Oversight Committee is necessary for overall review of system function. Every participating facility or organization will be represented on the Regional MDAC and continuing participation of all the various entities involved in stroke 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 QI person to oversee process
    b. Standards established - regional/authorized
    c. Determine audit filters
    d. Collect data
    e. Evaluate data
    f. Determine QI 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. Hospital Care QI
1. Medical care
a. Complications
b. Deaths
c. Outcome Review
1) internal review
2) external comparison
d. Process for medical care QI (performed by each institution)
1) Establish written care standards
2) Collect data
a) stroke data elements
b) complications or events lists
3) Data QI evaluation
a) establish audit filters (indicators)
b) determine presence of potential QI issues
c) primary review (permissible)
d) multi-disciplinary peer review of QI issue
4) Corrective action
a) professional resolution
b) administrative resolution
5) Re-assess for effectiveness of corrective action
6) Documentation essential utilizing QI tracking flow sheet

2. Stroke Center function
a. Stroke Center operations via audit filter review
1) Continuous
2) Intermittent
3) Focused audit filter review
b. Specific event evaluation when event problem noted by stroke team member
c. Medical nursing audit
d. Utilization review
e. Divert utilization review
f. Process same as for Medical Care Review with the addition of some form or method for noting events that occur that need evaluation to try to improve Stroke Center functions.

F. Regional System Function
1. Primarily performed by Regional EMS staff QI 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 QI issues
e. Re-evaluate to determine effectiveness of corrective action
f. Participation on Regional Stroke QI Committee

G. Regional QI Committees (staffed by EAEMS)
1. Goals - review entire Regional Stroke Program
a. System administration/organization/activities
b. Prehospital care
c. Hospital care
2. Members
a. EMS Office
1) Regional EMS Off-Line Medical Director
2) Regional EMS Executive Director
3) Regional EMS Office - Systems Coordinator
4) Regional EMS Office – Education Coordinator
b. Prehospital provider representation - the designated QI coordinator for each county, (from an EMS organization)
c. Participating hospital representation
1) Stroke Director
2) QI Coordinator
3. Process
a. Brief report of QI 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 QI 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 MDAC and the EAEMS Executive Committee
4. Hospital Medical Care Review Sub-Committee
a. Members
1) Stroke Director from each participating Stroke Center
2) Emergency Department Medical Director from each active Stroke Center
3) Regional EMS Medical Director
4) The chairman of this committee will be the chairman of the Stroke Operations Committee
b. Activities are to review the stroke medical care issues including specific death audit review and major complications review as determined by the committee chairman. Other QI issues will be reviewed as deemed appropriate.

c. The process used will be the same process as outlined in the QI Section of the Regional Stroke System Plan.

d. Reports of a summary nature will be made to the Regional MDAC. Individual physician medical care issues will initially only be reported to the stroke director of the facility providing care in that situation and be made by personal communication. In general, discussions at the subcommittee meeting will fulfill this notification requirement. If a persistent individual problem trend occurs, this situation will be referred to the appropriate hospital QI Committee.

5. All members are expected to attend at least 75% of the Regional MDAC meetings and the Hospital Medical Care Review subcommittee meetings.

Appendix B-8-A EAEMS Region 2 Hospitals

Hospital Designations Within Region Two		
Hospital	**Designation**	**County**
Cherokee Medical Center	Medical Direction	Cherokee
Citizens Baptist Medical Center	Medical Direction	Talladega
Clay County Hospital	Medical Direction	Clay
Coosa Valley Medical Center	Medical Direction	Talladega
Gadsden Regional Medical Center	Medical Direction	Etowah
Jacksonville Medical Center	Medical Direction	Calhoun
Lake Martin Community Hospital	Medical Direction	Tallapoosa
Lanier Health Services	Medical Direction	Chambers
Northeast Alabama Regional Medical Center	Medical Direction	Calhoun
Randolph Medical Center	Medical Direction	Randolph
Riverview Regional Medical Center	Medical Direction	Etowah
Russell Medical Center	Medical Direction	Tallapoosa
Stringfellow Memorial Hospital	Medical Direction	Calhoun
Wedowee Hospital	Non-medical Direction	Randolph

Appendix B-8-B EAEMS Region 2 Licensed Services

EMS SERVICES WITHIN REGION 2			
EMS Provider Name	**County**	**Transport or Non Transport**	**Level**
ALABAMA LIFESAVER/OMNIFLIGHT ETOWAH	Etowah	Transport	ALS
ALABAMA LIFESAVER/OMNISAVER TALLADEGA	Talladega	Transport	ALS
ALEXANDER CITY FIRE MEDICS	Tallapoosa	Transport	ALS
ALTOONA MEDICAL EMERGENCY DEPARTMENT	Etowah	Transport	ALS
ANNISTON EMERGENCY MEDICAL SERVICES	Calhoun	Transport	ALS
ANNISTON FIRE-RESCUE	Calhoun	Non Transport	ALS
ATTALLA FIRE & RESCUE	Etowah	Non Transport	ALS
BALL-PLAY #2 VOLUNTEER FIRE DEPARTMENT	Etowah	Non Transport	ALS
CHEROKEE EMERGENCY MEDICAL SERVICES INC	Cherokee	Transport	ALS
CHILDERSBURG AMBULANCE SERVICE	Talladega	Transport	ALS
CLAY COUNTY RESCUE SQUAD	Clay	Transport	ALS
CLEBURNE COUNTY EMS	Cleburne	Transport	ALS
EMERGENCY MEDICAL TRANSPORT, LLC	Randolph	Transport	ALS
GADSDEN ETOWAH EMS, INC.	Etowah	Transport	ALS
GADSDEN FIRE DEPARTMENT	Etowah	Non Transport	ALS
GALLANT VOLUNTEER FIRE DEPARTMENT	Etowah	Non Transport	ALS
GOODWATER AMBULANCE SERVICE	Coosa	Transport	ALS
GOODYEAR GADSDEN EMT'S	Etowah	Non Transport	ALS
HOKES BLUFF FIRE DEPARTMENT	Etowah	Non Transport	ALS
JACKSONVILLE FIRE DEPARTMENT	Calhoun	Transport	ALS
KELLYTON VOLUNTEER FIRE	Coosa	Transport	BLS
LAFAYETTE EMERGENCY MEDICAL SERVICES	Chambers	Transport	ALS
LANETT FIRE & EMS	Chambers	Transport	ALS
LINCOLN FIRE AND RESCUE	Talladega	Transport	ALS
NEW SITE VOLUNTEER FIRE & RESCUE	Tallapoosa	Transport	BLS
NORTHSTAR PARAMEDIC SERVICES TALLADEGA	Talladega	Transport	ALS
OXFORD EMERGENCY MEDICAL SERVICES	Calhoun	Transport	ALS
PIEDMONT RESCUE SQUAD	Calhoun	Transport	ALS
RAINBOW CITY FIRE & RESCUE	Etowah	Non Transport	ALS
RPS TALLADEGA	Talladega	Transport	ALS
RURAL METRO AMBULANCE ETOWAH	Etowah	Transport	ALS
SOUTHERN AMBULANCE TRANSPORT, INC	Randolph	Transport	ALS
SOUTHSIDE FIRE DEPARTMENT	Etowah	Non Transport	ALS
STILL WATERS VOLUNTEER FIRE & RESCUE INC.	Tallapoosa	Transport	ALS
SYLACAUGA AMBULANCE SERVICE INC	Talladega	Transport	ALS
TALLAPOOSA EMERGENCY MEDICAL SERVICE LLC	Tallapoosa	Transport	ALS
VALLEY EMERGENCY MEDICAL SERVICE	Chambers	Transport	ALS
VINES AMBULANCE SERVICE	Chambers	Transport	ALS
WALNUT GROVE VOLUNTEER FIRE DEPARTMENT	Etowah	Non Transport	ALS
WESTINGHOUSE EMS ANNISTON	Calhoun	Transport	ALS
WINTERBORO VOLUNTEER FIRE AND RESCUE	Talladega	Non Transport	ALS

Appendix B-8-C EAEMS Region 2 911 Contacts

MDAP-REGION 2 -- CONTACT INFORMATION FOR 911 AGENCIES

COUNTY	Contact
CALHOUN	Jerry W. Jackson, ENP
CHAMBERS	Donnie Smith
CHAMBERS	Kathy Hornsby
CHEROKEE	Beverly Daniel
CLAY	Ms. Marsha Spurlin
CLEBURNE	Melinda gonzalez
COOSA	N/A
ETOWAH	Bill Brodeur
TALLAPOOSA	Anita Haggerty
TALLADEGA	Victor Kennedy
RANDOLPH	Lisa Reed

Appendix B-8-D EAEMS Region 2 EMA Contacts

Local EMA Offices

County	Contact	Phone
Calhoun	Daniel Long	256-435-0540
Chambers	Donnie Smith	334-576-0911
Cherokee	Beverly Daniel Theresa	256-927-3367
Clay	Daugherty	256-396-5886
Cleburne	Steve Swafford	256-463-7130
Coosa	Lester Sellers	256-377-2418
Etowah	Deborah Gaither	256-549-4575
Randolph	Donnie Knight	256-357-0014
Talladega	Nelson Bates	256-761-2125
Tallapoosa	Joe Paul Boone	256-825-1078

Appendix B-8-E EAEMS Region 2 Offline Medical Directors

Offline Physician	Regions	Services
AVRAM, STEPHEN	1,2,3	LOCUST FORK FIRE DEPARTMENT
		PINE MOUNTAIN VOL FIRE AND EMS DISTRICT
		A-MED AMBULANCE SERVICE
		A-MED AMBULANCE SVC MARSHALL
BEGUE, JASON	2	CHILDERSBURG AMBULANCE SERVICES
		SYLACAUGA AMBULANCE SERVICE INC
		WINTERBORO VOLUNTEER FIRE & RESCUE
CHRISTEN, NEIL	2	LINCOLN FIRE AND RESCUE
GIBSON, LENNIE	2,3	BLOUNTSVILLE FIRE & RESCUE
		WALNUT GROVE VOLUNTEER FIRE DEPT.
GOLDHAGEN, MICHELLE	2	ALEXANDER CITY FIRE MEDICS
		NEW SITE VOLUNTEER FIRE & RESCUE
		KELLYTON VOLUNTEER FIRE & RESCUE
JONES, STEPHEN F	2	GADSDEN FRIE DEPARTMENT
		PIEDMONT RESCUE SQUAD
		SOUTHSIDE FIRE DEPARTMENT
		GADSDEN ETWAH EMS, INC
KERBY, JEFFERY O	2	RPS TALLADEGA
LACKEY, THOMAS K	2	CLEBURNE COUNTY EMS
LOVELY, PERRY	1,2,3	NORTHSTAR PARAMEDIC SVC TUSCALOOSA
		NORTHSTAR PARAMEDIC SVC FRANKLIN
		NORTHSTAR PARAMEDIC SVC SUMTER INC
		NORTHSTAR PARAMEDIC SVS TALLADEGA
MCVEIGH, HOWARD	2	WESTINGHOUSE EMS ANNISTON
MELTON, SHERRY	2,3,5	ALABAMA LIFESAVER/OMNIFLIGHT JEFFERSON
		ALABAMA LIFESAVER/OMNIFLIGHT LEE
		ALABAMA LIFESAVER/OMNIFLIGHT TALLADEGA
		ALABAMA LIFESAVE/OMNIFLIGHT ETOWAH
MORGAN, SABRINA	2	GOODYEAR GADSDEN EMT'S
PEILEN, KATHRYN	2	RURAL METRO AMBULANCE ETOWAH
		GALLANT VOLUNTEER FIRE DEPARTMENT
PERRY, BARTON	2	CHEROKEE EMERGENCY MEDICAL SERVICES INC
PROCTOR, MICHAEL	2	ANNISTON FIRE-RESCUE
REILAND, DEBORA	2	ATTALLA FIRE & RESCUE
		RAINBOW CITY FIRE AND RESCUE
		BALL-PLAY #2 VOLUNTEER FIRE DEPARTMENT
		HOKES BLUFF FIRE DEPARTMENT
SCHUSTER, ROBERT	2	STILL WATERS VOLUNTEER FIRE & RESCUE INC
		TALLAPOOSA EMERGECNY MEDICAL SERVICE LLC
SELLS, KEVIN	2	JACKSONVILLE FIRE DEPARTMENT

SHIRAH, MITCHELL	2	SOUTHERN AMBULANCE TRANSPORT, LLC
		EMERGECNY MEDICAL TRANSPORT, INC
SHIVER, RON	2,5	LANETT FRIE & EMS
		VALLEY EMERGENCY MEDICAL SERVICE
		LAFAYETTE EMERGENCY MEDICAL SERVICES
		VINES AMBULANCE SERVICE
		CRAWFORD VOLUNTEER FIRE DEPARTMENT INC
SMITH, BUDDY	2	CALY COUNTY RESCUE SQUAD
SNEAD, RODNEY	2	ANNISTON EMERGENCY MEDICAL SERVICES INC
STANFORD, DEBORAH	2	GOODWATER AMBULANCE SERVICE
WILLIAMS, CHARLIE	2	OXFORD EMERGENCY MEDICAL SERVICES

Appendix B-8-F EAEMS Region 2 Hospital ER personnel

CHEROKEE MEDICAL CENTER	
Benjamin Dowdey, MD	
William Hawley, MD	ER Medical Director
Tamara Hughes, MD	
Thomas Mcfarland, MD	
William Perry, MD	
Larry Stephens, MD	
Robert Theakston, MD	
George Weatherly, MD	
Tony White, MD	
Becky Smith	ER nurse mgr

Citizens Baptist Medical Center	
Dr Ike Ijemere	
Dr Roger Eiland	
Dr Carla Thomas	
Dr Marty Smith	
Dr David Porterfield	
Dr. David Elliott	ER Medical Director
Wendy Burns RN	Nurse Mgr ED & ICU

CLAY COUNTY HOSPITAL	
Dr. Mitchell Shirah, MD	Ed Medical Director
-Dr. Matthew Warren, MD	
-Dr. Emory Lawrence, MD	
-Dr. Maurice Randall, MD	
-Dr. John Fischer, MD	
Lennie Luker, Rn	ED Nurse Mgr

COOSA VALLEY MEDICAL CENTER	
Tom Ashar	
Harold Cooley	
Heidi Kapanka	
Ike Ijemere	
Jason Begue, MD	ER Medical Director
Jenna Telmont	
Joseph Sowder	
Martin J Smith	
Todd Peterson	
Jinyue Li	
Michele Goldhagen	
Quincy Leach, RN	ER Nurse Mgr

GADSDEN REGIONAL MEDICAL CENTER	
Djiby Diop, MD	ED MEDICAL DIRECTOR
Greg Bledsoe, MD	ASST MEDICAL DIRECTOR
Alex Hunt, MD	
Murray Riggins, MD	
Linda Jones, MD	
Andy Vann, MD	
Vinod Bansal, MD	
Foster, Joseph, MD	
Jo Dunn, RN	Interim ER Nurse Mgr
Jan Finley, RN	Asst Interim ER Nurse Mgr

Jacksonville Medical Center
David Elliott, M.D. (Medical Director)

William Tyndall, M.D.	
Bernard Pearson, M.D.	
Murray Riggins, M.D.	
Abiodun Badewa, M.D.	
Gary Rhame, D.O.	
William Scott, D.O.	
Vinod Bansal, M.D.	
Carlos Farmer RN, BSN	ER Mgr
Jacksonville Medical Center	
Dr. Robert Cobb	
Dr. John Durant	
Dr. Lee England	
Dr. Charles Probst	
Dr. Ali Khalid	
Dr. Heather Lawson	
Dr. Steven Mark Hayden	
Dr. Malcolm Kish McLeod	
Dr. Robert Bartel	
Dr. Robert Schuster	ER Director
Kim McDonald RN	Director of Nursing
LANIER HEALTH SERVICES	
Ron Shiver MD	ER Medical Director
Yomi Oshinnowo MR	
Kareshna Manku MD	
John Richardson MD	
James Custis MD	

Michael Zimmermann, RN, Director of Critical Care

Northeast Alabama Regional Medical Center

Charlie Williams MD	Medical Director
Edith Trammell RN	Nurse Manager
Michael Proctor MD	
Howard McVeigh MD	
Neil Christen MD	
Vinod Bansal MD	
Samson Ogbuchi MD	
Thang An MD	
Gary Moore MD	

RANDOLPH MEDICAL CENTER

Israr Ahmed, MD

Lee England, MD

Peter Lodewick, MD

Swaroop Mitta, MD

Gary Rhame, MD

Joseph Singleton, MD

Robert Smith, MD

John Stabler, MD

Carla Thomas, MD

The ED director position is filled by our DON Mrs. Sara Billingslea

Sara Billingslea, RN	Director of Nursing

RIVERVIEW MEDICAL CENTER

Ajit, Malvinder, MD

Calhoun, Gary, MD	
Peilen, Kathryn, MD	
Smith, David, MD	
Vrocher, Diamond, MD	
Lokatos, George, MD	ER Medical Director
Mary Burgess	ER Nurse Mgr

RUSSELL MEDICAL CENTER

MICHELE GOLDHAGEN, MD	ED Medical Director
BEN BAILEY, Md	
BOBBY BROWN, DO	
SHIRLEY LAZENBY, MD	
ALONZO MAHURIN, DO	
TALHA MALIK, MD	
MALCOM MCLEOD, DO	
CATHERINE MIDDLETON, DO	
MICHAEL PEADEN, MD	
RICHARD SAMPLE, DO	
MISTYN BUTLER, RN	ED NURSE MANAGER

STRINGFELLOW MEMORIAL HOSPITAL

Ajit, Malvinder MD	
Calhoun, Gary MD	
Ogbuchi, Sampson MD	
Pearson, Bernard, MD	
Person, Jeffery, DO	
Riggins, Murray, MD	
Sells, Kevin, MD	ER Medical Director
Smith, David, MD	

Zagajac, Ned, MD	
Mary Jones, RN	ER Nurse Mgr

WEDOWEE HOSPITAL	
Karen Stone, MD	ER director
Angie Loveless, RN	ER head nurse

Appendix B-8-G EAEMS Region 2 Unlicensed Services

Region 2-Unlicensed Services

A&M Volunteer Fire Department

Abanda Fire & Rescue
Abernathy Volunteer Fire Department
Alexandria Volunteer Fire Department
Altoona Volunteer Fire Department
Angel Volunteer Fire Department
Ashland City Fire Department
Attalla Volunteer Rescue Squad
Ballplay #1 Volunteer Fire Department
Barfield Volunteer Fire Department
Berneys Station Volunteer Fire Department
Bethel-East St. 14 VFD
Big Oak Volunteer Fire Department
Black Creek Volunteer Fire Department
Bluff Springs Volunteer Fire Department
Borden Springs Volunteer Fire Department
Broomtown Rinehart Volunteer Fire Department
Buttson Volunteer Fire Department
Calhoun County Civil Defense
Camp Hill Volunteer Fire Department
Cedar Bluff Volunteer Fire Department
Centre Volunteer Fire Department
Cherokee Rescue Squad
Coates Bend Volunteer Fire Department
Coosa Valley Rescue Squad
Coppermine Volunteer Fire Deparrtment
Corinth Volunteer Fire Department
County Line Volunteer Fire Department - Sylacauga
County Line Volunteer Fire Department - Wadley
Cragford-Corinth Volunteer Fire Department
Cusseta Volunteer Fire Department
Dadeville Volunteer Fire & Rescue
Daviston Volunteer Fire Department
Delta Volunteer Fire Department
Dickert Volunteer Fire Department
Eagle Creek Volunteer Fire and Rescue
East Alabama Fire Department
East Providence Volunteer Fire Department
East Randolph Volunteer Fire Department
Eastaboga Volunteer Fire Department
Egypt Volunteer Fire Department
Ellisville Volunteer Fire Department
Etowah County Rescue Squad
Fosters Crossroads Volunteer Fire Department
Fruithurst Volunteer Fire Department

Gaylesville Volunteer Fire Department
Glencoe Fire Medics
Hackneyville Volunteer Fire Department
Hammondville Volunteer Fire Department
Hanover Volunteer Fire Department
Harley Davidson Motor Company
Highland Volunteer Fire Department
Hippine-Pleasant Hill Volunteer Fire Department
Hollins Fire & Rescue
Hollis Crossroads Volunteer Fire Department
Huguley Water, Sewer & Fire Protection Authority
Ironaton Volunteer Fire Department
Ivalee Volunteer Fire Department
Jackson's Gap Volunteer Fire Department
Knightens Crossroads VFD
Lake View Volunteer Fire Department
Lanier Volunteer Fire Department
Lay Lake Volunteer Fire Department
Leesburg Volunteer Fire Department
Lineville Volunteer Fire Department
Lookout Mountain Volunteer Fire Department
Macedonia Volunteer Fire Department
McCords Crossroads Volunteer Fire Department
Micaville Volunteer Fire Department
Millerville Volunteer Fire Department
Morrison's Crossroads Volunteer Fire Department
Mount Olive Volunteer Fire Department
Mount Weisner Volunteer Fire Department
Mountain Volunteer Fire Department
Mountainboro Volunteer Fire Department
Munford Volunteer Fire Department
Muscadine Volunteer Fire Department
New Union/Aurora Volunteer Fire Department
Newell Volunteer Fire Department
Oak Bowery Volunteer Fire Department
Oak Grove Volunteer Fire Department
Ohatchee Volunteer Fire Department
Ourtown/Willowpoint Volunteer Fire Department
Oxford Fire Department
Pace's Point Volunteer Fire & Rescue
Piedmont Volunteer Fire Department
Pine Grove Volunteer Fire Department
Piney Woods-Oak Level VFD
Quad Cities Fire Department

Ranburne Rescue Squad & Fire
Randolph County Rescue Squad
Ray Volunteer Fire Department
Reece City Volunteer Fire Department
Reel Town Volunteer Fire Department
Renfroe Volunteer Fire Department
Richville Volunteer Fire Department
Ridge Grove Volunteer Fire Department
Roanoke Volunteer Fire Department
Rock Mills Volunteer Fire Department
Rock Stand Volunteer Fire Department
Rockford Volunteer Fire Department
Sand Rock Volunteer Fire Department
Sandvalley Volunteer Fire Department
Sardis City Volunteer Fire Department
Shinbone Volunteer Fire Department
Spring Creek Fire Department
Spring Garden Volunteer Fire Department
Standing Rock Volunteer Fire Department
Stemley Volunteer Fire Department
Stewartville Volunteer Fire Department
Sycamore Volunteer Fire Department
Sylacauga Fire Department
Talladega Emergency & Rescue Squad
Tidmore Bend Volunteer Fire Department
Tin Shop Volunteer Fire Department
Tri-Community Volunteer Fire Department
U.S. Alliance Coosa Pines Corp.
Union Hill Volunteer Fire Department
Union Volunteer Fire & Rescue
Upper Cane Creek Fire Department
Valley Rescue Squad
Wadley Volunteer Fire Department
Weaver Volunteer Fire Department
Webster's Chapel VFD
Wedowee Volunteer Fire Department
Weogufka Volunteer Fire Department
West Chambers Fire and Rescue
West Etowah Volunteer Fire Department
White Plains Volunteer Fire Department
Whorton Bend Volunteer Fire Department
Windermere Volunteer Fire Department
Woodland Volunteer Fire Department

Appendix B-8-H EAEMS Region 2 MDAC Members

East Alabama EMS Region 2 MDAC membership

Neil Christen, MD	Regional Medical Director	East Alabama
William Hawley, MD	ER Medical Director	Cherokee Medical Center
Dr. David Elliott	ER Medical Director	Citizens Baptist Medical Center

Dr. Mitchell Shirah, MD	Ed Medical Director	Clay Count Hospital
Jason Begue, MD	ER Medical Director	Coosa Valley Medical Center
Djiby Diop, MD	ED MEDICAL DIRECTOR	Gadsden Regional Medical Center
David Elliott, M.D.	ER Medical Director	Jacksonville Medical Center
Dr. Robert Schuster	ER Director	Jacksonville Medical Center
Ron Shiver MD	ER Medical Director	Lanier Health Services
Charlie Williams MD	Medical Director	NEARMC
Lokatos, George, MD	ER Medical Director	Riverview Medical Center
MICHELE GOLDHAGEN, MD	ED Medical Director	Russell Medical Center
Sells, Kevin, MD	ER Medical Director	Stringfellow Memorial Hospital
Karen Stone, MD	ER director	Wedowee Hospital
Sara Billingslea, RN	Director of Nursing	Randolph Medical Center

OFFLINE PHYSICIANS

AVRAM, STEPHEN	offline physician
BEGUE, JASON	offline physician
CHRISTEN, NEIL	offline physician
GIBSON, LENNIE	offline physician
GOLDHAGEN, MICHELLE	offline physician
JONES, STEPHEN F	offline physician
KERBY, JEFFERY O	offline physician
LACKEY, THOMAS K	offline physician
LOVELY, PERRY	offline physician
MCVEIGH, HOWARD	offline physician
MELTON, SHERRY	offline physician
MORGAN, SABRINA	offline physician
PEILEN, KATHRYN	offline physician
PERRY, BARTON	offline physician
PROCTOR, MICHAEL	offline physician
REILAND, DEBORA	offline physician
SCHUSTER, ROBERT	offline physician
SELLS, KEVIN	offline physician
SHIRAH, MITCHELL	offline physician
SHIVER, RON	offline physician
SMITH, BUDDY	offline physician
SNEAD, RODNEY	offline physician
STANFORD, DEBORAH	offline physician
WILLIAMS, CHARLIE	offline physician

EMS CONTACT	SERVICE
Reese McAlister	Alexander City Fire Medics

Betty Cadden	Altoona Medical Emergency Department
Ken McElroy, Director	Anniston EMS
Bill Fincher, Chief	Anniston Fire Department
Robert Dillard, Chief	Attalla Fire and Rescue
Kristie Reed, EMS Coordinator	Ball Play #2 Volunteer Fire Department
Tina Laney, Operations Manager	Cherokee EMS
Tim Shellnut	Childersburg Ambulance Service
Pete Ward, Director	Clay County Rescue Squad
Keith Roberts, Director	Cleburne County EMS
Amanda Stone/Matthew Knight, Owner	Emergency Medical Transport
Jonathan Lewis, Operations Manager	Gadsden Etowah EMS
Don Wilson, EMS Supervisor	Gadsden Fire Department
Tom Brown, Rescue Captain	Gallant Volunteer Fire Department
Elmore Unbehant, Asst. Chief	Goodwater Fire Department
Glen Champion	Goodyear Gadsden EMT's
Jeremy Hawkins, Asst. Chief	Hokes Bluff Fire Department
Randy Childs, EMS Coordinator	Jacksonville Fire Department
Mark Allred, Captain EMS	Kellyton Volunteer Fire and Rescue
Kenneth Phillips, Captain	Lafayette Fire and EMS
Andy Gray, EMS Coordinator	Lanett Fire and EMS
Shane Parker, Clinical Base Manager	Lifesaver/Omniflight Gadsden
Bill Garrett, Clinical Base Manager	Lifesaver/Omniflight Sylacauga
John Luker, Captain	Lincoln Fire and Rescue
Thomas Turner, Ambulance Dept. President	New Site Volunteer Fire and Ambulance
David White	Northstar
Ricky Howell	Oxford EMS
	Piedmont Rescue Squad
David Divine	Rainbow City Fire
Chris Key, Operations Manager	Regional Paramedical Services
Charlene Tallant, Assist. Supervisor	Rural Metro Ambulance
Steven Hyde, Director	Southern Ambulance Transport
Wade Buckner, Lt. Paramedic	Southside Fire Department
Lavaughn Johnson, EMS Director	Stillwaters Volunteer Fire and Rescue

Crystal Murphy	Sylacauga Ambulance Service
Michael L. Bevels, Co-Owner	Tallapoosa EMS
Tim Hughes, EMS Director	Valley EMS
Roger Vines, Owner	Vines Ambulance Service
Shane Holliday, Asst. Chief	Walnut Grove Volunteer Fire Department
Georgette Dowdy, Paramedic	Westinghouse EMS Anniston
Kevin Sturdivant, Chief	Winterboro Volunteer Fire Department

911 REPRESENTATIVES

Jerry W. Jackson, ENP	CALHOUN
Donnie Smith	CHAMBERS
Kathy Hornsby	CHAMBERS
Beverly Daniel	CHEROKEE
Ms. Marsha Spurlin	CLAY
Melinda gonzalez	CLEBURNE
N/A	COOSA
Bill Brodeur	ETOWAH
Anita Haggerty	TALLAPOOSA
Victor Kennedy	TALLADEGA
Lisa Reed	RANDOLPH

REGIONAL EMA REPRESENTATIVES

Daniel Long	CALHOUN
Donnie Smith	CHAMBERS
Beverly Daniel	CHEROKEE
Theresa Daugherty	CLAY
Steve Swafford	CLEBURNE
Lester Sellers	COOSA
Deborah Gaither	ETOWAH
Donnie Knight	RANDOLPH
Nelson Bates	TALLADEGA
Joe Paul Boone	TALLAPOOSA

Appendix B-8-I EAEMS Agency Fact Sheet

EAST ALABAMA EMERGENCY MEDICAL SERVICE, INC. REGIONAL EMS AGENCY – FACT SHEET

WHAT IS A REGIONAL EMS AGENCY?

A Regional EMS Agency is an organization under contract to the Alabama Department of Public Health (ADPH) and its division, the Office of Emergency Medical Services & Trauma (OEMS&T). The Agency is responsible for planning, coordinating, and implementing emergency medical services within a defined area.

WHAT IS OUR REGIONAL EMS AGENCY'S PURPOSE?

East Alabama Emergency Medical Services, Inc. (EAEMS) serves as a resource agency to all EMS providers and related organizations within our defined area to facilitate EMS activities, and to reduce preventable mortality and morbidity caused by trauma, cardiovascular, and other emergency medical conditions.

WHAT IS OUR DEFINED AREA?

East Alabama EMS serves the following ten (10) counties:

Calhoun	Chambers	Cherokee	Clay	Cleburne
Coosa	Etowah	Randolph	Talladega	Tallapoosa

WHO DO WE SERVE IN OUR AREA?

East Alabama EMS serves such organizations, agencies, and institutions as:

Ambulance Services	Rescue Squads	Fire Departments
Industries	Hospitals	Aero-medical Services
Educational Institutions		

HOW MANY ORGANIZATIONS DO WE SERVE IN OUR REGION

173	EMS Organizations
39	ALS (Advanced Life Support) Organizations
2	BLS (Basic Life Support) Licensed Organizations
28	Services which provide ALS / Transport
11	Services which provide ALS / Non- Transport
2	Services which provide BLS / Transport
132	Services which provide BLS/ Non- Transport
3	Industries which provide on-site Emergency Response Teams (licensed by the ADPH / EMS division)

EAST ALABAMA EMERGERNCY MEDICAL SERVICES, INC. REGIONAL EMS AGENCY – FACT SHEET (continued)

3	Aero- medical services (Stationed in Region 2)
14	Hospitals which provide On- Line Medical Direction
2	Colleges which provide Basic and Paramedic Educational Programs

WHAT SERVICES DOES EAEMS PROVIDE IN OUR REGION?

East Alabama EMS provides a variety of direct and indirect services to agencies, Organizations, and institutions within our region. The Agency and/or staff provide:

- Technical support, upon request, on matters relating to day-to–day operational Emergency Medical Services;

- Advice and consultation on subjects relating to all aspects of the major components of the effective EMS system;
- The necessary support to prepare and maintain a comprehensive strategic plan for all Emergency Medical Services;
- Liaisons support between the EMT's and EMS organizations, and the ADPH/OEMS & T division.
- Staff support to effectively plan and implement all State EMS Rules and programs;
- Off-line Medical Direction to ensure effective and quality patient care through the development and implementation of a Continuous Quality Improvement Plan;
- A Regional Medical Direction and Accountability Plan which provides the common practice for all emergency medical response within the region;
- Equipment grants to EMS organizations which meet the eligibility requirements in accordance with the Regional EMS Strategic Plan and Administrative Policies;
- Education partnerships to plan, coordinate, and implement a comprehensive calendar of primary and continuing education offerings.
- Monthly Continuing Education offering.
- Monthly CPR Courses.

If you have questions or would like information concerning our Regional EMS Agency's operations, please do not hesitate to contact me at 205.763.8400.

Respectfully submitted,

John E. Blue, II, MPA
CEO

Curriculum Vitae
Neil Christen, M.D., F.A.C.E.P.

Personal

Neil L. Christen, M.D., F.A.C.E.P.
4805 Laurel Trace
Anniston, Alabama 36207
256.237.9599 home
256.235.5295 work
256.525.1864 cell
emrgncy@aol.com

DOB: December 27, 1957
POB: Alton, Illinois

Education

9/75-6/79	Northwestern University; Evanston, Illinois Bachelor of Arts, Biology
6/79-6/82	Southern Illinois University School of Medicine; Springfield, Illinois Doctor of Medicine
7/82-6/85	Memorial Hospital; Belleville, Illinois St. Elizabeth's Hospital; Belleville, Illinois SIU School of Medicine-Family Practice Residency

Experience

7/85-6/87	Memorial Hospital; Belleville, Illinois Staff Emergency Physician, Assistant Director
6/87-2/89	St. Joseph's Hospital; Alton, Illinois Director of the Emergency Department Director of Occupational Medicine
2/89-3/90	Good Samaritan Regional Medical Center; Mount Vernon, Illinois Staff Emergency Physician

4/90-5/96	Memorial Hospital; Belleville, Illinois Staff Emergency Physician EMS Medical Director for Southwest Illinois EMS Region
11/95-present	Northeast Alabama Regional Medical Center; Anniston, Alabama Staff Emergency Physician
7/02-7/07	Medical Director of the Emergency Department, NEALRMC

Experience (cont.)

8/02-8/04	Clinical Assistant Professor of Emergency Medicine, University of Alabama at Birmingham, School of Medicine (Staff Emergency Physician)

Certifications

1986, 1993, 2006	Board Certified, American Board of Family Medicine
1994, 2003	Board Certified, American Board of Emergency Medicine
Current	Instructor, Advanced Cardiac Life Support
Current	Instructor, Basic Trauma Life Support
Current	Provider, Advanced Trauma Life Support

Licensure

Current	License, State of Alabama
Current	License, State of California
Current	License, State of Illinois
Current	License, State of Mississippi

Leadership and Extracurricular Activities

Regional Medical Officer for TeamHealth Southeast, 2005-Present

Medical Association of the State of Alabama (MASA) - Member of the Malpractice Task Force

EMS Medical Director for Alabama East Region, 2008- Present

East Alabama Trauma Region-Regional Advisory Council, Vice-chairman, 2008-Present

Alabama State EMS Quality Improvement Committee, 2008- Present

Alabama Department of Public Health Trauma Task Force, Pre-hospital and Triage Committee, 2003-2004

Medical Director of the Gadsden State Community College EMT/Paramedic Program, 2005-Present

Board of Directors Alabama Chapter of American College of Emergency Physicians, 1997-2004, 2005-Present

President of the Alabama ACEP Board of Directors, 2002-2003, 2008-Present

Medical Director of Northeast Alabama Regional Medical Center Emergency Department, July 2002-July 2007

Member of the Board of Directors Basic Trauma Life Support International-(now known as International Trauma Life Support-ITLS), 1998- Present

State Medical Director of Alabama Chapter of ITLS, 1998-Present

Medical Director of The Prairie State Games (All-Illinois, Olympic-style competition), 1995 and 1996

EMS Medical Director, Southwest Illinois EMS Region, 1992-1995