THE MISSISSIPPI TRAUMA CARE SYSTEM REGULATIONS

Mississippi State Department of Health

Emergency Medical Services

P.O. Box 1700

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April 2004

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I. Purpose

In 1998, the Mississippi Legislature amended the Emergency Medical Services Act of 1974 to create a statewide inclusive trauma care system. Miss. Code Ann. §§ 41-59-1, et seq. These statutes authorize and direct the Mississippi State Board of Health to develop, create regulations for, and administer a uniform statewide trauma care system through the Mississippi State Department of Health, Emergency Medical Services, acting as the lead agency.

Accordingly, the Board adopts these regulations, to be known as "The Mississippi Trauma Care System Regulations" to address each component necessary for this development. These Regulations have been developed through a consensus process with the advice of nationally recognized trauma system consultants, the Mississippi Trauma Advisory Committee and staff of the Mississippi State Department of Health.

II. Definitions

The following terms shall have the meanings set forth below, unless the context otherwise requires:

(1) **Abbreviated Injury Scale (or "AIS")** - an anatomic severity scoring system.

(2) **ACEP** - American College of Emergency Physicians.

(3) **ACLS** - Association in Advanced Cardiac Life Support techniques.

(4) **ACSCOT** - American College of Surgeons Committee on Trauma.

(5) **ALS** - Advanced life support, including techniques of resuscitation, such as , intravenous access, and cardiac monitoring.

(6) **Advanced Pediatric Life Support (APLS)** - a course jointly developed and sponsored by the American College of Emergency Physicians and the American Academy of Pediatrics which covers the knowledge and skills necessary for the initial management of pediatric emergencies, including trauma.

(7) **Advanced Trauma Life Support (ATLS)** - a course developed and sponsored by the American College of Surgeons Committee on Trauma for physicians which covers trauma knowledge and skills.

(8) **BLS** - Basic life support techniques of resuscitation, including simple airway maneuvers, administration of oxygen, and intravenous access.

(9) **Board Certified** - Physicians and oral and maxillofacial surgeons certified by appropriate specialty boards recognized by the American Board of Medical Specialties and the Advisory Board of Osteopathic Specialities and the American Dental Association. *See definition of Qualified Specialists.*

(10) **Basic Trauma Life Support (BTLS)** - a course for prehospital care providers sponsored by the American College of Emergency Physicians.

(11) **Bypass (diversion)** - A medical protocol or medical order for the transport of an EMS patient past a normally used EMS receiving facility to a designated medical facility for the purpose for accessing more readily available or appropriate medical care.

(12) **CCRN** - Critical Care Registered Nurse certification from the American

Association of Critical Care Nurses.

(13) **CEN** - Certified Emergency Nurse certification from the Board Certification of Emergency Nursing.

(14) **Communications System** - A collection of individual communication networks, a transmission system, relay stations, and control and base stations capable of interconnection and interoperation that are designed to form an integral whole. The individual components must serve a common purpose, be technically compatible, employ common procedures, respond to control, and operate in unison.

(15) **Comorbidity** - Significant cardiac, respiratory, or metabolic diseases that stimulate the triage of injured patients to Trauma Centers.

(16) **Catchment Area** - That geographic area served by a designated Trauma Care Region for the purpose of regional trauma care system planning, development and operations.

(17) **Citizen Access** - the act of requesting emergency assistance for a specific event.

(18) **Consolidated Omnibus Budget Reconciliation Act (COBRA)** - the federal A portion of this law commonly referred to as COBRA or OBRA details the requirements Medicare hospitals must meet in providing screening examinations for individuals presenting at the emergency department, and the requirements that must be met prior to transferring a patient in an unstable medical condition or who is pregnant and having contractions.

(19) **Department** - the Mississippi State Department of Health, Division of Emergency Medical Services.

(20) **Designation** - formal recognition of hospitals by the department as providers of specialized services to meet the needs of the severely injured patient; usually involves a contractual relationship and is based on adherence to standards.

(21) **Disaster** - any occurrence that causes damage, ecological destruction, loss of human lives, or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area.

(22) **Dispatch** - coordination of emergency resources in response to a specific event.

(23) **Diversion** - see *"Bypass."*

(24) **Emergency Department (or "emergency room")** - the area of a licensed general acute care hospital that customarily receives patients in need of emergency medical evaluation and/or care.

(25) **EMS** - Emergency Medical Services- the arrangement of personnel, facilities, and equipment for the effective and coordinated delivery of emergency care required to prevent and manage incidents that occur from a medical emergency or from an accident, natural disaster, or similar situation.

(26) **Emergency Medical Services for Children (EMS-C)** - an arrangement of personnel, facilities and equipment for the effective and coordinated delivery of emergency health services to infants and children that is fully integrated within the emergency medical system of which it is a part.

(27) **EMT-P** - Emergency medical technician- paramedic, an individual who is trained to provide emergency medical services and is certified as such by the local authorities in accordance with the current national standard.

(28) **ENA** - Emergency Nurses Association.

(29) **Field Categorization (classification)** - a medical emergency classification procedure for patients that is applicable under conditions encountered at the site of a medical emergency.

(30) **Field Triage** - Classification of patients according to medical need at the scene of an injury or onset of an illness.

(31) **GCS** - Glasgow Coma Scale - a scoring system that defines eye, motor, and verbal responses in the patient with injury to the brain.

(32) **Hospital Criteria** - Essential or desirable characteristics that help categorize Level I, II or III Trauma Centers of a Level IV trauma facility.

(33) **Immediately (or "immediately available")** - (a) unencumbered by conflicting duties or responsibilities; (b) responding without delay when notified; and (c) being within the specified resuscitation area of the Trauma Center when the patient is delivered in accordance with the policies and procedures of a designated Trauma Care Region.

(34) **Implementation (or "implemented")** - the development and activation of a Regional Trauma Plan by a designated Trauma Care Region including the triage, transport and treatment of trauma patients in accordance with the plan.

(35) **Inclusive Trauma Care System** - a trauma care system that incorporates every health care facility in a community in a system in order to provide a continuum of services for all injured persons who require care in an acute care facility; in such a system, the injured patient's needs are matched to the appropriate hospital resources.

(36) **Indigent Trauma Patient** - a victim of traumatic injury which meets the criteria for admittance into the Mississippi Trauma Registry and has no financial ability to pay for trauma services received.

(37) **Injury Control** - the scientific approach to injury that includes, analysis, data acquisition identification of problem injuries in high risk groups, option analysis and implementing and evaluating countermeasures.

(38) **Injury** - the result of an act that damages, harms, or hurts; unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical or chemical energy or from the absence of such essential as heat or oxygen.

(39) **Injury Rate** - a statistical measure describing the number of injuries expected to occur in a defined number of people (usually 100,000) within a period (usually 1 year). Used as an expression of a relative risk of different injuries or groups.

(40) **Injury Prevention** - efforts to forestall or prevent incidents that might result in injuries.

(41) **Injury Severity Score (or "ISS")** - the sum of the squares of the Abbreviated Injury Scale score of the three most severely injured body regions.

(42) **Lead Agency** - an organization that serves as the focal point for program development on the local, regional or State level.

(43) **Level I** - Hospitals that have met the requirements for Level I as stated in Chapter XI and Appendix C and are designated by the Department.

Level II - Hospitals that have met the requirements for Level II as stated in Chapter XII and Appendix C and are designated by the Department.

Level III - Hospitals that have met the requirements for Level III as stated in Chapter XII and Appendix C and are designated by the Department.

Level IV - Hospitals that have met the requirements for Level IV as stated in

Chapter XIV and Appendix C and are designated by the Department.

(44) **Major Trauma** - that subset of injuries that encompasses the patient with or at risk for the most severe or critical types of injury and therefore requires a system approach in order to save life and limb.

(45) **Major Trauma Patient (or "major trauma" or " critically injured patient")** - a person who has sustained acute injury and by means of a standardized field triage criteria (anatomic, physiology, and mechanism of injury) is judged to be at significant risk of mortality or major morbidity.

(46) **Mechanism of Injury** - the source of forces that produce mechanical deformations and physiological responses that cause an anatomic lesion of functional change in humans.

(47) **Medical Control** - physician direction over prehospital activities to ensure efficient and proficient trauma triage, transportation, and care, as well as ongoing quality management.

(48) **Mississippi Trauma Advisory Committee (MTAC)** - (See *Appendix A*) advisory body created by legislature for the purpose of providing assistance in all areas of trauma care system development and technical support to the Department of Health; members are comprised of EMS Advisory Council members appointed by the chairman.

(49) **Mississippi Trauma Care System Plan** - a formally organized plan developed by the Department of Health, pursuant to legislative directive, which sets out a comprehensive system of prevention and management of major traumatic injuries.

(50) **Morbidity** - the relative incidence of disease.

(51) **Mortality** - the proportion of deaths to population.

(52) **Multi-disciplinary Trauma Review Committee** - committee composed of the trauma service Director, other physicians members and other members appointed by the trauma director that reviews trauma deaths in a system or hospital.

(53) **Non-Designated Hospital** - a licensed hospital that has not been designated by the Department as a Trauma Center.

(54) **Off-Line Medical Direction** - the establishment and monitoring of all medical

components of an EMS system, including protocols, standing orders, education programs, and the quality and delivery of on-line control.

(55) **On-Call** - available to respond to the Trauma Center in order to provide a defined service.

(56) **On-Line Medical Direction** - immediate medical direction to prehospital personnel in remote locations (also know as direct medical control) provided by a physician or an authorized communications resource person under the direction of a physician.

(57) **Overtriage** - directing patients to Trauma Centers when they do not need such specialized care. Overtriage occurs because of incorrect identification of patients as having severe injuries when retrospective analysis indicates minor injuries.

(58) **Pediatric Trauma Center** - Either (a) a licensed acute care hospital which typically treats persons fourteen (14) years of age or less, which meets all relevant criteria contained in these Regulations and which has been designated as a pediatric Trauma Center; or (b) the pediatric component of a Trauma Center with pediatric specialist and a pediatric intensive care unit.

(59) **Pediatric Advanced Life Support (PALS)** - a course developed and sponsored by the American Heart Association and the American Academy of Pediatrics, for healthcare workers covering the application of advanced life support therapies to pediatric patients.

(60) **Prehospital Emergency Medical Care Personnel** - prehospital emergency medical care personnel are individuals certified or otherwise credentialed to perform prehospital emergency medical care by the Department.

(61) **Prehospital Trauma Life Support (PHTLS)** - a verification course for prehospital care providers that teaches concepts of basic and advanced trauma life support. It is developed and sponsored by the National Association of Emergency Medical Technicians in cooperation with the American College of Surgeons Committee on Trauma.

(62) **Promptly Available (or "promptly")** - within the trauma receiving resuscitation area, emergency department, operating room, or other specified area of the Trauma Center within a period of time that is medically prudent and proportionate to the patient's clinical condition and such that the interval between the delivery of the patient at the Trauma Center and the arrival of the respondent should not have a measurably harmful effect on the course of patient

management or outcome in accordance with the policies and procedures of a designated Trauma Care Region.

(63) **Protocols** - standards for EMS practice in a variety of situations within the EMS system.

(64) **Qualified Specialist (or "qualified surgical specialist" or "qualified non-surgical specialist")** - either (a) a physician or oral and maxillofacial surgeon licensed in Mississippi who has taken special postgraduate medical training, or has met other specified requirements and has become board certified within three (3) years of qualification for board certification in the corresponding specialty, for those specialties that have board certification and are recognized by the American Board of Medical Specialties, the Advisory Board of Osteopathic Specialities, the American Dental Association, or within three (3) years of joining a trauma team if more than three (3) years have elapsed since qualifying to take the board certification examination is board certified in a speciality by the American Board of Medical specialties, the Advisory Board of Osteopathic Specialities, the American Dental Association, a Canadian board or other appropriate foreign specialty board as determined by the American Board of Medical specialties for that specialty; or, (b) a non-board certified physician who is designated by the Hospital as a Qualified Specialist, after having met one or more of the following conditions:

1. Demonstration that he/she has met requirements which are equivalent to those of the Accreditation Council for Graduate Medical Education, American Board of Medical Specialties, the Advisory Board of Osteopathic Specialities, the American Dental Association, (ACGME) or the Royal College of Physicians and Surgeons of Canada;

2. Demonstration that he/she has substantial education, training and experience in treating and managing major trauma patients; or

3. Successful completion of a residency program.

(65) **Performance Improvement (or "quality improvement")** - a method of evaluating and improving processes of patient care which emphasizes a multi-disciplinary approach to problem solving, and focuses not on individuals, but systems of patient care which might cause variations in patient outcome.

(66) **Quality Management (or "performance management")** - a broad term which encompasses both quality assurance and quality improvement, describing a program of evaluating the quality of care using a variety of methodologies and techniques.

(67) **Regional Trauma Plan** - a document developed by the various Trauma Care Regions, and approved by the Department of Health, which describes the policies, procedures and protocols for a comprehensive system of prevention and management of major traumatic injuries in that Trauma Care Region

(68) **Regionalization** - the identification of available resources within a given geographic area, and coordination of services to meet the need of a specific group of patients.

(69) **Rehabilitation** - services that seek to return a trauma patient to the fullest physical, psychological, social, vocational, and educational level of functioning of which he or she is capable, consistent with physiological or anatomical impairments and environmental limitations.

(70) **Research** - clinical or laboratory studies designed to produce new knowledge applicable to the care of injured patients.

(71) **Residency Program** - a residency program of the Trauma Center or a residency program formally affiliated with the Trauma Center where senior residents can participate in educational rotations.

(72) **RTS** - Revised Trauma Score, a prehospital/emergency center scoring system in which numerical values are assigned to differing levels of Glasgow Coma Scale, systolic blood pressure, and respiratory rate.

(73) **Response Time** - the time lapse between when an emergency response unit is dispatched and arrives at the scene of the emergency.

(74) **Risk factor** - a characteristic that has been statistically demonstrated to be associated with (although not necessarily the direct cause of) a particular injury. Risk factors can be used for targeting preventative efforts at groups who may be particularly in danger of injury.

(75) **Rural** - those areas not designated as metropolitan statistical areas (MSAs).

(76) **Senior Resident (or "senior level resident")** - a physician licensed in the State of Mississippi who has completed at least two years of the residency under consideration and has the capability of initiating treatment, when the clinical situation demands, and who is in training as a member of the residency program, as defined in regulation, at a designated Trauma Center. Residents in general surgery shall have completed three clinical years of general surgery residency in order to be considered a senior resident.

(77) **Service Area (or "catchment area")** - that geographic area defined by the local EMS agency in its Regional Trauma Plan as the area served by a designated Trauma Center.

(78) **Speciality Care Facility** - an acute care facility that provides specialized services and specially trained personnel to care for a specific portion of the injured population, such as pediatric, burn injury, or spinal cord injury patients.

(79) **Surveillance** - the ongoing and systematic collection, analysis, and interpretation of health data in the process of describing and monitoring a health event.

(80) **Trauma** - a term derived from the Greek for "wound"; it refers to any bodily injury (see *"Injury"*).

(81) **Trauma Care Facility (or "trauma center")** - a hospital that has been designated by the department to perform specified trauma care services within a Trauma Care Region pursuant to standards adopted by the department. Participation in this designation by each hospital is voluntary.

(82) **Trauma Care Region** - Trauma Care Region is a geographic area of the state formally organized, in accordance with standards promulgated by the department and has received designation from the department, for purposes of developing and inclusive care system.

(83) **Trauma Care System Planning and Development Act of 1990** - The federal law that amended the Public Health Service Act to add Title XII - Trauma Programs. The purpose of the legislation being to assist State governments in developing, implementing and improving regional systems of trauma care, and to fund research and demonstration projects to improve rural EMS and trauma.

(84) **Trauma Care System** - an organized approach to treating patients with acute injuries; it provides dedicated (available 24 hours a day) personnel, facilities, and equipment for effective and coordinated trauma care in an appropriate geographical region, known as a Trauma Care Region.

(85) **Trauma Center Designation** - the process by which the Department identifies facilities within a Trauma Care Region.

(86) **Trauma Program Manager** - a designated individual with responsibility for coordination of all activities on the trauma service and works in collaboration with the trauma service director.

(87) **Trauma Nursing Core Course (TNCC)** - a verification course providing core-level trauma knowledge and psychomotor skills associated with the delivery of professional nursing care to trauma patient. Developed and sponsored by the Emergency Nurses Association.

(88) **Trauma Patient** - an injured patient.

(89) **Trauma Prevention Program** - internal institutional and external outreach educational programs designed to increase awareness of methods for prevention and/or avoidance of trauma-related injuries.

(90) **Trauma Program** - an administrative unit that includes the trauma service and coordinates other trauma-related activities, including, but not limited to, injury prevention, public education, and CMS activities.

(91) **Trauma Receiving Resuscitation Area** - a designated area within a licensed hospital or designated Trauma Center that routinely receives and manages the care of trauma patients where trauma patients are evaluated upon arrival.

(92) **Trauma Registry** - a database software package that hospitals use to track victims of major trauma that are transported to and/or from their facilities.

(93) **Trauma Team** - A group of health care professionals organized to provide care to the trauma patient in a coordinated and timely fashion. The composition of a trauma team is delineated by hospital policy.

(94) **Trauma Service Director** - a physician designated by the institution and medical staff to coordinate trauma care.

(95) **Triage** - the process of sorting injured patients on the basis of the actual or perceived degree of injury and assigning them to the most effective and efficient regional care resources, in order to insure optimal care and the best chance of survival.

(96) **Triage Criteria** - a measure or method of assessing the severity of a person's injuries that is used for patient evaluation, especially in the prehospital setting, and that utilizes anatomic or physiologic considerations or mechanism of injury.

(97) **Uncompensated Care** - care for which the provider has been unable to collect payment because of the patient's inability to pay. A claim is considered to be uncompensated if, after the provider's due diligence to collect monies due, total payment from all sources (including third-party payors) of five percent (5%) or

less has been made on the total trauma-related gross charges. Any payment received from Medicaid shall preclude reimbursement from the Trauma Care Trust Fund (TCTF), whether the five percent (5%) payment threshold has been met or not.

(98) **Undertriage** - directing fewer patients to Trauma Centers than is warranted because of incorrect identification of patients as having minor injuries when retrospective analysis indicate severe injuries.

III. Trauma Care Regions

3.1 Policy Statement

The Mississippi Trauma Care Plan documents the need for a regional approach toward the development of a statewide trauma care system. This regional development will be coordinated and supported by the legislatively designated "lead trauma agency," the Mississippi State Department of Health, Division of Emergency Medical Services (hereinafter "Department").

The Mississippi Trauma Care Plan recognizes the uniqueness within differing parts of the state with regard to personnel, resources, environmental issues, distance to tertiary care and population. Accordingly, the Mississippi Trauma Care Plan provides for a system that allows for flexibility at the regional level, incorporates the use of regional leadership to establish regional/local guidelines, and is sensitive to regional needs and resources. As a result the Mississippi Trauma Care Plan ensures a statewide trauma system design that is based on the resources available within each region, while ensuring optimal care to the trauma victim through transfer agreements when resources may not be available within a certain geographical area.

3.2 Proposed Trauma Care Regions

The map set forth in Appendix B illustrates the initial configuration of the Trauma Care Regions, developed based upon the Department's experience with regional EMS programs. However, some areas contained within these initial boundaries may prove to more appropriately belong to other adjacent areas. Consequently, the state designation process of the Regions is designed to provide for such flexibility.

3.3 State Designation of Trauma Care Regions

To receive state designation as a Trauma Care Region, the hospitals and their respective medical staffs intending to establish the Trauma Care Region shall set forth such intention in a letter to the Department which includes: (1) a description of the area to be served, (2) the names of all trauma care hospitals voluntarily participating, and (3) the form of regional administration for such Trauma Care Region.

3.4 State Designation of Existing EMS Districts as Trauma Care Regions

EMS Districts which are currently recognized by the Department may request designation by the Department as a Trauma Care Region

provided that such EMS District meets the standards established for designated Trauma Care Regions as outlined in these Regulations, and submits annually to the Department documentation of compliance with those standards.

IV. Regional Trauma Plan Development

4.1 Procedure for Submission of Regional Trauma Plan

A Trauma Care Region intending to implement a trauma care system shall submit its Regional Trauma Plan to the Department and have it approved prior to implementation.

Within 30 days of receiving the plan, the Department shall provide written notification to the Trauma Care Region of the following:

(1) that the plan has been received by the Department;

(2) whether the Department approves or disapproves of its Regional Trauma Plan;

(3) if disapproved, the reason for disapproval of the Regional Trauma Plan;

NOTE: Revisions in the approved Regional Trauma Plan must be submitted prior to implementation. At a minimum, Regional Trauma Plans shall be submitted to DEMS every (3) years.

4.2 Disapproval of a Regional Trauma Plan

If the Department disapproves a plan submitted to it, the Trauma Care Region shall have 30 days from the date of notification of the disapproval to appeal the decision in writing to the Mississippi Trauma Advisory Committee. The Committee shall make a determination within 3 months of receipt of the appeal. In any event, the Trauma Care Region may always submit a revised plan to the Department.

4.3 Failure to Properly Implement Plan

Should the Department determine that a Trauma Care Region has failed to implement its Regional Trauma Plan in accordance with the approved plan, the Department may revoke its approval of the plan and suspend and/or terminate any contract with the Region. The Trauma Care Region may appeal this decision in writing to the Mississippi Trauma Advisory Committee which shall make a determination within 3 months of receipt of the appeal.

4.4 Amendments to Regional Trauma Plan

After approval of a Regional Trauma Plan, the Trauma Care Region shall submit

to the Department for approval any significant changes to that Regional Trauma Plan prior to the implementation of the changes. In those instances where a delay in approval would adversely impact the current level of trauma care, the Trauma Care Region may institute the changes and then submit the changes to the Department for approval within 30 days of their implementation.

4.5 Requirements for Approval of Regional Trauma Plan

The initial plan for a designated Trauma Care Region that is submitted to the Department shall be comprehensive and objectives shall be clearly outlined to the Department. The initial Regional Trauma Plan shall contain the following:

(1) table of contents
(2) summary of the plan
(3) objectives
(4) implementation schedule
(5) administrative structure
(6) medical organization and management
(7) inclusive trauma system design which includes all facilities involved in the care of acutely injured patients, including coordination with neighboring Trauma Care Regions
(8) documentation of all interfacility Trauma Center agreements
(9) written documentation of participation (hospital/medical staff)
(10) the system design shall address the operational implementation of the policies developed
(11) description of the critical care capability within the Region including but not limited to burns, spinal cord injury, rehabilitation and pediatrics
(12) performance improvement process
(13) general policies of the Trauma Care Region board, which address those issues set out in Section 4.6 below

4.6 General Policies to be Addressed in Regional Trauma Plan

A designated Trauma Care Region planning to implement a trauma system shall develop policies which provide a clear understanding of the structure of the trauma system and the manner in which it utilizes the resources available to it. Those policies shall address the following:

(1) system organization and management
(2) trauma care coordination within the Region
(3) trauma care coordination with neighboring Regions and/or jurisdictions, including designated Trauma Care Region agreements
(4) data collection and management

(5) coordination of designated Trauma Care Regions and trauma systems for transportation including inter-Trauma Center transfers, and transfers from a receiving hospital to a Trauma Center
(6) the integration of pediatric hospitals, including pediatric triage criteria, if applicable
(7) availability of Trauma Center equipment
(8) the availability of trauma team personnel
(9) criteria for activation of trauma team
(10) mechanism for prompt availability of specialist
(11) performance improvement and system evaluation to include responsibilities of the multidisciplinary trauma peer review committee.
(12) training of prehospital designated Trauma Care Region personnel to include trauma triage
(13) public information and education about the trauma system
(14) lay and professional education about the trauma system
(15) coordination with public and private agencies and Trauma Centers in injury prevention programs

4.7 Additional Standards and Prohibitions

In addition to those requirements set out in Sections 4.5 and 4.6 above, the following standards and prohibitions must be adhered to by all participating providers in the Regional Trauma Plan:

(1) The Plan shall include all of the following:

A. Prehospital trauma protocols with trauma triage/transport criteria.

NOTE: Revisions in the plan must be submitted prior to implementation.

B. Policies and procedures correlative to the protocols.

C. A plan for quality assurance/improvement including run audit criteria and schedule.

(2) No health care facility shall advertise in any manner or otherwise hold themselves out to be a Trauma Center unless they have been so designated by the Department in accordance with these Regulations.

(3) No provider of prehospital care shall advertise in any manner or otherwise hold itself out to be affiliated with the trauma system or a Trauma Center unless the provider of prehospital care has been so designated by the

Department in accordance with these Regulations.

POLICY FOR ADMINISTRATION:

Documentation of Medical Control Plan review must be submitted to DEMS annually.

4.8 Optional Criteria

(1) The Trauma Care Region may authorize the utilization of air transport within its jurisdiction to geographically expand the primary service area(s), as long as the expanded service area does not encroach upon another Trauma Care Region, or another Trauma Center, unless written agreements have been executed between the involved Trauma Care Region and Trauma Centers.

(2) A Trauma Care Region may require Trauma Centers to have helicopter landing sites. If helicopter landing sites are required, they shall be approved by the Department.

4.9 Annual Certification to Department

The Trauma Care Region shall certify annually to the Department that its approved Regional Trauma Plan is functioning as described.

V. Administration and Management of Trauma Care Regions

5.1 Establishment of a Trauma Care Region Board

All Trauma Care Regions established and designated pursuant to these Regulations shall establish a Trauma Care Region Board which shall be recognized as the lead administrative body of that Region. Board members may be representative(s) of participating and designated trauma care hospital(s), physicians, or any other person deemed appropriate by the Board. The Board shall have administrative authority over the operation of the Trauma Care Region and subsequent trauma system programs.

5.2 Operation of a Trauma Care Region

After formation of a Trauma Care Region board, the board shall appoint some person or entity which shall have authority over the operation of the Trauma Care Region and subsequent trauma care programs, all under the direction of the Trauma Care Region board. Such management may be carried out by an appointed executive manager, by contracting for management services, or by some other means, to be approved by the Department.

5.3 Regional Trauma Care Boards May Receive and Expend Funds

Designated Trauma Care Region boards are authorized to receive funds and to expend funds as may be available for any necessary and proper trauma care program purposes in the manner provided for in these Regulations or in law.

5.4 Hospital/Medical Documentation

Designated Trauma Care Regions must provide documentation of formal referral agreements among all participating regional hospitals and, if necessitated by a lack of in-region service, documentation of linkages to other appropriate out-of-region hospitals for referrals. Regions must also provide documentation of linkages to a Level I facility for training, education, and evaluation, which Level I facility must be recognized by the Department and committed to participation in the state trauma care system.

VI. Financial Support for Trauma System Development

6.1 The Trauma Care Trust Fund

The Trauma Care Trust Fund shall serve as the financial support mechanism for development of the Mississippi Inclusive Trauma Care System. The Department shall contract with designated Trauma Care Regions for trauma systems development. Contracts with each designated Trauma Care Region are limited to the financial support for: (1) the administration of designated Trauma Care Regions and (2) reimbursement of documented uncompensated trauma care (hospital and trauma surgeon) as defined by the Department.

6.2 Financial Support for Regional Administration

In accordance with the recommendations of the Mississippi Trauma Care Task Force, the Department shall contract for the administration of designated Trauma Care Regions for $85,000.00 per year.

The use of these funds shall be determined by the designated Trauma Care Region and approved by the Department in writing. Examples of areas of financial support suggested by the Trauma Care Task Force include, but are not limited to, regional medical director, regional clerical support, telephone, regional trauma advisory committee, hospital trauma registry staff, and trauma registry computer hardware.

6.3 Financial Support for Uncompensated Trauma Care

Uncompensated Trauma Care reimbursement shall be provided for designated Level I, II, and III Trauma Centers and eligible physicians in contracts developed by the Department and initiated between the Department and the Trauma Care Regions. Uncompensated trauma care reimbursement will be provided only to designated Level I, II, and III Trauma Centers. Designated Level IV Trauma Centers shall not receive reimbursement for uncompensated care, however, will receive $10,000 annually for administrative support for participation in the Mississippi Trauma Care System. The amount funded shall be paid at least annually to each Trauma Care Region for annual redistribution to Trauma Centers and participating eligible physicians. The total reimbursement amount each year will be dependent upon the following:

(1) authorization annually by the Mississippi State Legislature;
(2) the amount available in the Trauma Care Trust Fund;
(3) the number of active and designated Trauma Care Regions;
(4) the number of designated hospitals and eligible physicians within each

designated Trauma Care Region; and,

(5) appropriate annual documentation of uncompensated trauma care rendered by designated hospitals and eligible physicians in accordance with the requirements of the Department.

6.4 Uncompensated Trauma Care Distribution Process

A. Funds are distributed from the Trauma Care Trust Fund (TCTF). This fund is created from two (2) funding sources, as follows: (1) a five dollar ($5.00) assessment on all moving traffic violations as statutorily created at §41-59-75, Mississippi Code of 1972, Annotated; and (2) funds appropriated by the state legislature from the state's Health Care Expendable Fund. Both of these funds comprise the TCTF.

B. Uncompensated care is care for which the provider has been unable to collect payment because of the patient's inability to pay. A claim is considered to be uncompensated if, after the provider's due diligence to collect monies due, total payment from all sources (including third-party payors) of five percent (5%) or less has been made on the total trauma-related gross charges. Any payment received from Medicaid shall preclude reimbursement from the TCTF, whether the five percent (5%) payment threshold has been met or not.

C. Only patients that meet trauma registry inclusion criteria are eligible for uncompensated care reimbursement. The inclusion criteria are:

All state designated patients must have a primary diagnosis of ICD-9 diagnosis code 800-959.9;

Only burn patients with an ICD-9 Code of 940-949 qualify for inclusion into the trauma registry. Qualifying burn patients must also meet one of the following criteria.

Plus any one of the following:

- Transferred between acute care facilities (in or out)

  Any patient that has sustained an injury (ICD-9: 800.0 - 959.9) and is referred from a trauma center or transferred to a trauma center qualifies for inclusion into the trauma registry.

- Admitted to critical care unit (no minimum days).

  Any injury that a patient has sustained in which the patient is admitted to a critical care unit qualifies for inclusion into the trauma registry.

- Hospitalization for three or more calendar days.

  Any trauma patient hospitalized for three or more calendar days due to injuries sustained qualifies for inclusion into the trauma registry.

- Died after receiving any evaluation or treatment.

  All deaths due to an injury that receive an evaluation or treatment in the Emergency Department qualifies for inclusion into the trauma registry.

- Admitted directly from Emergency Department to Operating Room for major procedure, excluding plastics or orthopedics procedures on patients that do not meet the three day hospitalization criteria.

  Any trauma patient that is admitted directly from the Emergency Department to the Operating Room for a major procedure qualifies for inclusion into the trauma registry. Plastics and/or orthopedic procedures that do not meet one of the other criteria for inclusion into trauma registry are EXCLUDED and do not quality for inclusion into the trauma registry.

- Triaged (per regional trauma protocols) to a trauma hospital by pre-hospital care regardless of severity.

  Any trauma patient that is triaged to a trauma center by pre-hospital care providers, per regional trauma protocols, qualifies for inclusion into the trauma registry. Documentation verifying that this criteria was used must be present in the patient's hospital chart to qualify for inclusion.

- Treated in the Emergency Department by the trauma team regardless of severity of injury.

  Any trauma patient that arrives at a trauma center and is treated by a trauma team as delineated by hospital policy qualifies for inclusion into the trauma registry. Documentation verifying a trauma team activation and response must be present in the patient's hospital chart to qualify for inclusion.

The following primary ICD-9 diagnosis codes are excluded and should NOT be included in the trauma registry:

- ICD9Code 905-909 (Late effects of injuries)

  Late Effects of Injuries, Poisonings, Toxic Effects, and Other External Causes.

- ICD9Code 930-939 (Foreign bodies)

  Effects of Foreign Body Entering Through an Orifice.

- Extremities and/or hip fractures from same height fall in patients over the age of 65.

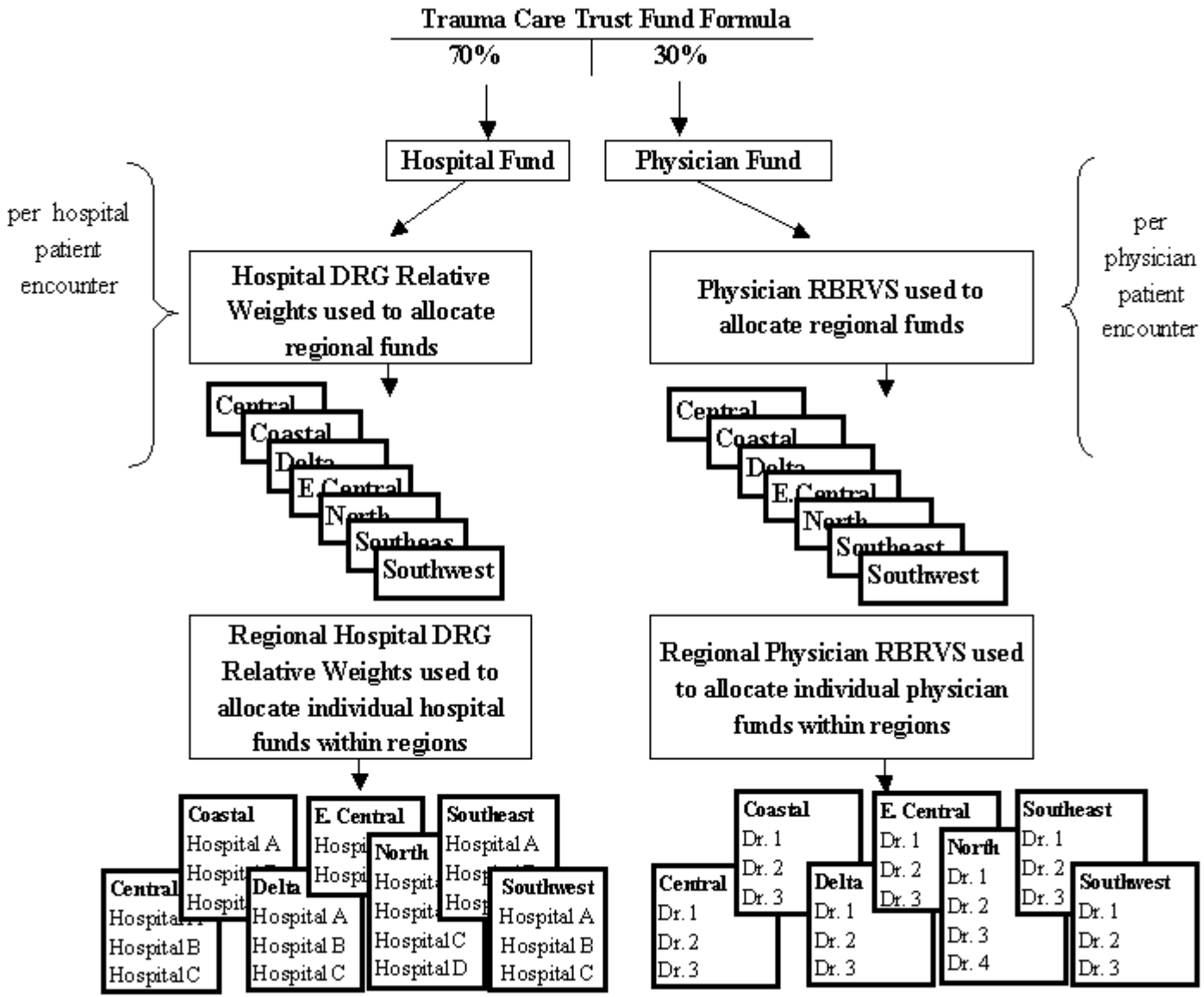
(4) Available funds from the TCTF are allocated based on 70% to designated hospitals and 30% to eligible physicians, according to the following (also see Exhibit 6.4 (a) on next page):

- Hospital funds are allocated to designated hospitals based on the hospital's Diagnosis Related Groups (DRG) Relative Weights for those cases submitted for reimbursement.
- Physician funds are allocated to participating physicians based on the physician's Resource-Based Relative Value System (RBRVS) for those cases submitted for reimbursement.

(5) Funds that are allocated to participating hospitals and eligible physicians are disbursed through each of the designated Trauma Care Regions annually.

(6) Funds for the administration and development of the state's trauma care system will be budgeted from available funds from the TCTF. Examples of administrative and development costs are, but are not limited to, salaries and fringe benefit costs for personnel (full-time and part-time equivalents)

who expend a portion of their time in trauma care administration and/or development, travel and training costs for such personnel, use of trauma care physicians and/or other trauma professionals used in the development and/or maintenance of the trauma care system, development and/or maintenance of accounting and auditing of the use and distribution of the TCTF, administrative costs for designated trauma care regions, and the costs associated with the development and/or implementation of the state's trauma care system (i.e., telecommunication systems, data storage and/or retrieval systems, public relations costs, advertising, equipment, etc.)


Trauma Care Trust Fund Formula
70%
30%
Hospital Fund
Physician Fund
per hospital patient encounter
Hospital DRG Relative Weights used to allocate regional funds
Physician RBRVS used to allocate regional funds
per physician patient encounter
Central
Coastal
Delta
E. Central
North
Southeast
Southwest
Regional Hospital DRG Relative Weights used to allocate individual hospital funds within regions
Regional Physician RBRVS used to allocate individual physician funds within regions
Coastal
Hospital A
Central
Hospital B
Hospital C
E. Central
Delta
Hospital A
Hospital B
Hospital C
North
Hospital C
Hospital D
Southeast
Hospital A
Southwest
Hospital A
Hospital B
Hospital C
Coastal
Dr. 1
Dr. 2
Dr. 3
Central
Dr. 1
Dr. 2
Dr. 3
Delta
Dr. 1
Dr. 2
Dr. 3
E. Central
Dr. 1
Dr. 2
Dr. 3
North
Dr. 1
Dr. 2
Dr. 3
Dr. 4
Southeast
Dr. 1
Dr. 2
Dr. 3
Southwest
Dr. 1
Dr. 2
Dr. 3

VII. Data Collections

7.1 Trauma Care Regions to Implement Trauma Data Collection

Trauma Care Regions shall implement the Department's standardized trauma data collection instrument in all Trauma Centers, or other trauma data collection instruments compatible with the Department's Trauma Registry as determined by the Department. All trauma data collection instruments shall include the collection of both prehospital and hospital patient care data, and shall be integrated into both the Region's and the Department's data management systems.

All Trauma Centers shall participate in the Trauma Care Region data collection effort in accordance with that Region's policies and procedures.

7.2 Reports by Trauma Care Regions

The Trauma Care Regions shall provide periodic reports to all Trauma Centers in the Region and shall provide reports to the Department at intervals specified by the Department.

VIII. Trauma System Evaluation

8.1 Development of Evaluation Process

Each Trauma Care Region shall be responsible for ongoing evaluation of its trauma care system. Accordingly, each Region shall develop a procedure for receiving information from EMS providers, Trauma Centers and the local medical community on the implementation of various components of that Region's trauma system, including but not limited to (1) components of the Regional Trauma Plan, (2) triage criteria, and effectiveness (3) activation of trauma team, (4) notification of specialists and (5) trauma center diversion.

8.2 Results to be Reported Annually

Based upon information received by the Region in the evaluation process, the Region shall annually (or as often as is necessary to insure system performance) prepare a report containing results of the evaluation and a performance improvement plan. Such report shall be made available to all EMS providers, Trauma Centers and the local medical community.

The Region shall ensure that all Trauma Centers participate in this annual evaluation process, and encourage all other hospitals that treat trauma patients to do likewise.

Specific information related to an individual patient or practitioner shall not be released. Aggregate system performance information and evaluation will be available for review.

IX. Performance Improvement

9.1 Performance Improvement process for Trauma Centers

All Trauma Centers shall develop and have in place a performance improvement process focusing on structure, process, and outcome evaluations which focus on improvement efforts to identify root causes of problems, intervene to reduce or eliminate these causes, and take steps to correct the process as set forth in the trauma center level specific requirements. In addition, the process shall include:

(1) a detailed audit of all trauma-related deaths, major complications and transfers;

(2) a multidisciplinary trauma peer review committee that includes all members of the trauma team;

(3) participation in the trauma system data management system;

(4) the ability to follow up on corrective actions to ensure performance improvement activities.

This system shall provide for input and feedback from these patients and guardians to hospital staff regarding the care provided.

9.2 Performance Improvement process for Trauma Care Regions

Each trauma care region shall be required to develop and implement a region-wide trauma performance improvement program. This program shall, at a minimum, include processes for the review of all region-wide policies, procedures, and protocols.

X. Interfacility Transfer of Trauma Patients

10.1 When Transfers Permitted

Patients may be transferred between and from Trauma Centers provided that any such transfer be:

(1) medically prudent, as determined by the transferring trauma center physician of record;

(2) in accordance with the designated Trauma Care Region interfacility transfer policies.

10.2 Interfacility Transfer Policies

Trauma Center hospitals shall develop written criteria for consultation and transfer of patients needing a higher level of care.

Trauma Center hospitals that repatriate trauma patients shall provide data required by the system trauma registry, as specified by designated Trauma Care Region policies, to the receiving trauma center for inclusion in the system trauma registry.

Trauma Centers receiving transferred trauma patients shall participate in the Regional performance improvement process outlined in Chapter IX.

10.3. Burn Unit Referral Criteria

A burn unit may treat adults or children or both.

Burn injuries that should be considered for referral to a burn unit include the following:

(a) Partial thickness burns greater than 10% total body surface area (TBSA);

(b) Burns that involve the face, hands, feet, genitalia, perineum, or major joints;

(c) Third-degree burns in any age group;

(d) Electric burns, including lightning injury;

(e) Chemical burns;

(f) Inhalation injury;

(g) Burn injury in patients with preexisting medical disorders that could prolong recovery, or affect mortality;

(h) Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in the trauma center before being transferred to a burn unit. Physician judgement will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols;

(i) Burned children in hospitals without qualified personnel or equipment for the care of children;

(j) Burn injury in patients who will require special social, emotional, or long-tern rehabilitative intervention.

XI. Level I Trauma Centers

Level I trauma centers shall act as regional tertiary care facilities at the hub of the trauma care system. The facility must have the ability to provide leadership and total care for every aspect of injury from prevention to rehabilitation. As a tertiary facility, the Level I trauma center must have adequate depth of resources and personnel.

The Level I trauma centers in the State of Mississippi have the responsibility of providing leadership in education, trauma prevention, research and system planning.

I. HOSPITAL ORGANIZATION

A. Trauma Program

There must be a written commitment on behalf of the entire facility to the organization of trauma care. The trauma program must be established and recognized by the medical staff and hospital administration. The trauma program must come under the direction of a board-certified surgeon with special interest in trauma care. An identified hospital administrative leader must work closely with the trauma medical director to establish and maintain the components of the trauma program including appropriate financial support. The trauma program location in the organizational structure of the hospital must be such that it may interact effectively with at least equal authority with other departments providing patient care. The administrative structure should minimally include an administrator, medical director, trauma program manager (TPM), trauma registrar and the appropriate support staff. Administrative support includes human resources, education activities, community outreach activities, and research. The trauma program must be multidisciplinary in nature and the performance improvement evaluation of this care should be extended to all the involved departments.

B. Trauma Service

The trauma service must be established and recognized by the medical staff and be responsible for the overall coordination and management of the system of care rendered to the injured patient. The trauma service will vary in each organization depending on the needs of the patient and the resources available. The trauma service must come under the organization and direction of a surgeon who is board certified with special interest in trauma care. All patients with multiple system trauma or major injury must be evaluated by the trauma service. The surgeon responsible for the overall care of the patient must be identified.

C. Trauma Team

The team approach is optimal in the care of the multiple injured patient. Policies should be in place describing the respective role of all personnel on the trauma team. The composition of the trauma team in any hospital will depend on the characteristics of the hospital and it's staff. In some instances a tiered response may be appropriate. If a tiered response is employed written policy must be in place and the system monitored by the PI process. The team leader must be a qualified general surgeon. This team leader who is responsible for directing the initial resuscitation of the trauma patient must be certified in The American College of Surgeons Advanced Trauma Life Support (ATLS). Suggested composition of the trauma team for a severely injured patient may include:

- Anesthesiologist
- Emergency Physicians
- Laboratory Technicians
- Mental Health/Social Services/ Pastoral Care
- Nurses: ED, OR, ICU, etc.
- Security officers
- Pediatricians
- Physician Specialist as dictated by clinical needs
- Radiology Technicians
- Respiratory Therapist
- General/Trauma Surgeon

D. Medical Director

The medical director plays an important administrative role. The medical director must be a board-certified surgeon with special interest in trauma care. The medical director will be responsible for developing a performance improvement process and will have overall accountability and administrative authority for the trauma program. The medical director must be given administrative support to implement the requirements specified by the State trauma plan. The director is responsible for working with the credentialing process of the hospital, and in consultation with the appropriate service chiefs, for recommending appointment and removal of physicians from the trauma team. He should cooperate with nursing administration to support the nursing needs of the trauma patient and develop treatment protocols for the trauma patients. The director in collaboration with the Trauma Program Manager/TPM should coordinate the budgetary process for the trauma program. The director must be currently certified in Advanced Trauma Life Support (ATLS), maintain personal involvement in care of the injured, maintain education in trauma care, and maintain involvement in professional organizations. The trauma director must be actively involved with the trauma system development at the community, regional and state level.

NOTE: ATLS requirements may take up to five years to obtain. After January 1, 2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board

Certified General Surgery Physicians.

E. Multidisciplinary Trauma Committee

Each trauma center may choose to have one or more committees as needed to accomplish the task. One committee should be multidisciplinary and focus on program oversight and leadership. The major focus will be on PI activities, policy development, communication among all team members, establishment of standards of care, and education and outreach programs for injury prevention. The committee has administrative and systematic control including all program related services, meets regularly, takes attendance, maintains minutes and works to correct overall program deficiencies to optimize patient care. Suggested membership for the committee includes representatives from:

- Administration
- Anesthesia
- Emergency Medicine
- General Surgery
- Intensive Care
- Laboratory
- Neurosurgery
- Nursing
- Operating Room
- Orthopedics
- Pediatrics
- Prehospital Care Providers
- Radiology
    - Rehabilitation
- Respiratory Therapy
- Trauma Program Manager/TPM

The clinical managers (or designees) of the departments involved with trauma care should play an active role with the committee.

The trauma center may wish to accomplish performance improvement activities in this committee or develop a separate peer review committee. This committee should handle peer review independent from department based review. The committee must meet regularly and maintain attendance and minutes. This committee must report findings to the overall hospital performance improvement program.

F. Trauma Program Manager/TPM

Level I trauma centers must have a registered nurse working full time in the role of Trauma Program Manager/TPM. Working in conjunction with the medical director, the Trauma Program Manager/TPM is responsible for organization of the program and all systems necessary for the multidisciplinary approach throughout the continuum of trauma care. The Trauma Program Manager/TPM is responsible for working with the trauma team to assure optimal patient care. There are many requirements for data coordination and performance improvement, education and prevention activities incumbent upon this position.

The Trauma Program Manager/TPM or his/hers designee should offer or coordinate services for trauma education. The Trauma Program Manager/TPM should liaison with local EMS personnel, the Department, Regional Trauma Advisory Committee and other trauma centers.

G. Hospital Departments/Divisions/Sections

The Level I trauma center must have the following departments, divisions, or sections: General Surgery, Neurological Surgery, Orthopedic Surgery, Emergency Medicine and Anesthesia.

II. CLINICAL COMPONENTS

A. Level I trauma centers must maintain published call schedules and have the following medical specialist immediately available 24 hours/day:

- Emergency Medicine (In-house 24 hours/day)
- Trauma/General Surgery (In-house 24/hours)[1]
- Anesthesia (In-house 24 hours/day)[2]

The following specialists must be on-call and promptly available 24 hours/day:

- Cardiac Surgery
- Cardiology
- Critical Care Medicine
- Hand Surgery
- Infectious Disease

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1 The trauma surgeon on-call must be unencumbered and immediately available to respond to the trauma patient. The 24 hour-in-house availability of the attending surgeon is the most direct method for providing this involvement. A PGY 4 or 5 resident may be approved to begin the resuscitation while awaiting the arrival of the attending surgeon but cannot be considered a replacement for the attending surgeon in the ED. This may allow the attending surgeon to take call from outside the hospital. The general surgeon is expected to be in the emergency department upon arrival of the seriously injured patient. Hospital policy must be established to define conditions requiring the trauma surgeon's presence with the clear requirement on the part of the hospital and surgeon that the surgeon will participate in the early care of the patient. The trauma surgeon's participation in major therapeutic decisions, presence in the emergency department for major resuscitation and presence at operative procedures is mandatory. There must be a back-up surgeon schedule published. The surgeon on-call must be dedicated to the trauma center and not on-call to any other hospital while on trauma call. A system must be developed to assure early notification of the on-call to any other hospital while on trauma call. A system must be developed to assure notification of the on-call surgeon and compliance with these criteria and their appropriateness must be documented and monitored by the PI process.

2 Anesthesia must be promptly available with a mechanism established to ensure early notification of the on-call anesthesiologist. Anesthesia must be in-house and available 24 hours/day. Anesthesia chief residents or Certified Nurse Anesthetist (CRNAs) may fill this requirement. When residents or CRNAs are utilized, the staff anesthesiologist on-call will be advised, promptly available, and present for all operations. Hospital policy must be established to determine when the anesthesiologist must be immediately available for airway control and assisting with resuscitation. The availability of the anesthesiologist and the absence of delays in airway control or operative anesthesia must be documented and monitored by the PI process.

- Microvascular Surgery
- Nephrology
- Neurologic Surgery[3]
- Nutritional Support
- Obstetrics/Gynecologic Surgery
- Ophthalmic Surgery
- Oral/Maxillofacial
- Orthopedic Surgery[4]
- Pediatrics
- Plastic Surgery
- Pulmonary Medicine
- Radiology
- Thoracic Surgery

Recognizing that early rehabilitation is imperative for the trauma patient, a physical medicine and rehabilitation specialist must be available for the trauma program.

A trauma surgeon is presumed to be qualified and have privileges to provide emergency thoracic surgical care to patients with thoracic injuries. If this is not the case, the facility should have a board-certified thoracic surgeon immediately available.

Polices and procedures should exist to notify the patient's primary physician of the patient's condition.

B. Qualifications of Physicians on the Trauma Team

Basic to qualification for trauma care for any surgeon is Board Certification in a surgical specialty recognized by the American Board of Medical Specialties, the Advisory Board for Osteopathic Specialties, the Royal College of Physicians and Surgeons of Canada, or other appropriate foreign board. Many boards require and a practice period. Such an individual may be included when recognition by

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3 The neurosurgeons on the trauma team must be board certified, maintain 48 hours of trauma CME over 3 years and it is desirable maintain current ATLS certification. In Mississippi, a mechanism may be established to "grandfather" non-board certified neurosurgeons as determined by hospital policy. Achieving the standard for ATLS may take up to 5 years due to availability of ATLS courses in the State. The neurosurgeon liaison to the trauma service must attend 50% of the peer review committees annually and participate in the Multidisciplinary Trauma Committee. It is desirable to have the neurosurgeon dedicated to the trauma center solely while on-call or a back up schedule should be available.

4 The orthopedics surgeons on the trauma team must be board certified, maintain 48 hours of trauma related CME over 3 years and it is desirable to maintain current ATLS certification. In Mississippi, a mechanism may be established to "grandfather" non-board certified orthopedists as determined by hospital policy. Achieving the standard for ATLS may take three to five years due to availability to ATLS course in the state. The orthopedic liaison to the Trauma Service must attend 50% of the peer review committees annually and participate with the Multidisciplinary Trauma Committee. It is desirable to have the orthopedists dedicated to the trauma center solely while on-call or a back up schedule should be available.

major professional organizations has been received in their specialty. The board certification criteria apply to the general surgeons, orthopedic surgeons, and neurosurgeons.

The trauma director is responsible for determining each general surgeon's ability to participate on the trauma team.

Alternate criteria in lieu of board certification are as follows:

- A non-board certified general surgeon must have completed a surgical residency program.
- He/she must be licensed to practice medicine.
- Approved by the hospital's credentialing committee for surgical privileges.
- The surgeon must meet all criteria established by the trauma director to serve on the trauma team.
- The surgeons's experience in caring for the trauma patient must be tracked by the PI program.
- The trauma director must attest to the surgeons's experience and quality as part of the recurring granting of trauma team privileges.

III. FACILITY STANDARDS

A. Emergency Department

The facility must have an emergency department, division, service, or section staffed so trauma patients are assured immediate and appropriate initial care. The emergency physician must be in-house 24 hours/day and immediately available at all times. The emergency department medical director must meet the recommended requirements related to commitment, experience, continuing education, ongoing credentialing, and board certification in emergency medicine.

The director of the emergency department, along with the trauma director, will establish trauma-specific credentials that should exceed those that are required for general hospital privileges. Examples of credentialing requirements would include skill proficiency, training requirements, conference attendance, education requirements, ATLS verification and specialty board certification.

NOTE: ATLS requirement may take up to five years to obtain. After January 1,

2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General Surgery Physicians.

The emergency physicians who are members of the trauma team must maintain forty-eight hours of trauma related CME over 3 years. Over a three-year period, at least one-half (24 hours) should be obtained outside the physician's own institution. These physicians must maintain ATLS certification.

The emergency medicine physician will be responsible for activating the trauma team based predetermined response protocols. He will provide team leadership and care for the trauma patient until the arrival of the surgeon in the resuscitation area. The emergency department must have established standards and procedures to ensure immediate and appropriate care for the adult and pediatric trauma patient. The emergency department medical director, or his/her designee, must act as a liaison and participate with the Multidisciplinary Trauma Committee and the trauma PI process.

Basic to qualification for any physician is board certification in a speciality recognized by the American Board of Medical Specialties, the Advisory Board of Osteopathic Specialties, the Royal College of Physicians and Surgeons of Canada, or other appropriate foreign board.

Alternate criteria in lieu of board certification are as follows:

- A non-board certified physician must have completed an approved residency program.
- He/she must be licensed to practice medicine.
- Approved for emergency medicine by the hospital's credentialing committee.
- The physician must meet all criteria established by the trauma director and emergency medical director to serve on the trauma team.
- The physician's experience in caring for the trauma patient must be tracked by the PI Program.
- The trauma director and emergency medicine director must attest to the physicians' experience and quality as part of the recurring granting of trauma team privileges.

- Must have at least 12 months experience caring for the trauma patient tracked by the PI program.

There should be an adequate number of RN's staffing the trauma resuscitation area in-house 24 hours/day. Emergency nurses staffing the trauma resuscitation area should have special expertise in trauma care and participate in the ongoing PI process of the trauma program. There must be a written plan ensuring nurses maintain ongoing trauma specific education.

There is a complete list of required equipment necessary for the ED can be found in Appendix C of this document.

B. Surgical Suites/Anesthesia

The operating room (OR) must be staffed and available in-house 24 hours/day. OR nurses should participate in the care of the trauma patient and be competent in the surgical stabilization of the major trauma patient. Surgical nurses are an integral member of the trauma team, and must participate in the ongoing PI process of the trauma program and be represented on the Multidisciplinary Trauma Committee.

The OR supervisor must be able to demonstrate a prioritization scheme to assure the availability of an operating room for the emergent trauma during a busy operative schedule. There must be an on-call system for additional personnel for multiple patient admissions.

There is a complete list of required equipment necessary for Surgery can be found in Appendix C of this document.

The anesthesia department in a Level I trauma center should be ideally organized and run by an anesthesiologist who is highly experienced and devoted to the care of the injured patient. If this is not the director, an anesthesiology liaison with the same qualifications should be identified. Anesthesiologist on the trauma team must have successfully completed an anesthesia residency program approved by the Accreditation Council for Graduate Medical Education, the American Board of Osteopathic Specialties and have board certification in anesthesia. One anesthesiologist should maintain commitment to education in trauma related anesthesia.

Anesthesia must be available in-house 24 hours/day with a mechanism established to ensure early notification of the on-call anesthesiologist. Anesthesia requirements may be fulfilled by anesthesia chief residents or Certified Registered Nurse Anesthetist (CRNAs) who are capable of assessing

emergent situations in trauma patients and of providing indicated treatment, including initiation of surgical anesthesia. When the CRNA or chief resident is used to meet this requirement, the staff Anesthesiologist will be advised and promptly available at all times and present for operations. Trauma centers must document conditions when the anesthesiologist must be immediately available for airway emergencies and operative management of the trauma patient. The availability of the anesthesiologist and the absence of delays in operative anesthesia must be documented and monitored by the PI process. The anesthesiologist participating on the trauma team must participate in the Multidisciplinary Trauma Committee and the trauma PI process.

C. Post Anesthesia Care Unit (PACU)

Level I trauma centers must have a PACU staffed 24 hours/day and available to the postoperative trauma patient. Frequently it is advantageous to bypass the PACU and directly admit to the ICU. In this instance, the ICU may meet these requirements.

There must be a written plan ensuring nurses maintain ongoing trauma specific education.

PACU staffing should be in sufficient numbers to meet the critical needs of the trauma patient. A complete list of required equipment necessary for the PACU can be found in Appendix C of this document.

D. Intensive Care Unit

Level I trauma centers must have an Intensive Care Unit (ICU) that meets the needs of the adult trauma patient.

1. Surgical Director

The surgical director for the ICU must have obtained critical care training during residency or fellowship. This is best demonstrated by a certificate of added qualification in surgical critical care from the American Board of Surgery and may also be fulfilled by documentation of active participation during the preceding 12 months in trauma patients' ICU care and ICU administration and critical care-related continuing medical education. The director is responsible for the quality of care and administration of the ICU and will set policy and establish standards of care to meet the unique needs of the trauma patient.

2. Physician Coverage

The trauma service assumes and maintains responsibility for the care of the

multiple injured patient. A surgically directed ICU physician team is essential. The team will provide in-house physician coverage for all ICU trauma patients at all times. This service can be staffed by appropriately trained physicians from different specialties, but must be led by a qualified surgeon as determined by critical care credentials consistent with the medical staff privileging process of the institution.

There must be in-house physician coverage for the ICU at all times. A physician credentialed by the facility for critical care should be promptly available to the trauma patient in the ICU 24 hours/day. This coverage is for emergencies only and is not intended to replace the primary surgeon but rather is intended to ensure that the patient's immediate needs are met while the surgeon is contacted.

The trauma service should maintain the responsibility for the care of the patient as long as the patient remains critically ill. The trauma service must remain in charge of the patient and coordinate all therapeutic decisions. The responsible trauma surgeon or designee should write all orders. The trauma surgeon should maintain control over all aspects of care, including but not limited to respiratory care and management of mechanical ventilation; placement and use of pulmonary catheters; management of fluid and electrolytes, antimicrobials, and enteral and parenteral nutrition.

3. Nursing Personnel

Level I trauma centers must provide staffing in sufficient numbers to meet the critical needs of the trauma patient. There must be a written plan ensuring nurses maintain ongoing trauma specific education. ICU nurses are integral part of the trauma team and as such, should be represented on the Multidisciplinary Trauma Committee and participate in the PI process of the trauma program.

There is a complete list of necessary equipment for the ICU in Appendix C of this document.

IV. CLINICAL SUPPORT SERVICES

A. Respiratory Therapy Service: The service should be staffed with qualified personnel in-house 24 hours/day to provide the necessary treatment for the injured patient.

B. Radiological Service: A radiological service must have a certified radiological technician in-house 24 hours/day and immediately available at all times for general radiological procedures. A technician must be in-house and immediately available for computerized tomography (CT) for both head and body.

Specialty procedures such as angiography and sonography may be covered with a technician on-call. Sonography must be available to the trauma team. If the technician is not in-house 24 hours/day for special procedures the performance improvement process must document and monitor that the procedure is promptly available.

A board-certified radiologist should administer the department and participate actively in the trauma education and PI process. A staff radiologist must be promptly available, when requested, for the interpretation of radiographs, performance of complex imaging studies or interventional procedures. The radiologist must insure the preliminary interpretations are promptly reported to the trauma team and the PI program must monitor all changes in interpretation.

Written policy should exist delineating the prioritization/availability of the CT scanner for trauma patients. The PI process must ensure that trauma patients are accompanied by appropriately trained licensed providers and that the appropriate resuscitation and monitoring are provided during transportation to and while in the radiology department.

C. Clinical Laboratory Service: A clinical laboratory service must have the following services available in-house 24 hours/day:

1. Access to a blood bank and adequate storage facilities. Sufficient quantities of blood and blood products must be maintained at all times. Blood typing and cross-match capabilities must be readily available.

2. Standard analysis of blood, urine and other body fluids including microsampling when appropriate.

3. Blood gas and PH determinations (this function may be performed by services other than the clinical laboratory service, when applicable.)

4. Alcohol screening is required and drug screening is highly recommended.

5. Coagulation studies.

D. Burn Care: There must be a written transfer agreement to a Burn Center if this service is unavailable at the Level I trauma center. Policies and procedures should be in place to assure the appropriate care is rendered during the initial resuscitation and transfer of the patient.

E. Rehabilitation/Social Services: The rehabilitation of the trauma patient and the continued support of the family members are an important part of the trauma system. Each facility will be required to address a plan for integration of rehabilitation into the acute and primary care of the trauma patient, at the earliest stage possible after admission to the trauma center. Hospitals will be required to identify a mechanism to initiate rehabilitation services and/or consultation in a timely manner as well as policies regarding coordination of the Multidisciplinary Rehabilitation Team. Policies must be in place to address the coordination of transfers between acute care facilities and rehabilitation facilities licensed by the State of Mississippi with designated rehabilitation beds. Transfer agreements should include a feedback mechanism for the acute care facilities to update the health care team on the patient's progress and outcome for inclusion in the trauma registry. The rehabilitation services should minimally include; Occupational Therapy, Physical Therapy, and Speech Pathology.

The nature of traumatic injury requires that the psychological needs of the patient and family are considered and addressed in the acute stages of injury and throughout the continuum of recovery. Adequate number of trained personnel should be readily available to the trauma patients and family. Programs should be available to meet the unique need of the trauma patient.

F. Prevention/Public Outreach: Level I trauma centers will be responsible for taking a lead role in coordination of appropriate agencies, professional groups and hospitals in their region to develop a strategic plan for public awareness. This plan should take into consideration public awareness of the trauma system, access to the system, public support for the system, as well as specific prevention strategies. Prevention programs should be specific to the needs of the region. The trauma registry data should be utilized to identify injury trends and focus prevention needs.

Outreach is the act of providing resources to individuals and institutions that do not have the opportunities to maintain current knowledge and skills. Staff members at a Level I trauma center should provide consultation to staff members of other level facilities. For example: Advanced Trauma Life Support (ATLS), Pre Hospital Trauma Life Support (PHTLS), Trauma Nurse Curriculum Course (TNCC), Flight Nurse Advanced Trauma Course (FNATC) courses can be coordinated by the trauma center. Trauma physicians should provide a formal follow up to referring physicians about specific patients to educate the practitioner for the benefit of further injured patients.

G. Transfer Protocol: Level I trauma centers should work in collaboration with the referral trauma facilities in their region and develop interfacility transfer guidelines. These guidelines must address criteria to identify high-risk trauma patients that could benefit from a higher level of trauma care. All designated

facilities will agree to provide services to the trauma victim regardless of his/her ability to pay.

Transfer protocols must be written for specialty referral centers such as pediatrics, burns or spinal cord injury when these services are not available to the trauma center. The transfer protocols should include a feedback loop so that the primary provider has a good understanding of the patient outcome. Every effort should be made to repatriate the trauma patient to his/her local community hospital or provider hospital if appropriate.

H. Performance Improvement/Evaluation: A key element in trauma system planning is evaluation. All trauma centers will be required to participate in the statewide trauma registry for the purpose of supporting peer review and performance improvement activities at the local, regional and state levels. Since these data relate to specific trauma patients and are used to evaluate and improve the quality of health care services, this data is confidential as provided in Mississippi Annotated Code §41-59-77. Level I trauma facilities may be responsible for direct assistance to all other levels of referring facilities in providing data for inclusion in the registry.

Each trauma center must develop an internal trauma specific Performance Improvement (PI) plan that minimally addresses the following key components and is fully integrated into the hospital wide program:

- An organizational structure that facilitates performance improvement (Multidisciplinary Trauma Committee).
- Clearly defined authority and accountability for the program.
- Clearly stated goals and objectives one of which should be reduction of inappropriate variations in care.
- Development of expectations (criteria) from evidenced based guidelines, pathways and protocols. These should be appropriate, objectively defined standards to determine quality of care.
- Explicit definitions of outcomes derived from institutional standards.
- Documentation system to monitor performance, corrective action and the result of the actions taken.
- A process to delineate credentialing of all trauma service physicians.

- An informed peer review process utilizing a multidisciplinary method.
- A method for comparing patient outcomes with computed survival probability.
- Autopsy information on all deaths when available.
- Review of prehospital care.
- Review of times and reasons for trauma bypass.
- Review of times and reasons for trauma transfers.

Representatives from the Level I trauma center shall participate in the Regional Trauma Advisory Committees and the statewide performance improvement process.

I. Education: Level I trauma centers must have medical education programs including educational training in trauma for physicians, nurses and prehospital providers. The Level I trauma centers should take a leadership role in providing educational activities. Education can be accomplished via many mechanisms (i.e. classic CME, preceptorships, fellowships, clinical rotations, telecommunications or providing locum tenens etc). The Level I trauma center is expected to support a surgical residency program. Additionally there should be a senior resident rotation in at least one of the following disciplines: emergency medicine, general surgery, orthopedic surgery, neurosurgery or support a trauma fellowship consistent with the educational requirements of the American Association for the Surgery of Trauma (AAST). The Level I should provide ATLS courses for the region.

J. Research: A trauma research program should be designed to produce new knowledge applicable to the care of the injured patient. The research may be conducted in a number of ways including traditional laboratory and clinical research, reviews of clinical series, and epidemiological or other studies. Publication of articles in peer-review journals as well as presentations of results at local, regional and national meetings and ongoing studies approved by human and animal research review boards are expected from productive programs. The program should have an organized structure that fosters and monitors ongoing productivity.

The research program should be balanced to reflect a number of different interests. There must be a research committee, and identifiable Institutional Review Board process, active research protocols, surgeons involved in

extramural educational presentations and adequate number of peer reviewed scientific publications. Publications should appear in peer-reviewed journals. In a three-year cycle, the suggested minimum activity of ten publications (per review cycle) from the physicians representing any of the four following specialties: emergency medicine, general surgery, orthopedic surgery, and neurosurgery.

XII. Level II Trauma Centers

A Level II trauma center is an acute care facility with the commitment, resources and specialty training necessary to provide sophisticated trauma care.

I. HOSPITAL ORGANIZATION

A. Trauma Program

There must be a written commitment on behalf of the entire facility to the organization of trauma care. The trauma program must be established and recognized by the medical staff and hospital administration. The trauma program must come under the direction of a board-certified surgeon with special interest in trauma care. An identified hospital administrative leader must work closely with the trauma medical director to establish and maintain the components of the trauma program including appropriate financial support. The trauma program location in the organizational structure of the hospital must be placed so that it may interact effectively with at least equal authority with departments providing patient care. An administrative structure should minimally include an administrator, medical director, trauma program manager (TPM), trauma registrar and the appropriate support staff. Administrative support includes human resources, educational activities, community outreach activities, and research. The trauma program must be multidisciplinary in nature and the performance improvement evaluation of this care should extend to all the involved departments.

B. Trauma Service

The trauma service should be established and recognized by the medical staff and be responsible for the overall coordination and management of the system of care rendered to the injured patient. The trauma service will vary in each organization depending on the needs of the patient and the resources available. The trauma service must come under the organization and direction of a surgeon who is board certified (usually general surgery) with special interest in trauma care. All patients with multiple system trauma or major injury must be evaluated by the trauma service. The surgeon responsible for the overall care of the patient must be identified.

C. Trauma Team

The team approach is optimal in the care of the multiple injured patient. Policies should be in place describing the respective role of all personnel on the trauma team. The composition of the trauma team in any hospital will depend on the characteristics of that hospital and it's staff. In some instances a tiered response

may be appropriate. If a tiered response is employed written policy must be in place and the system monitored by the PI process. The team leader must be a qualified general surgeon. All physicians on the trauma team responsible for directing the initial resuscitation of the trauma patients must be currently certified in The American College of Surgeons Advanced Trauma Life Support (ATLS). Suggested composition of the trauma team for a severely injured patient may include:

- Anesthesiologist
- Emergency Physicians
- Laboratory Technicians
- Mental Health/Social Services/ Pastoral Care
- Nurses: ED, OR, ICU, etc.
- Security Officers
- Pediatricians
- Physician Specialist as dictated by clinical needs
- Radiology Technicians
- Respiratory Therapists
- General/Trauma Surgeon

D. Medical Director

The trauma program medical director plays an important administrative role. The medical director must be a board-certified surgeon with special interest in trauma care. The medical director will be responsible for developing a performance improvement process and will have overall accountability and administrative authority for the trauma program. The medical director must be given administrative support to implement the requirements specified by the State trauma plan. The director is responsible for working with the credentialing process of the hospital, and, in consultation with the appropriate service chiefs, recommending appointment and removal of physicians from the trauma team. He should cooperate with nursing administration to support the nursing needs of the trauma patient and develop treatment protocols for the trauma patients. The director in collaboration with the trauma program manager/TPM should coordinate the budgetary process for the trauma program. The director must be currently certified in Advanced Trauma Life Support (ATLS), maintain personal involvement in care of the injured, maintain education in trauma care, and maintain involvement in professional organizations. The trauma director must be actively involved with the trauma system development at the community, regional and state level.

NOTE: ATLS requirement may take up to five years to obtain. After January 1, 2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General Surgery Physicians.

E. Multidisciplinary Trauma Committee

Each trauma center may choose to have one or more committee to accomplish the tasks necessary. One committee should be multidisciplinary and focus on program oversight and leadership. The major focus will be on PI activities, policy development, communication among all team members, establishment of standards of care, education and outreach programs, and injury prevention. The committee oversees implementation of all program related services, meets regularly, takes attendance, maintains minutes and works to correct overall program deficiencies to optimize patient care. Suggested membership for the committee includes representatives from:

- Administration
- Anesthesia
- Emergency Department
- General Surgery
- Intensive Care
- Laboratory
- Neurosurgery
- Nursing
- Operating Room
- Orthopedics
- Pediatrics
- Prehospital Care Providers
- Radiology
- Rehabilitation
- Respiratory Therapy
- Trauma Program Manager/TPM

The clinical managers (or designees) of the departments involved with trauma care should play an active role with the committee.

The trauma center may wish to accomplish performance improvement activities at this same committee or develop a separate peer review committee. This committee should handle peer review independent from department based review. This committee must be multidisciplinary, meet regularly, maintain attendance and minutes. This committee must relate to the overall hospital performance improvement program.

F. Trauma Program Manager/TPM

Level II trauma centers must have a registered nurse working in the role of Trauma Program Manager. Working in conjunction with the medical director, the Trauma Program Manager is responsible for organization of the program and all systems necessary for the multidisciplinary approach throughout the continuum of trauma care. The Trauma Program Manager is responsible for working with the trauma team to assure optimal patient care. There are many requirements for data coordination and performance improvement, education and prevention activities incumbent upon this position. The Trauma Program Manager/TPM or his/her

designee should offer or coordinate services for trauma education. The Trauma Program Manager will liaison with local EMS personnel, the Department, Trauma Regional Advisory Committee and other trauma centers.

G. Hospital Departments/Divisions/Sections

The Level II trauma center must have the following departments, divisions, or sections:

General Surgery, Neurological Surgery, Orthopedic Surgery, Emergency Medicine and Anesthesia.

II. CLINICAL COMPONENTS

A. Level II trauma centers must maintain published call schedules and have the following specialist immediately available 24 hours/day:

- Emergency Medicine (In-house 24 hours/day)
- Trauma/General Surgery[4]
- Anesthesia[5]

The following specialist should be on-call and promptly available 24 hours/day:

- Critical Care Medicine
- Hand Surgery
- Microvascular Surgery
- Neurologic Surgery[6]
- Obstetrics/Gynecologic Surgery
- Ophthalmic Surgery

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4 The trauma surgeon on-call must be unencumbered and immediately available to respond to the trauma patient. The 24-hour in-house availability of the attending surgeon is the most direct method for providing this involvement. Local conditions may allow the surgeon to be rapidly available on short notice. Under these circumstances the general surgeon is expected to be in the emergency department upon arrival of the seriously injured patient. hospital policy must be established to define conditions requiring the trauma surgeon's presence with the clear requirement on the part of the hospital and surgeon that the surgeon will participate in the early care of the patient. The trauma surgeon's participation in major therapeutic decisions, presence in the emergency department for major resuscitation and presence at operative procedures is mandatory. There must be a back-up surgeon schedule published. It is desirable that the surgeon on-call be dedicated to the trauma center and not on-call to any other hospital while on trauma call. The back-up surgeon on-call must be dedicated to the trauma center and not on-call to any other hospital while on back-up call. A mechanism must be established to ensure notification of the back-up surgeon when the primary surgeon is not available to the trauma center. A system must be developed to assure notification of the on-call surgeon and compliance with these criteria and their appropriateness must be documented and monitored by the PI process.

5 Anesthesia must be promptly available with a mechanism established to ensure notification of the on-call anesthesiologist. When residents or CRNAs are utilized, the staff anesthesiologist on-call will be advised, promptly available, and present for all operations.

6 The neurosurgeons on the trauma team must be board certified, maintain 48 hours of trauma related CME over 3 years and it is desirable to maintain current ATLS certification. In Mississippi, a mechanism may be established to "grandfather" non-board certified neurosurgeons as determined by hospital policy. The neurosurgeon liaison to the Trauma Service must attend 50% of the peer review committees annually and participate with the Multidisciplinary Trauma Committee. It is desirable to have the neurosurgeon dedicated to the trauma center solely while on-call or a back up schedule should be available.

- Oral/Maxillofacial
- Orthopedic Surgery[7]
- Plastic Surgery
- Radiology
- Thoracic Surgery

Recognizing that early rehabilitation is imperative for trauma patients, a physical medicine and rehabilitation specialist should be available for the trauma program.

A trauma surgeon is presumed to be qualified and have privileges to provide emergency thoracic surgical care to patients with thoracic injuries. If this is not the case, the facility should have a board certified thoracic surgeon immediately available.

Policies and procedures should exist to notify the patient's primary physician of the patient's condition at an appropriate time.

B. Qualifications of Physicians on the Trauma Team

Basic to qualification for trauma care for any surgeon is Board Certification in a surgical specialty recognized by the American Board of Medical Specialties, the Advisory Board for Osteopathic Specialties, the American Dental Association, the Royal College of Physicians and Surgeons of Canada or other appropriate foreign board.

Alternate criteria in lieu of board certification are as follows:

- A Non-board certified general surgeon must have completed a surgical residency program.

- He/she must be licensed to practice medicine.

- Approved by the hospital's credentialing committee for surgical privileges.

- The surgeon must meet all criteria established by the trauma director to serve on the trauma team.

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[7] The orthopedic surgeons on the trauma team must be board certified, maintain 48 hours of trauma related CME over 3 years and it is desirable to maintain current ATLS certification. In Mississippi, a mechanism may be established to "grandfather" non-board certified orthopedics as determined by hospital policy. The orthopedics liaison to the Trauma Service must attend 50% of the peer review committees annually and participate with the Multidisciplinary Trauma Committee. It is desirable to have the orthopedics dedicated to the trauma center solely while on-call or a back up schedule should be available.

- The surgeon's experience in caring for the trauma patient must be tracked by the PI program.

- The trauma director must attest to the surgeon's experience and quality as part of the recurring granting of trauma team privileges.

The trauma director using the trauma PI program is responsible for determining each general surgeon's ability to participate on the trauma team.

III. FACILITY STANDARDS

A. Emergency Department

The facility must have an emergency department, division, service, or section staffed so trauma patients are assured immediate and appropriate initial care. The emergency physician must be in-house 24 hours/day and immediately available at all times. The emergency department medical director must meet the recommended requirements related to commitment, experience, continuing education, ongoing credentialing, and board certification in emergency medicine.

The director of the emergency department, along with the trauma director, will establish trauma-specific credentials that could exceed those that are required for general hospital privileges. Examples of credentialing requirements would include skill proficiency, training requirements, conference attendance, education requirements, ATLS verification and specialty board certification.

The emergency physicians who are members of the trauma team must maintain 48 hours of trauma related CME over 3 years. Over a three-year period, at least one half (24 hours) should be obtained outside the physicians own institution. These physicians must maintain a current ATLS certification.

NOTE: ATLS requirement may take up to five years to obtain. After January 1, 2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General Surgery Physicians.

The emergency medicine physician will be responsible for activating the trauma team based on predetermined response protocols. He will provide team leadership and care for the trauma patient until the arrival of the surgeon in the resuscitation area. The emergency department must have established standards and procedures to ensure immediate and appropriate care for the adult and pediatric trauma patient. The emergency department medical director, or his/her designee, must act as a liaison and participate with the Multidisciplinary Trauma

Committee and the trauma PI process.

Basic to qualification for trauma care for any physician is board certification in a specialty recognized by the American Board of Medical Specialties, the Advisory Board for Osteopathic Specialties, the Royal College of Physicians and Surgeons of Canada, or other appropriate foreign board.

Alternate criteria in lieu of board certification are as follows:

- A non-board certified physician must have completed an approved residency program.
- He/she must be licensed to practice medicine.
- Approved for emergency medicine by the hospital's credentialing committee.
- The physician must meet all criteria established by the trauma director and emergency medical director to serve on the trauma team.
- The physician's experience in caring for the trauma patient must be tracked by the PI program.
- The trauma director and emergency medicine director must attest to the physicians' experience and quality as part of the recurring granting of trauma team privileges.
- Must have at least 12 months experience caring for the trauma patient tracked by the PI program.

There should be an adequate number of RN's staffed for the trauma resuscitation area in-house 24 hours/day. Emergency nurses staffing the trauma resuscitation area should have special expertise in trauma care and participate in the ongoing PI process of the trauma program. There must be a written plan ensuring nurses maintain ongoing trauma specific education.

There is a complete list of required equipment necessary for the ED found in Appendix C of this document.

B. Surgical Suites/Anesthesia

It is recommended that the OR be staffed and available in-house 24 hours/day. If the staff is not in-house, Hospital policy must be written to assure notification and

prompt response. The PI process must document and monitor the ongoing availability of OR crews and absence of delay.

The OR nurses should participate in the care of the trauma patient and be competent in the surgical stabilization of the major trauma patient.

The surgical nurses are an integral member of the trauma team and must participate in the ongoing PI process of the trauma program and must be represented on the Multidisciplinary Trauma Committee.

The OR supervisor must be able to demonstrate a prioritization scheme to assure the availability of an operating room for the emergent trauma patient during a busy operative schedule. There must be an on-call system for additional personnel for multiple patient admissions.

A complete list of required equipment necessary for the Surgery can be found in Appendix C of this document.

The anesthesia department in a Level II trauma center should be ideally organized and run by an anesthesiologist who is experienced and devoted to the care of the injured patient. If this is not, the director, an anesthesiologist liaison with the same qualifications should be identified. Anesthesiologists on the trauma team must have successfully completed an anesthesia residency program approved by the Accreditation Council for Graduate Medical Education, the American Board of Osteopathic Specialties, or the American Osteopathic Board and should have board certification in anesthesia.

Anesthesia must be available 24 hours/day with a mechanism established to ensure notification of the on-call anesthesiologist. Anesthesia requirements may be fulfilled by anesthesia chief residents or Certified Registered Nurse Anesthetists (CRNAs) who are capable of assessing emergent situations in trauma patients and of providing an indicated treatment, including initiation of surgical anesthesia. When the CRNA or chief resident is used to meet this requirement, the staff Anesthesiologist will be advised and promptly available at all times and present for operations. Trauma centers must document conditions when the anesthesiologist must be immediately available for airway emergencies and operative management of the trauma patient. The availability of the anesthesiologist and the absence of delays in operative anesthesia must be documented and monitored by the PI process. The anesthesiologist participating on the trauma team should have the necessary educational background in the care of the trauma patient, participate in the Multidisciplinary Trauma Committee and the trauma PI process.

C. Post Anesthesia Care Unit (PACU)

It is desirable to have a PACU staffed 24 hours/day and available to the postoperative trauma patient. If the staff is not in-house, Hospital policy must be written to assure early notification and prompt response. The PI process must document and monitor the ongoing availability of OR crews and absence of delay. Frequently it is advantageous to bypass the PACU and directly admit to the ICU. In this instance, the ICU may meet these requirements.

PACU nurses must show evidence of completion of a structured in-service program. There must be a written plan ensuring nurses maintain ongoing trauma specific education.

PACU staffing should be in sufficient numbers to meet the critical needs of the trauma patient. A complete list of required equipment necessary for the PACU found in Appendix C of this document.

D. Intensive Care Unit

Level II trauma centers must have an Intensive Care Unit (ICU) that meets the needs of the adult trauma patient.

1. Surgical Director

Ideally, the surgical director for the ICU, which houses the trauma patients, will have obtained critical care training during residency or fellowship and must have expertise in the preoperative and post injury care of the injured patient. A certificate of added qualification in surgical critical care from the American Board of Surgery best demonstrates this. Alternatively this criteria may be achieved by documentation of active participation during the preceding 12 months in trauma patients' ICU care and ICU administration and critical care-related continuing medical education and trauma related PI activities. The director is responsible for the quality of care and administration of the ICU and will set policy and establish standards of care to meet the unique needs of the trauma patient.

2. Physician Coverage

The trauma service assumes and maintains responsibility for the care of the multiple injured patient. The trauma service should maintain the responsibility for the care of the patient as long as the patient remains critically ill. The trauma service must remain in charge of the patient and coordinate all therapeutic decisions. The responsible trauma surgeon or designee should write all orders. The trauma surgeon should maintain control over all aspects of care, including but not limited to respiratory care and management of mechanical ventilation; placement and use of pulmonary catheters; management of fluid and electrolytes, antimicrobials, and enteral and parenteral nutrition.

There must be in-house physician coverage for the ICU at all times[8]. A physician credentialed by the facility for critical care should be promptly available to the trauma patient in the ICU 24 hours/day. This coverage is for emergencies only and is not intended to replace the primary surgeon but rather is intended to ensure that the patient's immediate needs are met while the surgeon is contacted

3. Nursing Personnel

Level II trauma centers must provide staffing in sufficient numbers to meet the critical needs of the trauma patient. Critical care nurses must show evidence of completion of a structured in-service program. There must be a written plan ensuring nurses maintain ongoing critical care education. ICU nurses are an integral part of the trauma team and as such, should be represented on the Multidisciplinary Trauma Committee and participate in the PI process of the trauma program.

There is a complete list of necessary equipment for the ICU in Appendix C of this document.

IV. CLINICAL SUPPORT SERVICES

A. Respiratory Therapy Service: The service should be staffed with qualified personnel in-house or on-call 24 hours/day to provide the necessary treatments for the injured patient.

B. Radiological Service: A radiological service must have a certified radiological technician in-house 24 hours/day and immediately available at all times for general radiological procedures. It is desirable to have a technician in-house and immediately available for computerized tomography (CT) for both head and body. If the technician is not in-house 24 hours/day for special procedures the performance improvement process must document and monitor that the procedure is promptly available. Specialty procedures such as angiography and sonography may be covered with a technician on-call. Sonography must be available to the trauma team.

A board-certified radiologist should administer the department and participate actively in the trauma education and PI process. A staff radiologist must be promptly available, when requested, for the interpretation of radiographs, performance of complex imaging studies or interventional procedures. The radiologist must insure the preliminary interpretations are promptly reported to the

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[8] This can be covered by the emergency physician or in house physician.

trauma team and the PI program must monitor all changes in interpretation.

Written policy should exist delineating the prioritization/availability of the CT scanner for trauma patients. The PI process must endure that trauma patients are accompanied by appropriately trained licensed providers and that the appropriate resuscitation and monitoring are provided during transportation to and while in the radiology department.

C. Clinical Laboratory Service: A clinical laboratory service must have the following services available in-house 24 hours/day:

1. Access to a community central blood bank and adequate storage facilities. Sufficient quantities of blood and blood products should be maintained at all times. Blood typing and cross-match capabilities must be readily available.

2. Standard analysis of blood, urine, and other body fluids including microsampling when appropriate.

3. Blood gas and pH determinations (this function may be performed by services other than the clinical laboratory service, when applicable).

4. Alcohol screening is required and drug screening is highly recommended.

5. Coagulation studies

D. Burn Care: There must be a written transfer agreement to a Burn Center. Policies and procedures should be in place to assure the appropriate care is rendered during the initial resuscitation and transfer of the patient.

E. Rehabilitation/Social Services: The rehabilitation of the trauma patient and the continued support of the family members are an important part of the trauma system. Each facility will be required to address a plan for integration of rehabilitation into the acute and primary care of the trauma patient, at the earliest stage possible after admission to the trauma center. Hospitals will be required to identify a mechanism to initiate rehabilitation services and/or consultation in a timely manner as well as policies regarding coordination of the Multidisciplinary Rehabilitation Team. Policies must be in place to address the coordination of transfers between acute care facilities and rehabilitation facilities licensed by the State of Mississippi with designated rehabilitation beds. Transfer agreements should include a feedback mechanism for the acute care facilities to update the health care team on the patient's progress and outcome for inclusion in the trauma registry. The rehabilitation services should minimally include Occupational

Therapy, Physical Therapy, and Speech Pathology.

The nature of traumatic injury requires that the psychological needs of the patient and family are considered and addressed in the acute stages of injury and throughout the continuum of recovery. Adequate numbers of trained personnel should be readily available to the trauma patients and family. Programs should be available to meet the unique needs of the trauma patient.

F. Prevention/Public Outreach: Level II trauma centers will be responsible for participating with appropriate agencies, professional groups and hospitals in their region to develop a strategic plan for public awareness. This plan should take into consideration public awareness of the trauma system, access to the system, public support for the system, as well as specific prevention strategies. Prevention programs should be specific to the needs of the region. The trauma registry data should be utilized to identify injury trends and focus prevention needs.

Outreach is the act of providing resources to individuals and institutions that do not have the opportunities to maintain current knowledge and skills. Staff members at the Level II trauma center should provide consultation to staff members at other facilities in the region. Advanced Trauma Life Support (ATLS), Pre Hospital Trauma Life Support (PHTLS), Trauma Nurse Curriculum Course (TNCC), Flight Nurse Advanced Trauma Course (FNATC) courses for example can be coordinated by the trauma center. Trauma physicians should provide a formal follow up to referring physicians about specific patients to educate he practitioner for the benefit of further injured patients.

G. Transfer Protocol: Level II trauma centers should work in collaboration with the referral trauma facilities in their region and develop interfacility transfer guidelines. These guidelines must address criteria to identify high-risk trauma patients that could benefit from a higher level of trauma care. All designated facilities will agree to provide services to the trauma victim regardless of his/her ability to pay.

Transfer protocols must be written for specialty referral centers such as pediatrics, burn or spinal cord injury when these services are not available at the trauma center. The transfer protocols must include a feedback loop so that the primary provider has a good understanding of the patient outcome. Every effort should be made to repatriate the trauma patient to his/her local community hospital or provider hospital if appropriate.

H. Performance Improvement/Evaluation: A key element in trauma system planning is evaluation. All trauma centers will be required to participate in the statewide trauma registry for the purpose of supporting peer review and performance improvement activities at the local, regional and state levels. Since

these data relate to specific trauma patients and are used to evaluate and improve the quality of health care services, this data is confidential and will be governed by the Mississippi Code Section of Trauma Bill 41-59-77. Level I, II and III trauma facilities will be responsible for direct assistance to Level IV. Referring facilities in providing data for inclusion in the registry.

Each trauma center must develop an internal Performance Improvement plan that minimally addresses the following key components and is fully integrated into the hospital wide program:

1. An organizational structure that facilitates performance improvement (Multidisciplinary Trauma Committee).

2. Clearly defined authority and accountability for the program.

3. Clearly stated goals and objectives one of which should be reduction of inappropriate variations in care.

4. Development of expectations (criteria) from evidenced based guidelines, pathways and protocols. These should be appropriate, objectively defined standards to determine quality of care.

5. Explicit definitions of outcomes derived from institutional standards

6. Documentation system to monitor performance, corrective action and the result of the actions taken.

7. A process to delineate privileges credentialing all trauma service physicians.

8. An informed peer review process utilizing a multidisciplinary method.

9. A method for comparing patient outcomes with computed survival probability.

10. Autopsy information on all deaths when available.

11. Medical nursing audits.

12. Review of prehospital care.

13. Review of times and reasons for trauma bypass.

14. Review of times and reasons for trauma transfers.

Representatives from the Level II trauma center shall participate in the Regional Trauma Advisory Councils and the statewide performance improvement process.

I. Education: Level II trauma centers must have medical education programs including educational training in trauma for physicians, nurses and prehospital providers. The Level II trauma centers assist and cooperate with the Level I trauma center in providing educational activities. Education may be accomplished via many mechanisms (i.e. classic CME, preceptorships, fellowships, clinical rotations, telecommunications or providing locum tenens, etc.)

XIII. Level III Trauma Centers

It is important to incorporate all facilities in trauma planning. A Level III trauma center is an acute care facility with the commitment, medical staff, personnel and specialty training necessary to provide initial resuscitation of the trauma patient. Generally, a Level III trauma center is expected to provide initial resuscitation of the trauma patient and immediate operative intervention to control hemorrhage and to assure maximal stabilization prior to referral to a higher level of care. In many instances, patients will remain in the Level III trauma center unless the medical needs of the patient require secondary transfer. The decision to transfer a patient rests with the physician attending the trauma patient. All Level III trauma centers will work collaboratively with other trauma facilities to develop transfer protocols and a well-defined transfer sequence.

I. HOSPITAL ORGANIZATION

A. Trauma Program

There must be a written commitment on behalf of the entire facility to the organization of trauma care. The trauma program must be established and recognized by the medical staff and hospital administration. The trauma program must come under the direction of a board-certified surgeon. An identified hospital administrative leader should work closely with the trauma medical director to establish and maintain the components of the trauma program. The trauma program location in the organizational structure of the hospital should be placed so that it may interact effectively with at least equal authority with other departments providing patient care. The trauma program should be multidisciplinary in nature and the performance improvement evaluation of this care must extend to all the involved departments.

B. Trauma Service

A trauma service is an organized structure of care for the patient. The service includes personnel and resources necessary to ensure the appropriate efficient care delivery. The composition of the service will vary depending on the nature of the medical center, available resources and personnel and patient clinical need. The trauma service must come under the organization and direction of a surgeon who is board certified with special interest in trauma care. All patients with multiple system trauma or major injury must be evaluated by the trauma service. Injured patients may be admitted to individual surgeons.

C. Trauma Team

The team approach is optimal in the care of the multiple injured patient. Policies should be in place describing the roles of all personnel on the trauma team. The

composition of the trauma team in any hospital will depend on the characteristics of that hospital and its resources. All physicians on the trauma team responsible for directing any phase of the resuscitation (emergency physician and general surgeons) must be currently certified in ATLS.

Suggested composition of the trauma team for severely injured patients may include:

- Physicians
- Specialists
- Laboratory Technicians
- Nursing
- Auxiliary Support Staff

D. Medical Director

The trauma program medical director is the surgeon who leads the multidisciplinary activities of the trauma program. The director must be a board-certified surgeon . The medical director will be responsible for developing a performance improvement process and, through this process, will have overall accountability for all trauma patients and administrative authority for the hospital's trauma program. The director is responsible for working with the credentialing process of the hospital and, in consultation with the appropriate service chiefs, recommending appointment and removal of physicians from the trauma team. He should cooperate with nursing administration to support the nursing needs of the trauma patient and develop treatment protocols for the trauma patients. The director in collaboration with the Trauma Program Manager/TPM should coordinate the budgetary process for the trauma program.

The director must be currently certified by the American College of Surgeons Advanced Trauma Life Support (ATLS), maintain personal involvement in care of the injured, maintain education in trauma care, and maintain involvement in professional organizations. The trauma director, or his designee, must be actively involved with the trauma system development at the community, regional and state level.

NOTE: ATLS requirement may take up to five years to obtain. After January 1, 2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General Surgery Physicians.

E. Multidisciplinary Trauma Committee

The purpose of the committee is to provide oversight and leadership to the entire trauma program. The exact format will be hospital specific and may be accomplished by collaboration with another designated trauma center in the region. The major focus will be on PI activities, policy development, communication among all team members, development of standards of care, education and outreach programs, and injury prevention. The committee oversees the implementation of the process which includes all program related services, meets regularly, takes attendance, maintains minutes and works to correct overall program deficiencies to optimize patient care. Suggested membership for the committee includes representatives (if available in the community) from:

- Administration
- Anesthesia
- Emergency Department
- General Surgery
- Intensive Care
- Laboratory
- Nursing
- Operating Room
- Orthopedics
- Pediatrics
- Prehospital Care Providers
- Radiology
- Rehabilitation
- Respiratory Therapy
- Trauma Program Manager/TPM

The clinical managers (or designees) of the departments involved with trauma care should play an active role with the committee.

F. Trauma Program Manager/TPM

Level III trauma centers must have a registered nurse working in the role of a Trauma Program Manager/TPM. Working in conjunction with the trauma director, the Trauma Program Manager is responsible for organization of the program and all systems necessary for the multidisciplinary approach throughout the continuum of trauma care. He/she is responsible for working with the trauma team to assure optimal patient care. The Trauma nurse coordinator will liaison with local EMS personnel, the RTAC and the Department as well as other trauma centers.

II. CLINICAL CAPABILITIES

Level III trauma centers must have published on-call schedules and have the following medical specialists immediately available 24 hours/day to the injured patient:

- Trauma/General Surgery[1]

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[1] The trauma surgeon on call must be promptly available to respond to the trauma patient. Hospital policy must be established to define conditions requiring the trauma surgeon's immediate availability. The trauma surgeon's participation in major therapeutic decisions, presence in the emergency department for major resuscitation, and presence at operative procedures is mandatory. A system must be developed to assure

- Anesthesia[2]
- Emergency Medicine

The following specialist must be on-call and promptly available:

- Orthopedic Surgery
- Radiology

It is desirable (although not required) to have the following specialist available to a Level III trauma center:

- Hand Surgery
- Neurological Surgery
- Obstetrics/Gynecology Surgery
- Opthalmic Surgery
- Oral/Maxillofacial Surgery
- Plastic Surgery
- Critical Care Medicine
- Thoracic Surgery

The staff specialist on-call will be notified at the discretion of the trauma surgeon and will be promptly available. The PI program will continuously monitor this availability.

Policies and procedures should exist to notify the patient's primary physician of the patient's condition at an appropriate time.

A. Qualifications of Physicians on the Trauma Team

Basic to qualification for trauma care for any surgeon is Board Certification in a surgical specialty recognized by the American Board of Medical Specialties, the Advisory Board for Osteopathic Specialties, the American Dental Association, the Royal College of Physicians and Surgeons of Canada, or other appropriate foreign board.

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notification of the on-call surgeon and compliance with these criteria and their appropriateness must be documented and monitored by the PI process. It is desirable to have written guidelines for surgical backup capabilities. It is desirable to have the surgeon on-call dedicated to a single hospital when on-call.

2 Anesthesia must be promptly available with a mechanism to ensure notification of the on-call anesthesiologist. Local conditions must be established to determine when the anesthesiologist must be immediately available for airway emergencies and operative management. The availability of the anesthesiologist and the absence of delays in airway control or operative anesthesia must be documented and monitored by the PI process. Anesthesia coverage may be provided by a CRNA as long as a supervising physician is present in the operating suite during surgery. Hospital policy must be established to determine when the CRNA must be immediately available for airway emergencies and operative management. The availability of the CRNA and the absence of delays in airway control or operative anesthesia must be documented and monitored by the PI process.

Alternate criteria in lieu of board certification are as follows:

- Non-board certified general surgeon must have completed a surgical residency program.
- He/she must be licensed to practice medicine.
- Approved by the hospital's credentialing committee for surgical privileges.
- The surgeon must meet all criteria established by the trauma director to serve on the trauma team.
- The surgeon's experience in caring for the trauma patient must be tracked by the PI program.
- The trauma director must attest to the surgeons' experience and quality as part of the recurring granting of trauma team privileges.

The surgeon is expected to serve as the captain of the resuscitating team and is expected to be in the emergency department upon arrival of the seriously injured patient to make key decisions about the management of the trauma patient's care. The surgeon will coordinate all aspects of treatment, including resuscitation, operation, critical care, recuperation and rehabilitation (as appropriate in a Level III facility) and determine if the patient needs transport to a higher lever of care. If transport is required he/she is accountable for coordination of the process with the receiving physician at the receiving facility. If the patient is to be admitted to the Level III trauma center, the surgeon is the admitting physician and will coordinate the patient care while hospitalized. Guidelines should be written at the local level to determine which types of patients should be admitted to the Level III trauma center or which patients should be considered for transfer to a higher level of care.

The general surgeons and emergency physicians must participate in a multidisciplinary trauma committee and the PI process. Peer review committee attendance must be greater than fifty percent over a year's period of time. These physicians must be currently certified in ATLS, and it is desirable that they be involved in at least forty eight (48) hours of trauma related continuing education (CME) every 3 years.

NOTE: ATLS requirement may take up to five years to obtain. After January 1, 2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General

Surgery Physicians.

For those physicians providing emergency medicine coverage, board certification in Emergency Medicine is desirable. However, career emergency medicine physicians who are board certified in a specialty recognized by the American Board of Medical Specialties, a Canadian Board or other equivalent foreign board meets the requirements.

Alternative criteria for the non-boarded physician working in the Emergency Department are as follows:

- He/she must be licensed to practice medicine
- Approved by the hospital's credentialing committee for emergency medicine privileges.
- The physician must meet all criteria established by the trauma and emergency medical director to serve on the trauma team.
- The physician's experience in caring for the trauma patient must be tracked by the PI program.
- The trauma and emergency medical director must attest to the physician's experience and quality as part of the recurring granting of trauma team privileges.
- Residency in Emergency Medicine is desirable.

III. FACILITY STANDARDS

A. Emergency Department

The facility must have an emergency department staffed so those trauma patients are assured immediate and appropriate initial care. The emergency physician must be in-house 24 hours/day, immediately available at all times, and capable of evaluating trauma patients and provide initial resuscitation. The emergency medicine physician will provide team leadership and care for the trauma patient until the arrival of the surgeon in the resuscitation area. The emergency department must have established standards and procedures to ensure immediate and appropriate care for the adult and pediatric trauma patient. The medical director for the department, or his designee, must participate with the Multidisciplinary Trauma Committee and the trauma PI process.

There should be an adequate number of RN's staffed for the trauma resuscitation

area in-house 24 hours/day. There must be a written plan ensuring nurses maintain ongoing trauma specific education.

There is a complete list of required equipment necessary for the ED found in Appendix C of this document.

B. Surgical Suites

The surgical team must be on-call with a well-defined mechanism for notification to expedite transfer to the operating room if the patient's condition warrants. The process should be monitored by trauma PI program.

The surgical nurses are integral members of the trauma team and must participate in the ongoing PI process of the trauma program and must be represented on the Multidisciplinary Trauma Committee.

The OR supervisor must be able to demonstrate a prioritization scheme to assure the availability of an operating room for the emergent trauma patient during a busy operative schedule.

Anesthesia must be promptly available with a mechanism established to ensure notification of the on-call anesthesiologist. The Level III trauma center must document conditions when the anesthesiologist must be immediately available for airway emergencies and operative management of the trauma patient. Anesthesia coverage may be provided by a CRNA under physician supervision. The availability of the anesthesiologist and the absence of delays in airway control or operative anesthesia must be documented and monitored by the PI process. The anesthesiologist/CRNA must participate in the Multidisciplinary Trauma Committee and the trauma PI process.

There is a complete list of necessary equipment for the surgical suites found in Appendix C of this document.

C. Post Anesthesia Care Unit (PACU)

A Level III trauma center should have a PACU available 24 hours/day to the postoperative trauma patient. Frequently, it is advantageous to bypass the PACU and directly admit to the ICU. In this instance, the ICU may meet these requirements.

There must be a written plan ensuring nurses maintain ongoing critical care education. PACU staffing should be in sufficient numbers to meet the critical need of the trauma patient.

There is a complete list of necessary equipment for the PACU in Appendix C of this document.

D. Intensive Care Unit

The ICU must have a surgical director or surgical co-director who is responsible to set policy and administration and establish standards of care to meet the unique needs of the trauma patient. He/she is responsible for the quality of care and administration of the ICU. The trauma medical director must work to assure trauma patients admitted to the ICU will be admitted under the care of a general surgeon or appropriate surgical subspecialists. In addition to overall responsibility for patient care by the primary surgeon, it is desirable to have in-house physician coverage for the ICU at all times. This may be provided by a hospitalist or emergency physician.

Level III trauma center should provide staffing in sufficient numbers to meet the needs of the trauma patient. There must be a written plan ensuring nurses maintain ongoing critical care education. ICU nurses are an integral part of the trauma team and as such, should be represented on the Multidisciplinary Trauma Committee and participate in the PI process of the trauma program.

There is a complete list of necessary equipment for the ICU in Appendix C of this document.

IV. CLINICAL SUPPORT SERVICES

A. Respiratory Therapy Service: The service should be staffed with qualified personnel on-call 24 hours/day to provide the necessary treatments for the injured patient.

B. Radiological Services: A board-certified radiologist should administer the department and participate actively in the trauma PI process. The radiologist is a key member of the trauma team and should be represented on the Multidisciplinary Trauma Committee. It is desirable that a certified radiological technician should be available 24 hours/day to meet the immediate needs of the trauma patient for general radiological procedures. Sonography should be available to the trauma team. If the radiology technician and the speciality technician are on-call from home, a mechanism must be in place to assure the technicians are available. The quality assurance process must verify that radiological services are promptly available. Written policy should exist delineating the prioritization/availability of the CT scanner for trauma patients. The use of teleradiology is acceptable. It is anticipated that facilities may cross-train personnel for other roles. This is acceptable as long as there is no response delay.

C. Clinical Laboratory Services: The clinical laboratory service shall have the following services available in-house 24 hours/day:

1. Access to a community central blood bank and adequate storage facilities. Sufficient quantities of blood and blood products should be maintained at all times. Blood typing and cross-match capabilities must be readily available.

2. Standard analysis of blood, urine, and other body fluids includes microsampling when appropriate.

3. Blood gas and Ph determinations (this function may be performed by services other than the clinical laboratory service, when applicable).

4. Alcohol screening is required and drug screening is highly recommended.

5. Coagulation studies.

Sufficient numbers of clinical laboratory technologists shall be in-house 24 hours/day and promptly available at all times. It is anticipated that facilities may cross-train personnel for other roles. This is acceptable as long as there is no response delay.

D. Acute Hemodialysis: There must be a written transfer agreement with a facility that provides this service if this service if it is not available at the Level III trauma center.

E. Burn Care: There must be a written transfer agreement to a Burn Center. Policies and procedures should be in place to assure the appropriate care is rendered during the initial resuscitation and transfer of the patient.

F. Rehabilitation/Social Services: The rehabilitation of the trauma patient and the continued support of the family members are important parts of the trauma system. Each facility will be required to address a plan for integration of rehabilitation into the acute and primary care of the trauma patient at the earliest stage possible after admission to the trauma center. Level III hospitals will be required to identify a mechanism to initiate rehabilitation services and/or consultation in a timely manner, as well as to develop policies regarding coordination of the Multidisciplinary Rehabilitation Team. Policies must be in place to address the coordination of transfers between acute care facilities and rehabilitation facilities licensed by the State of Mississippi with designated rehabilitation beds. Transfer agreements should include a feedback mechanism for the Rehab/Skilled Nursing facilities to update the health care team on the

patient's progress and outcome for inclusion in the trauma registry.

The nature of traumatic injury requires that the psychological needs of the patient and family are considered and addressed in the acute stages of injury and throughout recovery. A Level III trauma center may utilize community resources as appropriate to meet the needs of the trauma patient.

G. Outreach: Level III trauma centers must work cooperatively with referral facilities to develop and implement an outreach program for trauma care in the region. The Level III trauma center will work to plan, facilitate and provide professional education programs for the prehospital care providers, nurses and physicians, from referral facilities in their region.

H. Prevention/Public Education: The Level III trauma center is responsible for working with the other centers to develop education and prevention programs for the public and professional staff. The plan must include implementation strategies to assure information dissemination to all residents in the region.

I. Transfer Protocols: The Level III trauma center will have transfer protocols in place with Level I and Level II trauma centers, as well as all specialty referral centers (such as burn, pediatrics, spinal cord injury and rehabilitation). Additionally, transfer protocols must be written with all referral facilities in the immediate service area. All facilities will work together to develop transfer guidelines indicating which patients should be considered for transfer and procedures to assure the most expedient, safe transfer of the patient. The transfer protocols must include a feedback loop so the primary provider has a good understanding of patient outcome and assures this information becomes part of the trauma registry. All designated facilities will agree to provide services to the trauma patient regardless of their ability to pay. Every effort should be made to repatriate the trauma patient to his/her local community hospital or provider hospital as appropriate.

J. Performance Improvement/Evaluation: A key element in trauma system planning is evaluation. All trauma centers will be required to participate in the statewide trauma registry for the purpose of supporting peer review and performance improvement activities at the local, regional and state levels. Since these data relate to specific trauma patients and are used to evaluate and improve the quality of health care services, this data is confidential as provided in Mississippi Annotated Code §41-59-77. Level I and II trauma facilities may be responsible for direct assistance to Level III, referring facilities in providing data for inclusion in the registry.

Each trauma center must develop an internal Performance Improvement plan that minimally addresses the following key components:

- An organizational structure that facilitates performance improvement (Multidisciplinary Trauma Committee).
- Clearly defined authority and accountability for the program.
- Clearly stated goals and objectives one of which should be reduction of inappropriate variations in care.
- Development of expectations (criteria) from evidenced based guidelines, pathways and protocols. These should be appropriate, objectively defined standards to determine quality of care.
- Explicit definitions of outcomes derived from institutional standards.
- Documentation system to monitor performance, corrective action and the result of the actions taken.
- A process to delineate privileges credentialing all trauma service physicians.
- An informed peer review process utilizing a multidisciplinary method.
- A method for comparing patient outcomes with computed survival probability.
- Autopsy information on all deaths when available.
- Medical nursing audits.
- Review of prehospital care.
- Review of times and reasons for trauma bypass.
- Review of times and reasons for trauma transfers.

Representatives from the Level III trauma center shall participate in the RTACs and the statewide performance review process.

XIV. Level IV Trauma Centers

Level IV trauma centers are generally licensed, small, rural facilities with a commitment to the resuscitation of the trauma patient and written transfer protocols in place to assure those patients who require a higher level of care are appropriately transferred. These facilities may be staffed by a physician, or a licensed midlevel practitioner (i.e. advanced practice nurse) or Registered Nurse. The major trauma patient will be resuscitated and transferred. This categorization does not contemplate that Level IV hospitals will have resources available for emergency surgery for the trauma patient.

Level IV trauma centers may meet the following standards in their own facility through a formal affiliation with another trauma center.

I. HOSPITAL ORGANIZATION

A. Trauma Program

There must be a written commitment letter from the Board of Directors and the medical staff on behalf of the entire facility which states the facility's commitment to compliance with the Mississippi Trauma Care Regulations. A trauma program must be established and recognized by the organization.

Compliance with the above will be evidenced by:

- Board of Director's and medical staff letter of commitment
- Written policies, procedures and guidelines for care of the trauma patient
- A defined Trauma Team with written roles and responsibilities
- Appointed Trauma Medical Director with a written job description
- A written Trauma Performance Improvement Plan
- Appointed Trauma Program Manager with a written job description
- Documentation of trauma center representative's attendance at the Regional Trauma Advisory Committee meetings

B. Trauma Team

The team approach is optimal in the care of the multiple injured patient. The trauma center must have a written policy for notification and mobilization of an organized trauma team to the extent that one is available. The Trauma Team may vary in size and composition when responding to the trauma activation. The physician leader or licensed advance practice nurse on the trauma team is responsible for directing all phases of the resuscitation in compliance with ATLS protocol. Suggested composition of the trauma team includes, if available:

- Physicians or licensed advance practice nurse
- Laboratory Technicians
- Nursing
- Ancillary Support Staff

Compliance with the above will be evidenced by:

- A written resuscitation protocol which adheres to the principles of ATLS
- A written trauma team activation criteria policy which includes physiologic, anatomic and mechanism of injury criteria

C. Medical Director

The Level IV trauma center must have a physician director of the trauma program. In this instance the physician is responsible for working with all members of the trauma team, and overseeing the implementation of a trauma specific performance improvement process for the facility. Through this process, he/she should have overall responsibility for the quality of trauma care rendered at the facility. The director must be given administrative support to implement the requirements specified by the Mississippi Trauma Plan. The director should assist in the development of standards of care and assure appropriate policies and procedures are in place for the safe resuscitation and transfer of trauma patients. The physician director must have current verification in ATLS.

NOTE: ATLS requirement may take up to five years to obtain. After January 1, 2004, physicians must obtain ATLS within one year. This ATLS verification must be recognized by the American Board of Medical Specialities. ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General Surgery Physicians.

Compliance with the above will be evidenced by:

- Chairing and participating in the committee where trauma performance improvement is presented
- Documentation of current ATLS verification
- Administrative support can be documented in the organizational chart which depicts the reporting relationship between the trauma program medical director and administration
- Trauma specific policies, procedures and guidelines approved by the Trauma Medical Director

D. Performance Improvement

The trauma center must develop and implement a trauma specific performance improvement plan. Key elements in trauma system planning are evaluation, measurement and improvement of performance. The goal is to decrease variation in care and improve patient outcomes.

Compliance with the above will be evidenced by:

- Review of compliance with Regional EMS Triage Guidelines and Protocols which must be reported to the Regional Performance Improvement Committee
- Compliance with written Trauma Team Activation Criteria
- Compliance with the principles of ATLS
- Peer Review of all trauma deaths to determine timeliness and appropriateness of care and preventability of death
- Review of trauma related morbidities for appropriateness of care and preventability
- Nursing Audit (Clinical review of nursing documentation and quality of care rendered to trauma patients)
- Review of timeliness and appropriateness of all Transfers Out

This information must be documented and reported at a trauma specific meeting or in conjunction with other ongoing committees in the facility.

E. Trauma Registry

All trauma centers must participate in the statewide trauma registry for the purpose of supporting peer review and performance improvement activities at the local, regional and state levels. Since this data relates to specific trauma patients and are used to evaluate and improve the quality of health care services, this data is confidential and will be governed by the Mississippi Annotated Code §41-59-77.

Compliance with the above will be evidenced by:

- Documentation of utilization of the Trauma Registry data in the trauma performance improvement process
- Timely submission of Trauma Registry data to the Trauma Care Region on a bi-annual basis

F. Trauma Program Manager/TPM

The trauma center must have a person to act as a liaison to the regional evaluation process to conduct many of the administrative functions required by the trauma program. It is not anticipated that this would be a full-time role. Specifically, this person is responsible, with the medical director, for coordinating optimal patient care for all injured victims.

Compliance with the above will be evidenced by:

- Attendance at and participation in the committee where trauma performance improvement is presented
- A written job description of roles and responsibilities to the trauma program which include: management of the trauma program, monitoring of clinical activities on trauma patients, providing staff with trauma related education, implementation of trauma specific performance improvement and supervision of the trauma registry
- Documentation of collaboration with Trauma Program Medical Director in the development and implementation of trauma specific policies, procedures and guidelines.

II. CLINICAL CAPABILITIES

The trauma center must maintain published on-call schedules for physicians or licensed advance practice nurses on-call to the facility.

A. Emergency Department

The facility must have an emergency department staffed so trauma patients are assured immediate and appropriate initial care. It is not anticipated that a physician will be available on-call to an emergency department in a Level IV trauma center, however it is a desirable characteristic of a Level IV. The on-call practitioner must respond to the emergency department based on local written criteria. A system must be developed to assure early notification of the on-call practitioner. Compliance with this criterion must be documented and monitored by the Trauma Performance Improvement process.

There must be a written plan ensuring nurses maintain ongoing trauma specific education. Adequate numbers of nurses must be available in-house 24 hours/day, to meet the need of the trauma patient. The nurse may perform other patient care activities within the hospital when not needed in the emergency department.

A complete list of required equipment necessary for the Emergency Department can be found in Appendix C of this document.

Compliance with the above will be evidenced by:

- Written trauma specific education plan for nurses
- Published on-call list of practitioners to the Emergency Department
- Documentation of nursing staffing patterns to assure 24-hour coverage

III. CLINICAL SUPPORT SERVICES

It is not anticipated that a Level IV trauma center have any of the following services available:

- Respiratory Therapy Services
- Radiology Services
- Clinical Laboratory Services

Should any of these services be available, the facility should make them available to the trauma patient as necessary and within the capabilities of the facility.

A. Prevention/Public Education: The Level IV trauma center is responsible for working with other trauma centers and the trauma care region to develop education and prevention programs for the public and professional staff.

Compliance with the above will be evidenced by:

- Documentation of collaborative efforts of trauma specific education and injury prevention programs with other trauma centers and/or the trauma care region

B. Transfer Agreements: There must be written transfer agreements with other trauma facilities in the region. A policy must be in place to facilitate and expedite the transfer sequence to assure the most appropriate care is rendered. Agreements must be in place for higher level of care and specialty referral for pediatrics, burns acute hemodialysis, and head or spinal cord injury and rehabilitation. All facilities will work together to develop transfer guidelines indicating which patients should be considered for transfer and procedures to ensure the most expedient, safe transfer of the patient. The transfer guidelines need to make certain that feedback is provided to the facilities and assure that this information becomes part of the trauma registry. All designated facilities will agree to provide service to the trauma patient regardless of their ability to pay. Compliance with the above will be evidenced by:

- Documentation of Transfer Agreements with higher levels of care and specialty facilities.

XV. State Designation of Trauma Centers

15.1 Trauma Center Application Process

All/any Mississippi licensed hospitals with a functioning emergency room may apply for trauma center designation. The applicant hospital does not have to be within an active trauma care region to obtain designation; however, the department may prioritize the designation process for hospitals located within and participating as a member of a designated trauma care region.

Note: State funding for indigent trauma care is available only to designated trauma center hospitals which are actively participating in a designated trauma care region.

To receive state designation as a Trauma Center, any applicant hospital and its medical staff shall set forth such intention in a letter to the department accompanied by two completed copies of the department's "Application for Trauma Center Designation".

Within 30 days of receipt of the application, the Department shall provide written notification to the applicant hospital of the following:

(1) that the application has been received by the Department;

(2) whether the Department accepts or rejects the application;

(3) if accepted, the date scheduled for hospital inspection;

(4) if rejected, the reasons for rejection and a deadline for submission of the corrected “Application for Trauma Center Designation” to the Department.

15.2 Trauma Center Inspection Process

The Department shall provide for the inspection of the applicant hospital, provided that its application has been formally approved by the Department, on the date scheduled and indicated in the Department's acceptance letter to the applicant hospital, unless:

(1) the Department provides written notification with justification of change to the applicant hospital 14 days prior to the inspection date; or

(2) the applicant hospital provides written request with justification for a

change to the Department 30 days prior to the inspection date;

(3) the Level IV hospital applicant does not require an on-site inspection.

An applicant hospital may request an initial “Consultative Review” of its facilities. Such a review is used to assist the applicant hospital in preparation for a Trauma Center inspection.

Results of Trauma Center Consultative Reviews will be provided by the Department in writing to each applicant hospital. These results will be held in confidence by the Department. The Department will work with and provide assistance to the applicant hospital to correct any deficiencies noted during the Consultative Review.

If an applicant hospital requests a Trauma Center inspection without having first received a Consultative Review and said hospital fails to meet designation criteria the inspection shall be deemed a Consultative Review.

A Consultative Review, regardless of outcome, confers no designation status upon said applicant hospital.

A hospital, having completed a Consultative review, may apply for a Trauma Center inspection at any time after receiving the Report of Survey from the Consultative Review.

Results of Trauma Center inspections will be provided by the Department in writing to each applicant hospital. Details related to hospital’s inspection will be considered confidential and will not be released.

Each applicant hospital, which fails to meet the requirements for Complete Designation as a Trauma Center, shall submit to the Department a “Plan of Correction” within thirty (30) days. The Plan shall address each of the deficiencies noted by the inspection team and outline a corrective process and timeline for completion. Upon acceptance by the Department of the “Plan of Correction” and concurrence by the inspection team, the hospital shall receive “Provisional Designation” as a Trauma Center. “Provisional Designation” qualifies the hospital to participate in all aspects of the State and Regional trauma systems with the exception of allocated funds. Hospitals and participating Physician, except as described below, “Provisionally Designated” will receive 50% of their normally allocated funds until such time as they become Completely Designated.

Upon receipt of notice of “Provisional Designation” the hospital will have not more than fifteen (15) months to complete and fully implement the “Plan of Correction.” During this period of time the Department will work with and provide assistance to the hospital in the implementation of their “Plan of Correction”

The hospital is responsible for contacting the Department to request a “Focused Survey” at any time prior to the end of fifteen (15) months by the Department. Upon such a request the Department shall assemble a survey team to review the hospitals’ “Plan of Correction” for complete implementation. If the Focused Survey team deems the “Plan of Correction” fully implemented the hospital will receive complete trauma Center designation. Failure to pass the “Focused Survey” does not extent the original fifteen (15) month time period.

Failure to fully complete and implement the “Plan of Correction” within the fifteen (15) month period shall result in the automatic lapse of the “Provisional Designation” and the hospital will automatically return to its’ original non-designated status. If the “Provisional Designation” status lapses the hospital shall not be eligible for any allocated trauma funds.

Those hospitals not demonstrating complete implementation of their plan of correction during the focused survey, for the sole reason that they have not met the specialty physician requirements, due to the loss of one or more specialty physicians, will receive a continuing "Provisional Designation."

The facility must report to the Office of Emergency Planning and Response (OEPR) any loss of 24-hour specialty physician coverage that is required within the Trauma Care Regulations. The facility must provide a plan of corrections that details how the facility will become compliant.

If the sole reason a facility receives "Provisional" status is due to the lack of specialty physician coverage, the facility will continue to receive 100% of the trauma funds allotted for uncompensated patients. The hospital must submit to the DEMS evidence of recruiting efforts. Such evidence must be determined appropriate by the Mississippi Trauma Advisory Committee (MTAC). This "Provisional Designation" may continue for a period not to exceed three (3) years.

In the event a hospital is unable to fulfill their physician requirement at the end of three (3) cycles, the hospital will have its' Trauma Center Level status reduced to the next lowest, most appropriate, level.

No inspection or designation process provided by any other agency, organization or group maybe substituted in lieu of the Department's.

15.3 Trauma Center Inspection Teams

The Department shall provide multidisciplinary teams for all Trauma Center inspections.

Trauma Center Inspection Teams shall consist of disciplines as follows:

(1) Level I and II Trauma Centers

As a minimum, teams shall consist of the following representative disciplines: trauma surgeon, emergency physician, a person knowledgeable in trauma center administration, and trauma nurse (The Department may add additional team members as it deems necessary.) All members of teams for Levels I and II shall reside and practice outside the State of Mississippi.

(2) Level III Trauma Centers

As a minimum, teams shall consist of the following representative disciplines: trauma surgeon; emergency physician; and trauma nurse. One member of each team for Level III must reside and practice out of the state of Mississippi. The remaining two members may reside and practice in Mississippi, however, they may not practice or reside in any hospital or area of the trauma care region in which the applicant hospital is located.

(3) Level IV Trauma Centers

The Level IV trauma center inspection process shall consist of a review of the completed trauma center application, compliance with all of the "Essential" elements listed in the Mississippi Trauma Care Regulations' Essential and Desirables Chart, and satisfactory review of specific trauma registry data reports as identified in the trauma center application. These documents shall be reviewed off-site by the OEPR Trauma System Development staff. If the information contained in the completed application and the trauma registry data reports do not demonstrate compliance with the Mississippi Trauma Care Regulations, there will be a request for additional

information and an opportunity to supply supplementary data/information for review. If this additional information does not demonstrate compliance with the Mississippi Trauma Care Regulations, an on-site survey inspection will be scheduled. At a minimum, the on-site team shall consist of one member of the Trauma System Development staff and one of the following representative disciplines: a physician or trauma nurse. The member of the inspection team that is not Trauma System Development staff may reside and practice in Mississippi, however; they may not practice or reside in any hospital or area of the trauma care region in which the applicant hospital is located.

15.4 Length of Trauma Center Designation

The department shall designate Trauma Centers for a period not to exceed three (3) years. Complete designations shall remain active for three years provided no substantive changes or variances have occurred and that the designated Trauma Center continues to comply with all rules and regulations of the Department after receipt of the Trauma Center designation by the department. The Department may perform periodic trauma center audit/reviews at each designated Trauma Center.

Designated Trauma Centers may request designation by the Department at a level higher or lower than its current designation prior to the expiration date of that designated Trauma Center by following the processes outlined in 15.1 and subsequent sections.

15.5 Trauma Center Designation Renewals (redesignation)

Designated Trauma Centers shall provide written notification to the Department regarding redesignation (6 months prior to the designation expiration date) of its intent to seek or not seek redesignation or designation at a level different from its

original designation level. The Department will acknowledge receipt of such notification in writing within 30 days to the applicant hospital and begin the application process as provided in 15.1 and subsequent sections.

15.6 Process of Appeal for Failing Trauma Center Inspection

If a hospital fails a trauma center inspection, the hospital shall have 30 days from the date of notification of the failure to appeal the decision in writing to the Department. The Department shall make a determination within three months of receipt of the appeal. The Department will provide the hospital with a written report of its decision. If the decision of the Department is unfavorable to the hospital, the hospital may request to be inspected for trauma center designation at another level but must pay all cost associated with the request.

15.7 Categories of Trauma Center Designation

(1) Complete Designation - The hospital has completed all of the requirements for designation at their application level. This is a three (3) year designation subject to periodic compliance audits.

(2) Provisional Designation - The hospital has completed all of the requirements for Complete Designation at their application level with the exception of minor (no patient or Regional operations impact) deviation(s). This designation category may be used for initial designations or an interim change in status from Complete Designation due to a temporary loss of a capacity or capability.

Any hospital receiving written notification of Provisional Designation must immediately notify the Trauma Care Region and submit to the Department within thirty (30) working days from the receipt of notification a written plan

of correction and an interim operations plan including time lines. The Department, upon receipt, shall either approve or disapprove the plan within thirty (30) working days. Upon receipt of notice of "Provisional Designation" the hospital will have not more than fifteen (15) months to complete and fully implement the "Plan of Correction." The hospital is responsible for contacting the Department to request a "Focused Survey" at any time prior to the end of fifteen (15) months by the Department. Upon such a request the Department shall assemble a survey team to review the hospitals' "Plan of Correction" for complete implementation. If the Focused Survey team deems the "Plan of Correction" fully implemented the hospital will receive complete trauma Center designation.

(3) Suspended Designation - The hospital has completed the requirements for Complete Designation at their application level. However, upon receipt of information and verification by the Department of regulation violations and a determination by the Department that it is in the best interest of patient care or Regional operations, the Department may temporarily suspend the Trauma Center Designation for said hospital.

Any hospital receiving notice of Suspension of their Trauma Center Designation, shall, immediately notify the Trauma Care Region and all prehospital providers who routinely transport trauma patients to said hospital of the suspension of their Trauma Center designation. Any hospital receiving notice of suspension of their Trauma Center Designation shall no longer be permitted to act as nor be permitted to hold themselves out as a Designated Trauma Center.

Further, the hospital shall, within ten (10) working days of notification of said suspension submit a written plan of correction, including correction time lines to the Department. Upon receipt of said plan the Department shall

either approve or disapprove the plan within ten (10) working days.

Upon completion of the Plan of Correction, the hospital shall notify the Department and request a verification visit. The Department shall conduct a focused survey of the hospital to verify completion of the Plan of Correction and compliance with regulations. The Department may, subsequentially, reinstate the hospital to its original Trauma Center status.

(4) Non-Designated Trauma Centers - Any hospital that has not completed the Trauma Center Application Process or who has had their Trauma Center Designation revoked by the Department will be considered a Non-Designated Trauma Center. Such facilities shall not advertise nor hold themselves out to the public as a Designated Trauma Center.

Hospitals who have been designated as Trauma Centers may have their designation status revoked for any of the following reasons:

- By the State Health Officer for reasons of serious threat or jeopardy to patients health or welfare;

- Refusal to satisfactorily complete the reinstatement process, described above, for hospitals having had their Trauma Center Designation Suspended.

Hospitals having their Trauma Center Designation status revoked may reapply for trauma center designation after resolution of all issues related to the revocation and completion of a complete new trauma center designation process.

XVI. Pediatric Trauma Centers

16.1 HOSPITAL REQUIREMENTS

The hospital resources for adult trauma centers are described in Chapters XI, XII, XIII, and IV. The traumatized pediatric patient has special requirements that go beyond the resources required for an adult trauma center. Those components that must be present in a trauma center designated to care for pediatric patients are represented in Table 1.

Table 1			
Requirements	**Tertiary**	**Secondary**	**Primary**
Trauma surgeons credentialed by the hospital for pediatric trauma care.	E	E	D
6 hours of pediatric CME per year per surgeon.	D	D	D
Pediatric emergency department area.	E	D	D
Pediatric resuscitation equipment in all patient care areas.	E	E	E
Microsampling	E	E	E
Pediatric-specific performance improvement program.	E	E	E
Pediatric intensive care unit.	E	D	D

All adult trauma centers in Mississippi are required to function at one of the three levels of pediatric trauma care. An adult hospital does not have to function at the same or similar level but must function at some level of pediatric trauma care. The three levels of pediatric trauma care include: tertiary, secondary, and primary. For the adult trauma center wishing to provide pediatric trauma care at the tertiary level all the requirements stated in Table I are essential. At the secondary and primary levels certain requirements remain essential while other requirements become desirable.

At tertiary and secondary levels it is essential that the trauma center credential its trauma surgeons to do pediatric trauma care. It is desirable that the primary level trauma center credential its trauma surgeons to do pediatric trauma care. The multi-specialty concept is important in obtaining the best results when caring for traumatized children. This may include pediatric and other medical specialists. If there is a board-certified surgeon identified as the adult trauma program medical director, then this same individual can and often will assume supervision of the pediatric program.

The necessary pediatric resuscitation equipment that should be included in each Pediatric Trauma Center emergency department is listed in Table 2.

Pediatric Resuscitation Equipment (Table 2)
Infant and pediatric laryngoscope blades, one of each, (Miller 0,1,2 and MacIntosh 0,1,2)
Infant and pediatric blood pressure cuffs
Pediatric defibrillation paddles
Volumetric IV sets (3)
Angiocaths - sizes 22 gauge and 24 gauge
Broslow tape
Intra-Osseus needles
Infant and pediatric cervical collars
Pediatric immobilization device
Pediatric oral airways
Pediatric endotracheal tube, one of each (uncuffed and cuffed), sizes 2.5mm - 6.0mm

Pediatric Resuscitation Equipment (Table 2)
Infant and pediatric ambu bags
Pediatric non-rebreather face mask
Pediatric nasal cannulas
Pediatric pulse oximetry
Pediatric suction devices

16.2 PERFORMANCE IMPROVEMENT (PI)

Performance improvement for pediatric patients should be measured at all levels of the system. Pediatric process and outcome measures are also necessary for participation as a designated trauma center in a trauma care region and are therefore requirements for indigent care reimbursement.

16.3 REGIONAL CARE OF THE INJURED CHILD

The primary pediatric trauma center must have transfer protocols in place with tertiary and/or secondary pediatric trauma centers. Additionally, transfer protocols must be written with all referral facilities in the region. All facilities will work together to develop transfer guidelines indicating which pediatric patients should be considered for transfer and procedures to assure the most expedient, safe transfer of the pediatric patient. These guidelines must address criteria to identify high-risk pediatric trauma patients that could benefit from a higher level of pediatric

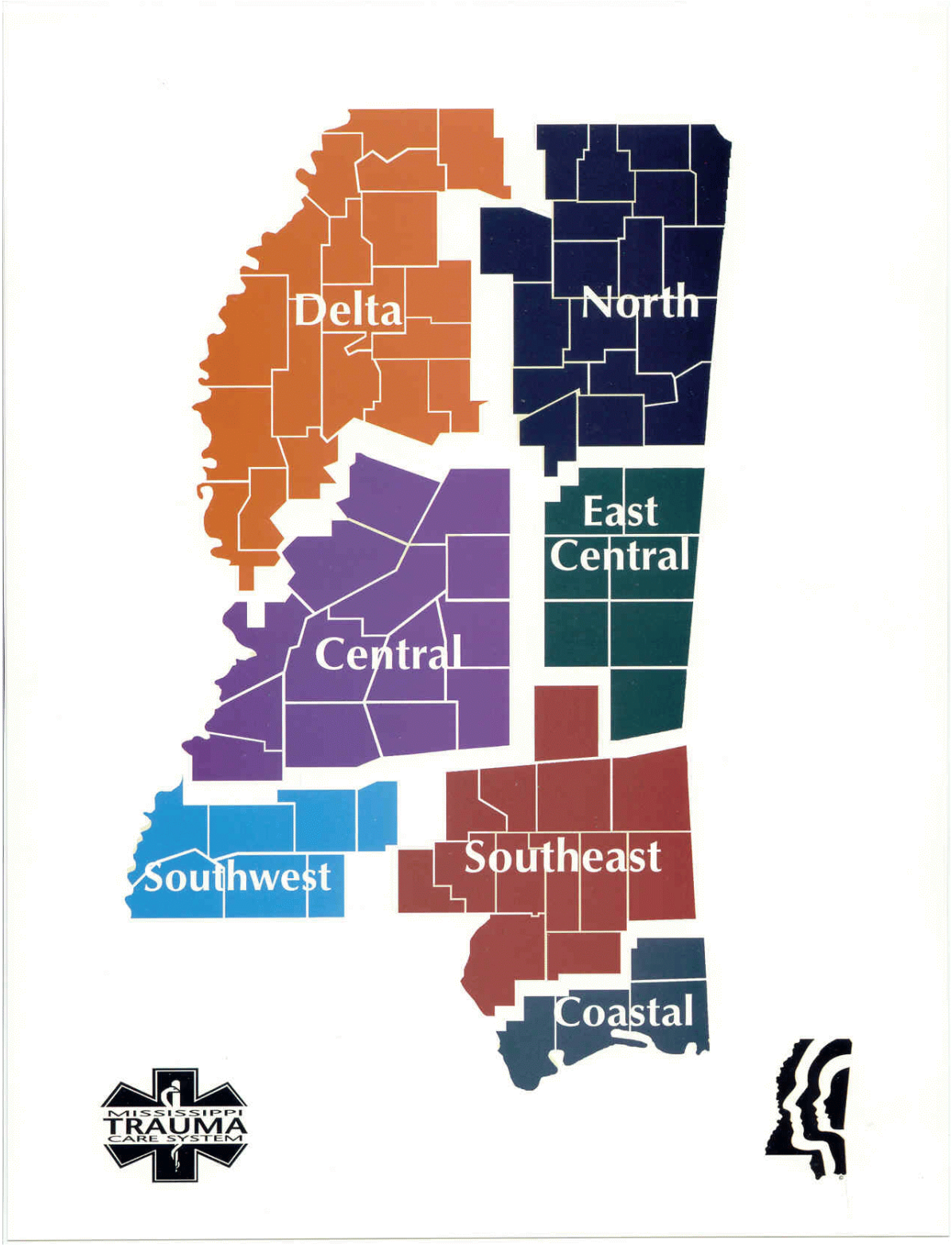
trauma care. Transfer protocols shall include a feedback loop so that the primary provider has a good understanding of the patients outcome. All designated facilities must agree to provide services to the pediatric trauma victim regardless of his/her ability to pay.

Trauma centers caring for injured pediatric patients should establish and aggressively pursue a leadership role in injury prevention. Injury prevention needs to become an integral component of the trauma center at all levels. Prevention programs should be specific to the needs of the region. The trauma registry should be utilized to identify injury trends and focus on prevention needs.

Appendix A: Mississippi Trauma Advisory Committee

NAME	ADDRESS	CITY	ZIP	EXPIRES	ASSOCIATION
Christine Weiland, RN	12568 Oak Forest Drive	Gulfport	39503	6/30/2000	MS Nurses Association
Brenett Lyles, RN, REMT-P	4801 Autumn Woods Drive, unit 401	Jackson	39206	6/30/2001	EMT Paramedics
Rodney Frothingham, M.D.	1776 Pinewood Drive	Greenville	38701	6/30/2002	Neurosurgeons
Hugh Gamble, II. M.D.	P.O. Box 1277	Greenville	38701	6./30/2002	MS. State Med. Association
Bob McDonald	1281 Hwy 51	Madison	39110	6/30/2003	Dept of Rehabilitation Services
John Nelson, M.D.	101 West Cranebrake Blvd	Hattiesburg	39402-8341	6/30/2002	MS Chapter, ACEP
Galen V. Poole, M.D.	Department of Surgery UMC 2500 North State Street	Jackson	39216	6/30/2001	ACS, COT-MS
Robert Galli, M.D.	Department of Emergency Services UMC 2500 North State Street	Jackson	39216	6/30/2005	MS. State Med. Association
Marshall Tucker, Adm	3402 Stratton Road	Union	39365	6/30/2002	MS Hospital Association
Lucy Cumbest	201 Tulane Drive	Clinton	39056	6/30/2002	MS Emergency Nurses Association
William T. Avara, III, M.D.	Singing River Hospital 2809 Denny Avenue	Pascagoula	39581	7/01/2002	Coastal Trauma Care Region
Charles Piggott, M.D.	Surgery Clinic of Tupelo 844 South Madison	Tupelo	38801	7/01/2002	North Trauma Care Region
John J. Cook, M.D.	Rankin Medical Center 350 Crossgates Blvd	Brandon	39042-2698	7/01/2002	Central Trauma Care Region
Wells Wilson, M. D.	Brookhaven Surgery clinic 1036 Biglane Drive	Brookhaven	39601	7/01/2002	Southwest Trauma Care Region
John Fair Lucas, III, M.D.	501 W. Washington Post Office Drawer 1974	Greenwood	38935-1974	7/01/2002	Delta Trauma Care Region
John Brahan, M.D.	Hattiesburg Clinic 415 South 28th Avenue	Hattiesburg	39401-7283	7/01/2002	Southeast Trauma Care Region
David K. Cook, Sr., RN	P.O. Box 461	Richton	39476	7/01/2002	Consumer
Jerry Y. Green, Adm	Tippah County Hospital P.O. Box 241	Ripley	38663	6/30/2002	MS Hospital Association

Appendix B: Map of Trauma Care Regions



Appendix C: Essentials and Desirables Chart

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
1	**Institutional Organization**									
2	Trauma Program						E	E	E	E
3	Trauma Service						E	E	E	--
4	Trauma Team						E	E	E	E
5	Trauma Program Medical Director-						E	E	E	E
5	Trauma Multidisciplinary Committee						E	E	E	E
7	Trauma Program Manager/TPM						E	E	E	E
8	**Hospital Departments/Divisions/Sections**									
9	Surgery						E	E	E	--
10	Neurological Surgery						E	E	--	--
11	Neurosurgical Trauma Liaison						E	E	--	--
12	Orthopaedic Surgery						E	E	D	--
13	Orthopaedic Trauma Liaison						E	E	D	--
14	Emergency Medicine						E	E	E	--
15	Anesthesia						E	E	E	--
16	**Clinical Capabilities**									
17	(Specialty Immediately Available 24 hours/day)									
18	Published On-Call schedule						E	E	E	--
19	General Surgery						E	E	E	--
20	Published back-up schedule						E	E	D	--
21	Dedicated to single hospital when on-call						E	D	D	--
22	Anesthesia						E	E	E	--
23	Emergency Medicine						E	E	E	--
24	On-call and promptly available 24 hours/day									
25	Cardiac Surgery						E	D	--	--
26	Hand Surgery						E	E	D	--
27	Microvascular/replant Surgery						E	D	--	--
28	Neurological Surgery						E	E	D	--
29	Dedicated to one hospital or back-up call						E	D	D	--
30	Obstetrics/gynecologic Surgery						E	E	D	--
31	Ophthalmic Surgery						E	E	D	--
32	Oral/maxillofacial Surgery						E	E	D	--
33	Orthopaedic Surgery						E	E	E	--
34	Dedicated to one hospital or back-up call						E	D	D	–

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
35	Plastic Surgery						E	E	D	
36	Critical Care Medicine						E	E	D	--
37	Radiology						E	E	E	
38	Thoracic Surgery						E	E	D	--
39	**Clinical Qualifications**									
40	General/Trauma Surgeon									
41	Current Board Certification						E*(1)	E*(1)	E*(1)	--
42	16 hours CME/year (7)						E	E	D	
43	**ATLS completion*(2) (10)**						E	E	E	
44	Peer review committee attendance >50%						E	E	E	--
45	Multidisciplinary committee attendance						E	E	E	--
46	Emergency Medicine									
47	Board Certification						E*(6)	E*(6)	D*(6)	--
48	Trauma education : 16 hours CME/year *(7)						E	E	D	--
49	**ATLS completion*(2) (10)**						E	E	E	E
50	Peer review committee attendance >50%						E	E	E	--
51	Multidisciplinary committee attendance						E	E	E	--
52	Neurosurgery									
53	Current Board Certification *(3)						E	E	E	--
54	16 hours CME/year *(7)						E	E	D	
55	ATLS completion*(2)						D	D	D	
56	Peer review committee attendance >50%						E	E	E	--
57	Multidisciplinary Committee attendance						E	E	E	--
58	Orthopaedic Surgery									
59	Board Certification *(3)						E	E	E	--
60	16 hours CME in skeletal trauma *(7)						E	E	D	
61	ATLS completion*(2)						D	D	D	
62	Peer review committee attendance >50%						E	E	E	
63	Multidisciplinary committee attendance						E	E	E	--
64	**Facilities/Resources/Capabilities**									
65	Volume Performance									

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
66	Trauma admissions 1,200/year						--	--	--	--
67	Patients with ISS>15 (240 total or 35 patients/surgeon)						--	--	--	--
68	Presence of surgeon at resuscitation						E	E	E	
69	Presence of surgeon at operative procedures						E	E	E	
70	**Emergency Department (ED)**									
71	Personnel									
72	Designated physician director						E	E	E	E
73	RN In-house and available						E*(4)	E*(4)	E*(4)	D
74	Equipment for resuscitation for patients of all ages									
75	Airway control and ventilation equipment						E	E	E	E
76	Pulse oximetry						E	E	E	E
77	Suction devices						E	E	E	E
78	Electrocardiograph-oscilloscope-defibrillator						E	E	E	E
79	Internal paddles						E	E	E	--
80	CVP monitoring equipment						E	E	E	
81	Standard IV fluids and administration sets						E	E	E	E
82	Large-bore intravenous catheters						E	E	E	E
83	Sterile surgical sets for:									
84	Airway control/cricothyrotomy						E	E	E	
85	Thoracostomy						E	E	E	D
86	Venous cutdown						E	E	E	
87	Central line insertion						E	E	E	--
88	Thoracotomy						E	E	E	--
89	Peritoneal lavage						E	E	E	
90	Arterial catheters						E	D	D	
91	Ultrasound						E	D	D	
92	Drugs necessary for emergency care*(5)						E	E	E	E
93	X ray availability 24 hours/day						E	E	E	D
94	Cervical Spine Stabilization Devices						E	E	E	D
95	Broselow tape						E	E	E	E
96	Thermal control equipment:									
97	For patient						E	E	E	
98	For fluids and blood						E	E	E	

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
99	Rapid infuser system*(8)						E	E	E	D
100	Qualitative end-tidal CO2 determination						E	E	E	E
101	Communication with EMS vehicles						E	E	E	E
102	**Operating Room**									
103	Immediately available 24 hours/day						E	D	D	--
104	Personnel									
105	In-house 24 hours/day						E	D	D	--
106	Available 24 hours/day						--	E	E	--
107	Age-specific equipment									
108	Cardiopulmonary bypass						E	D	--	--
109	Operating microscope						E	D	D	--
110	Thermal control equipment									
111	For patient						E	E	E	--
112	For fluids and blood						E	E	E	--
113	X ray capability, including c-arm image intensifier						E	E	E	--
114	Endoscopes, bronchoscope						E	E	E	--
115	Craniotomy instruments						E	E	D	--
116	Equipment for long bone and pelvic fixation						E	E	E	--
117	Rapid infuser system*(9)						E	E	E	--
118	Pulse oximetry						E	E	E	--
119	Qualitative end-tidal CO2 determination						E	E	E	–
120	**Postanesthetic Recovery Room (SICU acceptable)**									
121	Registered nurses available 24 hours/day						E	E	E	--
122	Equipment for monitoring and resuscitation						E	E	E	--
123	Intracranial pressure monitoring equipment						E	E	D	--
124	Pulse oximetry						E	E	E	--
125	Thermal control						E	E	E	–
126	**Intensive or Critical Care Unit for Injured Patients**									
127	Registered nurses with trauma education*(9)						E	E	E	--
128	Designated surgical director or surgical co-director						E	E	E	--
129	Surgical ICU service physician in-house 24 hrs/day						E	D	D	--
130	Surgically directed and staffed ICU service						E	D	D	--
131	Equipment for monitoring and resuscitation						E	E	E	--

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
132	Intracranial monitoring equipment						E	E	D	--
133	Pulmonary artery monitoring equipment						E	E	E	--
134	**Respiratory Therapy Services**									
135	Available in-house 24 hours/day						E	E	D	
136	On call 24 hours/day						--	--	E	D
137	**Radiological Services (Available 24 hours/day)**									
138	In-house radiology technologist						E	E	D	D
139	Angiography						E	E	D	--
140	Sonography						E	E	E	D
141	Computed tomography						E	E	E	D
142	In-house CT technician						E	D	--	--
143	Magnetic resonance imaging						E	D	D	--
144	**Clinical Laboratory Service (Available 24 hrs/day)**									
145	Standard analysis of blood, urine, and other body fluids, including microsampling when appropriate						E	E	E	--
146	Blood typing and cross-matching						E	E	E	--
147	Coagulation studies						E	E	E	--
148	Comprehensive blood bank or access to a comm. central blood bank & adequate storage facilities						E	E	E	--
149	Blood gases and pH determinations						E	E	E	--
150	Microbiology						E	E	E	--
151	**Acute Hemodialysis**									
152	In-house						E	D	D	--
153	Transfer agreement						--	E	E	E
154	**Burn Care - Organized**									
155	In-house or transfer agreement with Burn Center						E	E	E	E
156	**Rehabilitation Services**									
157	Transfer agreement to an approved rehab facility						E	E	E	E
158	Physical therapy						E	E	E	D
159	Occupational therapy						E	E	D	D

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
160	Speech therapy						E	E	D	--
161	Social Service						E	E	E	D
162	**Performance Improvement**									
163	Performance Improvement programs						E	E	E	E
164	Trauma Registry									
165	In-house						E	E	E	E
166	Participation in state, local, or regional registry						E	E	E	E
167	Orthopaedic database						D	D	--	--
168	Audit of all trauma deaths						E	E	E	E
169	Morbidity and mortality review						E	E	E	E
170	multidisciplinary trauma committee						E	E	E	E
171	Medical nursing audit						E	E	E	E
172	Review of prehospital trauma care						E	E	E	D
173	Review of times/reasons for trauma-related bypass						E	E	D	D
174	Review of times/reasons for transfer of injured patient						E	E	D	D
175	PI personnel dedicated to care of injured patients						E	E	D	D
176	Participate in regional review of prehospital trauma care, times/reasons for trauma-related bypass, times/reasons for transfer of injured patient							E	E	E
177	**Continuing Education/Outreach**									
178	General surgery residency program						E	D	--	--
179	ATLS provide/participate						E	D	D	D
180	Programs provided by hospital for:									
181	Staff/community physicians (CME)						E	E	D	D
182	Nurses						E	E	E	D
183	Allied health personnel						E	E	E	--
184	Prehospital personnel provision/participation						E	E	E	D
185	**Prevention**									
186	Injury control studies						E	D	--	--
187	Collaboration with other institutions						E	D	D	E
188	Monitor progress/effect of prevention programs						E	D	D	D
189	Designated prevention coordinator\spokesperson						E	E	D	--

Trauma Center Designation Standards
Mississippi Trauma Advisory Committee

							Mississippi Standards			
							Adopted		Adopted	
							Level I	Level II	Level III	Level IV
190	Outreach activities						E	E	D	D
191	Information resources for public						E	E	D	--
192	Collaboration with existing programs						E	E	D	--
193	Coordination and/or participation in community prevention activities						E	E	E	E
194	**Research**									
195	Trauma registry PI activities						E	E	E	--
196	Research committee						E	D	--	--
197	Identifiable IRB process						E	D	--	--
198	Extramural education presentations						E	D	D	--
199	Number of scientific publications						E	D	--	--
200	* (1) Mississippi standards will require at least one general surgeon to be board certified. Alternate criteria may be substituted for other staff.									
201	* (2) Mississippi standards will require a current ATLS completion card. Physicians have up to one (1) year after hiring to obtain ATLS certification .									
202	* (3) Some mechanism for "grandfathering" in non-board certified neurosurgeons and orthopedic surgeons will be developed by hospital policy.									
203	* (4) The RN in-house and available in the ED must have some type of trauma specific training.									
204	* (5) Drugs necessary for emergency care will be defined by the prehospital drug list set forth by DEMS.									
205	* (6) Board certified or alternative criteria as established by hospital policy.									
206	* (7) Can be accomplished with 48 hours of trauma education over three years.									
207	* (8) Simple pressure bag									
208	* (9) Ongoing critical care education by-annually.									
209	*** (10) ATLS requirements is waived for Board Certified Emergency Medicine and Board Certified General Surgery Physicians.**									