MISSISSIPPI STATE DEPARTMENT OF HEALTH

FY 2021

Mississippi TRAUMA System of Care

Performance Improvement and Patient Safety Manual (PIPS MANUAL)

Developed by the Bureau of Acute Care Systems and
approved by the Statewide Trauma System Performance Improvement Committee
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Introduction

Legal Authority and Purpose

Section 41-59-5 (5), Mississippi Code of 1972, as amended, establishes the Mississippi State Department of Health (MSDH) as the lead agency to develop a uniform, non-fragmented, inclusive statewide Trauma Care system. The intent is to reduce mortality and improve morbidity associated with Trauma. To this end, the primary goal of the Mississippi Trauma Care System is to deliver the ***right*** patient to the ***right*** hospital the ***first*** time. Research shows this approach decreases mortality. The Trauma Rules and Regulations, adopted by the State Board of Health, provide standards in support of this primary goal. The Trauma System of Care Plan, also adopted by the State Board of Health, provides the overall framework for the implementation of the system, including the following elements:

- System Design
- System Function
- System Operations
- System Finance
- Mississippi Trauma Registry (MTR)
- Mississippi Trauma Advisory Committee (MTAC)

Performance Improvement and Patient Safety (PIPS) is a key component of trauma system design, as provided for by the Trauma System of Care Plan. This manual outlines the integrated and inclusive statewide performance improvement process. The process incorporates:

- Statewide-Level Performance Improvement and Patient Safety
- District-Level Performance Improvement and Patient Safety
- Trauma Center Internal Performance Improvement and Patient Safety
- Burn Center Internal Performance Improvement and Patient Safety
- Pediatric Center Internal Performance Improvement and Patient Safety
- EMS Collaborative Performance Improvement and Patient Safety

Mississippi's Trauma System PIPS program, as outlined in this manual, and implemented by the Statewide Trauma System Performance Improvement Committee (STSPIC), makes use of data from the Mississippi Trauma Registry (MTR) and provides a mechanism for continuous, multidisciplinary, and multi-layered monitoring, measurement, assessment, and improvement of the Trauma System. This manual is developed and maintained by the STSPIC, as provided for by the State Trauma System of Care Plan. It will provide a consistent approach to performance improvement and patient safety activities for use at all levels. STSPIC is a statewide committee with three district-level subcommittees, which are geographically oriented to offer performance improvement activities for trauma centers and EMS operators in a specific locale, and which share similar transfer patterns. The chairs of said subcommittees are appointed by the chair of STSPIC, and each subcommittee chair serves as a liaison for their respective subcommittee at the STSPIC meeting and at each respective district-level subcommittee meeting. STSPIC functions as the systemwide performance improvement committee and addresses performance matters with implications for the entire system and issues involving multiple districts. The district-level

subcommittees function as intermediate committees, which address performance matters with implications for multiple trauma centers and/or EMS agencies in a specific locale. The PIPS programs at trauma centers, burn centers, pediatric centers and EMS operations focus on internal and collaborative performance improvement and patient safety activities. These local efforts are at the core of performance improvement and patient safety and offer the most timely and effective opportunities for the early recognition of issues and timely implementation of improvements in processes and outcomes.

Statewide Trauma System Performance Improvement Committee

STSPIC members are appointed by the State Health Officer (SHO). *The committee is independent from the MTAC and EMSAC.* Total membership consists of the following twenty positions:

- Trauma Surgeons: (two), one chair and one vice chair
- Emergency Room Physician: (one)
- Representative from the State EMS PI Committee: (one)
- Member of the Trauma Registry Subcommittee: (one)
- Representative from each district subcommittee (three)
- Nursing representative from each Trauma Center Level: (four)
- Representative from the Tertiary Pediatric Trauma Centers: (two)
- Representative from MTAC: (one)
- Representative from the Clinical Effectiveness Committee: (one)
- Burn Representative: (one)
- State EMS Medical Director/Chair of MDTQA: (one)
- EMS District Representative: (one)
- EMS Provider: (one ground, one air)
- Mississippi Trauma Care System Foundation Staff (ex officio)
- Bureau of Acute Care Systems Staff (ex officio)

STSPIC subcommittees are geographically oriented to offer performance improvement activities for trauma centers and EMS agencies in the following locales:

- North – north of Highway 82
- Central – between Highway 82 and 84
- South – south of Highway 84

STSPIC Subcommittees are appointed by the chair of STSPIC. Total membership consists of the following nineteen positions filled by persons representing said district:

- Trauma Surgeons: (two), one chair and one vice chair
- Emergency Room Physician: (one)
- Representative from the State EMS PI Committee: (one)
- Member of the Trauma Registry Subcommittee: (one)
- Representative from each of the other district subcommittees: (two)
- Nursing representative from each Trauma Center Level: (four)
- Representative from the Highest-Level Pediatric Trauma Center: (one)
- Representative from MTAC: (one)

- Representative from the Clinical Effectiveness Committee: (one)
- Burn Representative: (one)
- EMS Medical Director: (one ground, one air)
- EMS Provider: (one ground, one air)
- Mississippi Trauma Care System Foundation Staff (ex officio)
- Bureau of Acute Care Systems Staff (ex officio)

STSPIC chairs may invite other non-member subject matter experts to attend specific STSPIC meetings; however, non-members must sign the required confidentiality agreement and follow all policies and procedures for STSPIC meetings.

STSPIC and STSPIC Subcommittee members are required to attend at least fifty percent of all scheduled meetings within the calendar year.

The STSPIC and STSPIC Subcommittee Chairs, in coordination with BACS, have authority to confirm the appointment and removal of members.

Policies and Procedures

MSDH maintains policies and/or procedures for PIPS meetings. Said policies and procedures may be accessed via the MSDH Website. Data for use in performance improvement meetings is provided via MSDH for the purpose of confidential review and discussion during said meetings. MSDH follows separate policies/procedures for outside requests for aggregate and research data from the Trauma Registry. Members of the STSPIC and STSPIC Subcommittees and subject matter experts invited by the chair(s) must sign the required confidentiality agreement prior to attending said meetings and follow prescribed policies and procedures for the same.

Data, Review and Validity

MSDH and STSPIC continuously work to ensure the validity of registry data and make use of registry data for monitoring, measuring and assessing system performance at all levels. MSDH conducts annual registry audits, which include trauma centers audits to ensure the accuracy of data entered by trauma center registrars. The purpose of the audit is to ensure each licensed acute care hospital with an emergency department submitted data on trauma patients meeting specific criteria (refer to the Mississippi Trauma System website for the current Mississippi Trauma Registry Inclusion Criteria) to the MS Trauma Registry (MTR). Specific, uniform data includes but is not limited to description of the injury incident, demographics, pre-hospital information, diagnosis, treatment, rehabilitation, outcomes, and cost of care. It is imperative data be collected and reported using standardized definitions as recognized by the MTR. Data definitions should be consistent with those of the National Trauma Data Bank (NTDB). Every effort should be made to include EMS data. MSDH uses a subject matter expert for the audit process. Audit items include but are not limited to diagnosis codes and data points identified as having a high index of error. MSDH works with the trauma registry vendor and the Mississippi Trauma Care System Foundation to implement improvements required in the registry and to ensure registrars receive needed educational support. STSPIC interprets data, develops performance and outcome measures, establishes definitions for collecting and categorizing data (i.e., complications) and creates a standardized method for determining opportunity for improvements. STSPIC Subcommittees perform the same activities at a more local level, which encompasses multiple local trauma centers and EMS operations. Trauma centers and EMS perform the same activities internally and collaboratively. Information obtained from the Trauma registry and other pertinent data sources is used to objectively evaluate system parameters, track variability, and document improvements. The effectiveness of injury prevention programs, efficacy of care, timeliness of care, access to providers and services, and outcomes are all important aspects of the statewide Trauma Care System and routinely monitored and evaluated to identify opportunities to improve care and maximize outcomes. Documentation of committee meeting minutes, committee findings, performance reports, mortality and morbidity rates, preventability determinations, and any other information, which identifies a provider or patient must be maintained in a manner which protects against discovery or disclosures in accordance with Mississippi law.

STSPIC and STSPIC Subcommittees

The chairs of the STSPIC and district-level STSPIC subcommittees use Roberts Rules of Order for conducting an orderly and efficient meeting. MSDH presents data requested by the committee/subcommittee, which includes but is not limited to the approved Core Performance Indicators, approved by the STSPIC (refer to the Mississippi Trauma Care System website for the *Core Measure Indicators* document). STSPIC may update or change the Core Measure Indicators or request additional data for presentation to the respective committee. Chairs of the respective committees/subcommittees will follow MSDH policies/procedures for ensuring confidentiality in performance improvement meetings. Before beginning the agenda, chairs will ensure all attendees have signed confidentiality agreements.

Mississippi Trauma Care System Foundation

MSDH serves the primary administrative role of the performance improvement process; however, the Mississippi Trauma Care System Foundation (MTCSF) serves as a vendor in support of MSDH and STSPIC in performance improvement.

MTCSF shall be responsible for specified activities in the ongoing evaluation and performance improvement of the Trauma System, to include:

- MTCSF shall provide a liaison to MSDH trained (or with a proper background and experience) in data analytics.
- The MTCSF liaison shall work collaboratively with trauma centers to ensure each trauma center submits timely and accurate data to the Trauma Registry.
- The MTCSF liaison shall provide assistance to trauma center registrars having issues submitting data to the Trauma Registry.
- The MTCSF liaison shall report issues with compliance in reporting to BACS.
- The MTCSF liaison shall work collaboratively with BACS and the state Trauma Medical Director and within appropriate time parameters, provide high-quality reports for system development activities, i.e. the statewide Performance Improvement Committee, Clinical Effectiveness Committee and applicable advisory committees.
- The MTCSF liaison shall be responsible for reporting compliance issues related to improperly matching patient needs to designated trauma center resources.

MTCSF shall report opportunities from improvement of system performance to the MSDH Bureau of Acute Care Systems (BACS) (in a format determined and mutually agreed upon by BACS and MTCSF), including performance measures identified by the Statewide PI Committee and listed in the PIPS Manual. The report shall also include analyses and recommendations on prospective ways to reduce burdens on Level I and II trauma centers.

PIPS at the Trauma Center

Performance improvement and patient safety in a trauma center consists of internal and external monitoring and evaluation of care provided by medical, nursing, and ancillary personnel, as well as hospital departments, services, and programs. Due to the diversity of the trauma centers throughout the statewide trauma system, committee make up varies.

The structure for accomplishing trauma PIPS can be organized in a number of ways depending on the hospital's level of designation, size of medical staff, availability of staff resources, and service volume. In most Level I-III trauma centers, PIPS review is performed by a multidisciplinary trauma committee representing all phases of care provided to the injured patient, including pre-hospital and air medical. In a Level IV trauma facility, the PIPS committee may be comprised of

emergency medicine or primary care physicians, who staff the emergency department (ED), as well as the trauma program manager, ED nurse(s), advanced practice practitioners and EMS personnel.

Responsibilities

In an organized trauma system, mechanisms for continuous, multidisciplinary review of the processes of care and its outcomes must exist for each level of care for the realization of effective internal performance improvement. Review includes but is not limited to the EMS provider, the trauma centers, the STSPIC subcommittees at the district level and the STSPIC. PIPS activities conducted at each level should complement or build upon those performed by others and should include evaluation of:

- Infrastructure such as system response, access to EMS, hospital, and rehabilitation resources, accessibility of services, and availability and efficient use of equipment and other resources such as air medical transport.
- Process of care such as appropriateness of triage and transport, provider assessments, treatment and management decisions, timeliness of care, communication and documentation of treatment.
- Outcomes such as mortality, morbidity, disability, length of stay, utilization of services, cost and patient safety initiatives.

Responsibility for communication of performance issues must be assigned within each level of review. Procedures to ensure confidentiality of the review findings must be in place and be strictly applied. The following summarizes the scope of responsibility for each care review level:

- PI review at each level is multidisciplinary, occurs at regular intervals (or soon after a sentinel event), and continuously seeks to identify opportunities for improvement.
    - The results of analysis define improvement initiatives (if necessary) that are documented and communicated to the appropriate individual or entity for action.
    - The effectiveness of corrective strategies is evaluated as the PI cycle repeats itself.
- The trauma center's Performance Improvement and Patient Safety Committee should be created within the context of the hospital's trauma designation.
    - Understanding the variability of centers throughout the state, the committees design and function may differ; however, the operational activities of the committee should follow the designated PIPS activities and metrics.
    - Indicators or expectations of care should be developed from evidence-based guidelines, critical pathways, protocols, or consensus.
    - Injured patients who meet criteria for review should be screened using a pre-established list of expectations of care and reviewed for morbidity and mortality. Cases that warrant further review, such as a provider related morbidity or mortality, should be evaluated by the appropriate trauma or peer review committee using pre-defined criteria so that review is unbiased.
    - Whenever possible, those involved as provider(s) should participate in the presentation and discussion of the case and assist in developing an effective solution to prevent the problem from reoccurring.

The Trauma Program will use four levels of review. All trauma program operational staff aid in this process. This process remains open and ongoing until event resolution is obtained. In order to support this process, the Trauma Review Classification will be utilized to help guide where opportunities lie and may be found in the *Trauma Review Classification* document located on the Mississippi Trauma Care System website. Models of Performance Improvement will also be utilized to aid in guiding the performance improvement process through the Trauma Program Performance Improvement Review Process (refer to the *Trauma Program Performance Improvement Review Process* document located on the Mississippi Trauma Care System website).

Monitoring

The PIPS committee monitors, evaluates, and corrects care process issues including those external to the trauma program. In addition, a trauma peer review committee representing surgery, emergency medicine, anesthesia, and other appropriate physician sub-specialists may be constituted for the purpose of physician peer review. In Level III and IV trauma centers physician peer review may be accomplished through an existing hospital peer review committee, the trauma PIPS committee, or an appropriate external review body.

Because trauma care crosses most, if not all, service disciplines, the trauma program and its medical director must be empowered by the hospital's governing body and medical staff to address performance issues that involve multiple services and departments. The trauma medical director must be granted the authority and administrative resources necessary to effectively lead the trauma PIPS process through problem resolution. The trauma program manager (TPM) is an essential component of the PIPS process because he or she is responsible for the day-to-day collection and processing of data, monitoring care and its outcome, and coordinating the logistical aspects of the PIPS program. The TPM may identify adverse trends in care or processes that are not evident in the individual case review because of his/her oversight role.

The TPM is essential to the functioning of committees, providing coordination of action planning and documentation between the trauma program and the hospital-wide PI program. Committee(s) should consider meeting at least quarterly (monthly or biweekly in larger volume hospitals) to review operational or care process issues (trauma committee), and morbidity, mortality, and sentinel events (peer review committee). Larger trauma programs may also find it useful to conduct a multidisciplinary educational conference or "Grand Rounds" (weekly to monthly) to discuss interesting cases. Lower volume facilities may consider the same on a less frequent schedule. A portion of the PIPS program must be dedicated exclusively to the pediatric trauma population. The trauma center PIPS Committee must integrate the pre- hospital component, scene transports and inter-facilities transfers, into its review and analysis.

Credentialing

An important aspect of the PIPS plan is the establishment and routine verification of trauma care provider credentials. Provider credentialing occurs through established channels within the hospital's medical staff, nursing, and ancillary services, and mechanisms for describing their compliance are incorporated in the PIPS plan. Coordinating the documentation of physician and nurse credentialing between the trauma service and the medical and nursing staff offices is an

important aspect of the trauma center designation process. The credentialing requirements for MSDH designated trauma facilities are outlined in the Mississippi Trauma Care System Regulations.

Volume Trending

The trauma patient population described above should be monitored to quantify the hospital's trauma service volume. This number will serve as a denominator and help the trauma program to measure resource and service utilization, morbidity and mortality rates, provider performance, and other relevant aspects of the service. This information can also be used to help target service needs, such as resources or staff, and establish thresholds for performance improvement. For instance, tracking the number of direct admissions from the emergency department to the operating room (OR) correlated with the time of day or day of week could help determine OR staffing needs. Likewise, tracking the incidence of complications correlated with specific population characteristics (i.e., DRG, ICD-10, or other classification systems) can establish the need to develop a practice guideline.

Process Measures

The use of process indicators to measure, evaluate, and improve system performance is an important component of the trauma PIPS plan. Process expectations can be developed from committee consensus, hospital policies, evidence-based practice guidelines, system protocols, or the state or regional SOC district trauma plan. There are a number of categories the trauma program may want to focus on initially, including compliance with established protocols, timeliness and availability of providers or services, availability of facilities (operating room, ICU beds, etc.), delays in assessment, diagnosis, or care, appropriateness of triage decisions and transport destinations, communication issues, completeness of documentation, etc. Each performance expectation must be clearly defined, measurable, and obtainable within reason.

Outcome Measures

There are a number of variables that have traditionally been used to measure the outcome of trauma care including morbidity, mortality, length of hospital and intensive care unit stay, resource utilization, cost, functional disability, and patient satisfaction. Complications and injury-related deaths need to be evaluated by the trauma peer review committee or trauma multidisciplinary committee, for opportunities for improvement, using a pre-defined, standardized methodology that includes categorizing findings. Complications should be determined using pre-established definitions such as those defined by the American College of Surgeons, Committee on Trauma (ACS- COT), and/or NTDB for data abstraction and reporting.

Mortality Review

All trauma mortalities should be reviewed by the trauma program as they relate to trauma care and trauma system issues. At many trauma centers, mortalities are also reviewed during formal trauma mortality and morbidity review comprised of a multidisciplinary surgical physician committee. A trauma center should define criteria for case selection for formal trauma mortality and morbidity

review. Documentation of case review should be completed by the trauma medical director (TMD) and the trauma program manager (TPM). Corrective action plans should be developed and issues trended as appropriate. Mortality outcomes data should be aggregated, trended, and reported. The process for Mortality PI Review is defined within the *Trauma Program Performance Improvement Review Process* document located on the Mississippi Trauma Care System website.

Improvement Activities and Corrective Action

When a reoccurring problem, sentinel event, or inappropriate variation occurs, improvement initiatives or actions are developed and documented by the trauma program, trauma PIPS committee or peer review committee. The goal of the corrective action initiative is to reduce variation in care and improve outcome by eliminating the identified problem. The action plan should include: who or what is going to change; who is assigned responsibility for problem resolution; what action will be taken and when it will occur; and who is responsible for follow-up and when it will occur. Examples of corrective strategies include the revision of guidelines, protocols, or policies, targeted education, provider counseling, change in provider privileges.

Documentation and Reporting

The trauma center PIPS program includes complete, accurate and confidential documentation of ongoing monitoring, corrective action, progress, and re-evaluation. It is important that trauma staff understand MS law governing PI and peer review and take appropriate measures to protect PIPS records and review proceedings from disclosure. A responsible PIPS program assures that information is handled in a strictly confidential manner. Minutes from the review committee need to be well documented. A tracking form or similar tool may be useful to track the problem through committee review, interdepartmental evaluation, action plan implementation, and loop closure.

PIPS at the Prehospital Provider

Whereas there is an active process for review within the ground and air medical pre-hospital agencies, there is also the critical element of the process in concert with the trauma center case reviews. A collaborative effort to incorporate this review is essential to the comprehensive analysis of volume, process, outcomes and mortality reviews.

The structure for accomplishing trauma PIPS can be organized in a number of ways. EMS providers may wish to incorporate the trauma PIPS process into an existing committee responsible for performance improvement activities or establish a separate committee for this purpose. At a minimum, the structure of the committee should include EMS providers and the service's Medical Director.

Monitoring

EMS related Trauma Care Indicators (TCI) to be reviewed via the provider's performance improvement process are referenced in the *Core Measure Indicators* document located on the Mississippi Trauma Care System Website.

Documentation and Reporting

The EMS trauma PIPS program includes complete, accurate and confidential documentation of ongoing monitoring, corrective action, progress, and re-evaluation. It is important that staff understand MS law governing PI and peer review and take appropriate measures to protect PIPS records and review proceedings from disclosure. A responsible PIPS program assures that information is handled in a strictly confidential manner. Minutes from the review committee need to be well documented. A tracking form or similar tool may be useful to track the problem through committee review, interdepartmental evaluation, action plan implementation, and loop closure.

Purview of the STSPIC Subcommittees

In addition to reviewing data made available by MSDH, STSPIC Subcommittees may solicit and/or respond to trauma performance related concerns or discrepancies raised by district members (hospitals, ambulance services, medical providers or concerned others). STPIC subcommittees should encourage district members to bring such information to the subcommittee in cases where concerns/discrepancies cannot be effectively resolved at the more local level.