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Texas EMS/Trauma System Performance Improvement Plan: State, Regional, Local

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INTRODUCTION

The development of a statewide EMS/Trauma System of Care includes a mechanism for ongoing evaluation to improve the process and effectiveness of the system as a whole and by its components – prehospital dispatch, medical control, field triage, hospital care, inter-facility triage, and rehabilitation care. A **Performance Improvement (PI) Plan** in an organized trauma care system consist of internal and external monitoring and evaluation of care provided through the phases of care and continuum of care. The goal of monitoring is to identify opportunities to reduce inappropriate variations in care and to develop corrective action strategies. The effectiveness of the corrective action is monitored and measured through progressive review cycles.

This document is developed to assist and guide EMS / trauma committees responsible for PI for the system, regions and individuals with agencies, institutions or systems. The goal is to provide a structure for each level of responsibility.

Philosophy of the EMS / Trauma System

- The EMS / Trauma System of Texas provides the highest quality of care and service.
- The EMS / Trauma System of Texas is dedicated to providing specialized, effective, efficient care to all injured patients.
- The EMS / Trauma System of Texas is dedicated to improving outcomes and recovery for all citizens regardless of age, geographic location or economic background.
- The EMS / Trauma System of Texas's primary focus is prevention, through programs targeting the reduction of the incidence of trauma injury, systems designed to expedite access to definitive care and dedicated staff that recognize the impact of trauma and provide measures that decrease complications and death due to injuries.
- The EMS / Trauma System of Texas is dedicated to building a cadre of experts whose purpose is to monitor the system and outcome to define opportunities to improve care, service, efficiency, effectiveness, and cost to promote a transparent health care system.
- The EMS / Trauma System of Texas is dedicated to building coalitions to support public education, specific trauma programs that include awareness and prevention as well as research that promotes the reduction of injury, disability and death due to trauma injuries.

Mission

Our mission is to provide accountable, quality care that is driven by performance improvement reviews and facilitated by data analysis and peer review at all levels of care delivery.

Vision

That all the people of Texas, because of the effectiveness of our prevention programs, are the least likely in the nation to be seriously injured or killed; but if injured, have the best chance for survival and maximal potential for recovery.

Authority

The Texas EMS / Trauma System Performance Improvement Plan is under the direction of the Department of State Health Services' Office of EMS / Trauma System Coordination. The Office of EMS / Trauma System Coordination has the authority to monitor all events that occur during an EMS / trauma related episode. The EMS / Trauma System delivery begins with access and covers the continuum of care. Routine system performance improvement activities will be reviewed and addressed through the local Trauma Service Area Councils and processed through to the State EMS / Trauma Performance Improvement Process.

All performance improvement activities at the local, regional and state must follow:
Health and Safety Code Chapter 773.995
Records and Proceedings Confidential
a) The proceedings and records of organized committees of hospitals, medical societies, emergency medical services providers, emergency medical services and trauma care system, or its responder organizations relating to the review, evaluation, or improvement of an emergency medical services provider, a first responder organization, an emergency medical services personnel are confidential and not subject to disclosure by court subpoena or otherwise.
b) The records and proceedings may be used by the committee and the committee members only in the exercise of proper committee functions.
c) This section does not apply to records made or maintained in the regular course of business by and emergency medical services provider, a first responder organization, or emergency medical services personnel.
Pursuant to Section 160.007 of the Texas Occupations Code, the following information relating to trauma performance improvement review is confidential and privileged.

Credentialing

Individuals participating on the EMS / Trauma System Performance Improvement Committee must be an active provider in the system and have completed a Trauma Outcomes Performance Improvement (TOPIC) Course.

EMS / Trauma System Performance Improvement Plan

PURPOSE

The purpose of the Trauma System Performance Improvement Plan is to measure, evaluate, and improve the process, accountability, efficiency, effectiveness and reliability of the system of care rendered through all phases of trauma care from 911 dispatches through rehabilitation. The Trauma Performance Improvement Plan establishes lines of communication, authority and accountability for monitoring aspects of care and defines guidelines to measure the quality and outcome of care. The objective of the Trauma System PI plan is to assure that trauma care guidelines are followed and that appropriate variations in care are minimal.

STRUCTURE

The EMS / Trauma System PI process consist of internal and external monitoring and evaluation of care. This includes evaluation of prehospital, hospital, regional advisory councils and the lead agency with the authority to oversee the system.

RESPONSIBILITIES

In an organized EMS / trauma care system, the process for trauma performance improvement must exist at each level of care. The performance improvement activities conducted at each phase of care should include the infrastructure review, system response, services provided and utilization. Processes to monitor compliance to treatment guidelines and outcome measures such as death, disability and complications are core components of the PI plan. In addition, compliance to regulatory statues and trauma center criteria are integrated into the system review.

Responsibility for the administration and reporting of performance improvement initiatives must be assigned within each level of review. Regulations and procedures to ensure confidentiality of the performance review must be clearly defined.

LEAD AGENCY

DSHS' Division of EMS / Trauma Management is the lead agency for organizational structure and oversight of the EMS / Trauma System Performance Improvement Plan. The lead agency is responsible for the following activities:

- Organizational structure and oversight for all EMS/Trauma System activities
- Oversight of the Governor's EMS / Trauma Advisory Committee and all supporting committee structure.
- Oversight of all regional trauma advisory council activities.

- Development of an EMS / Trauma System Performance Improvement State Review Committee, and Committee members who include but are not limited to:
  a) Representative from Trauma System Committee.
  b) Representative from EMS Committee
  c) Representative from Air Medical Committee.
  d) Representative from Medical Director Committee.
  e) Representative from Pediatric Committee.
  f) Representative from Education Committee.
  g) Representative from the Injury Prevention Committee.
  h) Representative from an Urban Large Regional Advisory Council.
  i) Representative from a mostly rural small Regional Advisory Council.
  j) Representative from the Texas EMS Trauma and Acute Care Foundation.
  k) Representative from the Texas Trauma Coordinators Forum.
  l) Representative from Texas EMS Association.
- This committee is charged with reviewing the quarterly reports generated by each of the regional advisory councils to define issues, trends, data needs and action plans.
- This committee will define the quarterly State EMS / Trauma Registry reports to be reviewed for trends and action plans.
- This committee will meet bi-annually at times not congruent with State Governor's EMS / Trauma Advisory Council meetings.
- This committee will make recommendations and develop action plans for the lead agency.
- This committee will have access to the following data and reports:
  a) EMS/Trauma Registry Data
  b) Regional Performance Improvement reports
  c) System Plans, protocols, guidelines, policies and procedures

PROCEDURES

The EMS/Trauma System Performance Improvement initiative consists of ongoing and systematic monitoring, evaluation, management and documentation of performance. This system PI process must be supported by a valid and objective method of data collection and collation. The development of standard guidelines from evidence based practice, protocols, consensus of aspects of care and regulatory statues are components of the review process. Defined outcome measures and quality care indicators are tracked and monitored through this process. The committee's first charge is to define and document procedures or guidelines for the review process and to revise any existing guidelines greater than three years old.

ASPECTS OF REVIEW

Selected guidelines will be used to identify processes that may warrant further review and be the basis to trend and/or benchmark performance. The committee defines relevant system expectations that are objective, easily defined and available for data collection.

The system PI process will include geographic, environmental and age related performance expectations.
DSHS and the defined Governor's EMS / Trauma Advisory Council and supporting committees utilize the Model EMS / Trauma System Plan to define their annual goals and needs assessment. The annual goals are monitored and evaluated for the committee effectiveness and leadership.

The State EMS / Trauma PI Committee will consider the following variances but not limit the reviews to the following:

- Variations in Outcomes Between Regions (<10% Variance)
- Transfer Appropriateness
- In-Patient Transfers
- Appropriate Transport Utilization / Closest Most Appropriate Facility
- EMS Medical Director Credentialing
- All Areas of State Have Access To Advanced Pre-Hospital Provider With 30 Minutes of Injury
- Communication For Designation Is Coordinated Through One Office
- Notification of Receipt of Designation Application and Approval or Denial For Survey Is Within 30 Days
- Notification of Designation Is Received Within 60 Days of the State Receiving the Site Survey Summary
- State Evaluates Resources to Sustain State Trauma System Bi-Annually
- State Evaluates State Trauma System Plan Every 4 years To Ensure It Meets Environment, Regulatory and Industry Standards
- State Committees are Meeting Goals and Attendance Meets Standards
- Compliance with Data Reporting
- List of Most Common Trauma Facility Review Criteria Deficiencies
- State Committee Members are Participating RAC Members
- Utilization of Air-Medical Scene Transports
- Incidence of Multiple Air-Medical Response At One Scene
- Comparison of MICN Program to Dispatch Programs
- Safety Device Utilization
- Facility Advertisement as a Trauma Center

ANNUAL REPORT

DSHS produces an annual report that reflects the following, but is not limited to the data components:

- Number of 911 EMS Agencies
- Number of Designated Trauma Facilities by Level, Region, Pediatric
- Number of Waivers Granted Annually by Category
- Number of EMS Runs Annually
- Number of Air Medical Scene Responses Annually

- Number of Trauma Transfers Annually
- Miles Transferred
- Cost of Transfers
- Transfers out of RAC, ISS, Age, Mechanism
- By County, Region, Number, Percent of Patients Receiving Pre-Hospital Contact From An Advanced Level (EMT-I/EMT-P/LP) Provider within 30 Minutes of the Time of Injury
- Number of EMS Agencies Submitting Data To the EMS Registry, Percent, Urban, Rural, County Based, Fire Based, Air-Medical
- Number of Trauma Hospital Admissions Annually by ISS and by Level of Trauma Facility
- Trauma Activity in Non-Designated Hospitals
- Mechanism of Injury Breakdown Annually with Associated Cost / Mortality
- Age Breakdown by ISS, Level of Trauma Facility, Mechanism
- Gender Breakdown by ISS, Mechanism
- Utilization Review of the Trauma Facility, Region, Level of Trauma Center
- Cost of Trauma Care – EMS, Air Medical, Trauma Centers, Rehabilitation
- Uncompensated Care by All Phases of Care
- Under-Insured by All Phases of Care
- Payer Mix Review, ISS, Level Of Trauma Facility
- Dollars Distributed Through EMS / Trauma Care Account
- Dollars Distributed Through 3588
- Number of Educational Programs Provided, EMS, Nurses, Physicians, Other with Number of Participants
- Number of Conferences Sponsored by the RACS
- Injury Prevention Activities / Outcomes
- Define Top Five E-Codes Producing Trauma Admissions, Mortality, Disability, Cost
- Number of Injury Prevention Coalitions and Targeted Population
- Utilization of Safety Devices
- Alcohol Related Injuries Compared To Other States
- Outcome by FIM or NTDB for Age, Mechanism and Level of Trauma Facility
- LOS by ISS, MOI, Level of Trauma Facility
- Morbidity Review by ISS, Level of Trauma Facility
- Morbidity Review Comparison With NTDB, ISS, Level of Trauma Facility
- Number of Trauma Patients Arriving At Designated Trauma Facility Requiring Specialty Surgery With Surgical Specialty Seeing Patient Within 2 Hours, ISS, Age, Trauma Facility, RAC Breakdown
- Mortality Review by ISS, and Level of Trauma Facility
- Projected Years of Life Lost and Productivity Due to Trauma, Mechanism, Factors, Age
- Comparison To others States: Injuries, Mechanism, Age, Funding
- Regional Purchases to Improve the EMS / Trauma System
- After Action Reviews of all Actual Regional Responses

REGIONAL PERFORMANCE IMPROVEMENT PLAN

PURPOSE

The purpose of the Regional EMS/Trauma System Performance Improvement (PI) Plan is to measure, evaluate and improve the process and effectiveness of the regional trauma system as a whole as well as the various components of the system. These components include but are not limited to dispatch, prehospital care, medical control, field triage, hospital transfer, hospital care and rehabilitative care. The performance improvement model emphasizes a continuous multidisciplinary effort to monitor, assess and improve the process and outcomes of regionalized trauma care. The long-term goal is to decrease trauma related morbidity, mortality and disability by reducing inappropriate variations in care through progressive cycles of performance review.

AUTHORITY

The State Statutes define the twenty-two trauma service areas. These trauma service areas created the twenty-two Regional Trauma Advisory Councils through Bylaws, Articles of Incorporation and 5013C Status. (Omnibus Rural Health Care Rescue Act HB-18, May 1989 adopted by the Texas Board of Health in January of 1992 defines the regulations for trauma system development.) These State Statues require the Regional Advisory Councils to develop and implement a regional EMS/Trauma System Plan as defined as the following:

a) Access to the system
b) Communication
c) Medical oversight
d) Prehospital triage
e) Bypass
f) Division
g) Regional medical control
h) Facility triage criteria
i) Inter facility transfer guidelines
j) Trauma Facility designation assistance
k) EMS/Trauma regional performance improvement process
l) Disaster management
m) Injury prevention
n) Regional trauma treatment guidelines

PATIENT POPULATION

Criteria for determining which patients are included in the System EMS / Trauma System performance improvement process may vary among the twenty-two trauma service Regional Advisory Councils. A review of care by EMS agencies, hospital and trauma centers should be completed for the following patients:

- Meet EMS field triage to a trauma center criteria
- Have a hospital ICD-9-CM diagnosis code of 800.00 – 959
- All hospital trauma admissions
- Meet criteria for State EMS/Trauma Registry inclusion
- All trauma related mortalities
- All EMS (ground or air) transport incidences involving trauma patients
- All multiple trauma (defined as ten or more) events.
- All mass casualty events
- All EMS events with a change of service not communicated regionally 30 days prior to change.

STRUCTURE

System Performance Improvement includes internal and external monitoring that evaluates care provided through the phases of care: dispatch, pre-hospital, hospitals and rehabilitative care. Monitoring the on-going processes or phases of care that assists in identifying opportunities to reduce variances in the system is the goal. Action plans define strategies to improve care and data availability. Corrective action plans and initiatives are evaluated through continuous regional reassessment cycles.

RESPONSIBILITIES

Each Regional Advisory Council will define the structure and oversight of the Regional System Performance Improvement Committee. Membership and meeting schedule is defined by the regional bylaws or Standard Operating Procedures. Each Regional Advisory Council System Performance Improvement Committee will define their review process and data to be reviewed.

Sources of information and data to support the PI initiatives include but are not limited to the following:

a) Pre-hospital reports
b) Hospital reports
c) Public Safety reports
d) Dispatch reports
e) Transfer reports

f) Fatality review reports
g) Trauma Registry data
h) Complaints
i) Referrals
j) System Plan
k) Boarding Regions or State data

VOLUME TRENDS

The trauma population described in the Regional Trauma System Plan quantifies the Region's trauma volume. The Region monitors resource utilization, mortality rates, injury epidemiology and system needs including provider and public education. Regional geographic reports are recommended to assist with defining system needs and opportunities for improvement.

PROCESS MEASURES

Process indicators measure, evaluate and improve system performance is one component of an effect system PI plan process expectations are developed from committee consensus, evidence based practice guidelines, system protocols and the regional trauma system plan. Examples of process indicators include but are not limited to the following:

1) Timeliness of EMS arrival
2) Timeliness of Air Medical Arrival
3) Availability of Resources
4) Transfer Timeliness
5) Utilization of Air Medical Resources
6) Appropriateness of Field Triage
7) Process of EMS to Trauma Center Communication
8) Completion of EMS Patient Care Record
9) Timeliness of Trauma Activation
10) Timeliness of Surgeon Response
11) Utilization of Warming Devices (pre-hospital and trauma center)
12) Number of Registry Records Completed Within 60 days of Patient Discharge
13) Timeliness of Regional Registry Downloads
14) Availability of Specialty Coverage
15) Availability of Pediatric Trauma Care
16) Number of Trauma Admissions With Increased LOS Due To Funding / Placement Issues
17) Number of Facilities Submitting Data To NTDB
18) Number of Trauma Patients With Completed SBIRT Screens
19) Patients Requiring Rehabilitation Will Have Access To Rehabilitation Bed
20) Trauma Center Criteria Requiring Surgical Specialty Coverage Is Met Decreasing the Need For Patient Transfer
21) Trauma Patient Transfer is Facilitated Through Regional Transfer Center
22) Average time on backboard is 30 minutes
23) Timely Completion of Regional HVA

24) Timely Completion of regional needs assessment
25) Timely Completion of the Annual Review of the Trauma System Plan
26) Access to Sexual Assault Team
27) Access to Domestic Violence Resources
28) Access to Child Abuse Response Teams
29) Access to Drug/Alcohol / Psychiatric Treatment Facility
30) Two Multidisciplinary Conferences Are Completed Annually
31) EMS / Air Medical / Trauma Medical Directors participate in Regional PI Process
32) Compliance to NEMISIS and NTBD Data Definitions
33) Integration with Blood Donor Center
34) Integration with Organ Procurement Organization
35) Integration with Police / DPS
36) Integration with Emergency Management
37) Integration with Council of Government
38) Measures to Ensure Confidentiality
39) Measures to Secure and Protect Data
40) Process for Addressing Complaints, Grievances
41) Signed Agreement of Participation (MOU) by all EMS, Air Medical and Hospital Facilities in region
42) Completion of Regional Annual Report

OUTCOME MEASURES

There are a number of variables which have traditionally been used to measure the outcome of trauma care. These include but are not limited to the following:

1) Morbidity
2) Mortality
3) Mortality, Autopsy Findings
4) Medical Examiner reports on trauma scene fatalities
5) Hospital Length of Stay
6) Intensive Care Length of Stay
7) Cost of Care
8) Funding Source
9) Functional Disability
10) Patients With GCS of 8 or Less Have a Definitive Airway
11) Process to Review RSI Airway Interventions
12) Airway Management for Pediatric Population
13) IV Access for Pediatric Population
14) Vaccination Assessment for Pediatric Population
15) Transfers from In-Patient Setting
16) Two or More Transfers
17) Surgical Specialty Transfers for ENT, Ophthalmology, Oral Surgery, Hand, Plastics for the Level I or Level II Trauma Facilities
18) Patients With GCS of 12 or Less Have a Head CT Scan Within 30 Minutes of Arrival At Trauma Center

19) Hypotensive Patients That Do Not Respond To Resuscitation Are Transferred To Definitive Care Or Go to the OR or Angio Suite Within One Hour of Arrival
20) Patients With Open Long Bone, Joint or Pelvic Fractures Will Have a Definitive Washout or Bedside Washout Within 8 Hours of Injury
21) Cost of EMS / Trauma Care In Region
22) Admitted Trauma Patients Without a TBI and have a stable HCT/HQ will have Chemical DVT Prophylaxis Started Within 24 hours of Admission
23) Patients With a GCS Motor Score of <4 and Positive CT Scan Will Have ICP Monitoring or Craniotomy Within 12 hours
24) Impact of Injury Prevention Programs
25) Number of Educational Programs Provided
26) Top Fve E-codes Producing Iinjury In Region
27) Top Five E-codes Producing Death in the Region
28) Top Five E-codes Producing Disability in the Region
29) Breakdown of ISS by Level of Trauma Center with Comparison Outcomes

Example of ISS by Trauma Facility Review

Annual ISS Review	Total	Level IV	Level III	Level II	Level I
ISS 0-9					
ISS 10-14					
ISS 15-24					
ISS ≥25					
Total					

Complications and functional disability should utilize the National Trauma Data Bank and National Emergency Medical System Information System data definitions to ensure data is comparable. Regional Registry data may track complication rates.

The outcome review process is structured in a peer review committee format. Individuals that are essential to the review need to be included in the review process. The process and outcome reviews may be structured in an open EMS / Trauma System performance improvement meeting and a closed performance improvement meeting. This must be defined at the regional level in the Bylaws or Operational Procedures. Each committee member should have a job description with established expectations to participate on the committee. Attendance and participation must be monitored. Confidentiality statements must be signed at each committee meeting. No documents are distributed or shared during the closed meeting, unless it is aggregate data.

The closed multidisciplinary peer performance improvement committee may assist the level IV and Level III facilities with trauma peer review and mortality reviews. Hospitals that have physician working in the same practice may chose to utilize the RAC for peer performance reviews.

The standards of care or consensus guidelines established by defined stakeholders include evidence based review. Processes and outcome measures are defined at the time the standards of care are documented and signed off by the regional council.

DOCUMENTATION

Regional peer review committees maintain only one copy of the documents in a secured protected environment. All documents must be labeled as PI and have confidentiality statements on the documents. Identifiers must be stripped and HIPAA guidelines must be met. Regional system performance committee documentation, attendance, minutes, action plans and follow up issues must be maintained by staff or designated individual. Procedures to ensure confidentiality, compliance to State Regulation and the EMS / Trauma System Plan must be well documented and adhered to. The State Health and Safety Code Chapter 773.995 must be followed. In addition, all records and documents defined in Section 160.007 must be addressed.

The aspects of documentation security to protect the patient, provider, agency/facility and region include but are not limited to the following:

- Use of locked file for all pertinent information
- Provision of confidentiality statement / agreement for all committee participants
- Sanctions for breach of confidentiality
- Shredding of all copies of PI documents
- Security efforts at PI meetings such as numbering or color coding and collection of all documents
- Procedures for managing mailing, electronic mailing or transmission of PI documents

The data analysis, judgment process and corrective actions plans are well defined and documented. These documents are included in the secured environment. These documents are covered in the Performance Improvement Plan and are confidential.

ANNUAL REPORT

Each Regional Advisory Council will define its structure and capability to produce an Annual Report. Annual Report inclusion items are defined by the RAC voting members.

RELEASE OF INFORMATION

The Regional EMS / Trauma System plan defines their process for release of information and who can have access to information. PI information in a summary format with aggregate data may be made available to participating members of the RAC. Requests for release of PI information by non RAC participating members regarding system performance and the quality of care summaries for the region for professional research or specific workgroups need a defined protocol and structure. EMS, air medical, hospitals

and trauma centers may require an Institutional Review Board approval from their agency/institution prior to release of their data. These processes need to be addressed in advance through Memorandum of Agreements, contract or protocols.

The information release procedures should consider but not be limited to the following:

- Registry data
- Measures to ensure exclusion of patient identifiers
- Measures to ensure confidentiality of the providers and agencies
- Intervals for regular information release
- Oversight process for data release to public and media
- Data for research
- Procedures for data release: pager copy, data downloads website, thumb drive, disc, etc…

EMS / TRAUMA CENTER PERFORMANCE IMPROVEMENT PLAN

Each EMS, air medical and participating trauma center must maintain an effective performance improvement plan. Recommendations for performance improvement include but are not limited to the following:

- EMS / Trauma Medical Director has authority to manage the performance improvement plan
- Performance Improvement Plan defines the organizational structure, levels of review, authority and integration with the RAC
- Retrospective review following the completed action plans demonstrate improved care
- Review process for judgment, action plans and flow of information is defined
- PI process is concurrent and is continuously reviewing all phases of care
- PI process is inclusive of morbidity, mortality, compliance to evidenced based standards of care, patient safety standards, and system performance
- Registry data is analyzed and dashboards are utilized to improve care
- PI process has a structured format that produces minutes that summarize the review through the PI Committee structure and Leadership Committees for the organization
- Multidisciplinary EMS / Trauma Peer Review process demonstrates appropriate discussion of the identified PI issue, impact on patient care, standard of care review and action plan
- Issues are tracked for closure
- EMS / Trauma Medical Directors are reviewing the performance and participation of the defined core physicians
- PI process has mechanisms in place to review all phases of care for the trauma patients

EMS / TRAUMA PROGRAM ASSISTANCE

The RAC has measures in place to support to provide program assistance to the participating members of the RAC. These programs include but are not limited to the following:

- Regional system has a program designed to provide technical assistance with building an EMS / Trauma Program or rebuilding process in situation where critical positions have been vacant for prolonged periods of time
- Technical assistance is provided by a specific provider, workgroup, sub-committee or committee
- Assistance request identifies the area targeted:
    - Job descriptions
    - Organizational structure
    - Criteria compliance
    - Documentation compliance
    - Performance improvement process
    - Trauma registry
    - Injury prevention
    - Education
    - Training
    - Resource utilization
    - Benchmarking opportunities