



Bureau of Acute Care Systems

**Core Measure Indicators
Trauma System**

PURPOSE

The Statewide Trauma System Performance Improvement Committee (STSPIC) determines the Core Measure Indicators (CMI). The following indicators represent the minimum set of metrics and provide for uniformity across all levels of the Trauma System. These indicators are for use during statewide and district level performance improvement activities and for use by individual trauma centers.

LEVEL 1 - IV	
TCI1 – Mortality Rates	
o	1a - Population
o	1b - ISS
TCI2 - Trauma Team Activation Summary	
o	2a - Alpha
o	2b - Bravo
o	2c – ISS > 24 without Alpha TTA – missed activation/undertriage
o	2d – ISS > 24 without Alpha TTA – TTA criteria not met
TCI3 – ED to Transfer-Out (LOS)	
o	3a – Alphas
o	3b – Burns
o	3c – Peds
o	3d - All
o	3e – Non-TTA
TCI4 - Trauma Diversion	
o	4a – Total
o	4b - Critical Care Bed Unavailability (may be n/a for Level IV)
o	4c – ED Capacity
o	4d - Trauma Surgeon Unavailability (may be n/a for Level IV)
o	4e - OR Unavailability (may be n/a for Level IV)
o	4f - Other

LEVEL I – III	
TCI5 –Surgeon Response	
o	5a – Trauma Surgeon, Alpha
o	5b – Trauma Surgeon, Bravo
o	5c – Nonsurgical management penetrating torso
o	5d – Orthopedic Surgeon, ED Response
o	5e – Orthopedic Surgeon, Open tibial fx debridement
o	5f – Neurosurgeon, ED Response (may be n/a for Level III)
o	5g – Neurosurgeon, EDH/SDH craniotomy > 4 hrs
TCI6 – Non-surgical Admissions	
o	6a – Total
o	6b – Trauma Surgeon Consultation
o	6c – Other Surgical Service Consultation
o	6d – No Surgical Service Consultation

TCI1 - Mortality Rates

All trauma-related mortalities must be systematically reviewed and those mortalities with opportunities for improvement identified for peer review.

A. TCI1a - Mortality rate by population subgroups

$$\% = \frac{\text{Mortality number in subgroup}}{\text{All patients}} \times 100$$

TCI1a - MORTALITY RATE BY POPULATION SUBGROUPS:	
Trauma - All	
Non-Adjusted	
ED	
In-Hospital	
Pediatric	
ED	
In-Hospital	
Older Adult	
ED	
In-Hospital	

Criteria definitions:

- Pediatric – Age 15 years or less
- Older adult – Age 65 years or greater
- DOA - Pronounced dead on arrival with no additional resuscitation efforts initiated in the ED
- ED - Died in the ED despite resuscitation efforts
- In-Hospital – Died post ED, including the OR

B. TCI1b - Mortality rate (total) by ISS subgroups

$$\% = \frac{\text{Mortality number in ISS Range}}{\text{All patients}} \times 100$$

TCI1b - MORTALITY RATE BY ISS SUBGROUPS:				
ISS	Number (#)	Admitted to Trauma Service #	Mortalities #	Mortality %
1-9				
10-15				
16-24				
>24				
Total				

Criteria definitions

- ISS – Injury Severity Score
- Admitted to Trauma Service – Admission post ED for any length of time
- Mortalities – Total

TCI2 – Trauma Team Activation (TTA) Summary

All TTAs must be categorized by the level of response and quantified by number and percentage.

$$\% = \frac{\text{Number in subgroup}}{\text{All patients}} \times 100$$

TCI2 - TTA SUMMARY		
TTA Level	TTA #	% of Total Registry Patients
2a – Alpha		
2b – Bravo		
ISS > 24 without alpha TTA:	#	%
2c – Missed activation/undertriage		
2d – TTA criteria not met		

TCI3 – ED to ED Discharge

All trauma patients who are transferred during the acute phase of care to another trauma center, acute care hospital, or specialty hospital or when specialty personnel are unavailable must be subjected to individual case review to determine the rationale for transfer, appropriateness of care, and opportunities for improvement.

TCI3-A ED Arrival TO ED Discharge LOS	
Subgroup	Average Minutes
3a - Alpha	
3b – Burn	
3c – Peds	

3d – All Patients	
3e – Non TTA	

TCI3A: ED Discharge – ED Arrival = ED Discharge (*Provider Disposition*) time in minutes

TCI3- B ED Arrival TO ED Departure LOS	
Subgroup	Average Minutes
3a - Alpha	
3b – Burn	
3c – Peds	
3d – All Patients	
3e – Non TTA	

TCI3- B: ED Departure – ED Arrival = ED Departure (*time patient leaves the emergency department*) time in minutes

Criteria definitions:

- Alpha – Alpha TTA
- Burn – Injury type = burn
- Peds – Age 15 years or less
- All Patients – Total number
- Non TTA – Not alpha or bravo TTA

TCI4 – Trauma Diversion

Trauma center diversion hours must be routinely monitored, documented, and reported, including the reason for initiating the diversion

$$\% = \frac{\text{Number of diversion hours}}{8,670 \text{ hours in a year}} \times 100$$

TCI4 – TRAUMA DIVERSION	
Subgroup	Hours : Minutes
4a - Total	
4b – Critical Care Bed Unavailability	
4c – ED Capacity	
4d – OR Unavailability	
4e – Trauma Surgeon Unavailability	
4f - Other	

TCI5 - Surgeon Response

Surgeon on-call response must be continuously monitored and variances documented and reviewed for reason for delay, opportunities for improvement, and corrective actions.

$$\text{*Fallout Rate \%} = \frac{\text{Number in subgroup not meeting defined response time}}{\text{All patients in subgroup}} \times 100$$

TCI5 – SURGEON RESPONSE			
Surgeon	On-Call Response (average minutes)	Fallout Rate (percent not meeting response time)	Goal
Trauma Surgery			
5a - Alpha			Fallout rate 20% or <
5b - Bravo			Fallout rate 20% or <
5c – Nonsurgical management of penetrating torso injury subsequently requiring operative intervention			
Orthopedic Surgery			
5d– ED Response			Fallout rate 20% or <
5e – Open tibial fx debridement			
Neurosurgery			
f – ED Response			Fallout rate 20% or <
5g– EDH/SDH craniotomy > 4 hrs			

Criteria definitions:

- Open tibial fx debridement excluding low velocity GSW
- EDH/SDH craniotomy greater than 4 hours post EDA and excluding those for ICP monitor placement

NOTE: Maximum time for surgeon response varies among Trauma Center levels and surgical specialty. Please refer to the Mississippi Trauma System Rules and Regulations for surgeon response times specific to your Trauma Center level.

TCI6 - Non-surgical Admissions

Trauma centers admitting trauma patients to nonsurgical services must assess criteria related to these admissions with review to determine the rationale for admission to a nonsurgical service, adverse outcomes, and opportunities for improvement.

$$\% = \frac{\text{Number in subgroup}}{\text{Total admissions}} \times 100$$

TCI6 = NONSURGICAL ADMISSIONS	
6a – Total %	
6b – %, Trauma surgeon consultation	
6c – %, Other surgical service consultation	
6d - %, No surgical service consultation	

PROCEDURE

Recommendations for the addition of new indicators, or the modification/deletion of existing indicators, may be made by the members of the STSPIC or the district subcommittees at any time of the year. MSDH will consolidate proposed changes and transmit them to the STSPIC for review and consideration. Changes made by the STSPIC to the Core Measure Indicators will be reflected via an update to this document, and the respective updated indicators will be monitored for the next cycle.