

**Michigan Trauma Quality Improvement Program (MTQIP)
2018 Performance Index January 1, 2018 to December 31, 2018**

Measure	Weight	Measure Description	Points		
#1	10	Data Submission (Partial/Incomplete Submissions No Points)		PARTICIPATION (30%)	
		On time and complete 3 of 3 times	10		
		On time and complete 2 of 3 times	5		
		On time and complete 1 of 3 times	0		
#2	10	Meeting Participation All Disciplines *Surgeon represents 1 hospital only	0-10	PARTICIPATION (30%)	
		Surgeon, and (TPM or MCR) Participate in 3 of 3 Collaborative meetings (9 pts)			
		Surgeon, and (TPM or MCR) Participate in 2 of 3 Collaborative meetings (6 pts)			
		Surgeon, and (TPM or MCR) Participate in 1 of 3 Collaborative meetings (3 pts)			
		Surgeon, and (TPM or MCR) Participate in 0 of 3 Collaborative meetings (0 pts)			
#3	10	Data Accuracy		PARTICIPATION (30%)	
		Error Rate			
		5 Star Validation	0-4.0%		10
		4 Star Validation	4.1-5.0%		8
		3 Star Validation	5.1-6.0%		5
		2 Star Validation	6.1-7.0%		3
1 Star Validation	>7.0%	0			
#4	10	Venous Thromboembolism (VTE) Prophylaxis Initiated Within 48 Hours of Arrival in Trauma Service Admits with ≥ 2 Day Length of Stay (18 Mo's: 1/1/17-6/30/18)		PERFORMANCE (70%)	
		≥ 55%	10		
		≥ 50%	8		
		≥ 40%	5		
< 40%	0				
#5	10	Low Molecular Weight Heparin (LMWH) Venous Thromboembolism (VTE) Prophylaxis Use in Trauma Service Admits (18 Mo's: 1/1/17-6/30/18)		PERFORMANCE (70%)	
		≥ 50%	10		
		37-49%	7		
		25-36%	5		
20-24%	3				
< 20%	0				
#6	10	Red Blood Cell to Plasma Ratio (Weighted Mean Points) of Patients Transfused ≥5 Units in 1st 4 Hours (18 Mo's: 1/1/17-6/30/18)	0-10	PERFORMANCE (70%)	
		10 pts: Tier 1: ≤ 1.5			
		10 pts: Tier 2: 1.6-2.0			
		5 pts: Tier 3: 2.1-2.5			
0 pts: Tier 4: >2.5					
#7	10	Serious Complication Rate-Trauma Service Admits (3 years: 7/1/15-6/30/18)		PERFORMANCE (70%)	
		Z-score: < -1 (major improvement)	10		
		Z-score: -1 to 1 or serious complications low-outlier (average or better rate)	7		
Z-score: > 1 (rates of serious complications increased)	5				
#8	10	Mortality Rate-Trauma Service Admits (3 years: 7/1/15-6/30/18)		PERFORMANCE (70%)	
		Z-score: < -1 (major improvement)	10		
		Z-score: -1 to 1 or mortality low-outlier (average or better rate)	7		
Z-score: > 1 (rates of mortality increased)	5				
#9	10	Open Fracture Antibiotic Usage (12 Mo's: 7/1/17-6/30/18)		PERFORMANCE (70%)	
		≥ 90% patients (Antibiotic type, date, time recorded)	10		
		≥ 80% patients (Antibiotic type, date, time recorded)	7		
		≥ 70% patients (Antibiotic type, date, time recorded)	5		
< 70% patients (Antibiotic type, date, time recorded)	0				
#10	10	Head CT Scan performed in ED on patient taking anticoagulation medication with head injury (12 Mo's: 7/1/17-6/30/18)		PERFORMANCE (70%)	
		≥ 90% patients (Head CT scan in ED with date and time recorded)	10		
		≥ 80% patients (Head CT scan in ED with date and time recorded)	7		
		≥ 70% patients (Head CT scan in ED with date and time recorded)	5		
< 70% patients (Head CT scan in ED with date and time recorded)	0				
Total (Max Points) =			100		

Additional Information

Measure 6: Red Blood Cell to Plasma Ratio

Average of tier points assigned to patients transfused ≥ 5 units PRBC's in 1st 4 Hours.

Ratio PRBC to Plasma for each patient	Tier	Points
≤ 1.5	1	10
1.6 – 2.0	2	10
2.1 – 2.5	3	5
> 2.5	4	0

Example:

Patient	PRBC	FFP	PRBC/FFP	Tier	Points
1	10	10	1.0	1	10
2	5	4	1.3	1	10
3	7	4	1.8	2	10
4	8	5	1.6	2	10
5	5	2	2.5	3	5
6	7	3	2.3	3	5
7	9	2	4.5	4	0
8	5	1	5.0	4	0
9	11	0		4	0
10	6	0		4	0

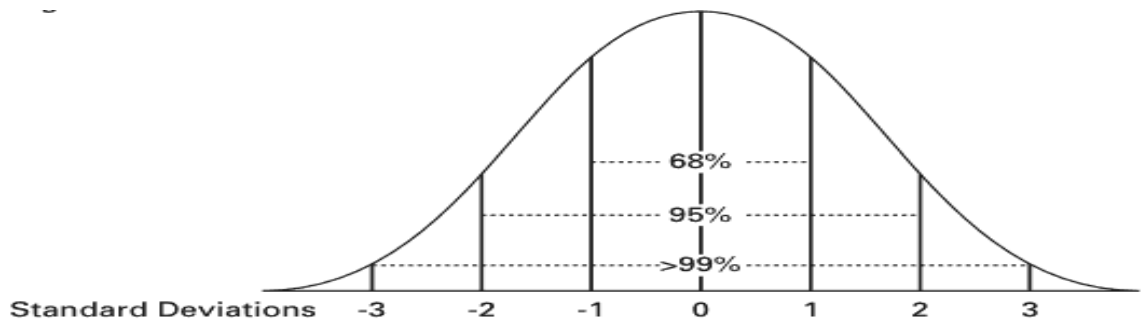
50

$$\frac{\text{Total Points}}{\text{Total Patients}} = \text{Metric Points}$$

$$\frac{50}{10} = 5$$

Z-Score Explanation

The z-score is a measure a hospital's trend in [serious complications, mortality] over the three-year time period. For each hospital, we fit a linear regression model with [serious complications, mortality] as the outcome, and time period and patient characteristics as the explanatory variables. The z-score is an estimate of the slope of a hospital's own linear trend line over time, standardized by the error estimate. This z-score is used to test whether the hospital's trend is flat or trending upwards/downwards. If the z-score is one standard deviation away (either >1 or <-1), there is more evidence that the hospital's performance has a linear trend in one of these directions (as opposed to being flat).



Measure 7: Serious Complication Rate

Serious complications are any complication with a severity grade of 2 or 3 as defined below:

Complication Severity Grade 2

- Definition: Potentially life-threatening complications
- Complications: C. difficile colitis, decubitus ulcer, DVT, enterocutaneous fistula, extremity compartment syndrome, pneumonia, pulmonary embolism, unplanned admission to ICU, unplanned return to OR

Complication Severity Grade 3

- Definition: Life-threatening complications with residual or lasting disability or mortality
- Complications: ARDS, acute renal failure, cardiac arrest, myocardial infarction, renal insufficiency, stroke/CVA, systemic sepsis, unplanned intubation

Filters

#4: VTE Prophylaxis Metric

Heparin, LMWH <= 48 hours
Cohort = Cohort 2 (Admit to trauma service)
No Signs of Life = Exclude DOAs
Transfers Out = Exclude Transfers Out
Default Period = Custom (1/1/17 to 6/30/18)

#5: VTE Prophylaxis Types

LMWH (Type)
Cohort = Cohort 2 (Admit to trauma service)
No Signs of Life = Exclude DOAs
Transfers Out = Exclude Transfers Out
Default Period = Custom (1/1/17 to 6/30/18)

#6: Red Blood Cell to Plasma Ratio

Hemorrhage
Cohort = Cohort 1
No Signs of Life = Include DOAs
Transfers Out = Include Transfers Out
Default Period = Custom (1/1/17 to 6/30/18)

#7: Serious Complication

Cohort 2, 7/1/15 to 6/30/18
Exclude patients with No Signs of Life
Exclude transfers out

#8: Mortality

Cohort 2, 7/1/15 to 6/30/18
Exclude patients with No Signs of Life
Exclude transfers out

#9: Open Fracture Antibiotic Usage

Type of antibiotic administered along with date and time for open fracture of femur or tibia
Eligible: Presence of acute open femur or tibia fracture based on AIS or ICD10 codes (available on MTQIP.org)
Exclude: Direct admissions and Transfers in
Cohort = Cohort 1 (All)
No Signs of Life = Exclude DOAs
Transfers Out = Include Transfers Out
Default Period = Custom (7/1/17 to 6/30/18)

#10: Head CT Scan Performed in ED On Patient Taking Anticoagulation Medication With Head Injury

Head CT scan done in ED, data, time from Procedures data
Eligible: Presence of prehospital anticoagulation or aspirin (Anticoagulant therapy = Yes or Aspirin = Yes)
 Presence of a head injury (AIS Head \geq 3)
 Blunt mechanism
Exclude: Direct admissions and Transfers in
Cohort = Cohort 1 (All)
No Signs of Life = Exclude DOAs
Transfers Out = Include Transfers Out
Default Period = Custom (7/1/17 to 6/30/18)