Michigan Trauma Quality Improvement Program (MTQIP) 2019 Performance Index January 1, 2019 to December 31, 2019				
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	
		Surgeon and (TPM and/or MCR) participate in 3 of 3 Collaborative meetings (9 pt)		
		Surgeon and (TPM and/or MCR) participate in 2 of 3 Collaborative meetings (6 pt)		
		Surgeon and (TPM and/or MCR) participate in 1 of 3 Collaborative meetings (3 pt)		
		Surgeon and (TPM and/or MCR) participate in 0 of 3 Collaborative meetings (0 pt)		
		Registrar and/or MCR participate in the Annual June Data Abstractor meeting (1 pt)		
#3	10	**Data Accuracy** / **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 Timeliness (≤ 48 Hr of Arrival) in Trauma Service Admits with > 2 Day Length of Stay (18 mo: 1/1/18-6/30/19)**		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: 1/1/18-6/30/19)**		
		≥ 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 Hr (18 mo: 1/1/18-6/30/19) (See calculation info on page 2)**	0-10	
#7	10	**Serious Complication Rate-Trauma Service Admits (3 yr: 7/1/16-6/30/19)**		
		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 yr: 7/1/16-6/30/19)**		
		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 Timeliness from ED Arrival (12 mo: 7/1/18-6/30/19)**		
		≥ 90% patients (Antibiotic type, date, time recorded, and administered ≤ 120 min)	10	
		≥ 80% patients (Antibiotic type, date, time recorded, and administered ≤ 120 min)	7	
		≥ 70% patients (Antibiotic type, date, time recorded, and administered ≤ 120 min)	5	
		< 70% patients (Antibiotic type, date, time recorded, and administered ≤ 120 min)	0	
#10	10	**ED Head CT Scan Performed in Traumatic Brain Injury (TBI) Patients On Anticoagulation (12 mo: 7/1/18-6/30/19)**		
		≥ 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

1) Assign (weight) to each individual patient's 4 hr PRBC/FPP ratio to correct tier/points using chart below.

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

2) Add the points and divide by number of patients (weighted average). See example below:

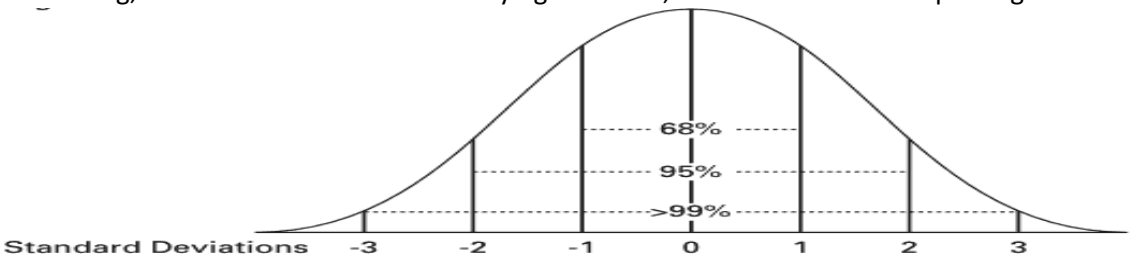
Patient	PRBC	FFP	PRBC/FFP	Tier	Points
1	10	10	1.0	1	10
2	5	4	1.3	1	10
3	7	4	1.8	2	10
4	8	5	1.6	2	10
5	5	2	2.5	3	5
6	7	3	2.3	3	5
7	9	2	4.5	4	0
8	5	1	5.0	4	0
9	11	0		4	0
10	6	0		4	0
					50

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

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

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). Scores >1 are worsening, scores between 1 to -1 are staying the same, and scores < -1 are improving.



Measure 7: Serious Complication Rate: 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

Scoring When Center Has No Patients Meeting Measure Criteria

When a center has no patients to score for a measure that measure will be excluded from their performance index denominator. Example: A center with no massive transfusion patients will have the measure (worth 10 points) excluded and their maximum total numerator will be 90 points, the denominator will be 90 points and a new % (points) calculated by dividing the numerator by the denominator.

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 (1/1/18 to 6/30/19)

#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 (1/1/18 to 6/30/19)

#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 (1/1/18 to 6/30/19)

#7: Serious Complication
Cohort 2, 7/1/16 to 6/30/19
Exclude Patients with No Signs of Life
Exclude Transfers Out

#8: Mortality
Cohort 2, 7/1/16 to 6/30/19
Exclude Patients with No Signs of Life
Exclude Transfers Out

#9: Open Fracture Antibiotic Timeliness
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 (7/1/18 to 6/30/19)

#10: ED Head CT Scan Performed in Traumatic Brain Injury (TBI) Patients On Anticoagulation
Head CT scan done in ED, date, time from procedures data
Eligible: Presence of prehospital anticoagulation or aspirin/anti-platelet (Anticoagulant therapy=Yes or Aspirin=Yes or Plavix=Yes)
Presence of a head injury with blunt mechanism based on AIS codes (list available on request)
Exclude: Direct admissions and Transfers in
Cohort = Cohort 1 (All)
No Signs of Life = Exclude DOAs
Transfers Out = Include Transfers Out
Default Period = Custom (7/1/18 to 6/30/19)