		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	
		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)			
		Registrar, and/or MCR Participate in the 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 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)**			
		≥ 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) (See calculation info on page 2)**		0-10	
#7	10	**Serious Complication Rate-Trauma Service Admits (3 years: 7/1/15-6/30/18)**			
		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)**			
		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)**			
		≥ 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)**			
		≥ 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).
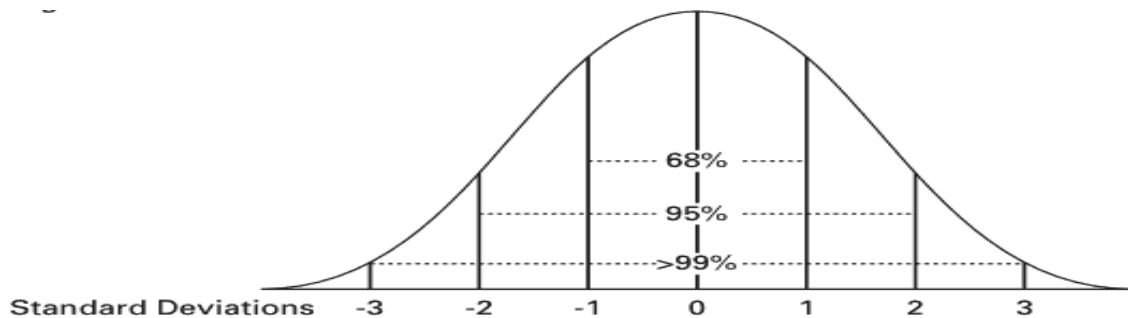
Measure 7: Serious Complication Rate
Serious complications are any complication with a severity grade of 2 or 3 as defined below:
> Complication Severity Grade 2
>> a. Definition: Potentially life-threatening complications
>> b. Complications: C. difficile colitis, decubitus ulcer, DVT, enterocutaneous fistula, extremity compartment syndrome, pneumonia, pulmonary embolism, unplanned admission to ICU, unplanned return to OR
> Complication Severity Grade 3
>> a. Definition: Life-threatening complications with residual or lasting disability or mortality
>> b. 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/anti-platelet (Anticoagulant therapy = Yes or Aspirin = Yes or Plavix = Yes)
>
> Presence of a head injury
>
> 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)