



**M·TQIP**

**Individual Site Summary Report**

**November 1, 2015 through January 31, 2018**

**Issued May 16, 2018**

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## **Description of Cohorts**

### **Cohort 1 (All)**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead

### **Cohort 1 (All) w/o DOA's**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

### **Cohort 2 (Admit trauma)**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead
- 5) Admit to trauma service if ED disposition not death

### **Cohort 2 (Admit trauma) w/o DOA's**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 6) Admit to trauma service if ED disposition not death

### **Cohort 3 (Blunt Multi-System)**

- 1) Mechanism = Blunt
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 6) AIS  $\geq$  3 in at least two of the following body regions: head/neck, face, chest, abdomen, extremities, or external.

### **Cohort 4 (Blunt Single-System)**

- 1) Mechanism = Blunt
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead

- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 6) AIS  $\geq 3$  limited to only one body region with all other body regions having a maximum AIS  $\leq 2$  in the following body regions: head/neck, face, chest, abdomen, extremities, or external.

#### **Mortality or Hospice**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq 18$ , Age  $\geq 16$  starting 1/1/13
- 3) ISS  $\geq 5$
- 4) Hospital LOS  $\geq 1$  day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 6) Outcome is dead or discharge to hospice

#### **Cohort 5 (Penetrating)**

- 1) Mechanism = Penetrating
- 2) Age  $\geq 18$ , Age  $\geq 16$  starting 1/1/13
- 3) ISS  $\geq 5$
- 4) Hospital LOS  $\geq 1$  day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Cohort 6 (Admit non-trauma Service)**

- 1) Mechanism = Blunt or Penetrating
- 2) Age  $\geq 18$ , Age  $\geq 16$  starting 1/1/13
- 3) ISS  $\geq 5$
- 4) Hospital LOS  $\geq 1$  day or dead
- 5) Admit to non-trauma service if ED disposition not death
- 6) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Cohort 7 (Benchmark)**

- 1) Age  $\geq 16$
- 2) ISS  $\geq 9$
- 3) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 4) Exclude patients who were transferred out
- 5) Exclude patients discharged directly from the ED alive
- 6) Exclude patients with an advanced directive limiting care present prior to injury
- 7) Exclude patients who sustain a hip fracture and fall and age  $\geq 65$

Note: this benchmark may not match your national benchmark report exactly. The MTQIP uses AIS 2005. The national benchmark uses ICD-9 with crosswalk to AIS 1998.

#### **Cohort 8 (Isolated Hip Fracture)**

- 1) Mechanism derived from external cause code = Fall
- 2) AIS 98 code = 851810.3 (femur, fracture, intertrochanteric), 851812.3 (femur, fracture, neck), 851818.3 (femur, fracture, subtrochanteric), or 853171.3 (femur, fracture, femoral head)

- 3) All other injuries must be in AIS external body region (i.e., bruise, abrasion or laceration)

#### **ISS > 35 Mortality**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq 18$ , Age  $\geq 16$  starting 1/1/13
- 3) ISS > 35
- 4) Hospital LOS  $\geq 1$  day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Age < 65 Mortality**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq 18$ , Age  $\geq 16$  starting 1/1/13 and Age < 65
- 3) ISS  $\geq 5$
- 4) Hospital LOS  $\geq 1$  day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Age $\geq 65$ Mortality**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq 65$
- 3) ISS  $\geq 5$
- 4) Hospital LOS  $\geq 1$  day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Mortality Trend**

- 1) Cohort 2
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Complications Trend**

- 1) Cohort 2
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)

#### **Complications**

- 1) Cohort 2 w/o DOA's
- 2) Complication severity grade 1
  - a. Definition: Non-life-threatening complications
  - b. Complications: superficial SSI, wound disruption, deep SSI, catheter-related bloodstream infection, catheter-associated urinary tract infection, organ/space SSI, drug or alcohol withdrawal syndrome, osteomyelitis
- 3) Complication severity grade 2
  - a. Definition: Potentially life-threatening complications
  - b. Complications: admission to ICU, pneumonia, unplanned return to OR, DVT, decubitus ulcer, C. difficile colitis, pulmonary embolism, enterocutaneous fistula, extremity compartment syndrome

- 4) Complication severity grade 3
  - a. Definition: Life-threatening complications with residual or lasting disability or mortality
  - b. Complications: cardiac arrest with CPR, acute kidney injury, ARDS, myocardial infarction, unplanned intubation, stroke/CVA, severe sepsis, acute renal insufficiency, mortality
- 5) Specific complication groups
  - a. Any complication = Grade 1 + Grade 2 + Grade 3 (excluding death)
  - b. Serious = Grade 2 + Grade 3 (excluding death)
  - c. Cardiac/Stroke = stroke/CVA, cardiac arrest requiring CPR, myocardial infarction
  - d. Pneumonia = pneumonia
  - e. DVT/Pulmonary Embolus = DVT lower extremity, DVT upper extremity, pulmonary embolism
  - f. UTI = urinary tract infection
  - g. Renal Failure = acute kidney injury
  - h. Sepsis = sepsis
  - i. C. Difficile Colitis = C. diff

#### **Failure to Rescue**

- 1) Mechanism = Blunt or penetrating
- 2) Age  $\geq$  18, Age  $\geq$  16 starting 1/1/13
- 3) ISS  $\geq$  5
- 4) Hospital LOS  $\geq$  1 day or dead
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 6) Admit to trauma service if ED disposition not death
- 7) Exclude patients who did not have a severity grade 2 or 3 complication
- 8) Failure to rescue = n dead with complication / n with complication

Note: A patient can have four possible combinations: dead/no complication, dead/complication, alive/no complication, or alive/complication. Failure to rescue is the percent of patients with an identified complication who go on to die.

#### **Unplanned Return to OR**

- 1) Cohort 2
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) Unplanned return to OR = Y

#### **Unplanned Return to ICU**

- 1) Cohort 2
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) Unplanned return to ICU = Y

#### **Hospital Length of Stay**

- 1) Cohort 2
- 2) Exclude all deaths

### **Intensive Care Unit Length of Stay**

- 1) Cohort 2
- 2) Exclude all deaths
- 3) Exclude all patients with ICU LOS < 1

### **Patients Admitted to ICU**

- 1) Cohort 1
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) ICU days > 0

### **Mechanical Ventilator Days**

- 1) Cohort 2
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) Exclude all patients with Mechanical Ventilator Days < 1

### **VAP**

- 1) Cohort 2
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) Exclude patients with Mechanical Ventilator Days < 1

### **Patients on Ventilator**

- 1) Cohort 1
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) Mechanical Ventilator days > 0

### **IVC Filter**

- 1) Cohort 1
- 2) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 3) Op Code 38.7, 06H00DZ, 06H03DZ, 06H04DZ, 06V03DZ, or 06V03ZZ

### **VTE**

- 1) Cohort 2
- 2) Patients who received heparin, LMWH, or no VTE prophylaxis from ED admit date and time
- 3) Exclude all patients who arrived in ED prior to 1/1/12
- 4) Exclude patient who were DOA
- 5) Exclude patients who died in ED
- 6) Exclude patients who received direct thrombin inhibitor, oral Xa inhibitor, Coumadin, or other

### **ICP Monitor and/or Brain Operation**

- 1) Cohort 1
- 2) Mechanism = Blunt
- 3) AIS Head  $\geq$ 1, excluding vascular, scalp, and bony injuries
- 4) Exclude if TBI GCS>8
- 5) Exclude patients who had no signs of life (ED HR 0, BP 0, GCS 3)
- 6) Exclude patients who were transferred late (Direct admit)

### **Blood**

- 1) Cohort 1
- 2) PRBC 4 hours  $\geq$  5 units




### **Hemorrhage Control Angiography/Operation**

- 1) Cohort 1
- 2) Lowest systolic BP  $\leq$  90 in ED
- 3) Exclude if first angiography/operation < 0 or > 24 hours

### **No Signs of Life**

- 1) Patients will be designated as having arrived at the ED with “no signs of life” if they meet one of the following criteria and die in the ED
- 2) ED SBP 0, HR 0, and GCS 3
- 3) ED SBP 0, HR 0, and mGCS 1
- 4) ED SBP = NK/NR, HR 0, and mGCS 1
- 5) ED SBP 0, HR 0, and mGCS = NK/NR
- 6) ED SBP 0, HR = NK/NR, and mGCS 1
- 7) ED SBP = NK/NR, HR 0, and mGCS = NK/NR

### **Legend**

-  Low-outlier status (better performance)
-  Non-outlier status (average performance)
-  High-outlier status (worse performance)



## Statistical Methods

We performed risk and reliability adjustment using a two-stage approach. Multivariate logistic regression modeling was used to account for differences in baseline characteristics and injury severity, thereby allowing for risk-adjustment at the patient level. Potential predictors of for the outcome of interest were entered into the model. A logit equation was derived based on the significant co-variables using forward selection. Separate models for each outcome were constructed and the order of variable entry was determined by the c-index which measures the ability of a parameter to discriminate outcome. Reliability adjustment used a Bayesian random effects model to account for sample size differences between hospitals. Logit equations resulting from second stage models were used to calculate expected outcome risk. Adjusted rates for each hospital were calculated by multiplying the rate ratio of observed to expected events by the overall collaborative rate

In some instances, specific incidents had missing values for potentially important co-variables (Glasgow Coma Scale (GCS) motor score, systolic blood pressure, and pulse rate). These attributes were identified and managed via the creation an indicator variable where applicable. The final model and analysis included all of the incidents that met MTQIP entry criteria for the cohort being examined.

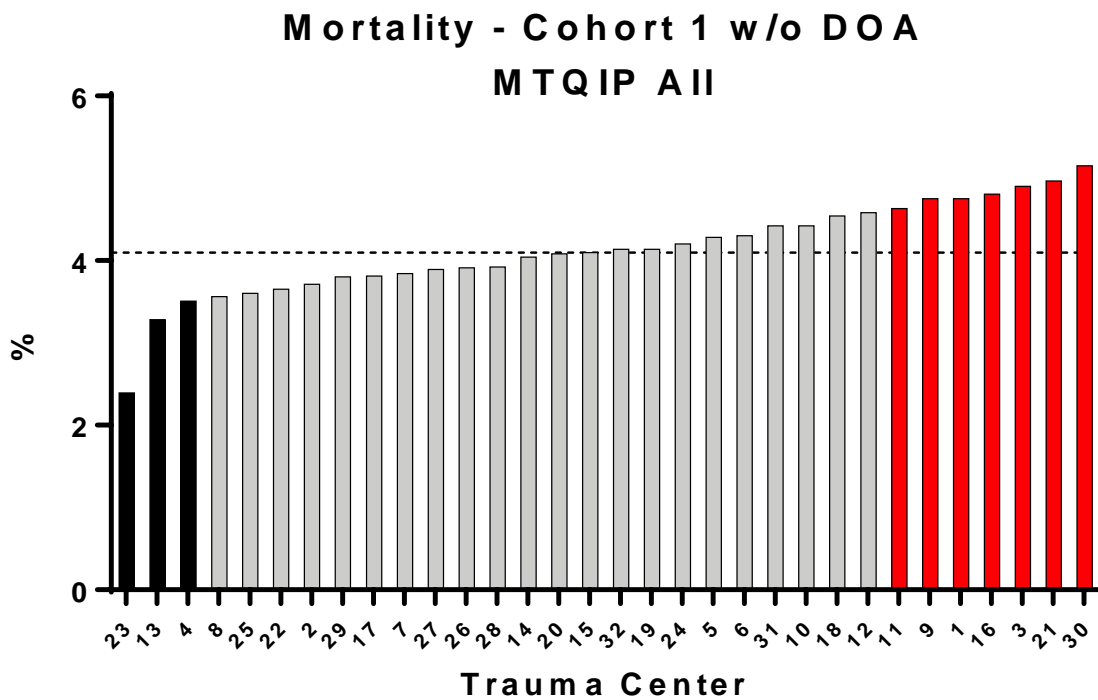
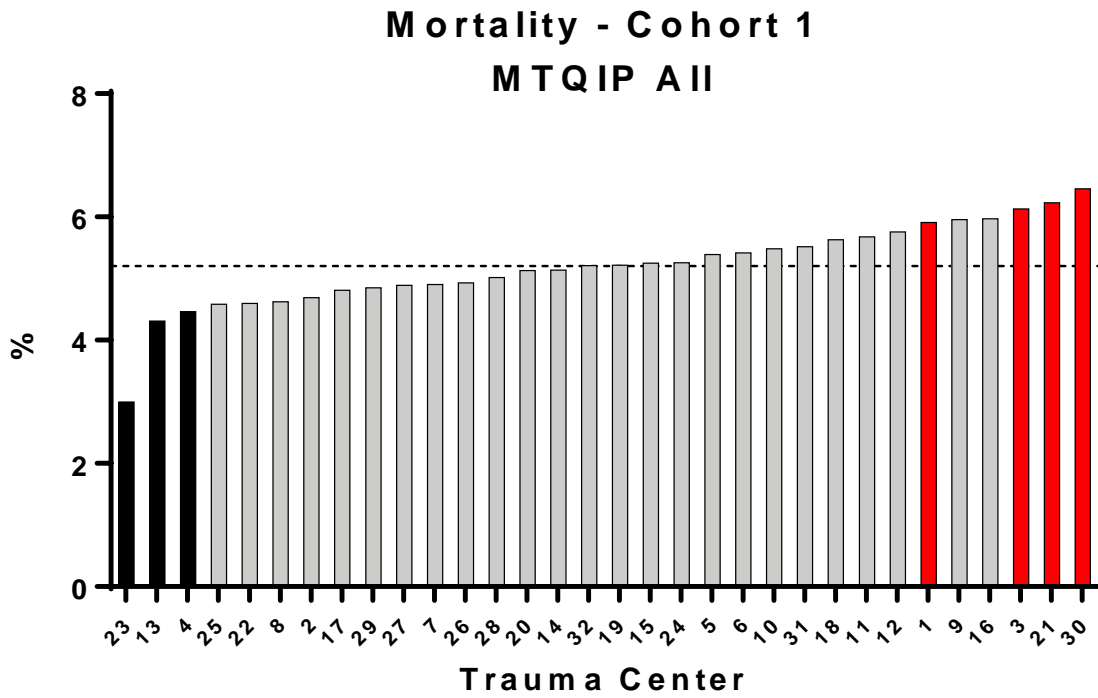
Continuous data exhibiting a right-skewed distribution such as hospital length of stay was natural log-transformed. Multivariate analysis of hospital length of stay, intensive care unit length of stay, and mechanical ventilator days was performed using multiple linear regression and adjusting for significant co-variables. After the regression analysis was conducted the generated coefficient from the regression model was exponentiated to determine the percent increase or decrease in length of stay relative to the risk adjusted mean. Only patients who survived were considered in the hospital and ICU length of stay analysis to simplify this approach. To be included in the ICU length of stay or mechanical ventilator days' analysis, a patient had to have at least one day of use for the resource being investigated.

Eligible = N - Alive w/o intervention - Dead and monitor withheld for reason

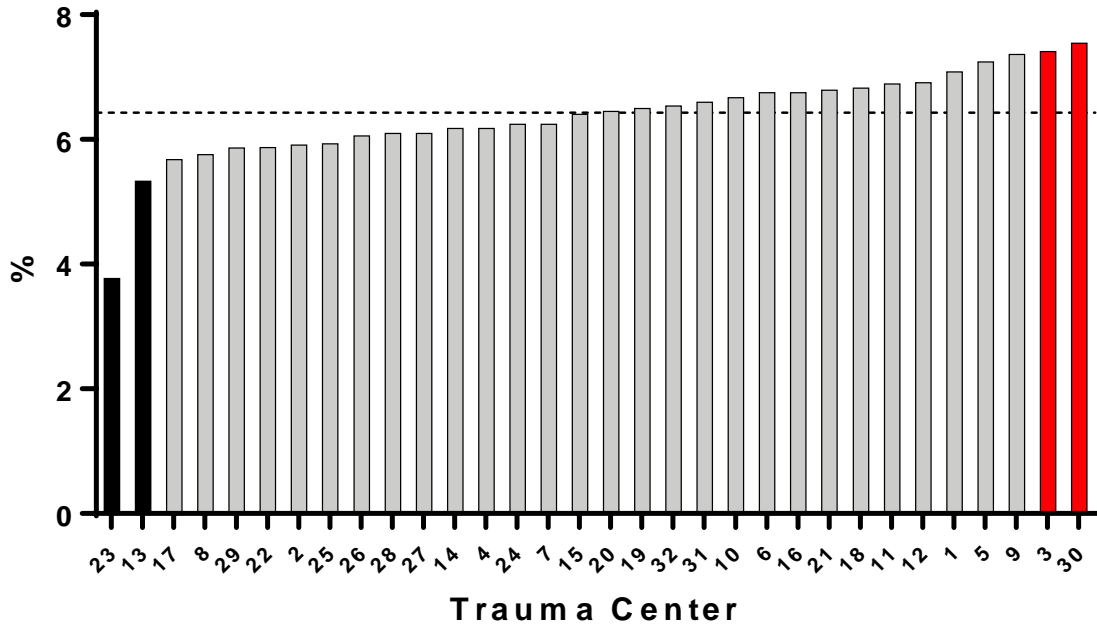
Eligible and no intervention = N - Alive w/o intervention - Alive with intervention - Dead with intervention - Dead and monitor withheld for reason

Timely = Monitor placement or operation  $\leq$  8 hours after ED arrival

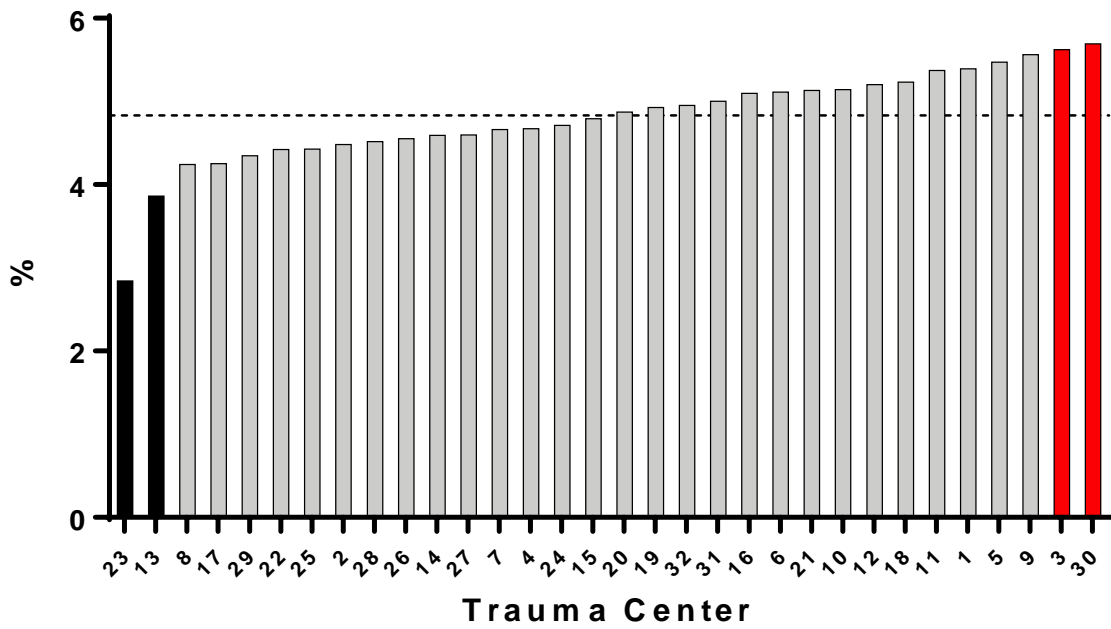
Mortality Graphs



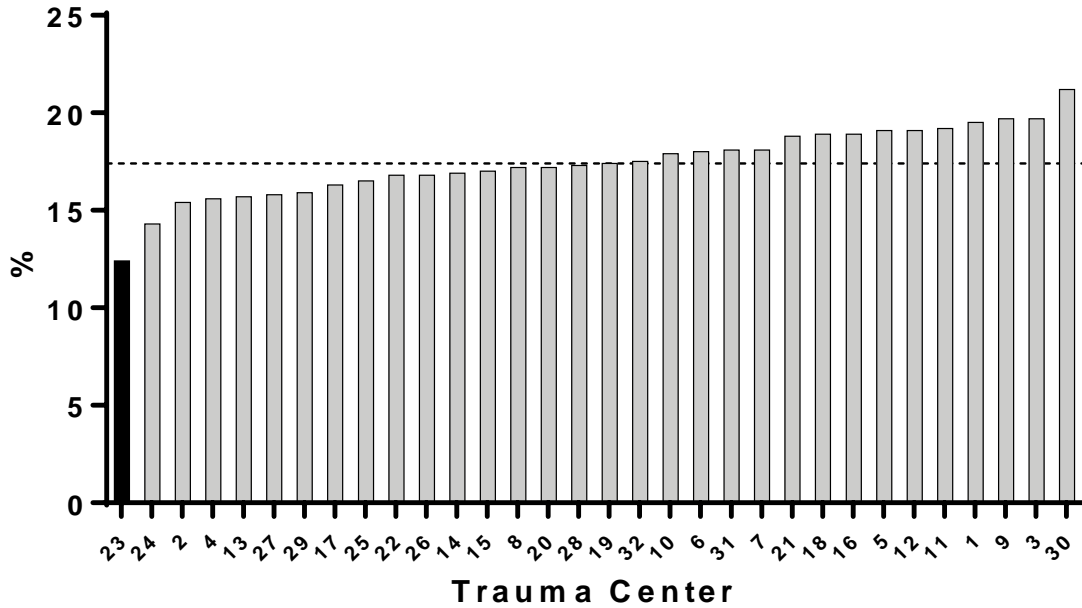
### Mortality - Cohort 2 Admit to Trauma



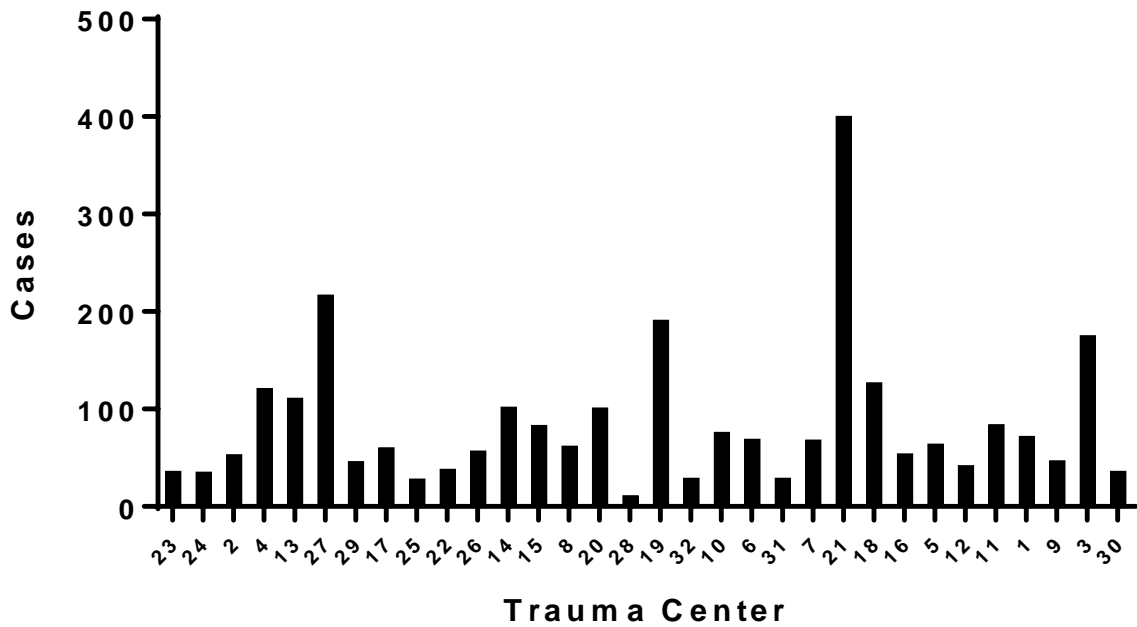
### Mortality - Cohort 2 w/o DOA Admit to Trauma



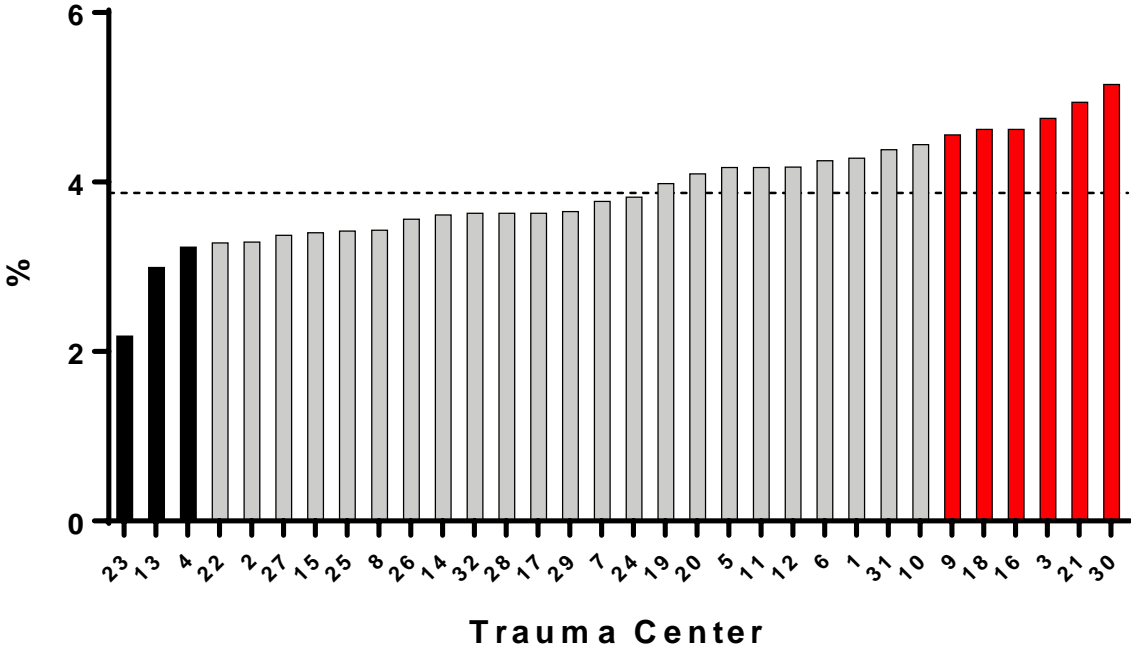
### Mortality - Cohort 3 w/o DOA Blunt Multi-System



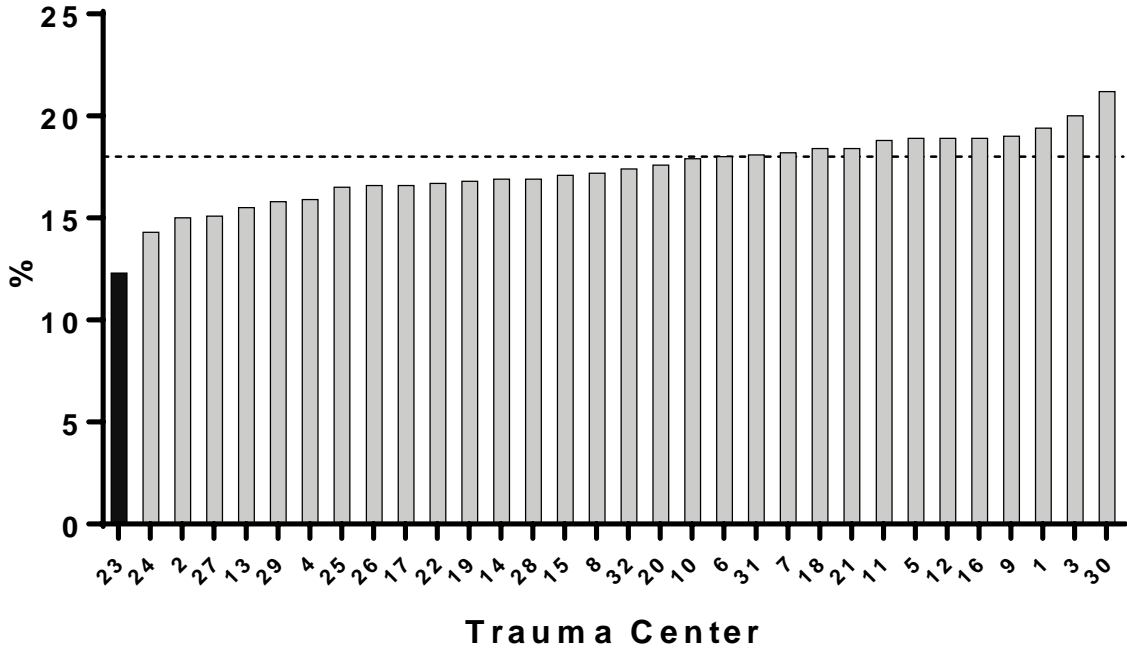
### Case Volume Cohort 3 Mortality Blunt Multi-System



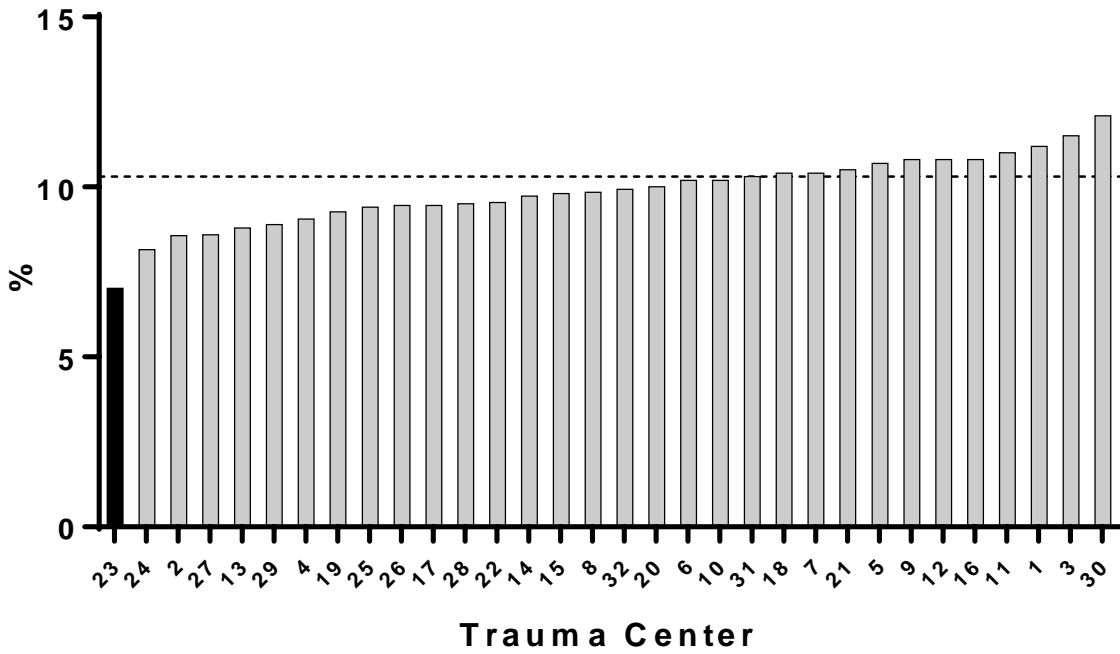
**Mortality - Cohort 4 w/o DOA  
Blunt Single-System**



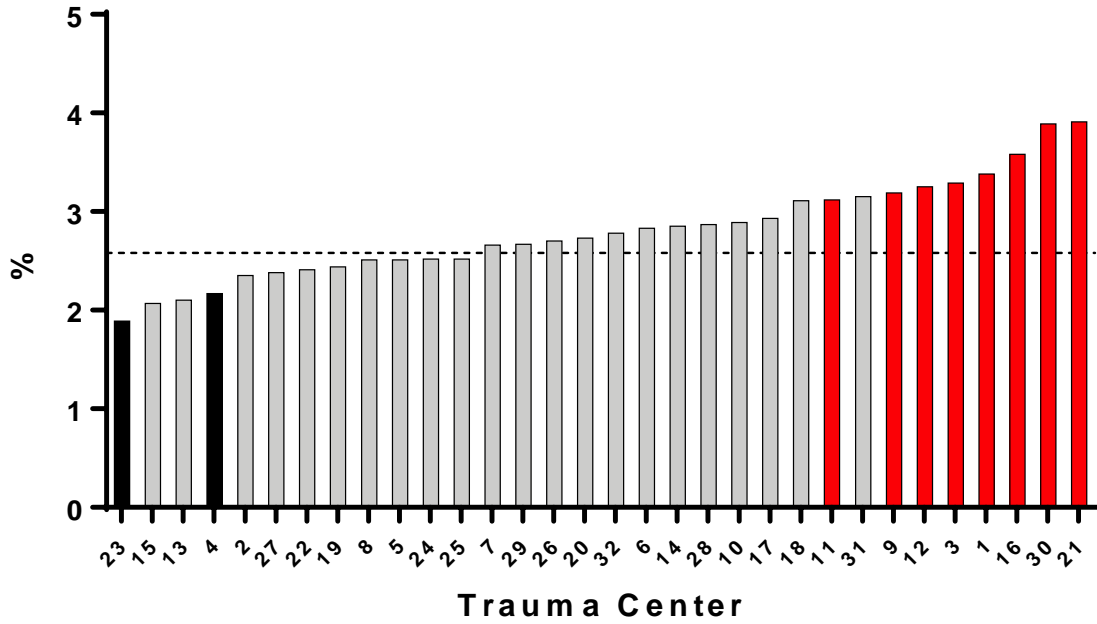
### Mortality - Cohort 5 Penetrating



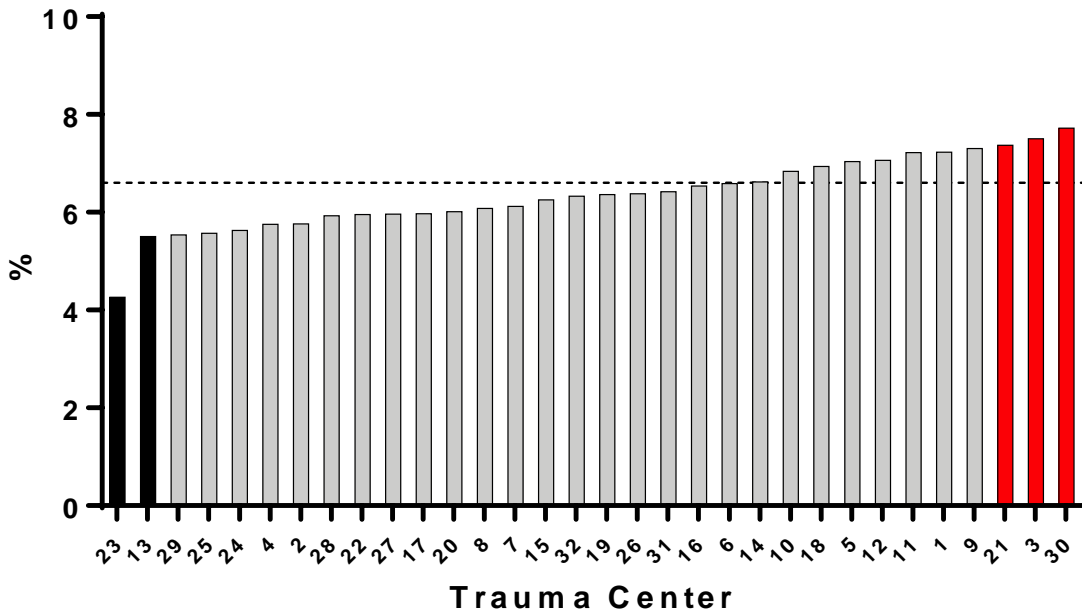
### Mortality - Cohort 5 w/o DOA Penetrating



**Mortality - Cohort 6 w/o DOA  
Admit to Non-Trauma Service**

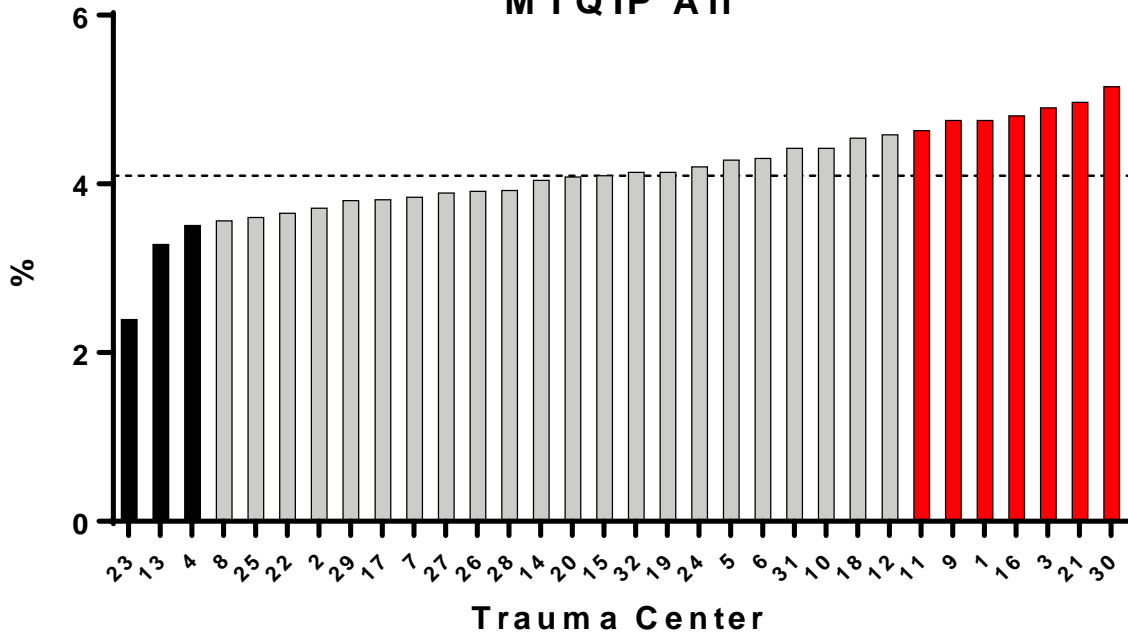


**Mortality - Cohort 7  
National Benchmark**



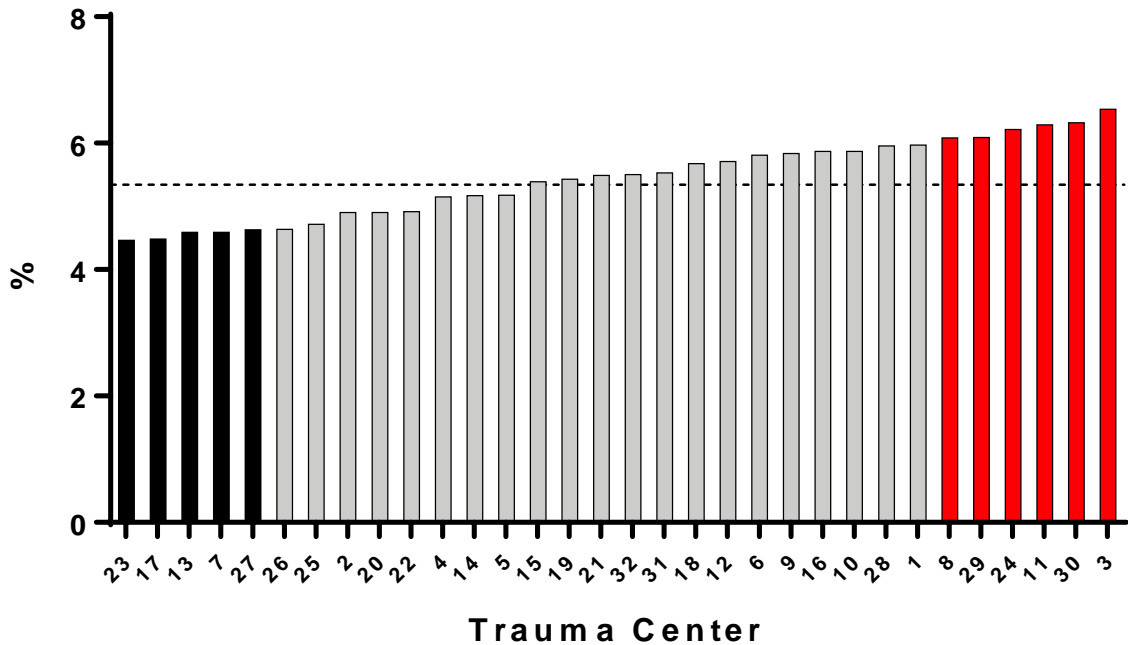
**Mortality - Cohort 1 w/o DOA**

**MTQIP All**



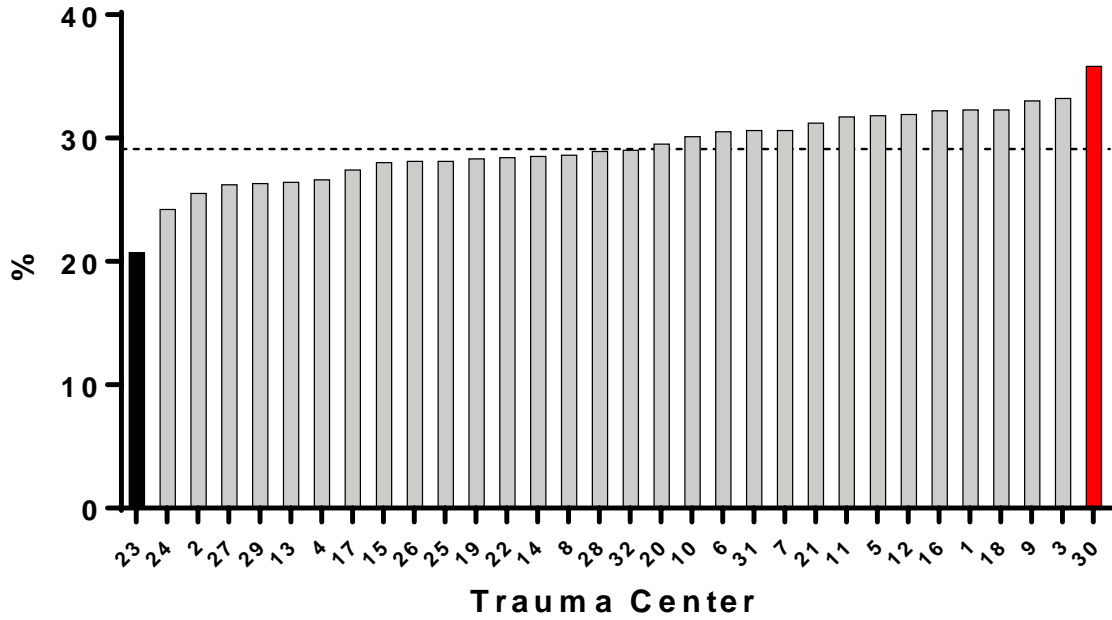
**Mortality or Hospice - Cohort 1 w/o DOA**

**MTIQP All**

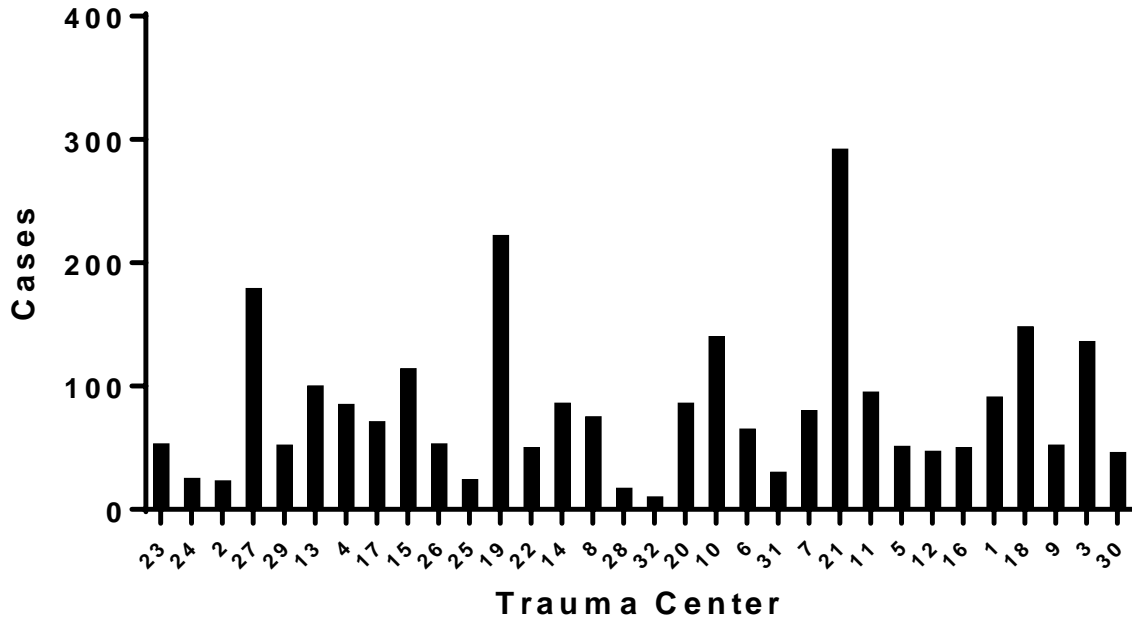




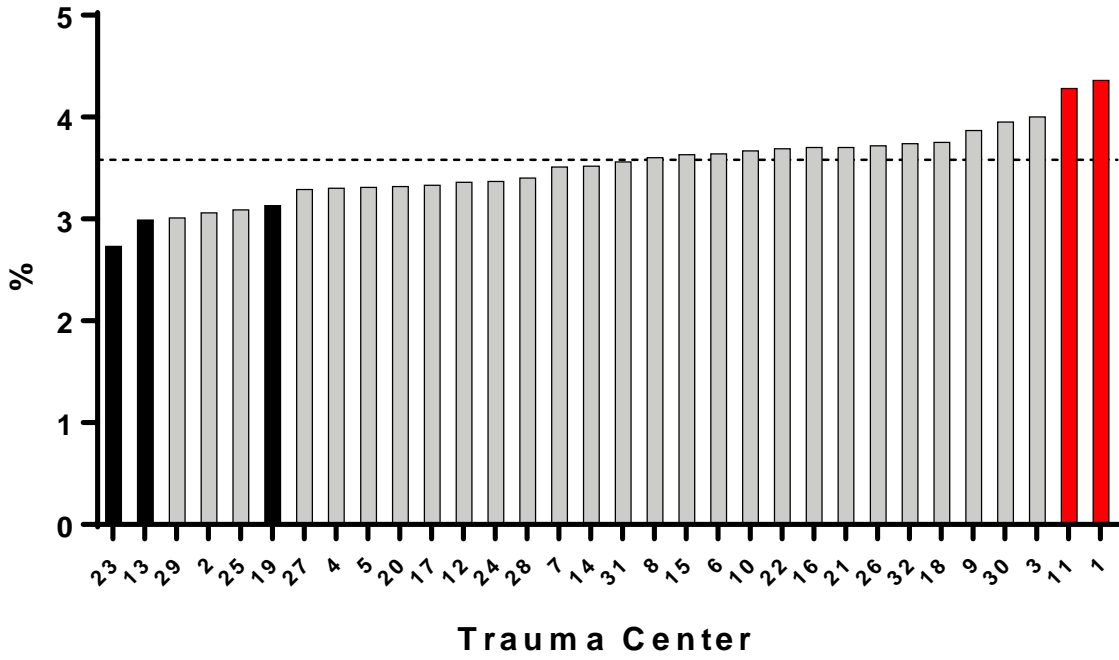
### ISS > 25 Mortality



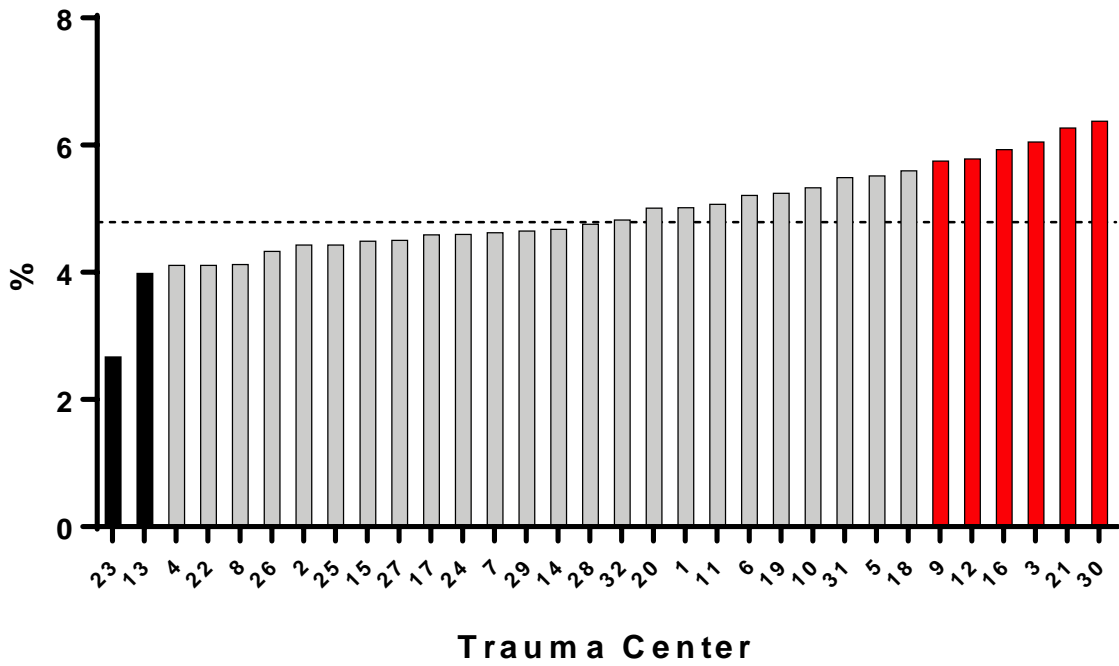
### Case Volume ISS > 25 Mortality



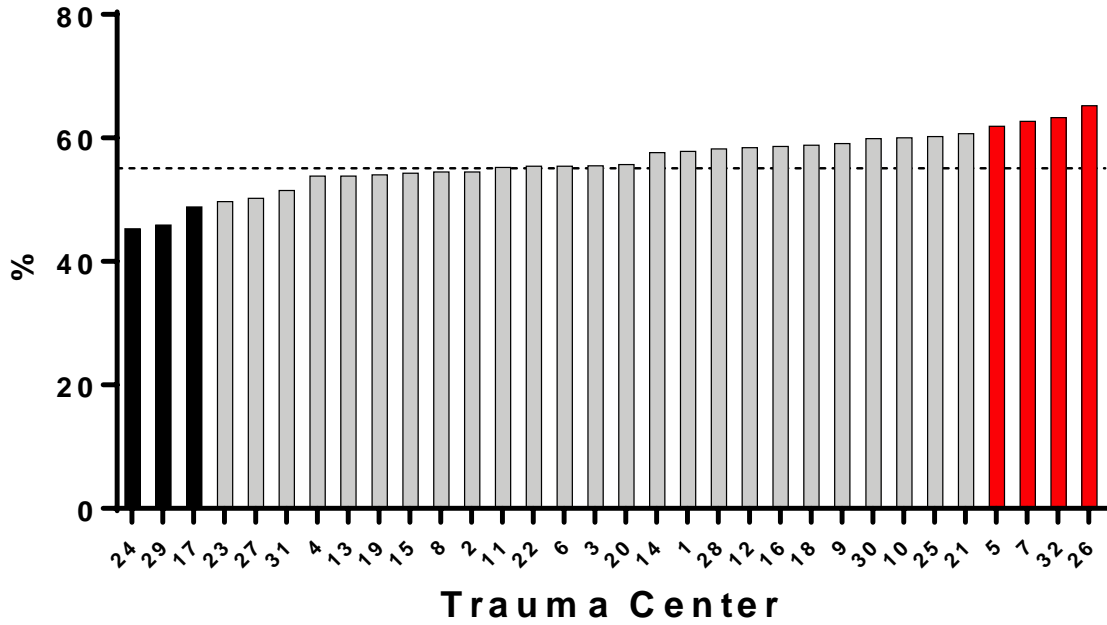
### Mortality - Age < 65 years



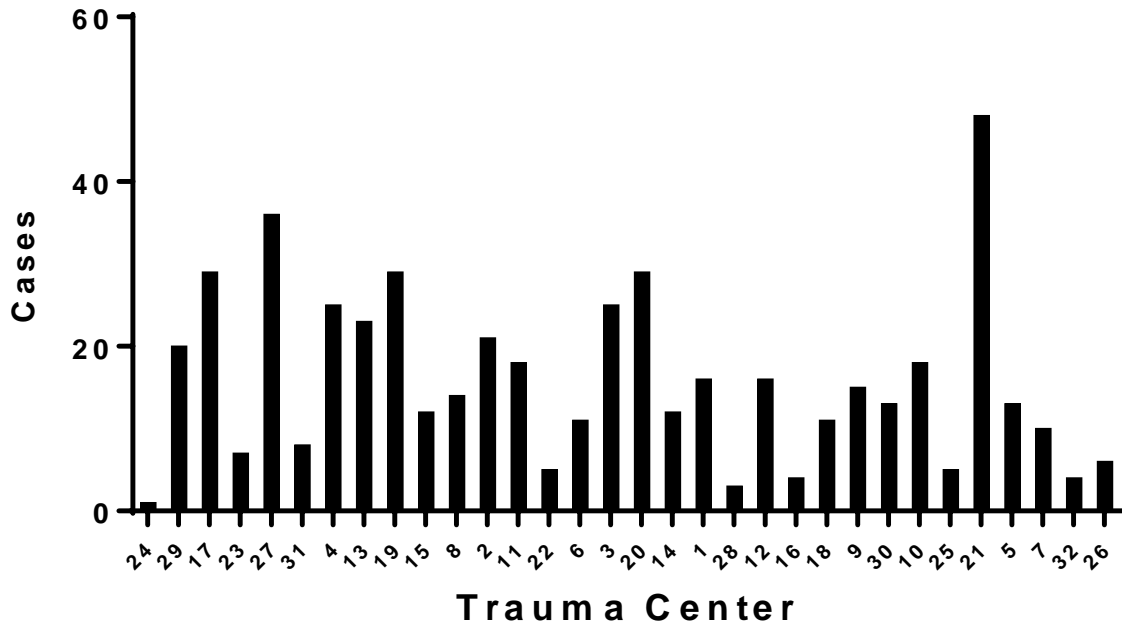
### Mortality - Age ≥ 65 years



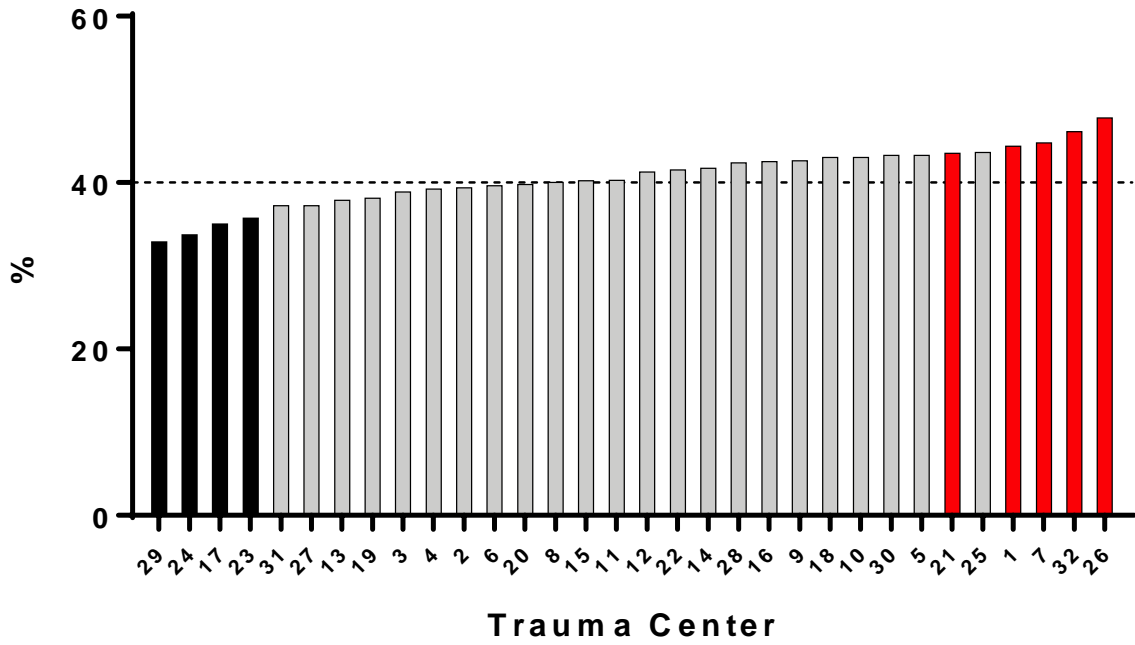
**Mortality - Cohort 1, GCS 3-8, >= 65 yo  
MTQIP All**



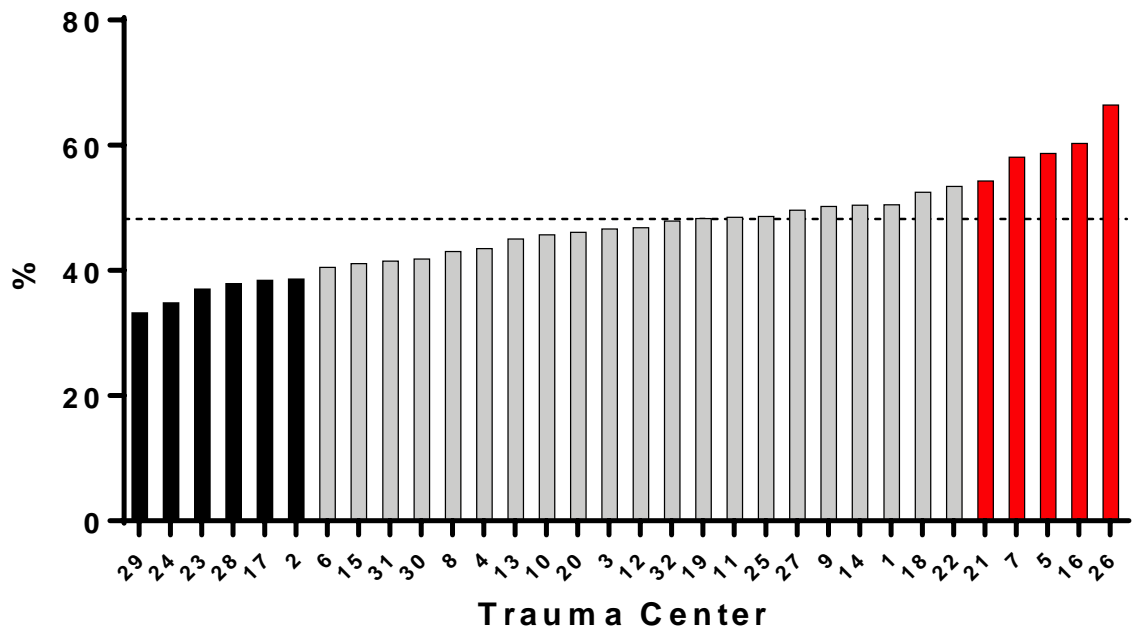
**Case Volume - Cohort 1, GCS 3-8, >= 65 yo  
MTQIP All**



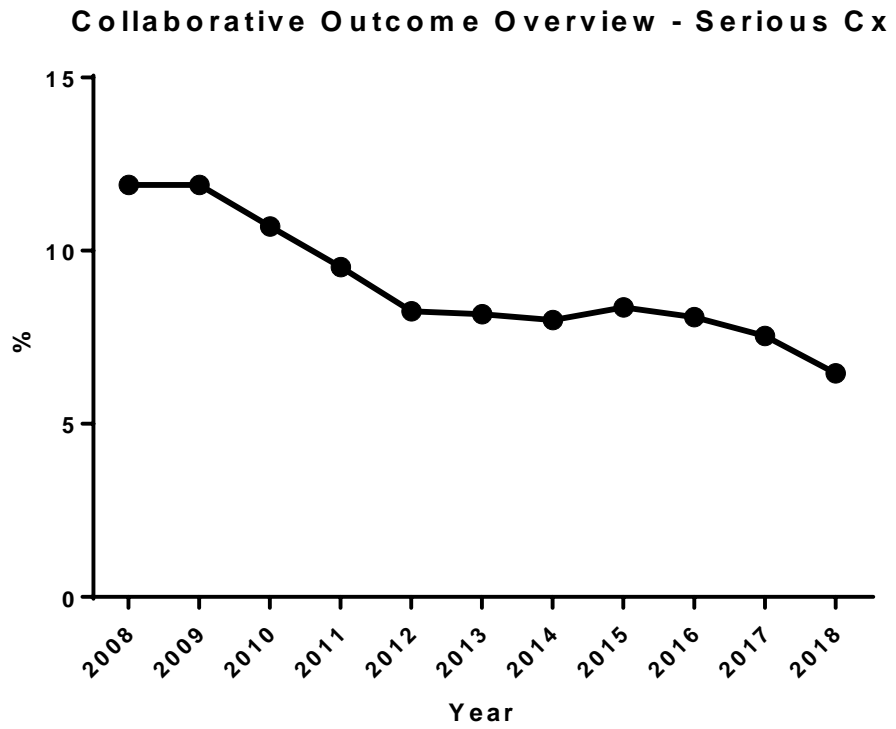
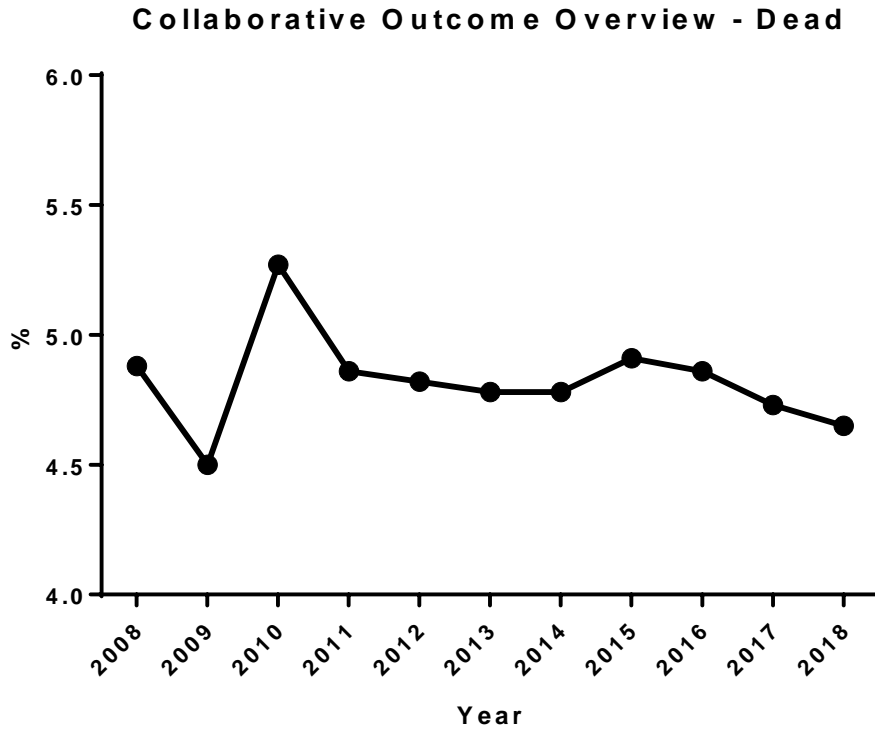
### Mortality GCS 3-8



### Adjusted TBI Mortality

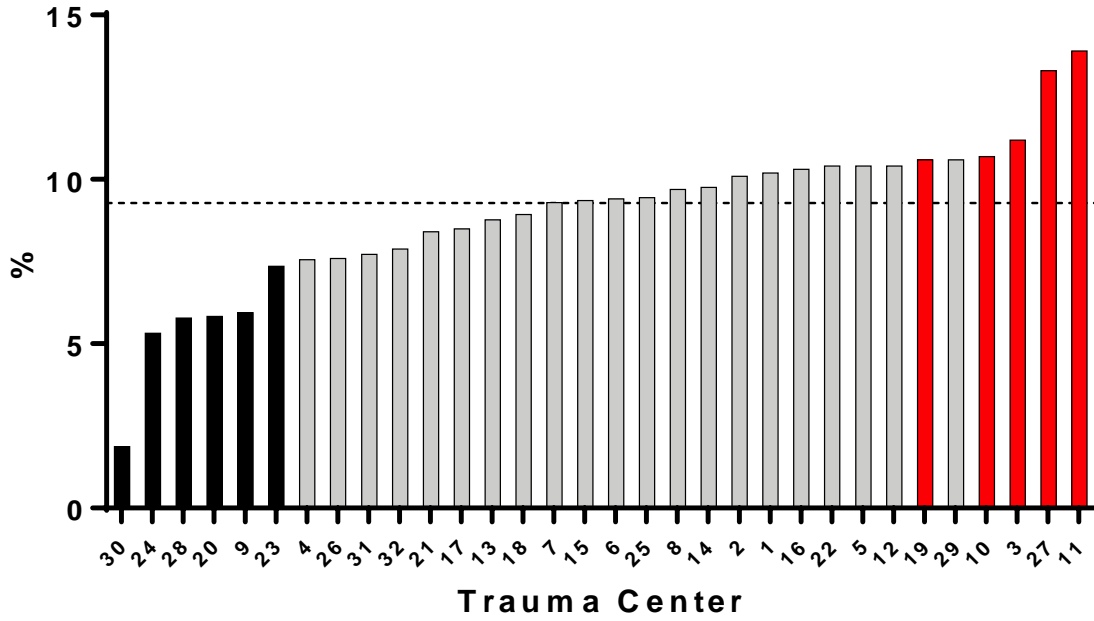


Trends

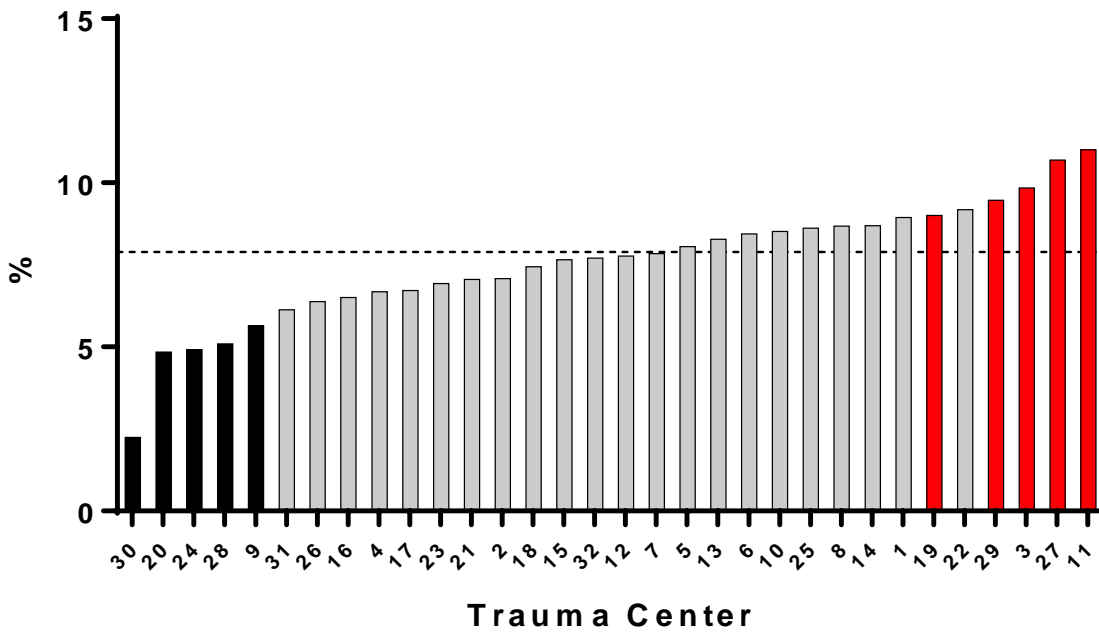


Outcomes

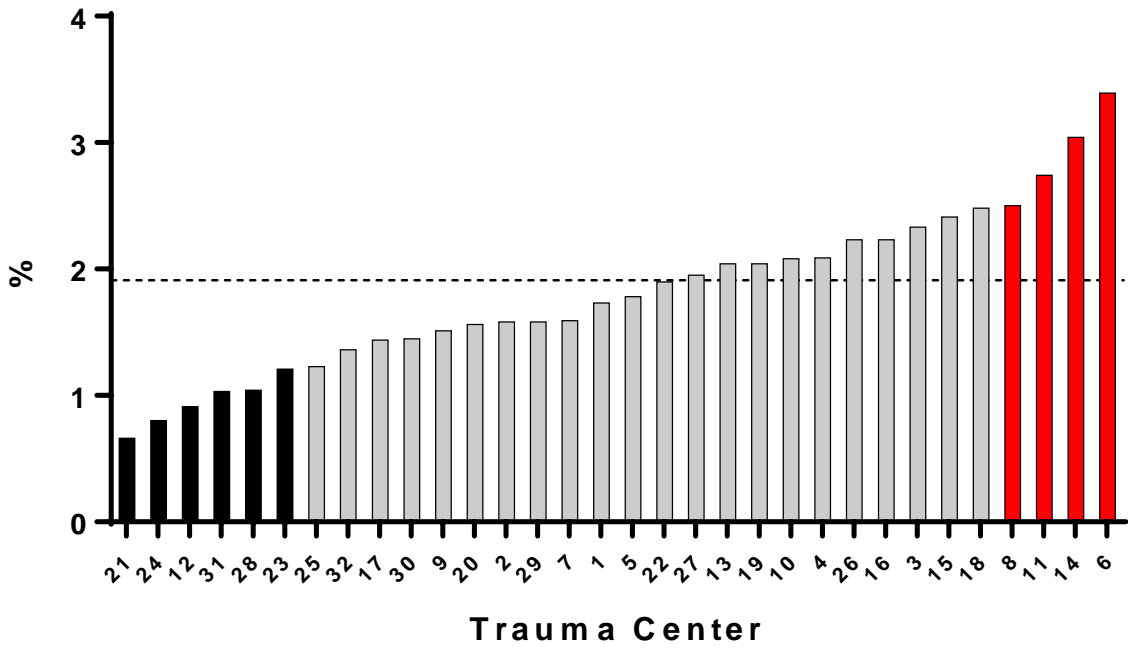
Complications - Any



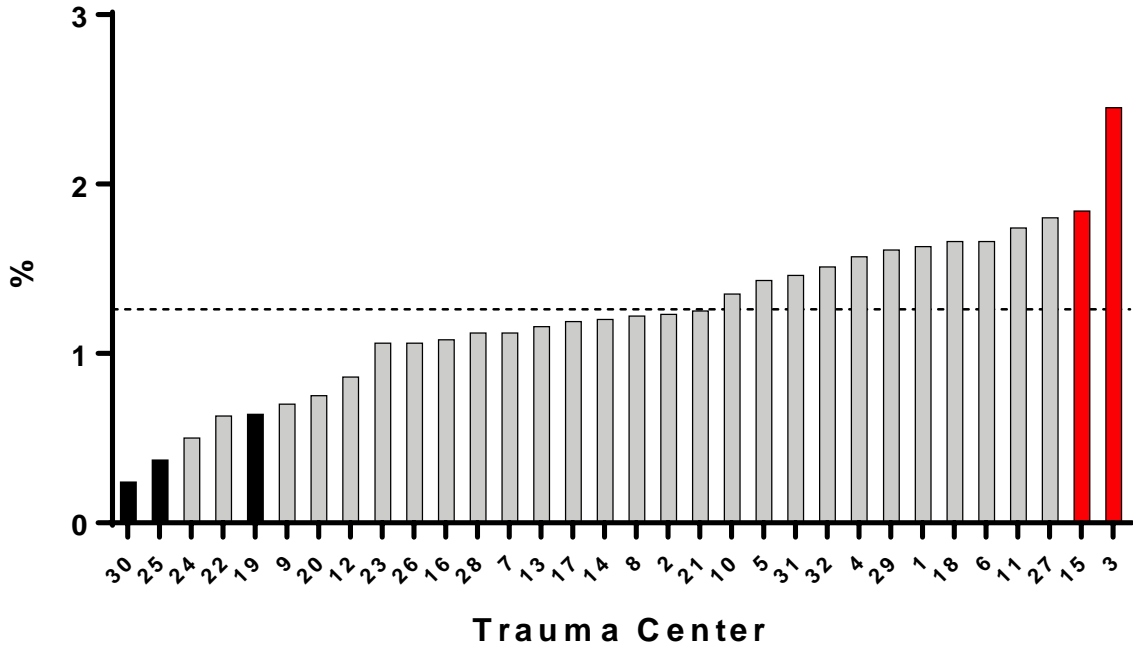
Complications - Serious



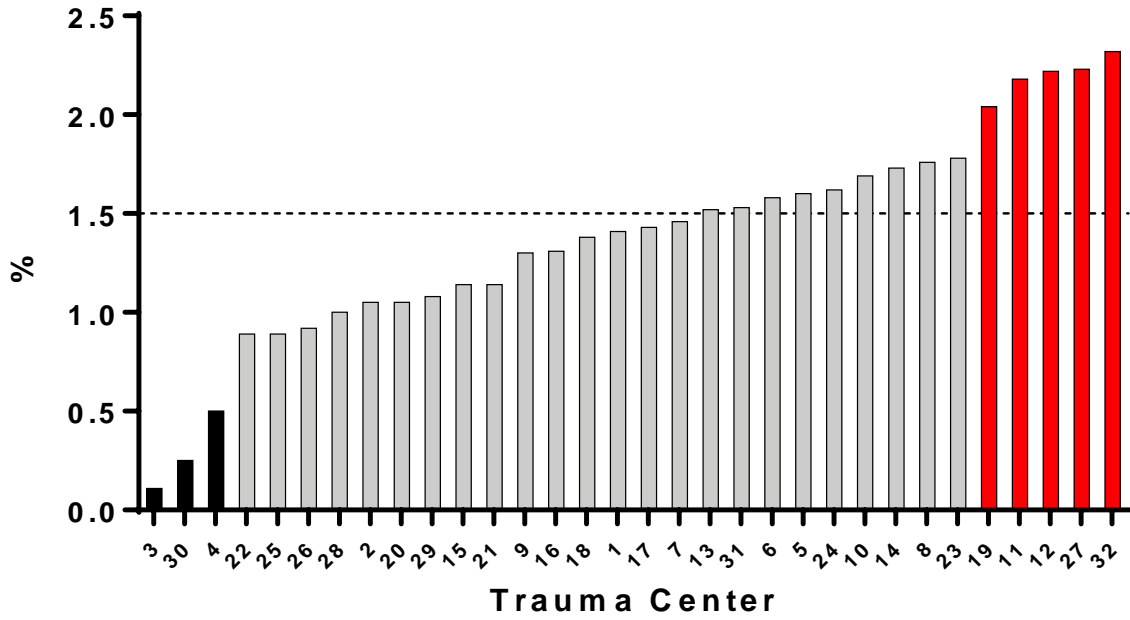
### Cardiac/Stroke



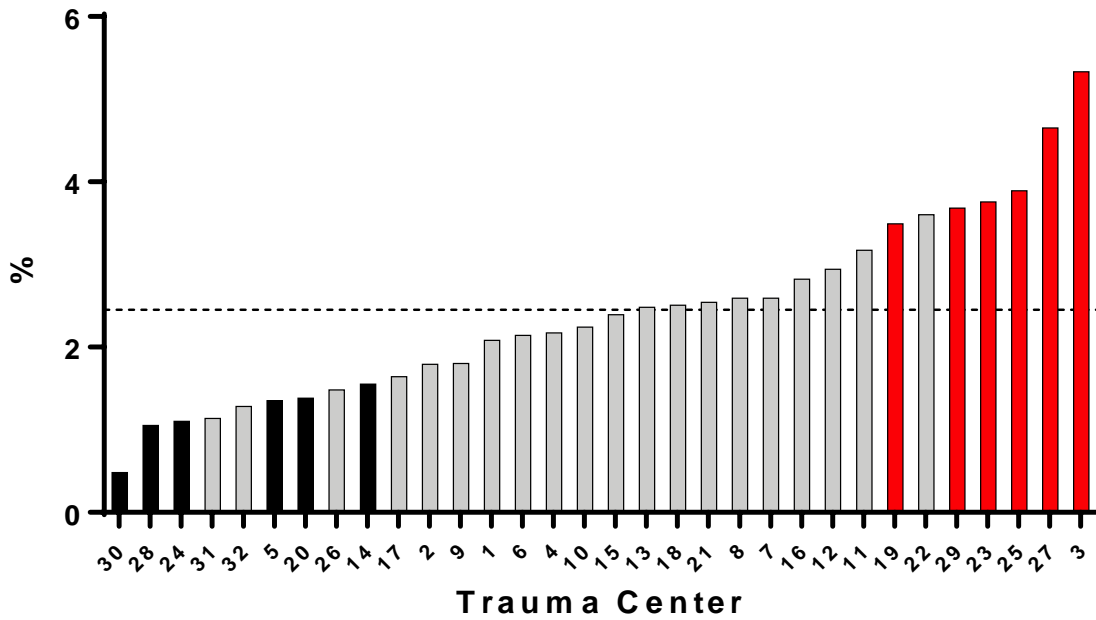
### DVT/Pulmonary Embolus



### Unplanned Intubation

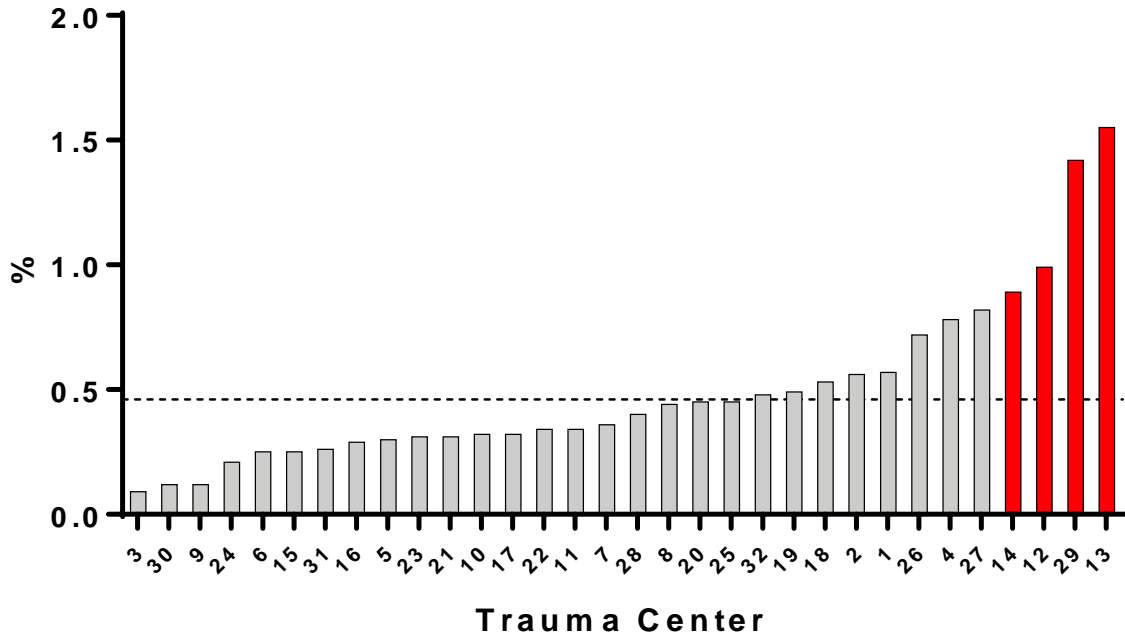


### Pneumonia

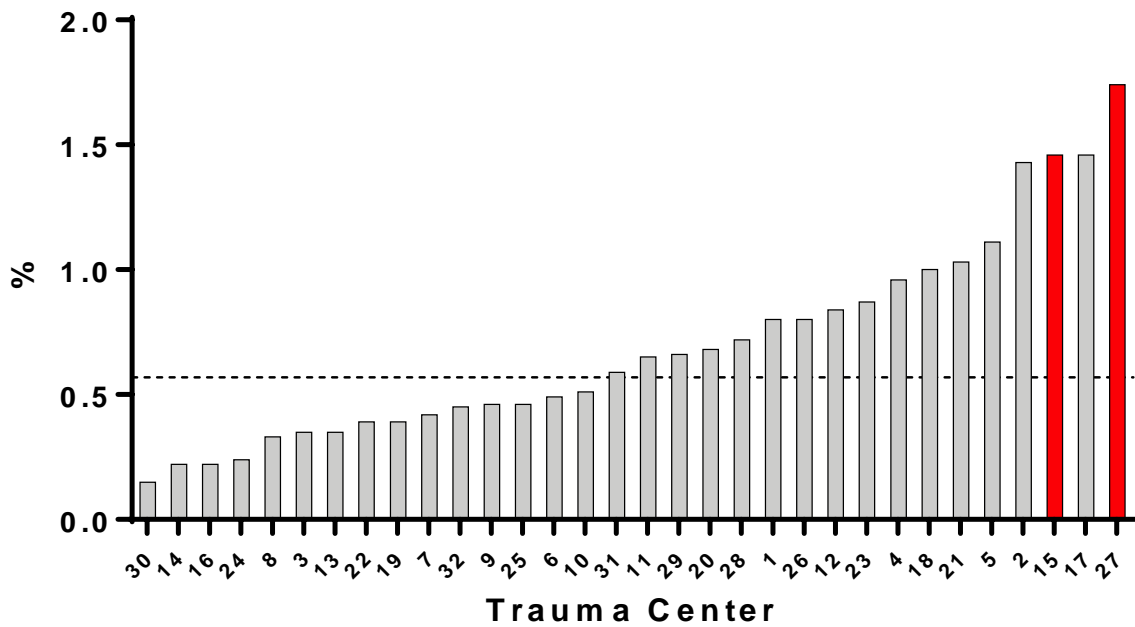




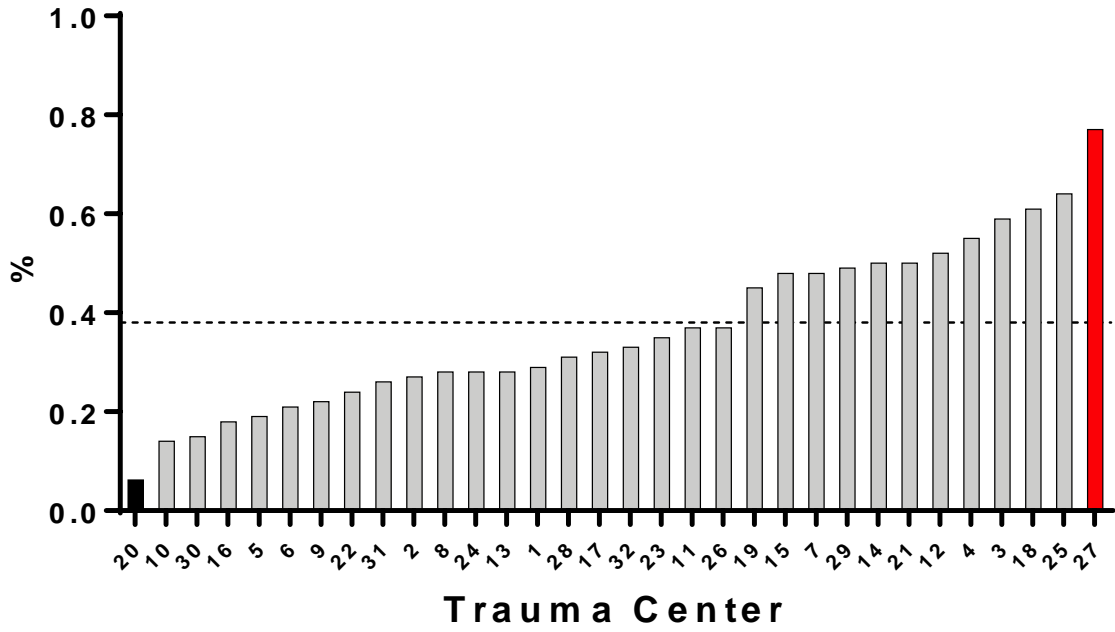
### Renal Failure



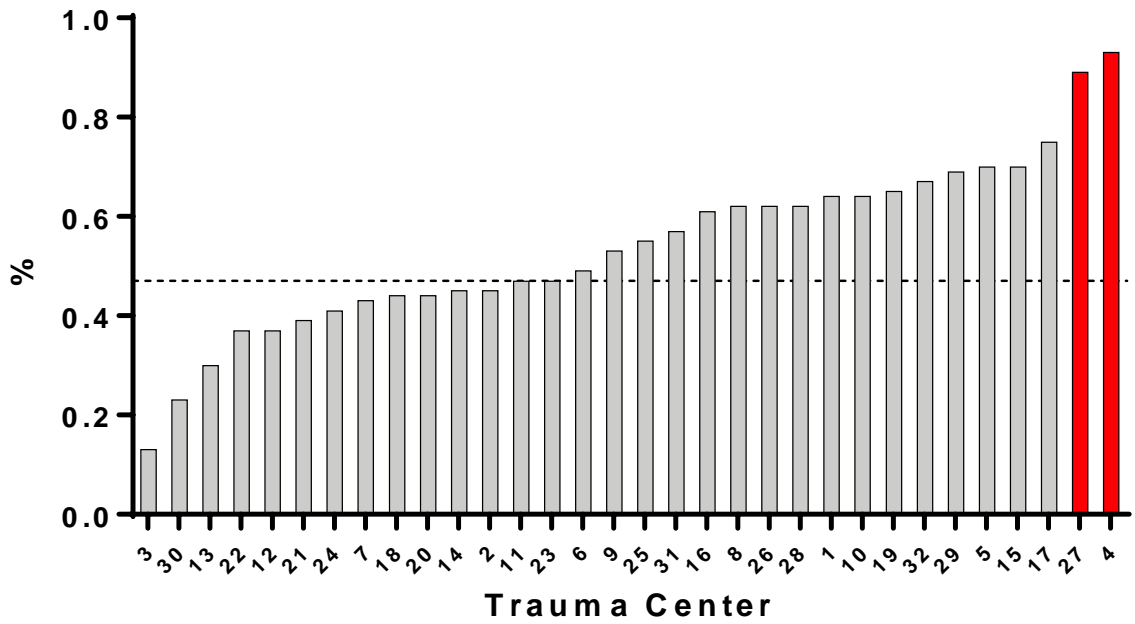
### CAUTI



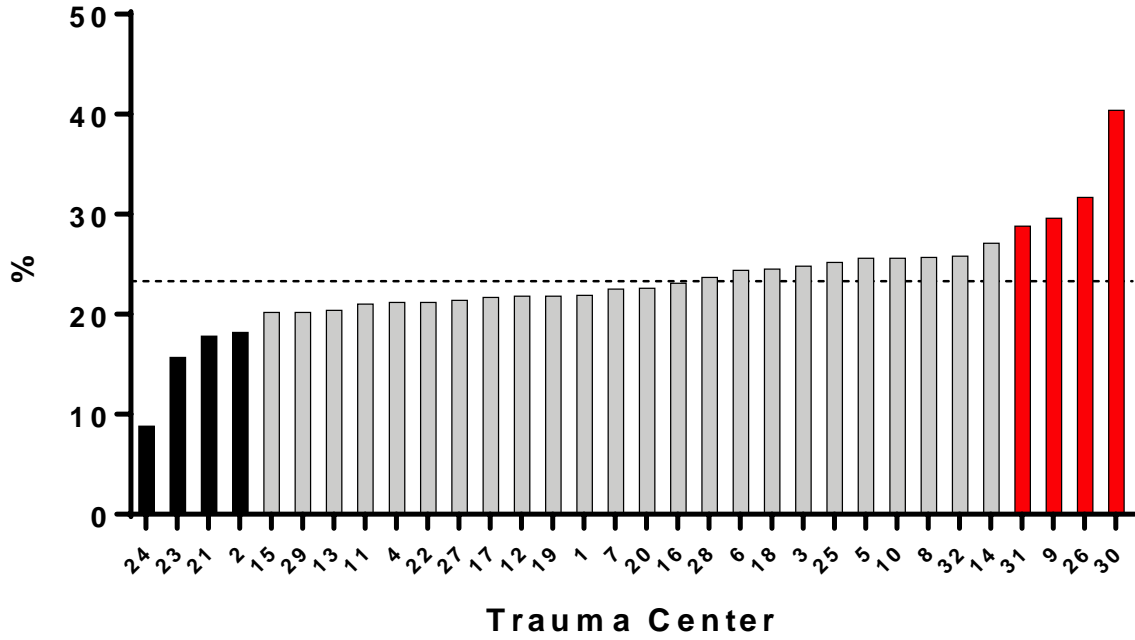
### C. Difficile Colitis



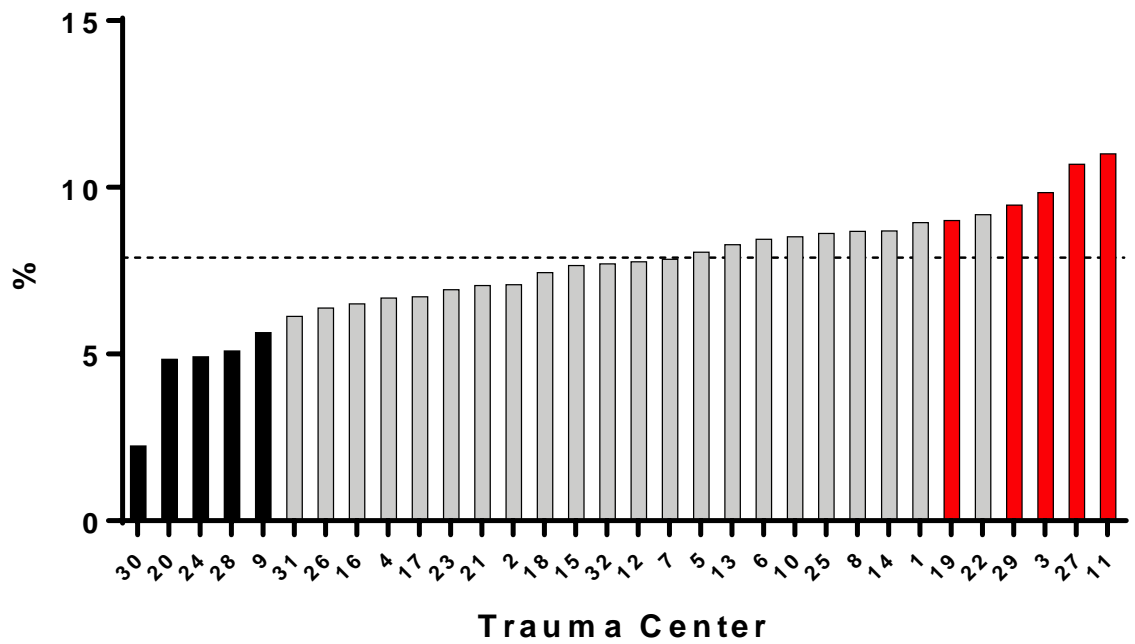
### Sepsis



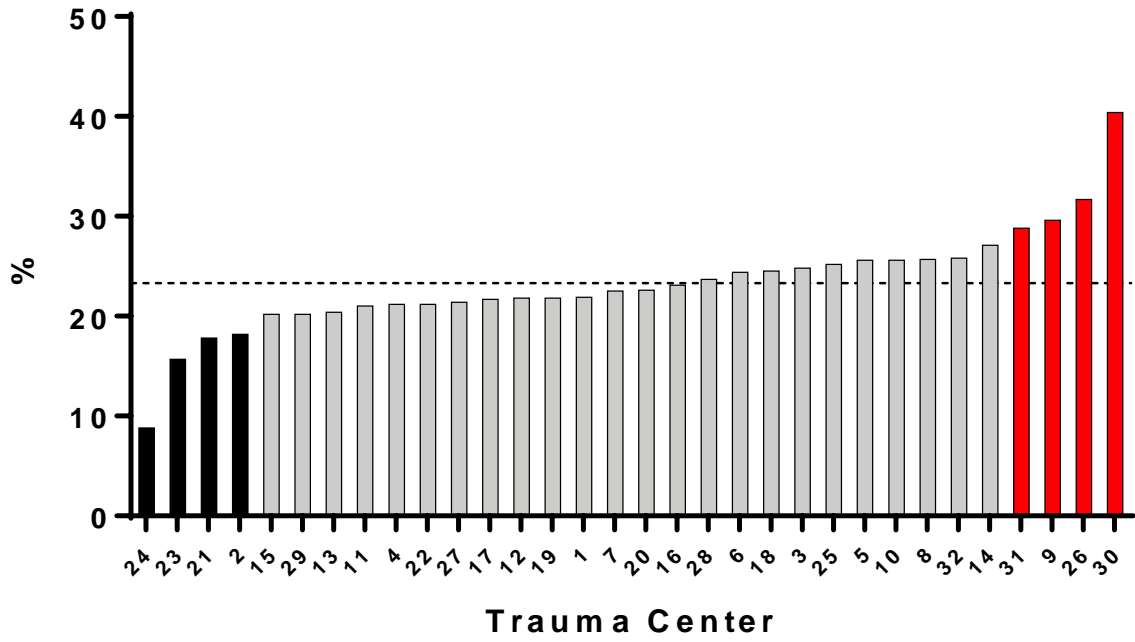
### Failure to Rescue



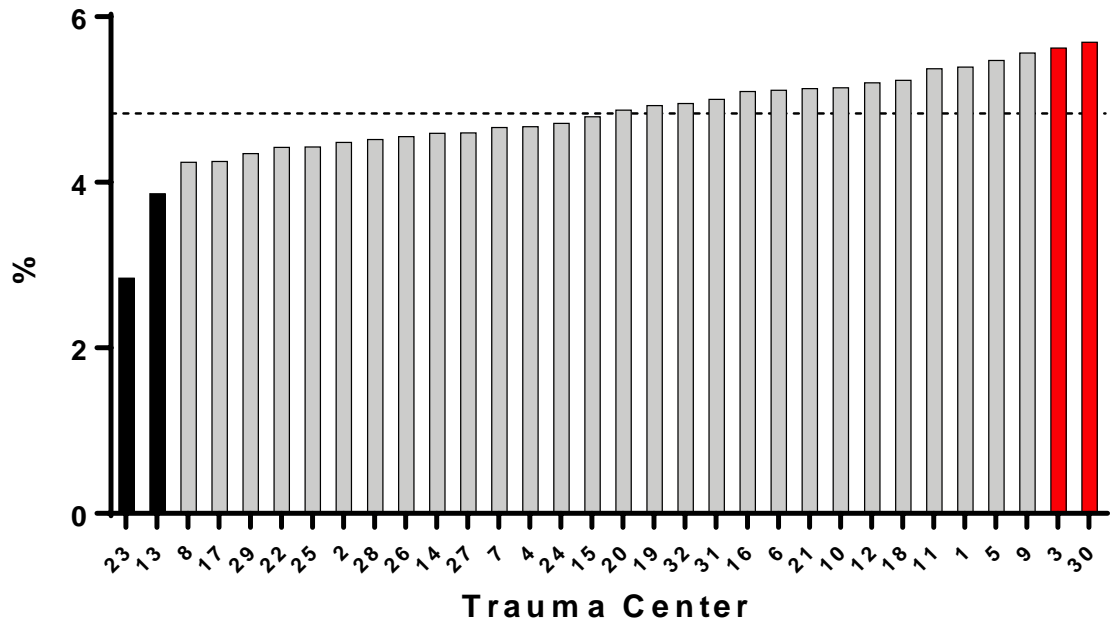
### Complications - Serious



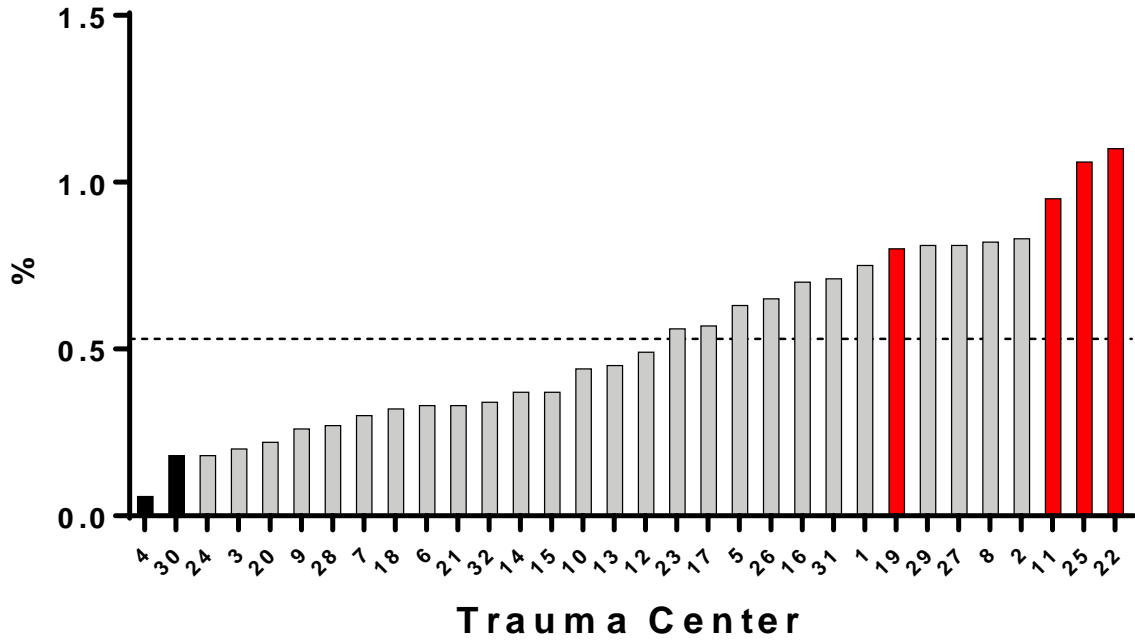
### Failure to Rescue



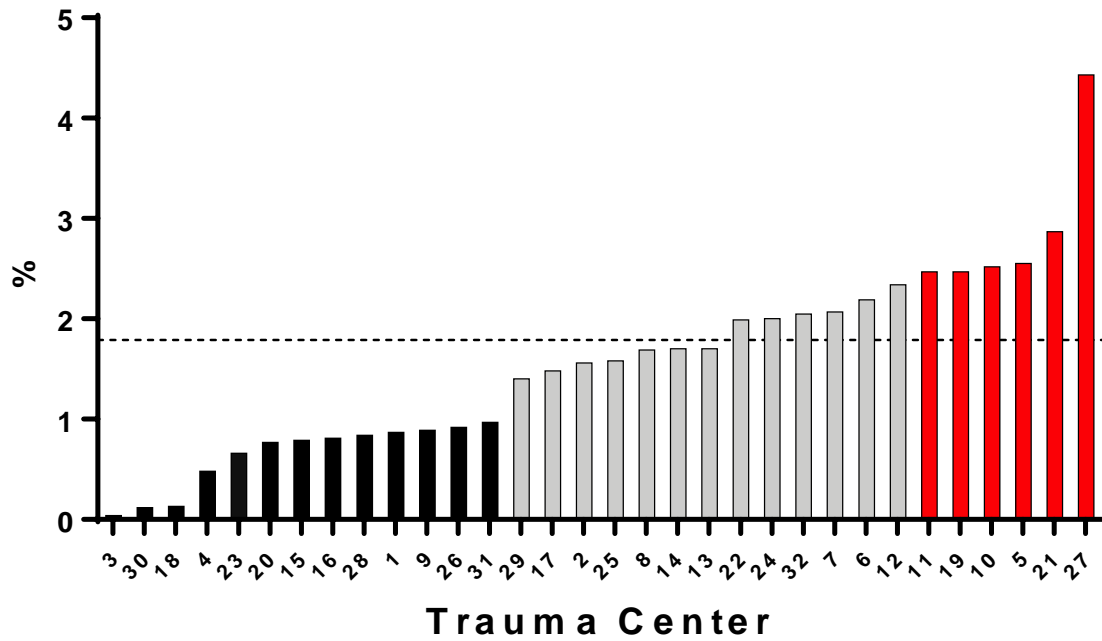
### Mortality - Cohort 2 w/o DOA Admit to Trauma



### Unplanned Return to OR

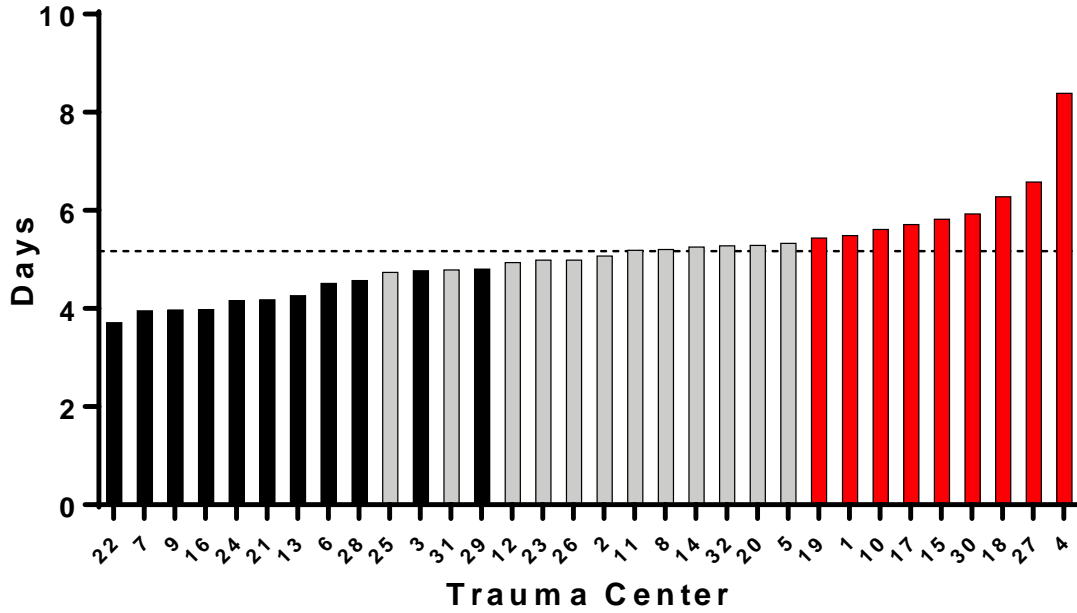


### Unplanned Admit to ICU

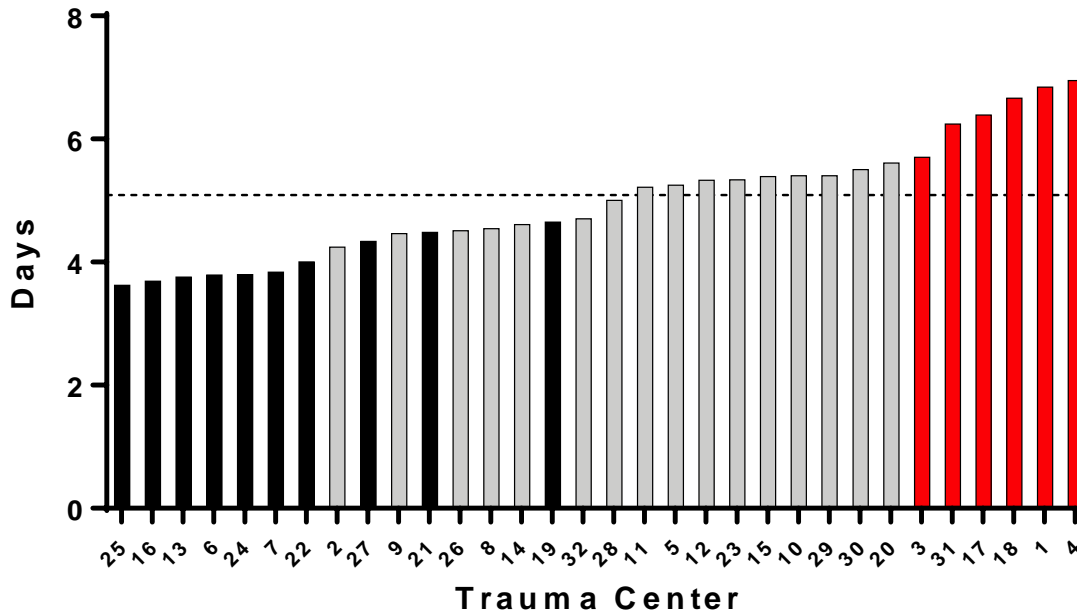


Resource Utilization

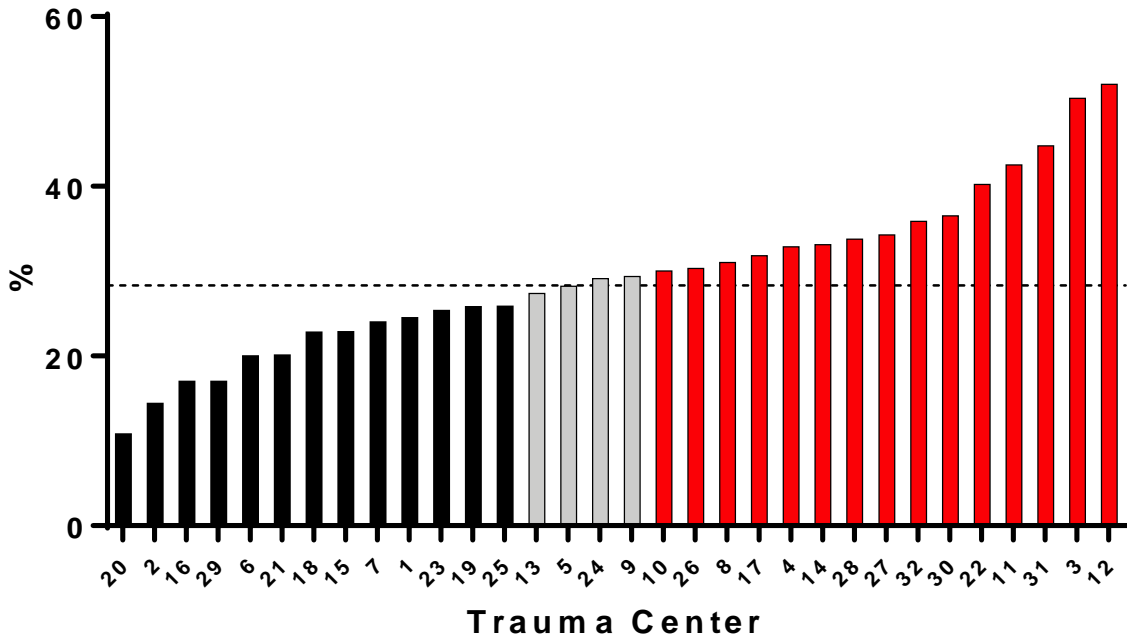
Adjusted Hospital LOS



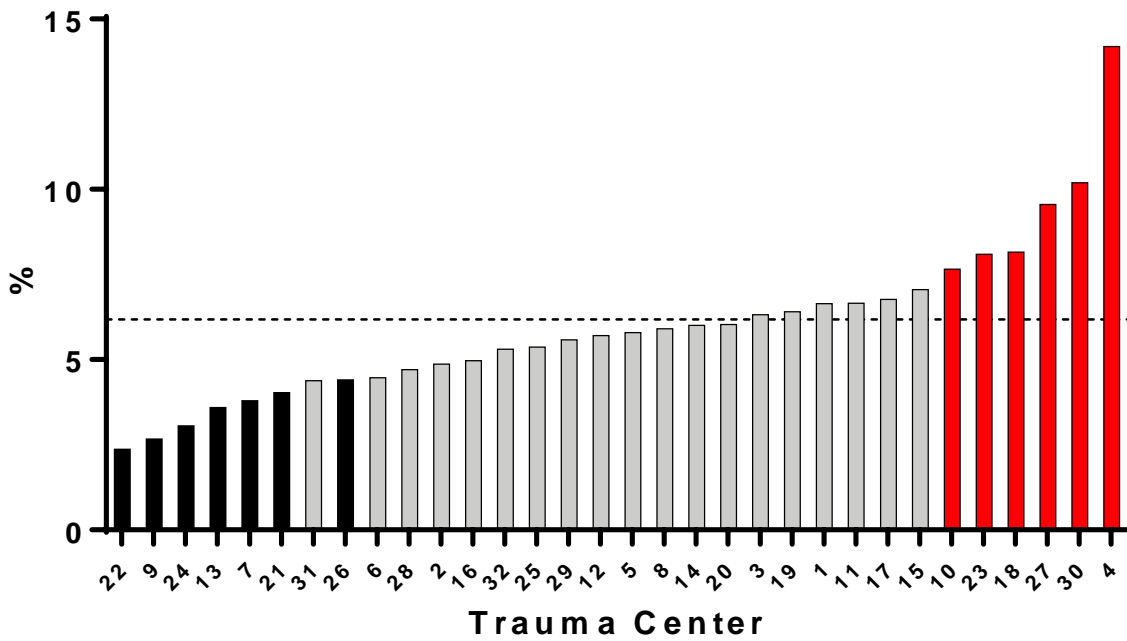
Adjusted ICU LOS



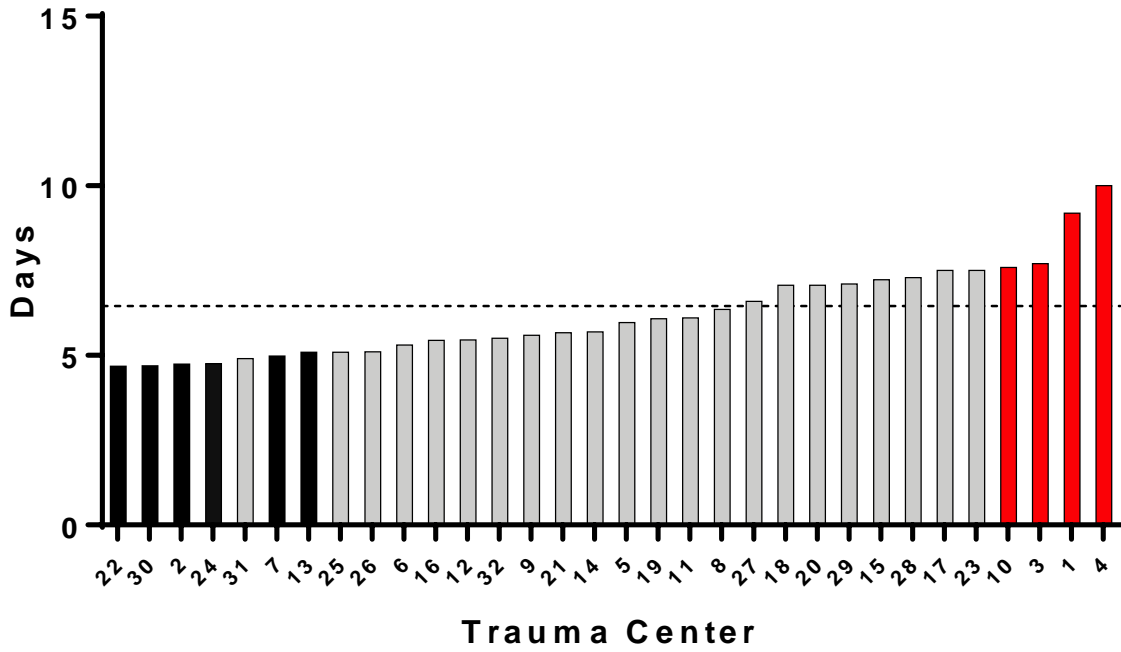
### Patients Admitted to ICU



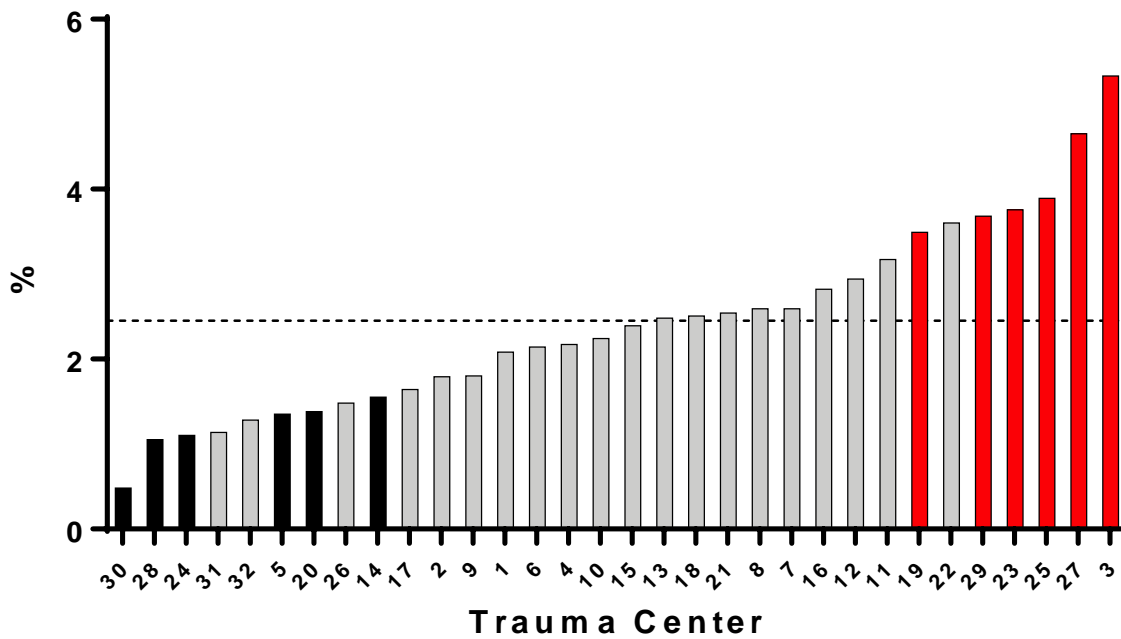
### Extended LOS



### Adjusted Ventilator Days



### Pneumonia





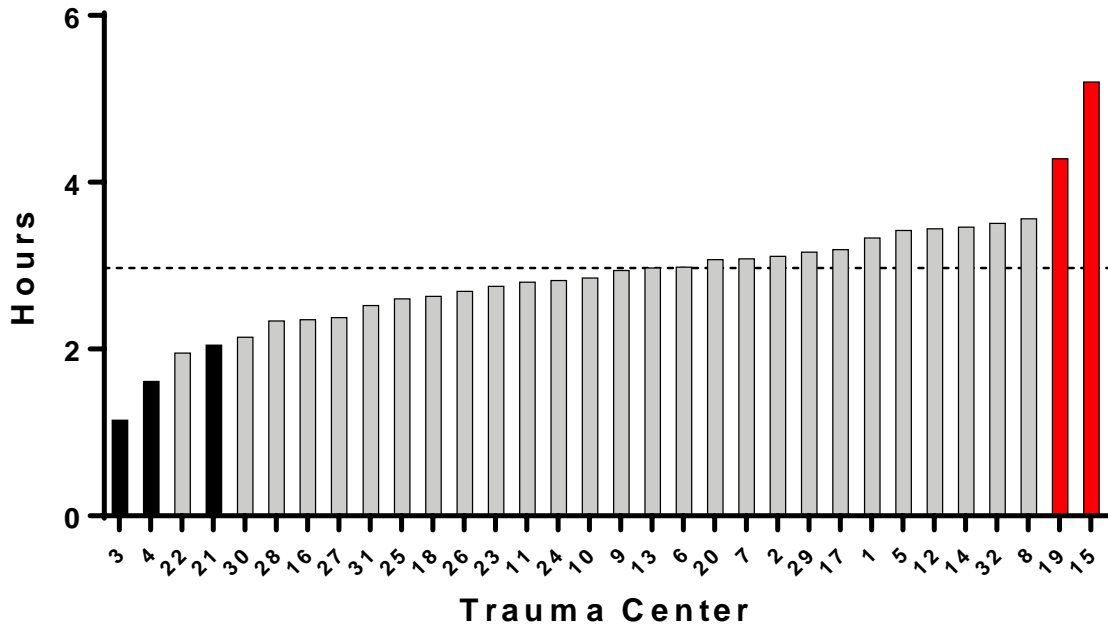




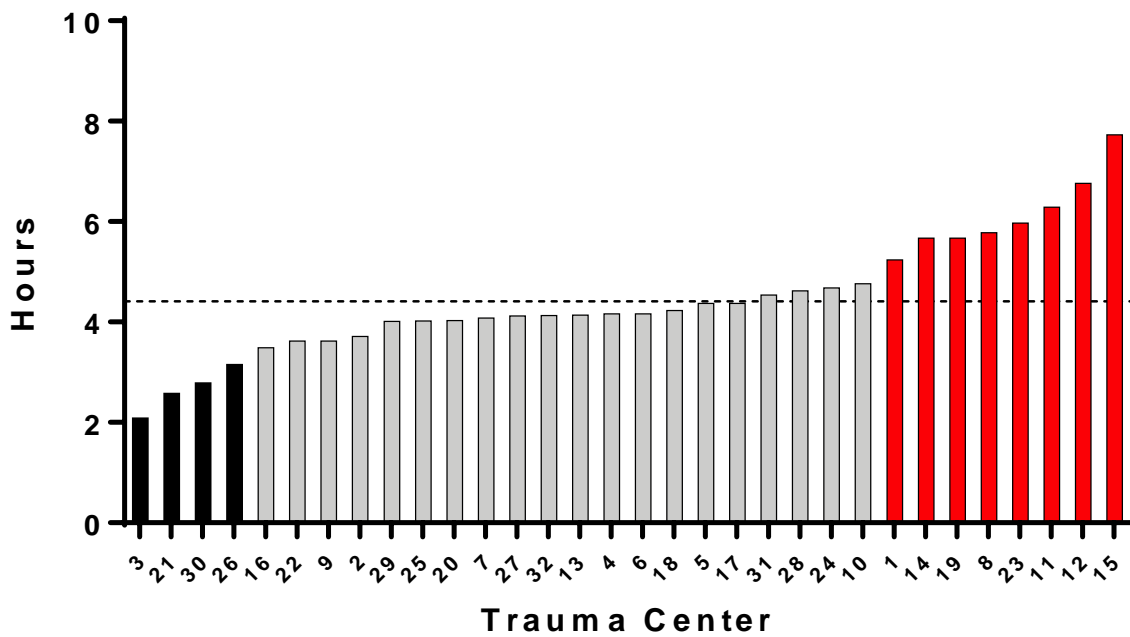




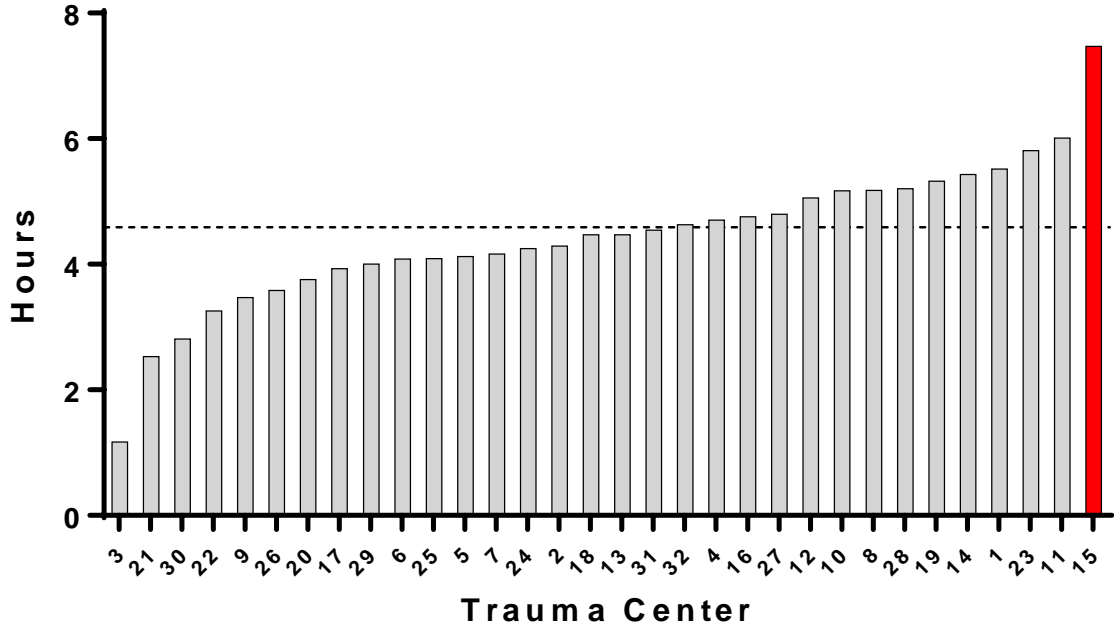
### Mean ED LOS - Full Activations



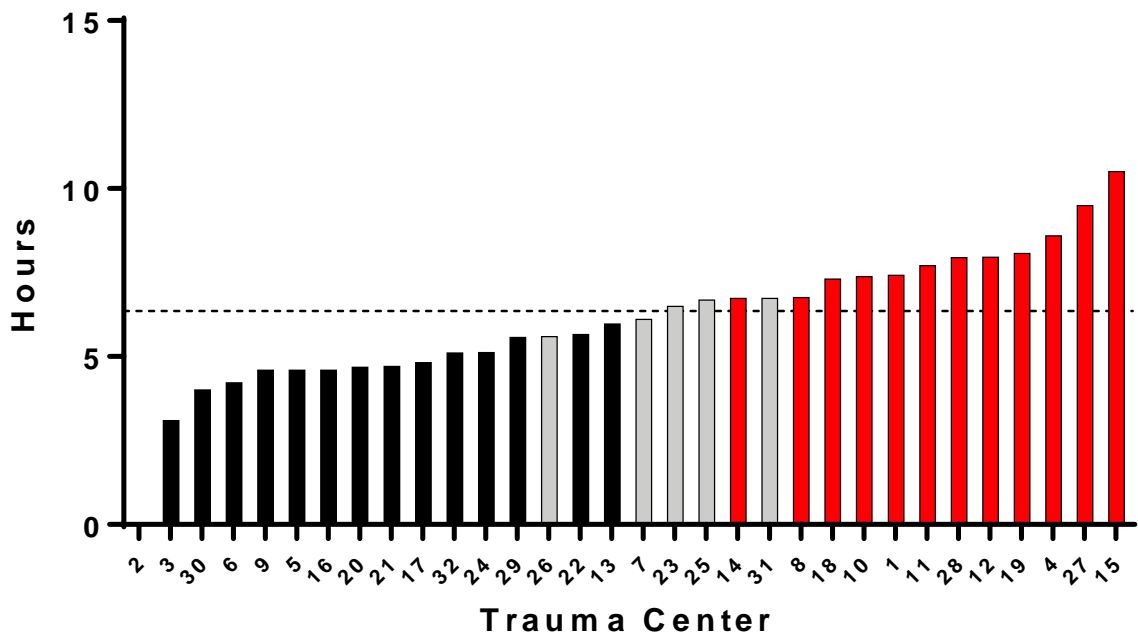
### Mean ED LOS - Disposition to ICU



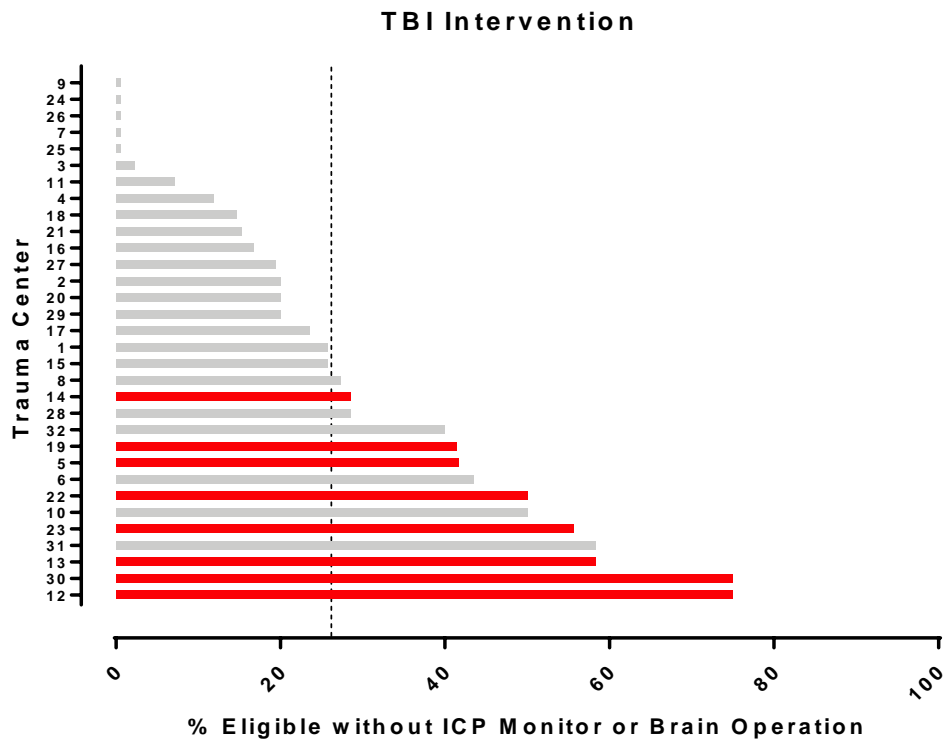
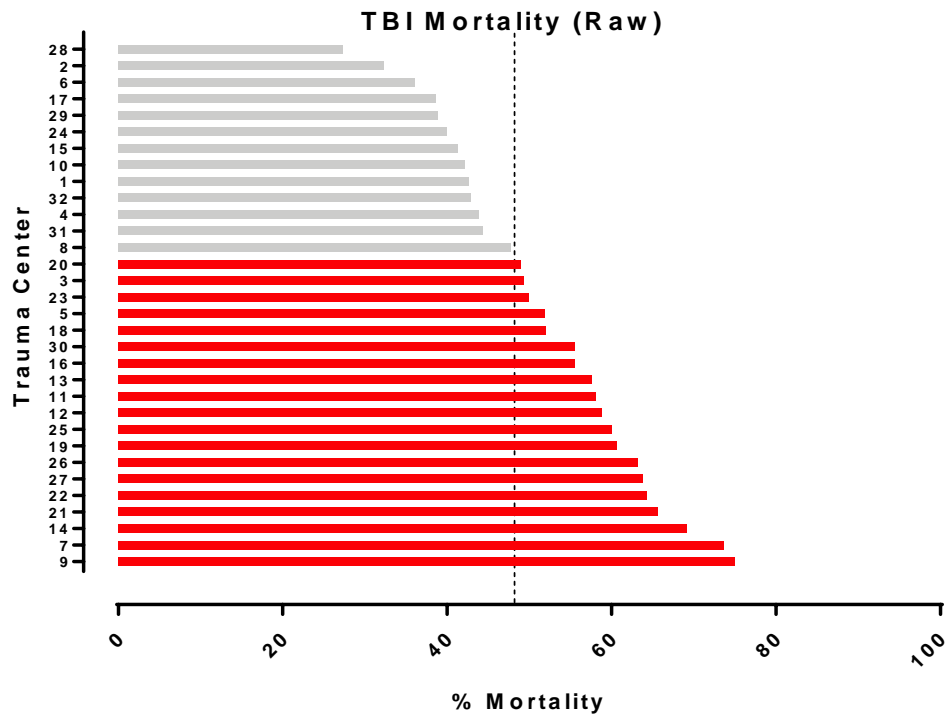
### Mean ED LOS - Partial Activations



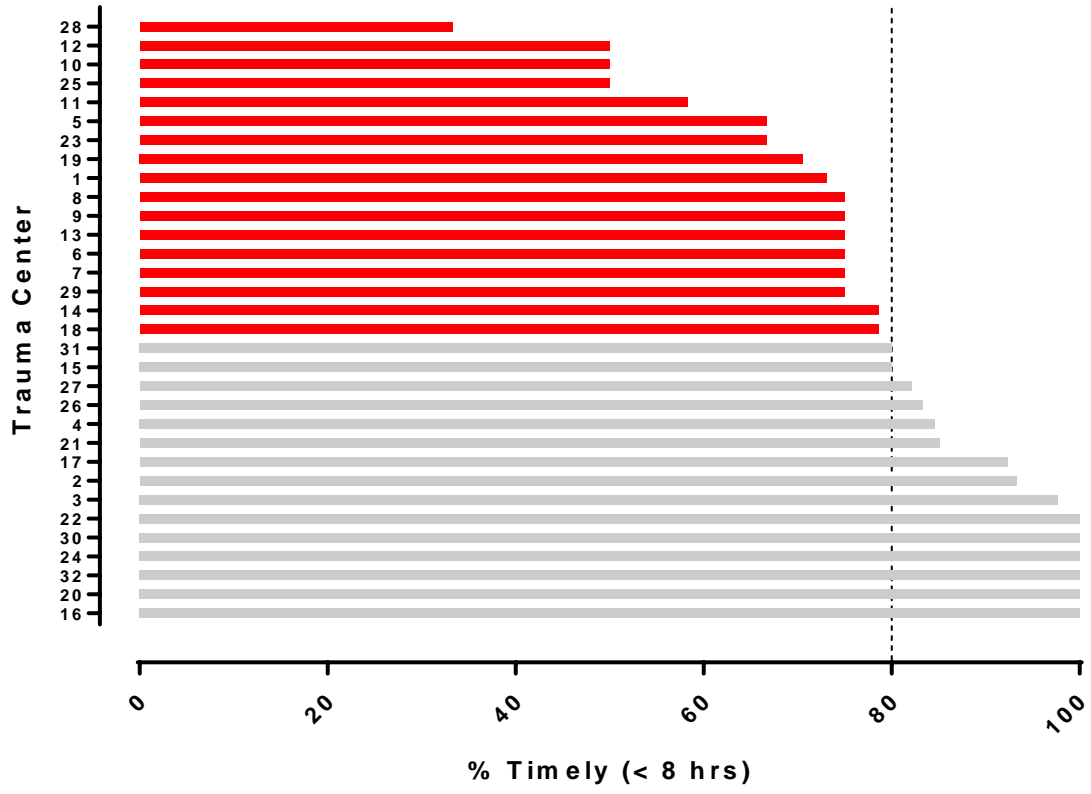
### Mean ED LOS - Consult



Process Measures

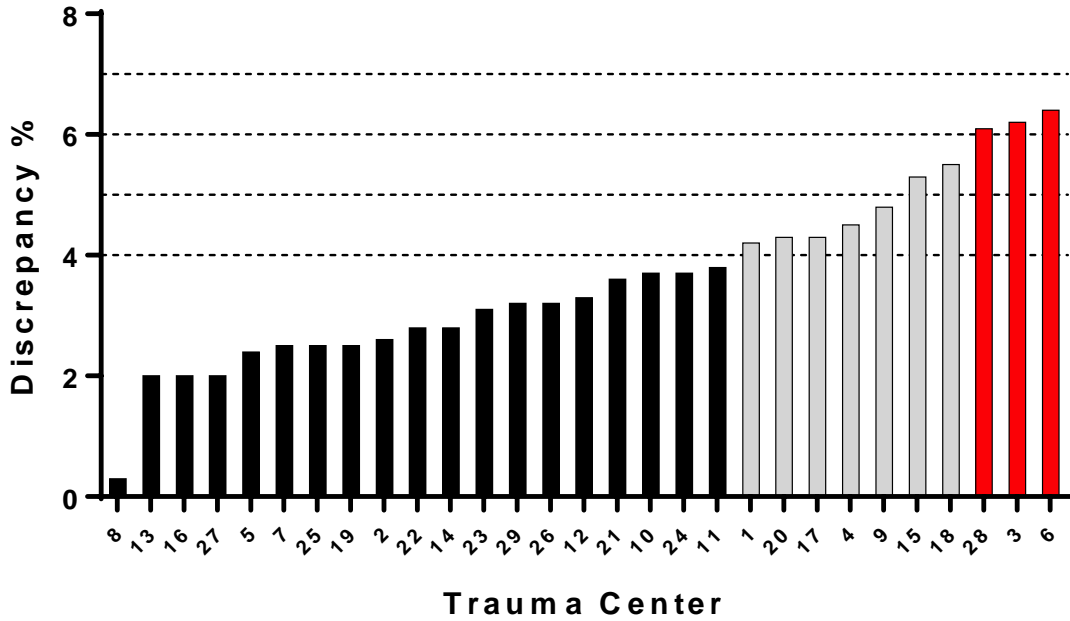


### TBI Intervention Timing

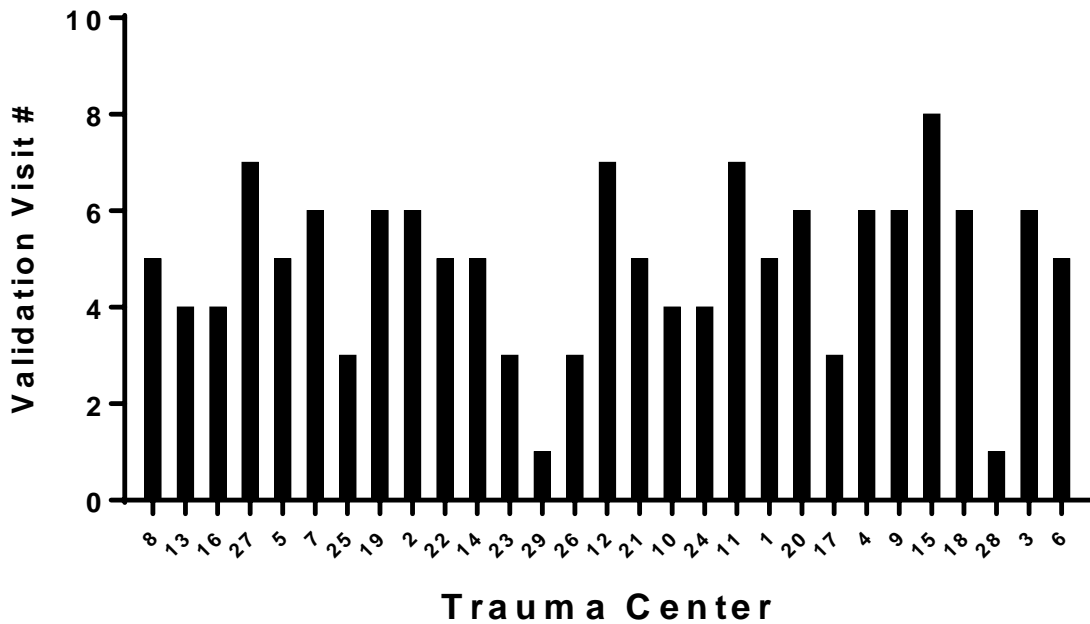




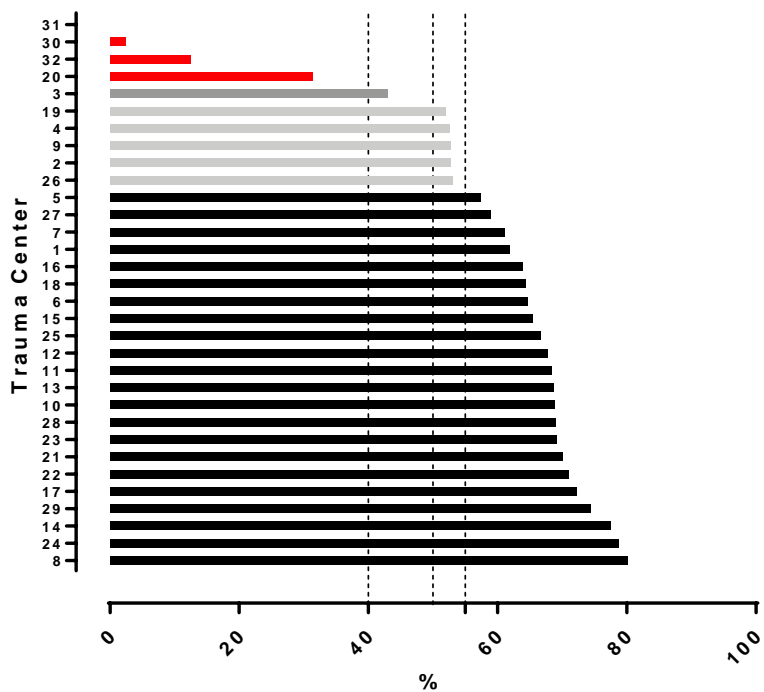
### Data Validation Last Processed Report



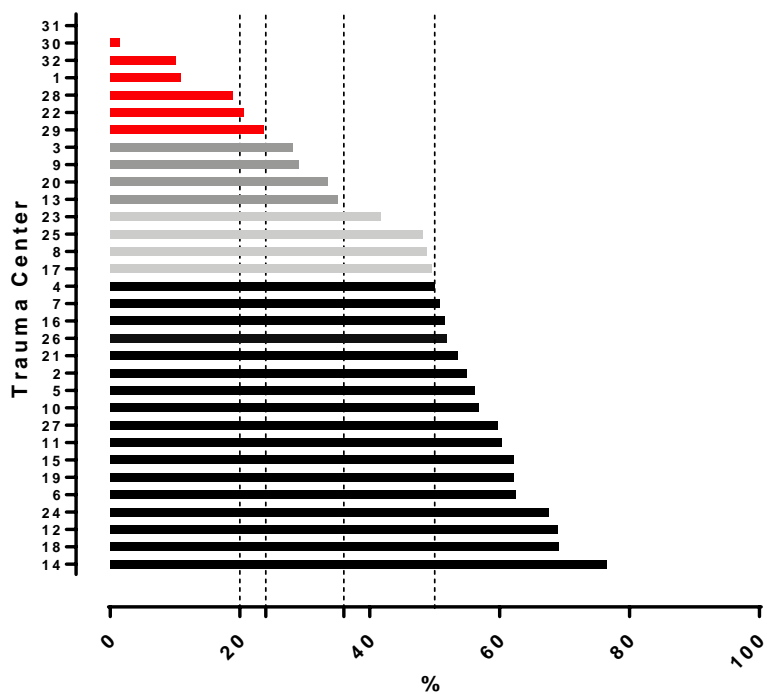
### Total Data Validation Visits



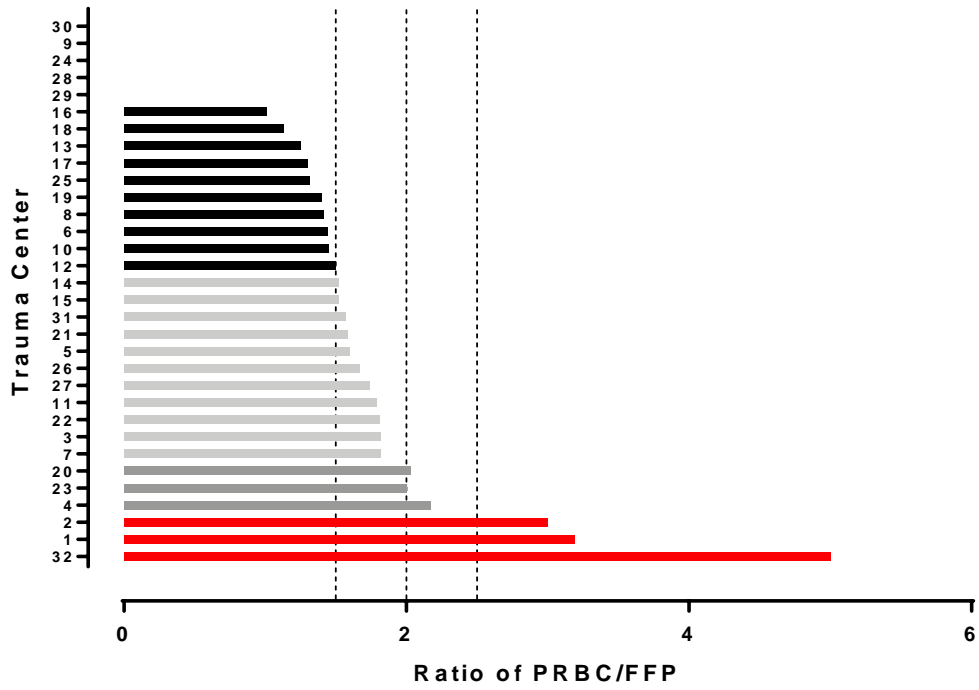
VTE Prophylaxis Timing <= 48 hrs  
1/1/17 - 1/31/18



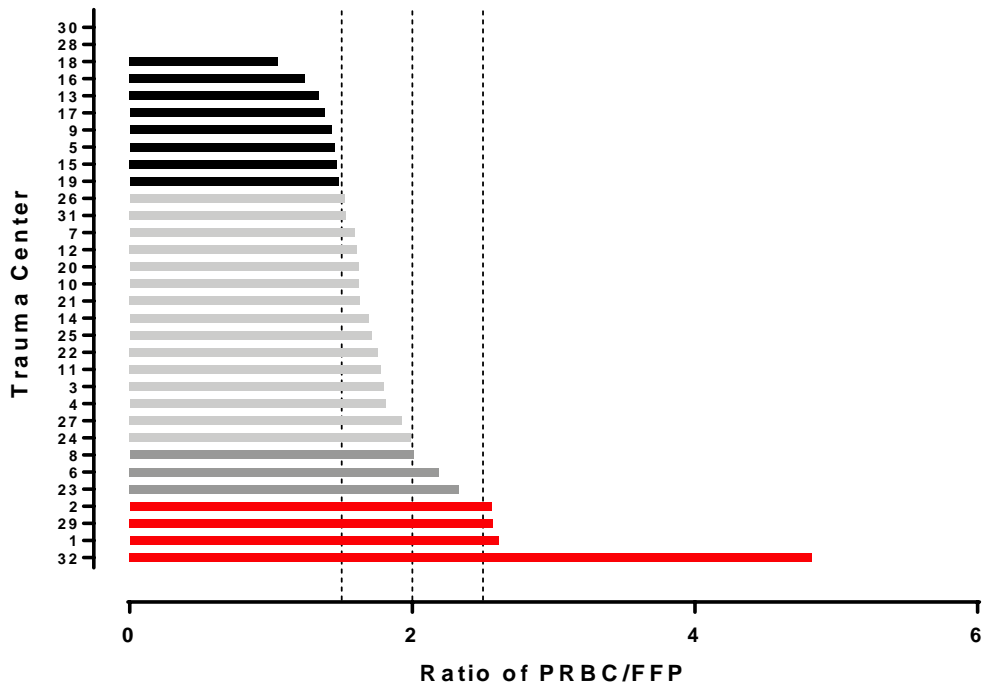
VTE Prophylaxis Type - LMWH  
1/1/17 - 1/31/18



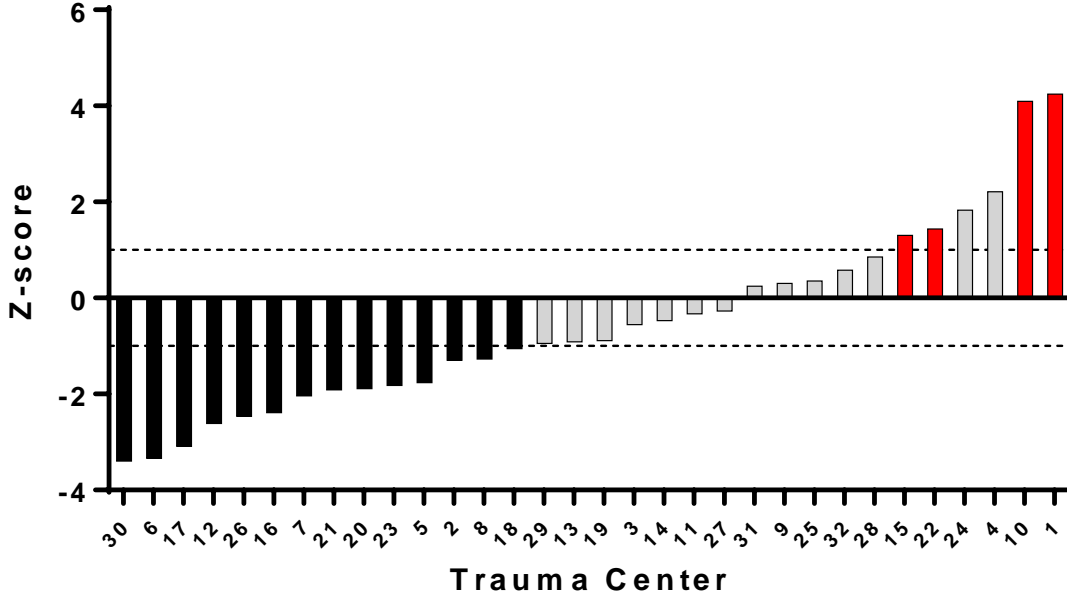
**Blood Product Ratio in first 4 hrs if  $\geq 5$  uPRBCs**  
**1/1/17 - 1/31/18**



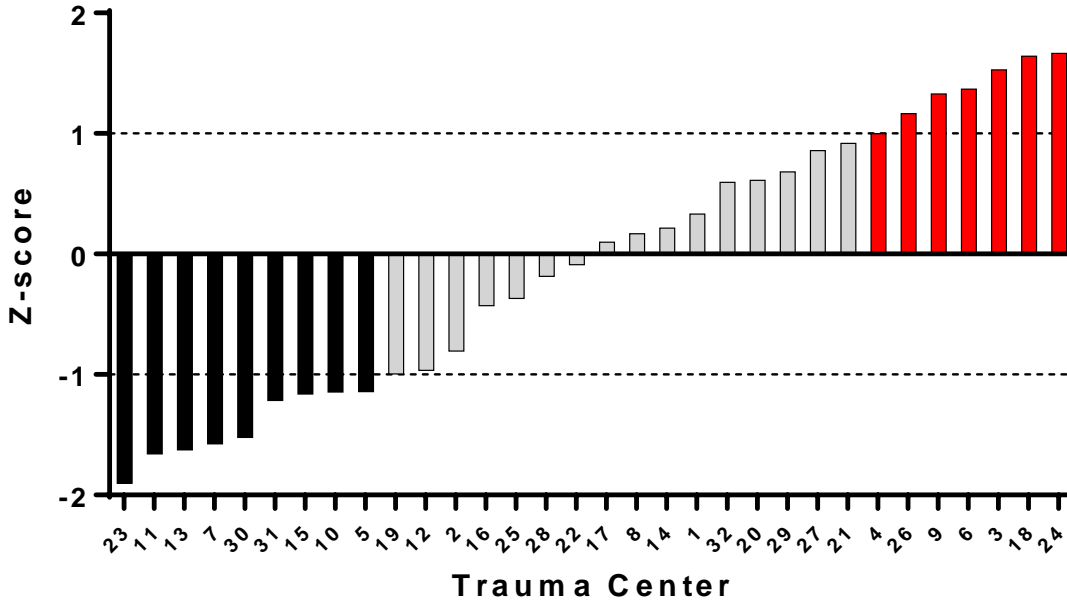
**Blood Product Ratio in first 4 hrs if  $\geq 5$  uPRBCs**



**Z-score - Serious Complication Rate  
7/1/15 - 1/31/18**

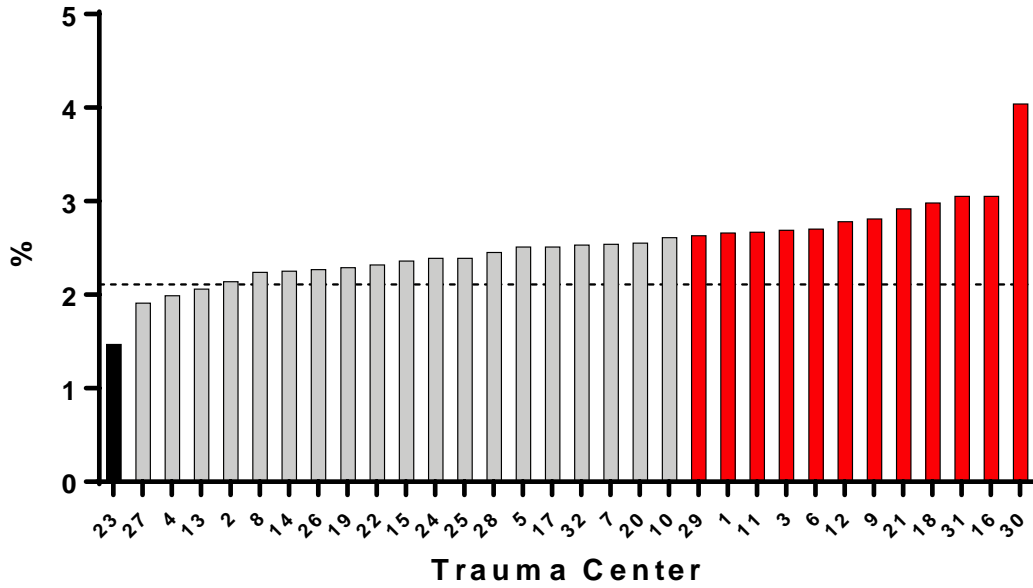


**Z-score - Mortality Rate  
7/1/15 - 1/31/18**

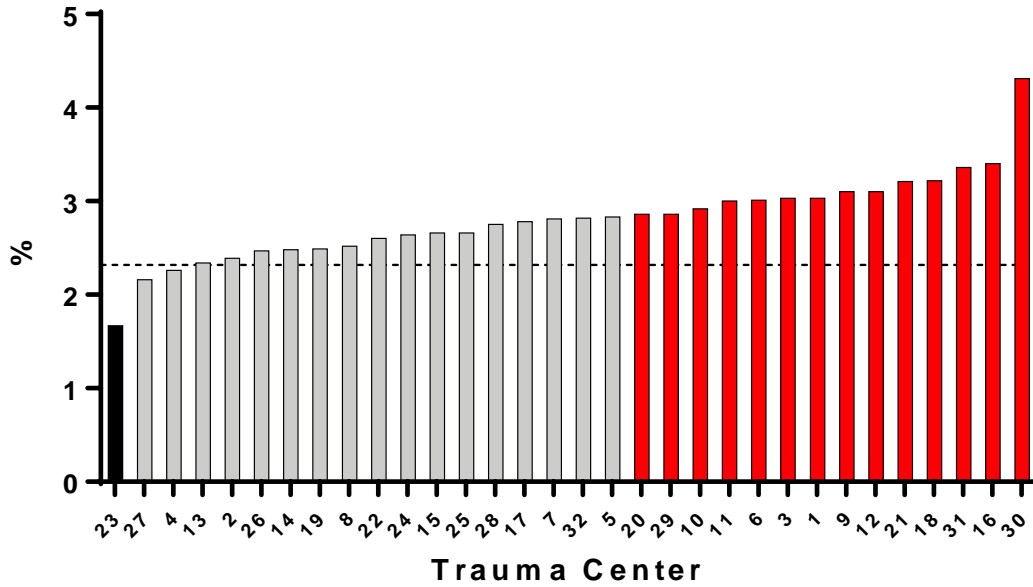


Isolated Hip Fracture – NEW

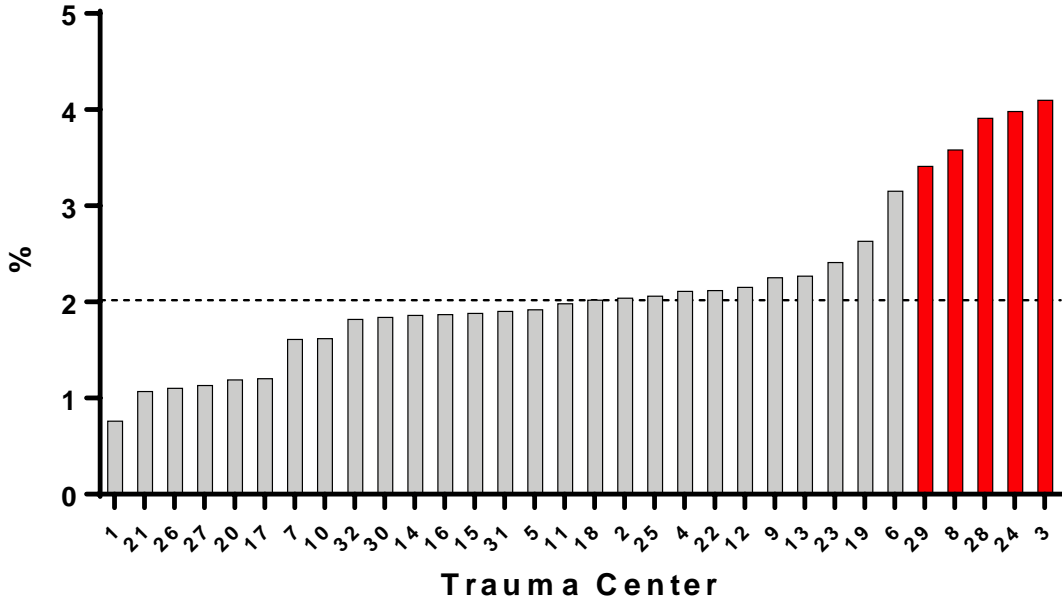
**Mortality - Cohort 8 w/o DOA  
Isolated Hip Fracture**



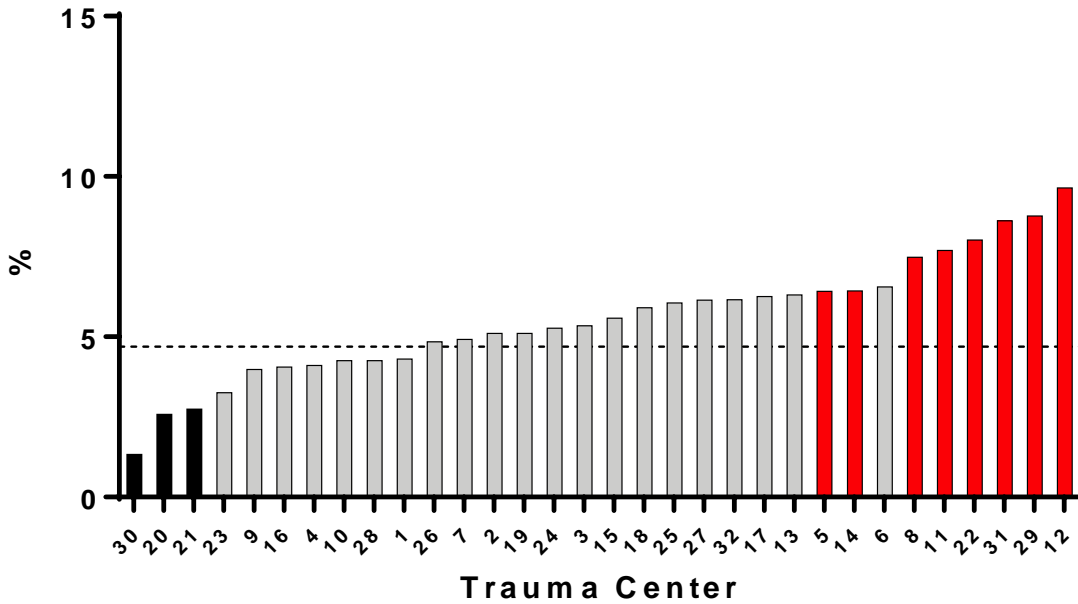
**Mortality - Cohort 8 w/o DOA, Age ≥ 65  
Isolated Hip Fracture**



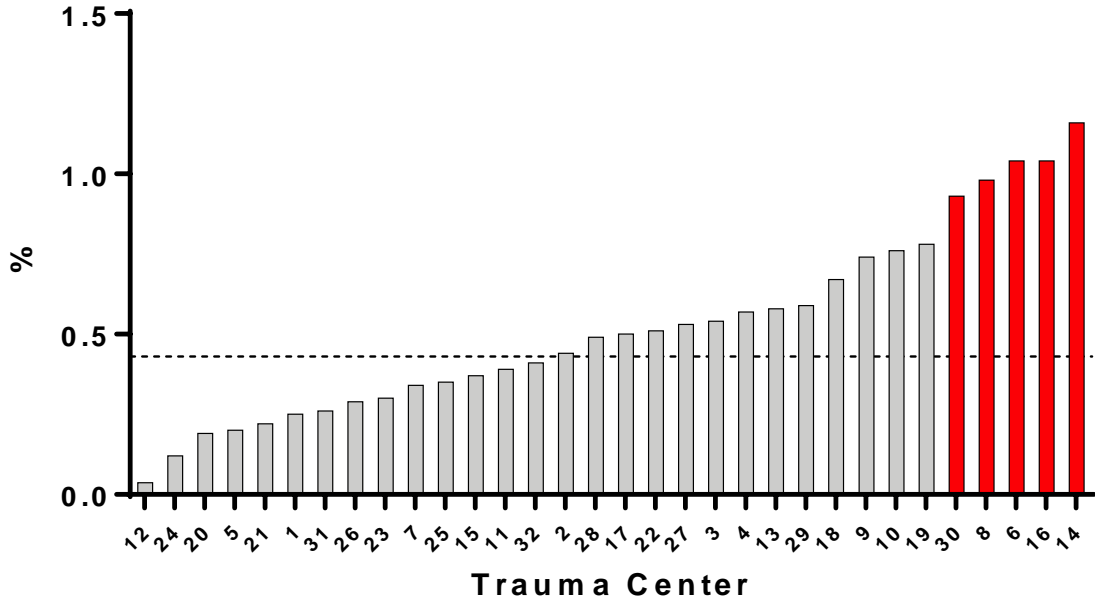
**Mortality or Hospice - Cohort 8 w/o DOA  
Isolated Hip Fracture**



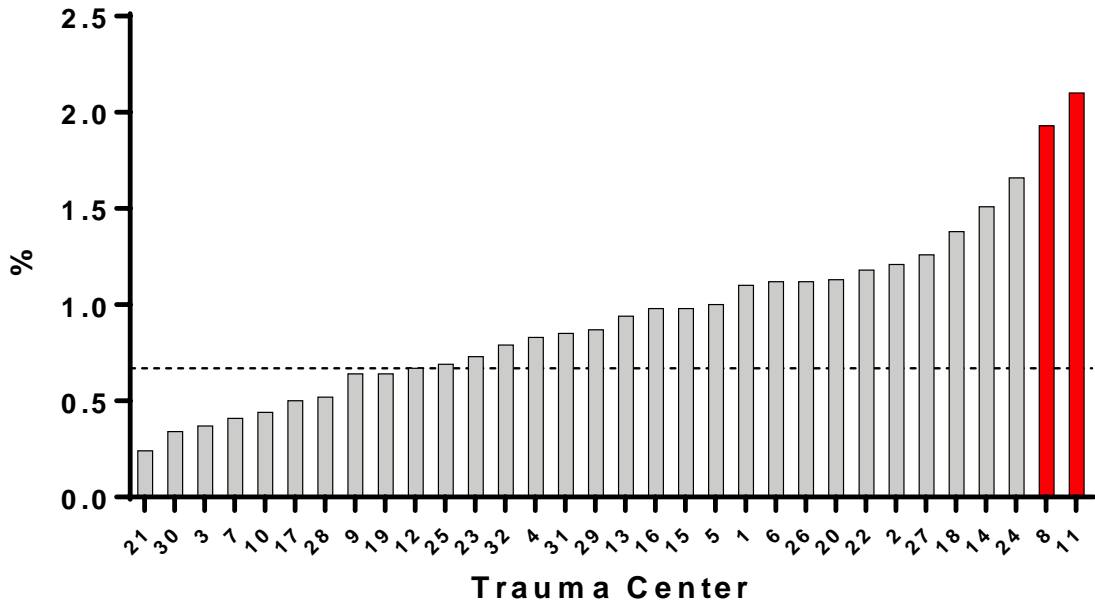
**Serious Complications - Cohort 8  
Isolated Hip Fracture**



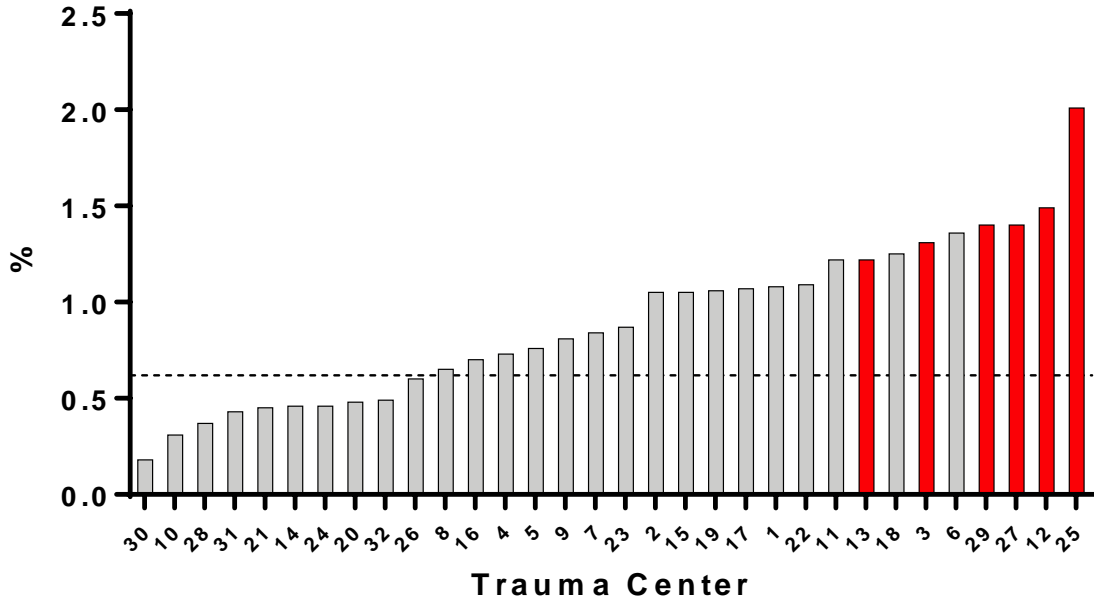
**Cardiac Arrest with CPR - Cohort 8  
Isolated Hip Fracture**



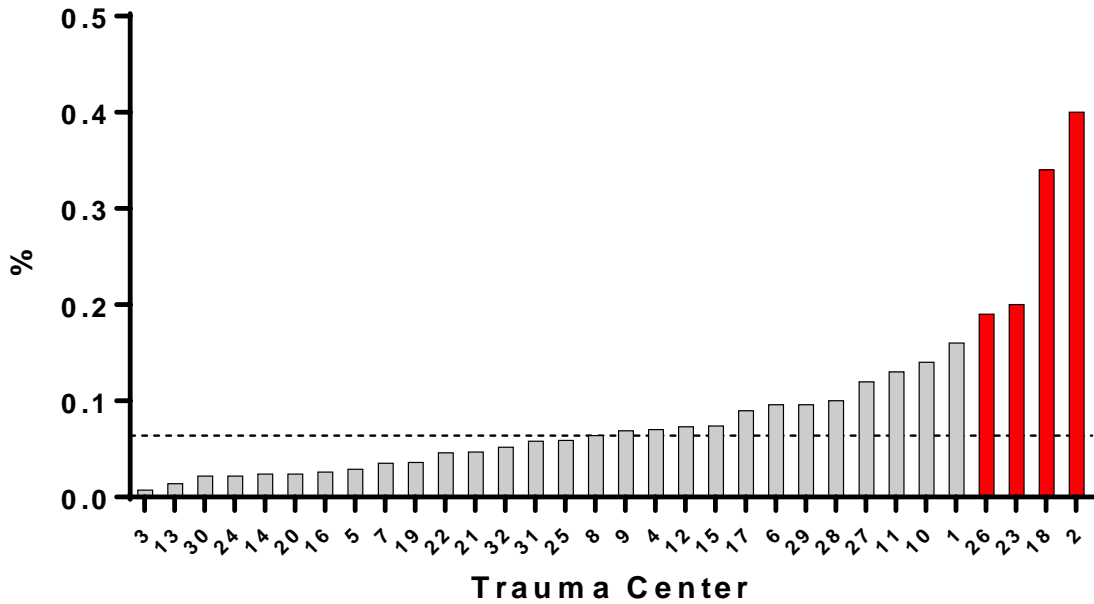
**Myocardial Infarction - Cohort 8  
Isolated Hip Fracture**



### Pneumonia - Cohort 8 Isolated Hip Fracture

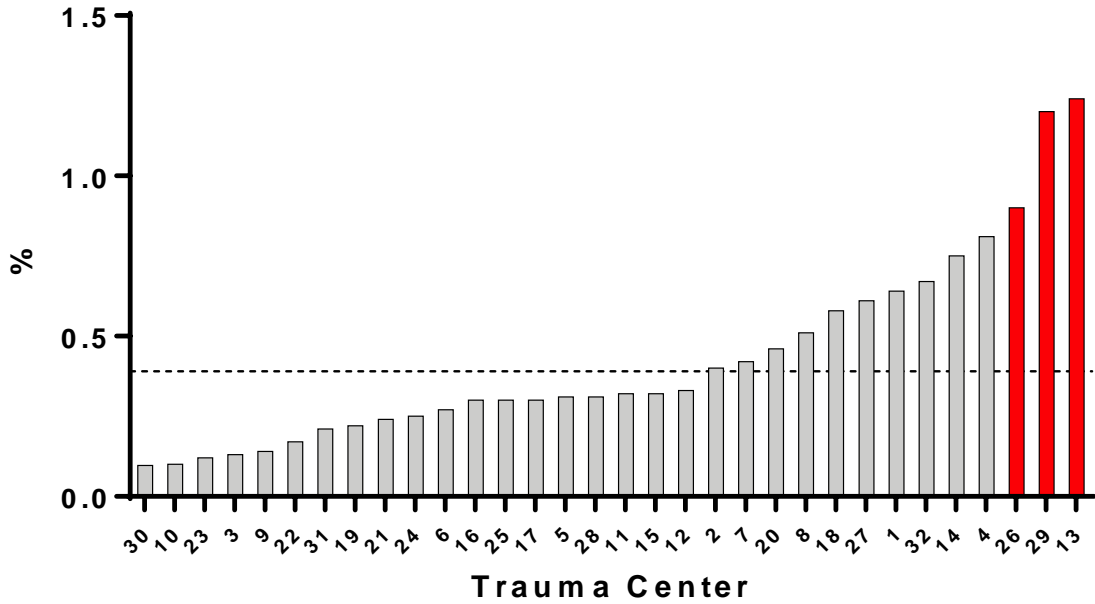


### VAP - Cohort 8 Isolated Hip Fracture

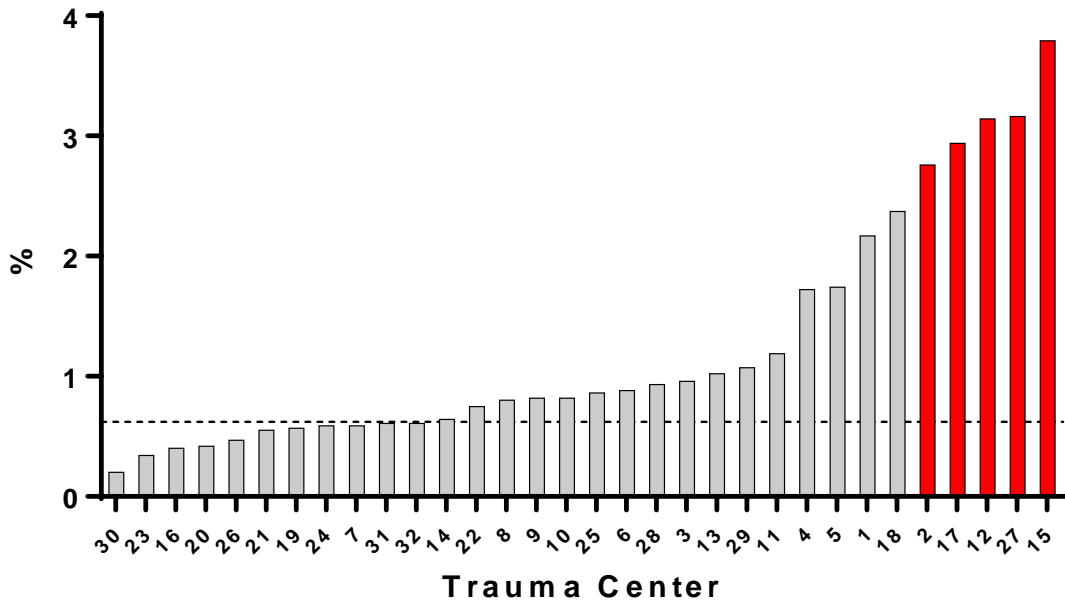




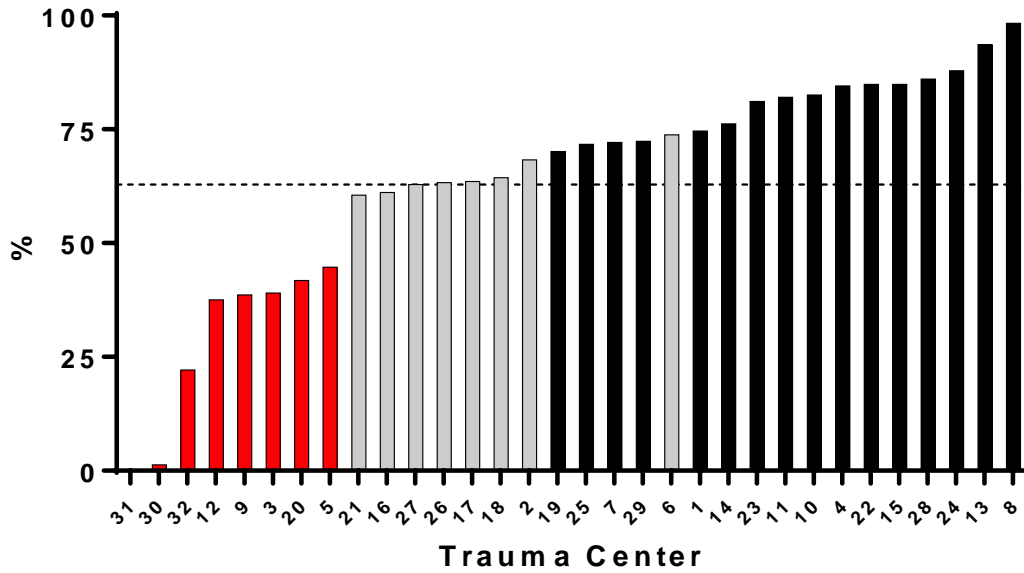
### Acute Renal Failure - Cohort 8 Isolated Hip Fracture



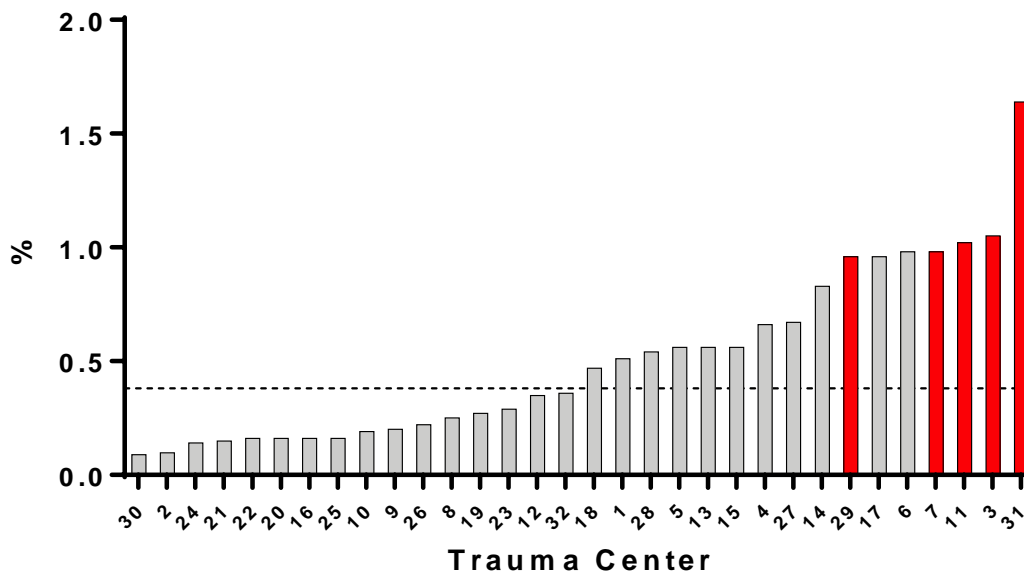
### CAUTI - Cohort 8 Isolated Hip Fracture



**VTE Prophylaxis Heparin, LMWH <= 48 hrs - Cohort 8  
Isolated Hip Fracture**



**DVT - Cohort 8  
Isolated Hip Fracture**



Filter Index

Pg	Graph	Menu	Sub-Menu	Cohort	Dead	No Signs of Life	ISS	Age	Transfer Out	Period	Period	Internal Filter
9	Mortality (Cohort 1 - all)	Mortality Drill-Down	Dead	1	No Filter	All	All	All	Include	11/1/2015	1/31/2018	
9	15 Mortality (Cohort 1 - all w/o DOA)	Mortality Drill-Down	Dead	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
10	Mortality (Cohort 2 - admit trauma)	Mortality Drill-Down	Dead	2	No Filter	All	All	All	Include	11/1/2015	1/31/2018	
10	27 Mortality (Cohort 2 - admit trauma w/o DOA)	Mortality Drill-Down	Dead	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
11	Mortality (Cohort 3 - blunt multi w/o DOA)	Mortality Drill-Down	Dead	3	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
12	Mortality (Cohort 4 - blunt single w/o DOA)	Mortality Drill-Down	Dead	4	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
15	Mortality or hospice (Cohort 1 w/o DOA)	Mortality Drill-Down	Dead or Hospice	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
13	Mortality (Cohort 5 - penetrating)	Mortality Drill-Down	Dead	5	No Filter	All	All	All	Include	11/1/2015	1/31/2018	
13	Mortality (Cohort 5 - penetrating w/o DOA)	Mortality Drill-Down	Dead	5	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
17	Mortality (<65 yo w/o DOA)	Mortality Drill-Down	Dead	1	No Filter	Exclude DOA	All	< 65	Include	11/1/2015	1/31/2018	
17	Mortality (>65 yo w/o DOA)	Mortality Drill-Down	Dead	1	No Filter	Exclude DOA	All	> 65	Include	11/1/2015	1/31/2018	
21	Complications (Grade 1) - Chg to any	Complications Drill-Down	Any Complications	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
22	Cardiac/Stroke	Complications Drill-Down	Cardiac/Stroke	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
22	VTE	Complications Drill-Down	VTE	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
31	Pneumonia	Complications Drill-Down	Pneumonia	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
24	Acute renal failure	Complications Drill-Down	Acute Renal Failure	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
25	Sepsis	Complications Drill-Down	Severe Sepsis	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
24	CAUTI	Complications Drill-Down	Urinary Tract Infection	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
26	27 Failure to rescue	Complications Drill-Down	Failure to Rescue	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
21	26 Complications (FTR)	Complications Drill-Down	Serious Complications	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
29	Adjusted hospital LOS	Utilization Drill-Down	LOS (days)	2	Alive	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
29	Adjusted ICU LOS	Utilization Drill-Down	ICU LOS (days)	2	Alive	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
31	32 Adjusted ventilator days	Utilization Drill-Down	Mean Ventilator Support Days	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
20	Outcomes overview - dead	Mortality Drill-Down	Dead	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
20	Outcomes overview - serious complications	Complications Drill-Down	Serious Complications	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
34	Unadjusted IVC filter use	IVC Summary	IVC Filter Use - Unadj	1	No Filter	Exclude DOA	All	All	Include	7/1/2017	1/31/2018	
38	TBI intervention	TBI Management	Eligible & No Intervention	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
39	TBI intervention timing	Timing of TBI Interventions	Timely	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
32	Adjusted VAP	Internal analysis		2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	Vent Day ≥ 1
42	Blood product ratio in first 4 hours if > 4 uPRBC	Hemorrhage	Mean Ration PRBC/FFP 4 hrs	1	No Filter	Exclude DOA	All	All	Include	1/1/2017	1/31/2018	
40	Validation	Internal analysis										
33	Patients on ventilator	Utilization Drill-Down	Patients on Ventilator (%)	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
28	Unplanned return to OR	Complications Drill-Down	Unplanned Return to OR	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
14	Mortality (Cohort 6 - admit non-trauma w/o DOA)	Mortality Drill-Down	Dead	6	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
28	Unplanned return to ICU	Complications Drill-Down	Unplanned Return to ICU	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
25	C. difficile	Complications Drill-Down	C. Diff Colitis	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
19	GCS 3-8	Mortality Drill-Down	Total GCS: 3-8	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
16	ISS greater than 25	Mortality Drill-Down	Dead	2	No Filter	Exclude DOA	All	> 25	Include	11/1/2015	1/31/2018	
30	Patients admitted to ICU	Utilization Drill-Down	Patients Admitted to ICU (%)	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
38	TBI mortality (raw)	TBI Management	Dead (with TBI) unadj	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
41	VTE prophylaxis timing	VTE Prophylaxis Metric	Heparin, LMWH <= 48 Hours	2	No Filter	Exclude DOA	All	All	Exclude	1/1/2017	1/31/2018	LOS ≥ 3
19	Adjusted TBI mortality	TBI Management	Dead (with TBI) unadj	1	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
30	Extended LOS	Utilization Drill-Down	Extended LOS (%)	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
23	Unplanned intubation	Complications Drill-Down	Unplanned Intubation	2	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
18	Mortality GCS 3-8 and Above 65	Mortality Drill-Down	Dead	1	No Filter	Exclude DOA	All	> 65	Include	11/1/2015	1/31/2018	
41	VTE prophylaxis type - LMWH	VTE Prophylaxis Types	LMWH (Type)	2	No Filter	Exclude DOA	All	All	Exclude	1/1/2017	1/31/2018	
33	Antibiotic days	Internal Analysis								11/1/2015	1/31/2018	
14	Mortality (Cohort 7 - Benchmark)	Mortality Drill-Down	Dead	7	No Filter	Exclude DOA	All	> 8	Exclude	11/1/2015	1/31/2018	
35	Mean ED LOS (Cohort 1 - all)	ED LOS	ED LOS Mean (hrs)	1	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
35	Mean ED LOS (Cohort 2 - admit to trauma)	ED LOS	ED LOS Mean (hrs)	2	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
36	Mean ED LOS - full activations	ED LOS	ED LOS Mean Full Activation (hr:	2	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
36	Mean ED LOS - disposition ED to ICU	ED LOS	ED to ICU (hrs)	2	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
37	Mean ED LOS - partial activation	ED LOS	ED LOS Mean Partial Activation (	2	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
37	Mean ED LOS - consult	ED LOS	ED LOS Mean Consult (hrs)	2	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
42	Blood product ratio in first 4 hours if > 4 uPRBC	Hemorrhage	Mean Ration PRBC/FFP 4 hrs	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
34	Unadjusted IVC filter use	IVC Summary	IVC Filter Use - Unadj	1	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
43	Z-score - complication rate	Internal analysis	Dead							7/1/2015	1/31/2018	
43	Z-score - mortality rate	Internal analysis	Dead							7/1/2015	1/31/2018	
44	Mortality (Cohort 8 - Isolated hip fracture)	Mortality Drill-Down	Dead	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
44	Mortality (Cohort 8 - Isolated hip fracture)	Mortality Drill-Down	Dead	8	No Filter	Exclude DOA	All	> 65	Include	11/1/2015	1/31/2018	
45	Mortality Hospice (Cohort 8 - Isolated hip fracture)	Mortality Drill-Down	Dead or Hospice	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
45	Serious complications	Complications Drill-Down	Serious Complications	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
46	Cardiac arrest with CPR	Complications Drill-Down	Cardiac Arrest with CPR	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
46	Myocardial infarction	Complications Drill-Down	Myocardial Infarction	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
47	Pneumonia	Complications Drill-Down	Pneumonia	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
47	Ventilator associated pneumonia	Complications Drill-Down	Ventilator Associated Pneumoni	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
48	Acute renal failure	Complications Drill-Down	Acute Renal Failure	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
48	Urinary tract infection	Complications Drill-Down	Urinary Tract Infection	8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	
49	VTE heparin, LMWH < 48 hours	VTE Prophylaxis Metric	Heparin, LMWH <= 48 Hours	8	No Filter	Exclude DOA	All	All	Exclude	11/1/2015	1/31/2018	
49	DVT	Complications Drill-Down		8	No Filter	Exclude DOA	All	All	Include	11/1/2015	1/31/2018	