

# **ACS VRC Review of ACS TQIP/MTQIP Data Example - VAP**

**Meaghan Crawley, RN  
Gaby Iskander, MD**



**SPECTRUM HEALTH**



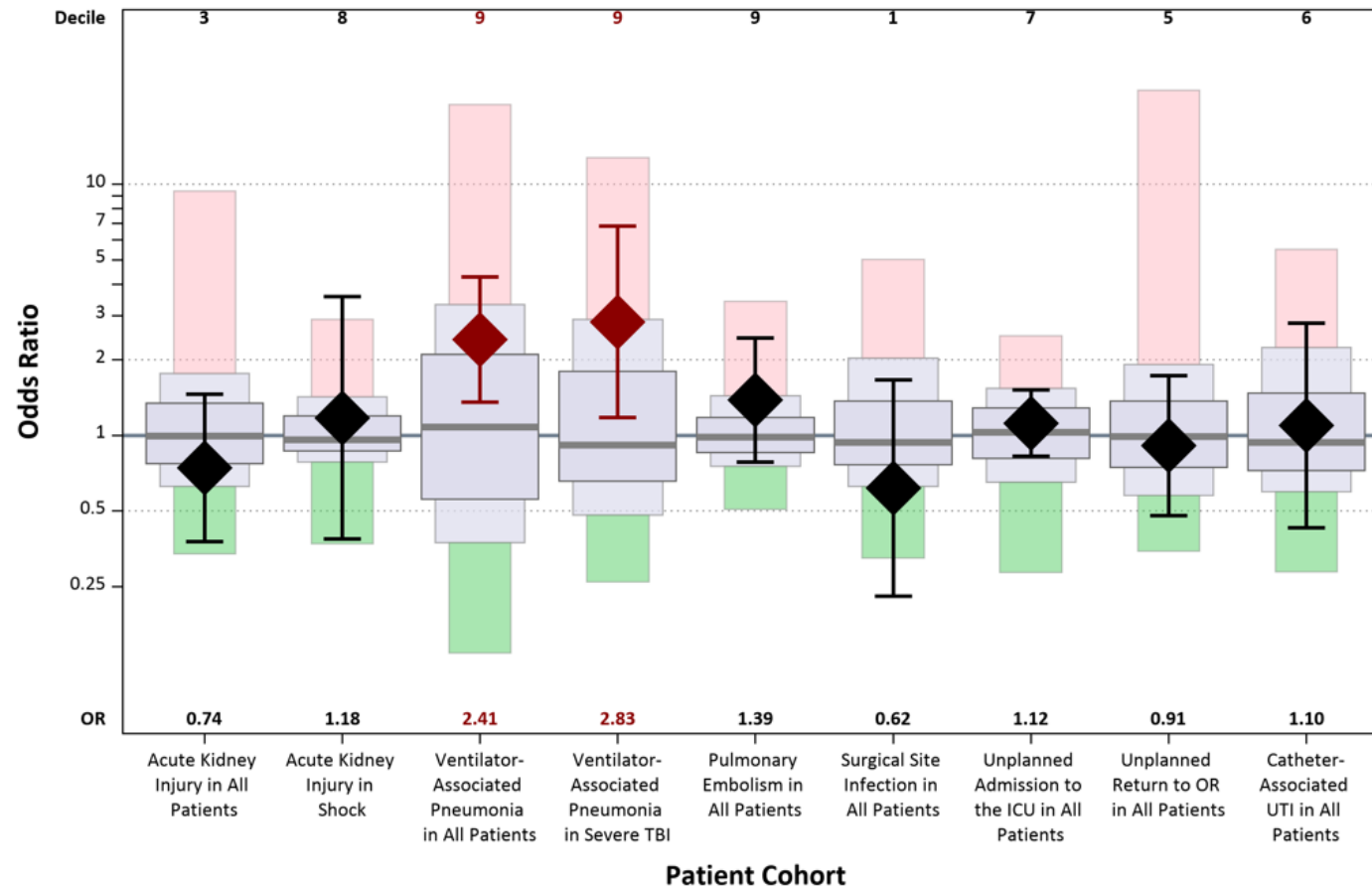
**TQIP VAP & TBI VAP Data**

# Disclosure

We have no disclosures

# Fall 2020 TQIP Report

**Risk-Adjusted Specific Hospital Events by Cohort - Fall 2020**  
**TQIP Report ID: 87**



# TQIP Report: 4/1/19 – 3/31/20

**Table 5: Risk-Adjusted Specific Hospital Events by Hospital Event/Cohort**

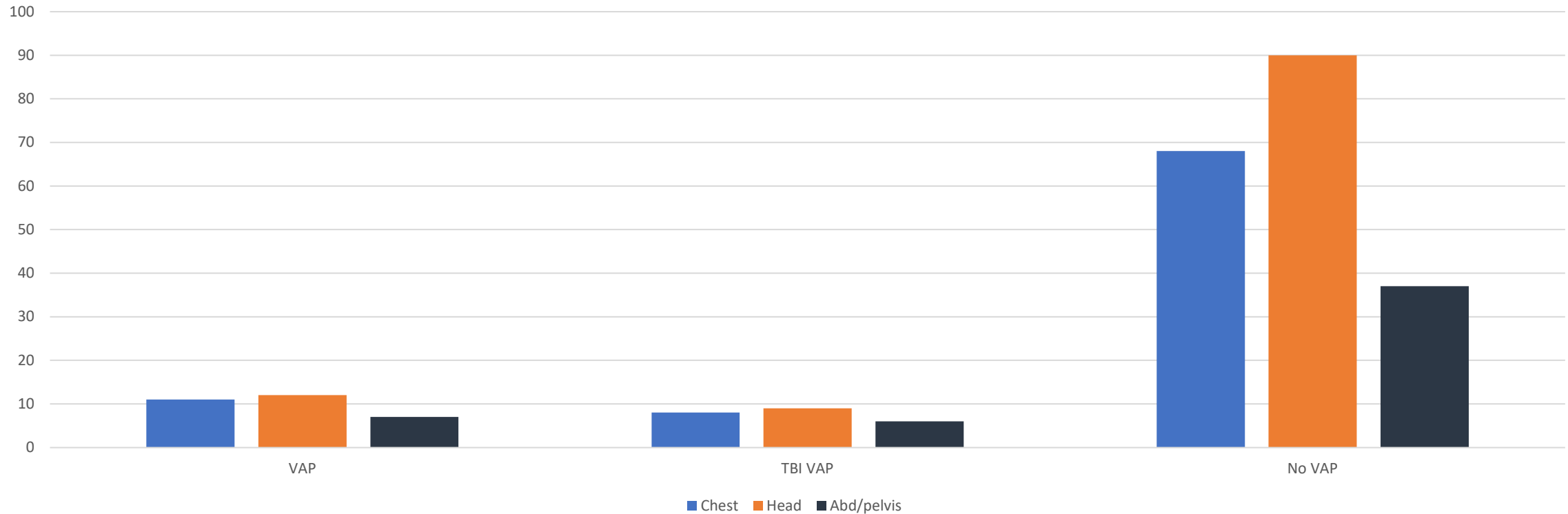
Hospital Event	Cohort	N	Specific Hospital Event				Odds Ratio and 95% Confidence Interval			Outlier	Decile
			Observed Events	Observed (%)	Expected (%)	TQIP Average (%)	Odds Ratio	Lower	Upper		
Acute Kidney Injury	All Patients	1,273	5	0.4	0.6	0.8	0.74	0.38	1.46	Average	3
Acute Kidney Injury	Shock	31	1	3.2	1.6	3.7	1.18	0.39	3.57	Average	8
Ventilator-Associated Pneumonia	All Patients	1,273	13	1.0	0.4	0.8	2.41	1.36	4.28	High	9
Ventilator-Associated Pneumonia	Severe TBI	41	6	14.6	4.8	6.2	2.83	1.18	6.82	High	9
Pulmonary Embolism	All Patients	1,273	9	0.7	0.4	0.6	1.39	0.79	2.44	Average	9
Surgical Site Infection	All Patients	1,273	1	0.1	0.2	0.5	0.62	0.23	1.67	Average	1
Unplanned Admission to the ICU	All Patients	1,273	39	3.1	2.7	2.7	1.12	0.83	1.52	Average	7
Unplanned Return to OR	All Patients	1,273	7	0.5	0.6	1.0	0.91	0.48	1.73	Average	5
Catheter-Associated UTI	All Patients	1,273	3	0.2	0.2	0.3	1.10	0.43	2.80	Average	6

# BW Data Drill Down – Registry Query

	Total VAP Patients	Severe TBI VAP	Intubated w/o VAP Dx
Total Number Identified	15	11	141
Average ISS	28.2	28.2	22.1
Average ICU Days	16.1	16.4	5.5
Average Vent Days	14.2	14.6	4.5
Average Days to Trach	6	4.3	5 (n = 21)
Average Days to Dx	5.2	5.3	NA

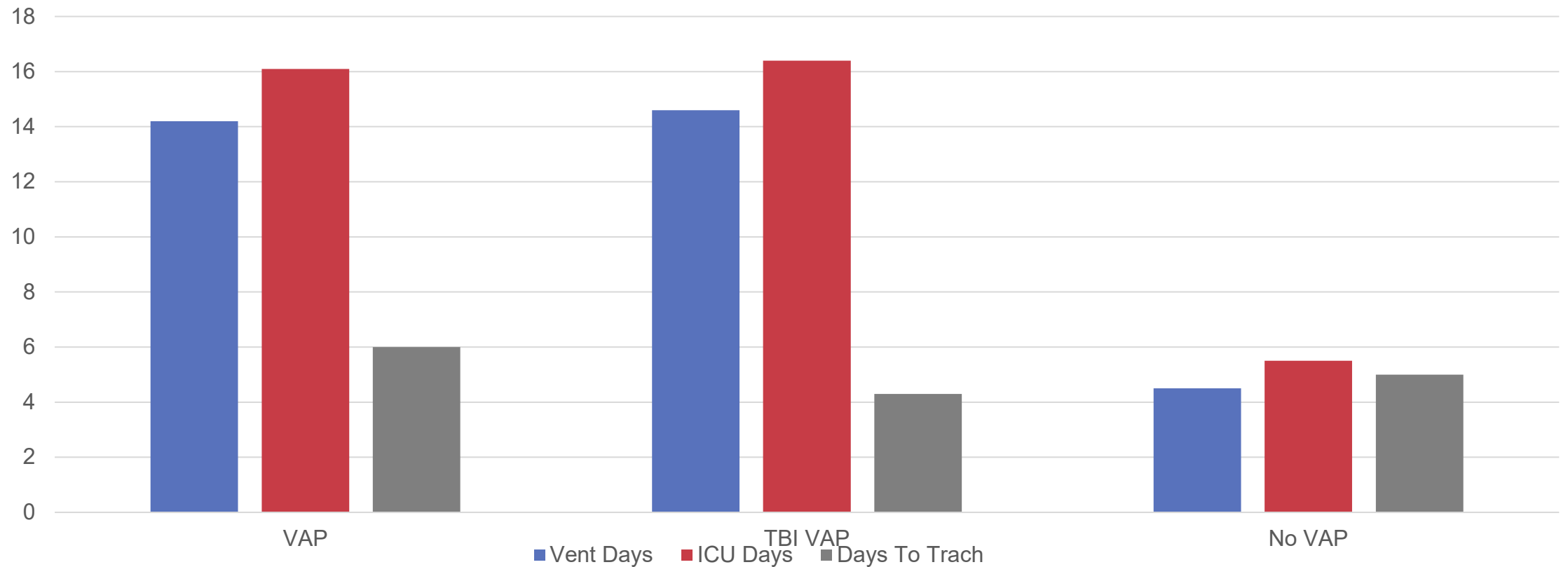
# BW Data Drill Down – Registry Query

AIS Injury Regions



# VAP Data Drill Down – Registry Query

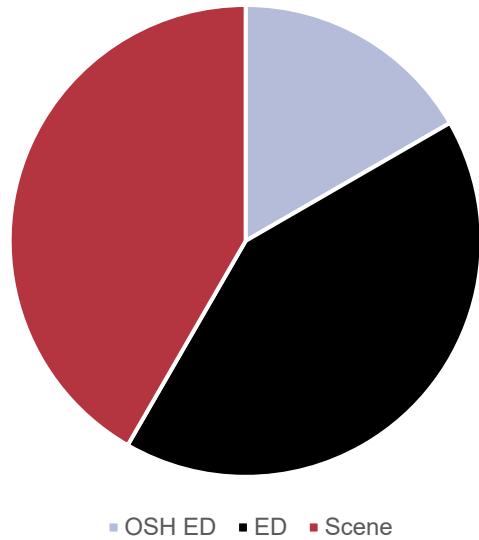
Vent Days, ICU Days, Days to Trach



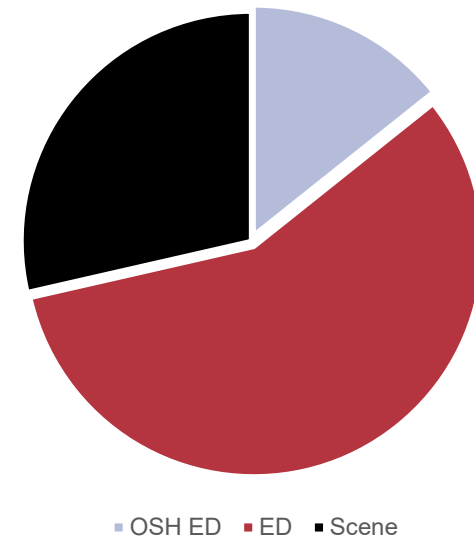


# BW Data Drill Down – Registry Query

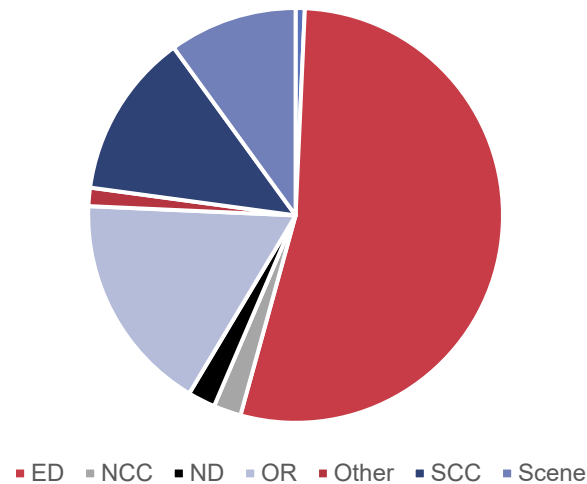
Intubation Location - Total VAP Population



Intubation Location - Severe TBI



Intubation Location – Non VAP



# Current VAP Prevention

## Mechanical Ventilation – Adult (Invasive) – Mechanical Ventilator Management ...

- Addresses the following components of VAP Prevention
  - HOB Elevation (30 degrees)
  - Vent circuit changes (daily, or when grossly contaminated)
  - In-line suction catheter changes (q week, or when grossly contaminated)
  - Required RN/RT documentation

# Current VAP Prevention

## ▼ Nursing

### ▼ Respiratory Interventions

- Oral Care and Suctioning  
Routine, Now then every 4 hours and PRN, Starting today at 0958, Until Specified
- Suction Airway  
Routine, PRN, Starting today at 0958, Until Specified  
Type: Artificial Airway
- Orogastic Tube  
Until discontinued, Starting today at 0959, Until Specified  
Reason: Decompression  
Status: Low Intermittent Suction
- Nasogastric (NG) Tube  
Until discontinued
- Adult Mechanical Vent
- Monitor Exhaled CO2
- Initial Alveolar Recruitment Maneuver  
40 PEEP for 40 seconds, every 20 minutes for 3 times
- Subsequent Alveolar Recruitment Maneuvers  
Every 4 hours, 40 PEEP for 40 seconds every 4 hours for 24 hours
- Esophageal Pressure Monitoring  
Monitor with each vent check and PEEP change.

# Adherence to Current VAP Prevention

## Identified Opportunities by ICU nursing leadership

- RASS goals
- SBT
- Oral Care

## Identified Opportunities by physician Leadership

- Pneumonia present on admission not identified
- Early Extubation

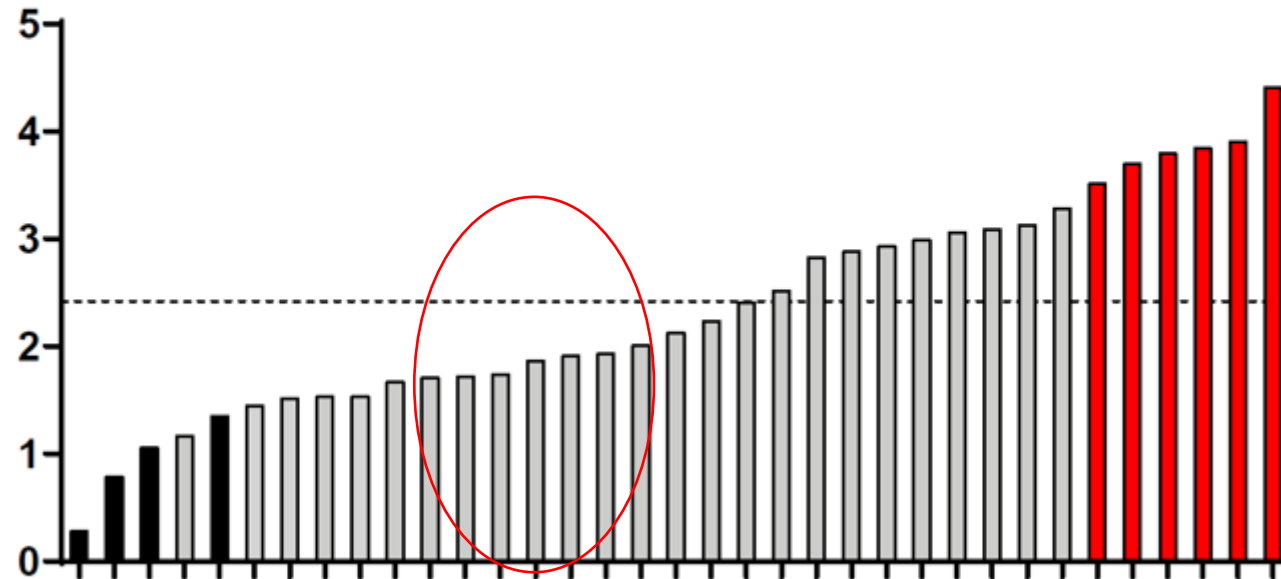
# But...

How do we look in our MTQIP Data?

Where does MTQIP sit in the TQIP Data?

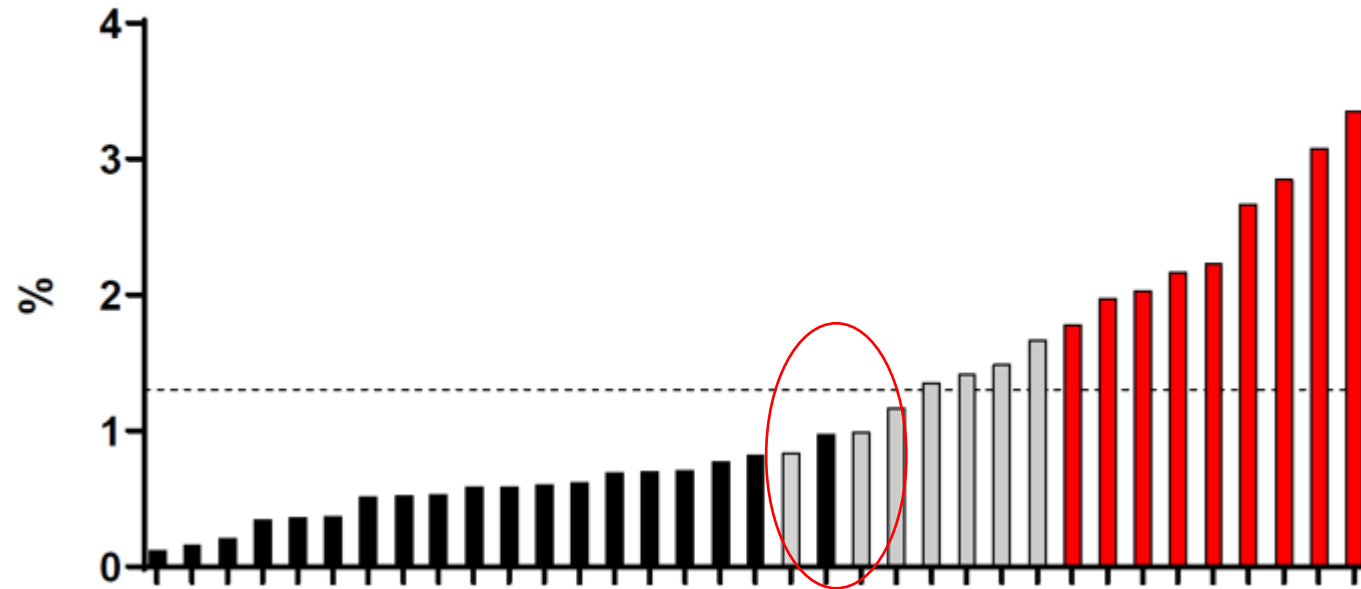
# Cohort #2 Pneumonia

**Pneumonia  
Cohort 2 - Admit to Trauma**



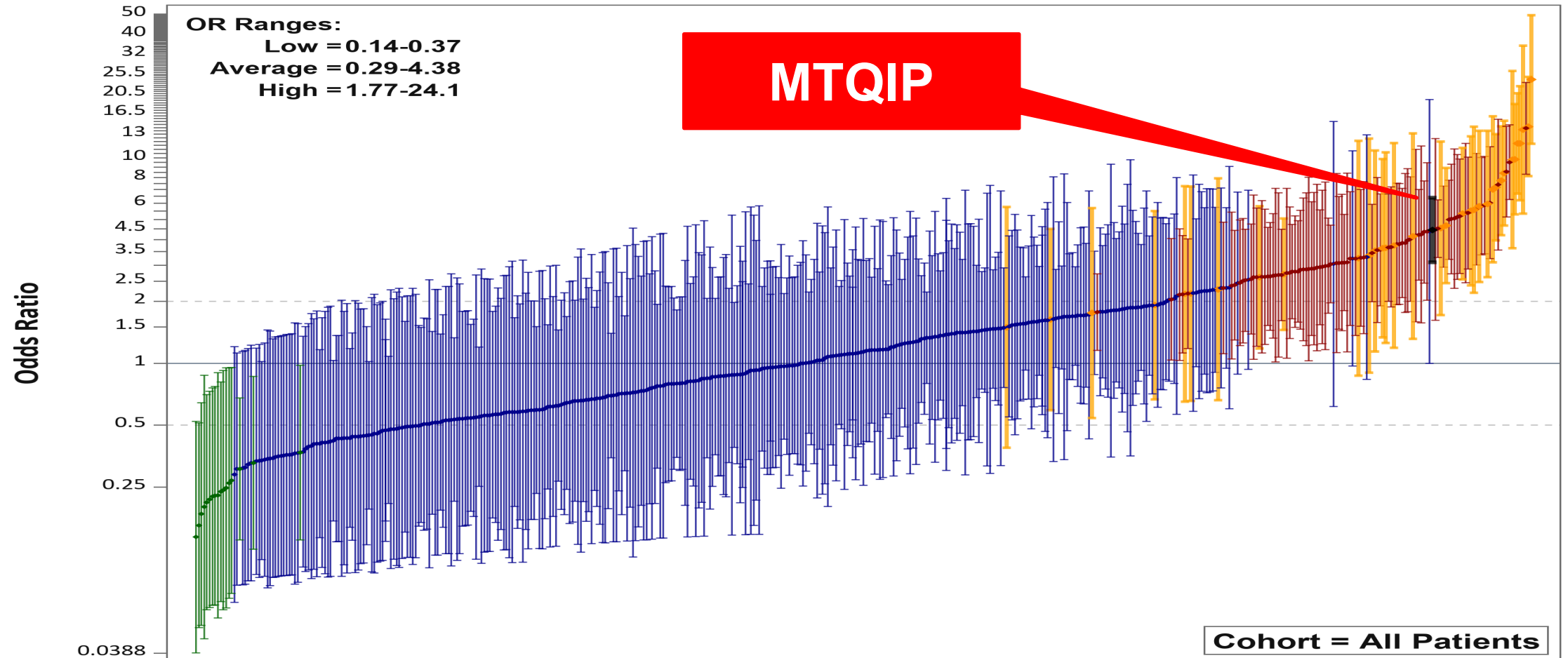
# Cohort #2 - VAP

VAP  
Cohort 2 - Admit to Trauma



# TQIP MTQIP State Report – VAP AI

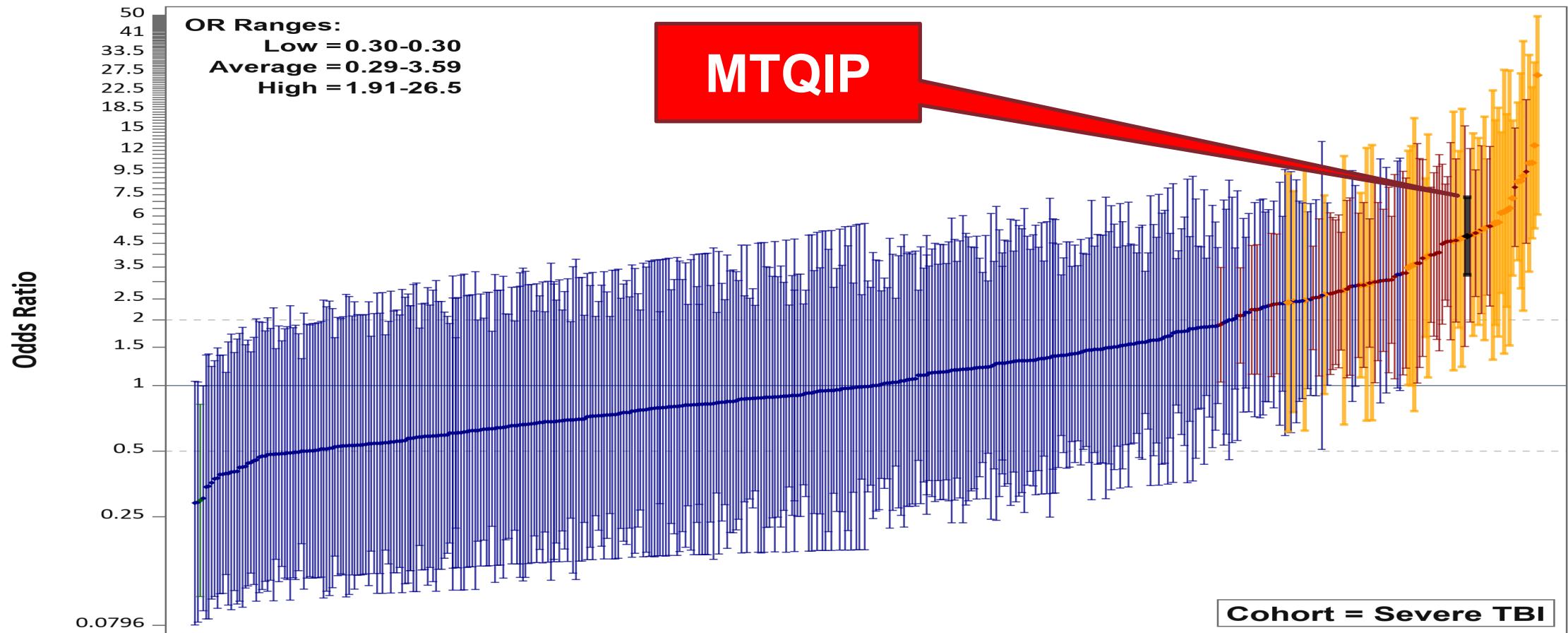
Odds Ratios by TQIP Hospital; Ventilator-Associated Pneumonia





# TQIP MTQIP State Report - VAP TBI

Odds Ratios by TQIP Hospital; Ventilator-Associated Pneumonia



# TQIP MTQIP State Report

**Table 5: Risk-Adjusted Specific Hospital Events by Hospital Event/Cohort**

Hospital Event	Cohort	N	Specific Hospital Event				Odds Ratio and 95% Confidence Interval			Outlier	Decile
			Observed Events	Observed (%)	Expected (%)	TQIP Average (%)	Odds Ratio	Lower	Upper		
Acute Kidney Injury	All Patients	13,082	55	0.4	0.6	0.8	0.60	0.43	0.84	Low	2
Acute Kidney Injury	Shock	358	8	2.2	3.0	3.7	0.68	0.32	1.45	Average	2
Ventilator-Associated Pneumonia	All Patients	13,082	260	2.0	0.4	0.8	4.45	3.05	6.49	High	10
Ventilator-Associated Pneumonia	Severe TBI	521	98	18.8	4.3	6.2	4.85	3.17	7.42	High	10
Pulmonary Embolism	All Patients	13,082	80	0.6	0.4	0.6	1.37	1.04	1.80	High	9
Surgical Site Infection	All Patients	13,082	89	0.7	0.3	0.5	2.05	1.46	2.86	High	9
Unplanned Admission to the ICU	All Patients	13,082	384	2.9	2.7	2.7	1.02	0.85	1.21	Average	5
Unplanned Return to OR	All Patients	13,083	113	0.9	0.6	1.0	1.13	0.84	1.54	Average	7
Catheter-Associated UTI	All Patients	13,082	40	0.3	0.2	0.3	1.36	0.89	2.07	Average	7

# Next Steps

Early Extubation

Identifying pneumonia on admission

Early Trach

Nursing/RT education

**VAP PREVENTION  
STANDARD WORK**

# Next Steps



# Data Drill Down – November 2021

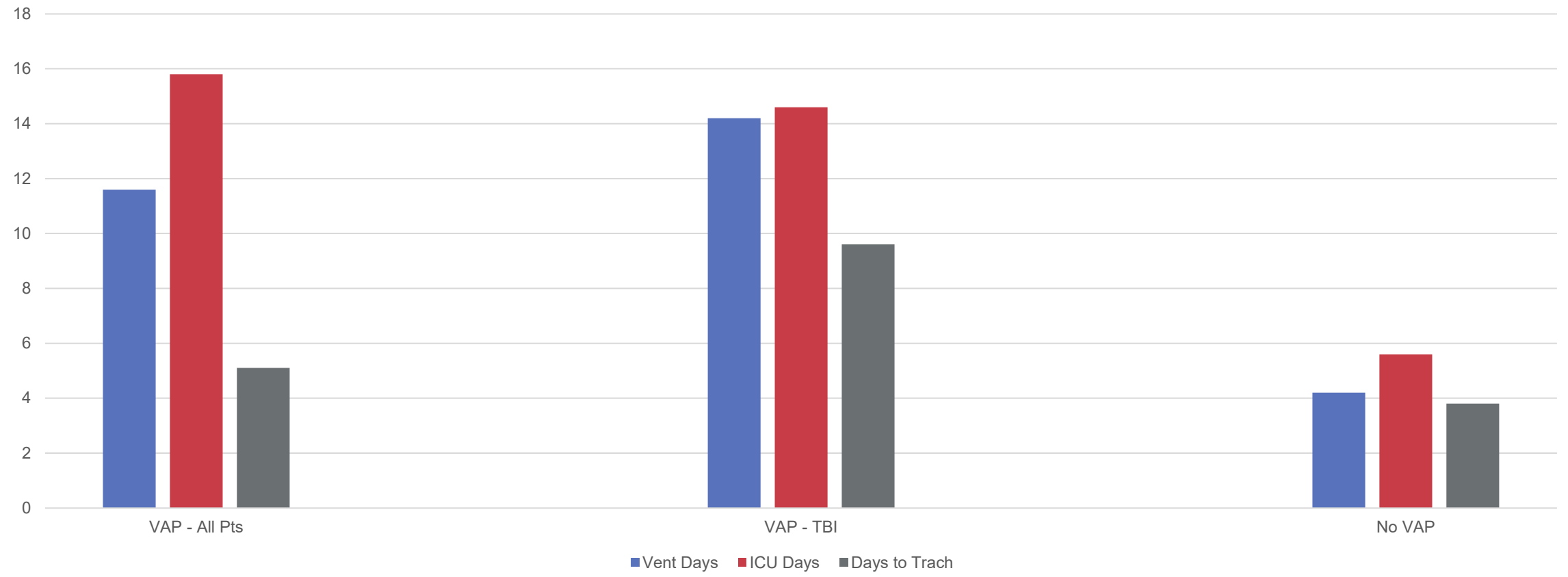
	Total VAP Patients	Severe TBI VAP	Intubated w/o VAP
Total Number Identified	21*	13**	147
Average ISS	28.4	30.8	22.5
Average ICU Days	15.8	14.6	5.6
Average Vent Days	11.6	14.2	4.2
Average Days to Trach	5.1 (5 pts w/o trach)	9.6 (3 pts w/o trach)	3.8 (126 pts w/o trach)
Average Days to Dx	6.2	5.2	NA

\* 26 patients were identified on the Fall 2021 TQIP report. On data drill down, 5 cases did not meet VAP/PNEU definition for all patients, therefore were excluded from this table

\*\* 16 patients were identified on the Fall 2021 TQIP report. On data drill down, 3 cases did not meet VAP/PNEU definition for the Severe TBI population, therefore were excluded from this table

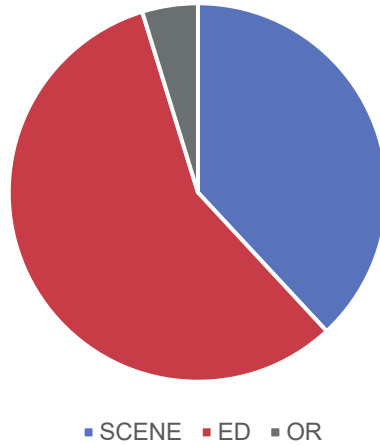
# Data Drill Down – November 2021

Vent Days, ICU Days, Days to Trach

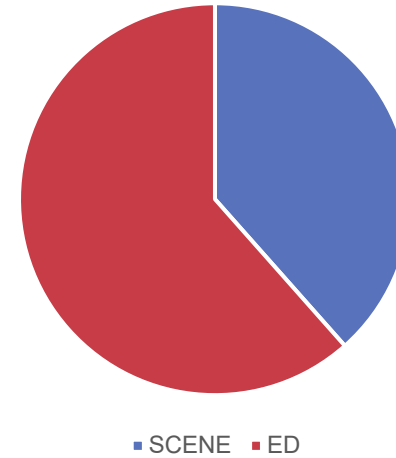


# Data Drill Down – November 2021

Intubation Location - All Patients



Intubation Location - Severe TBI



# Data August 2021 – December 2021

VAP Cases – 15

Intubated Patients – 44

- \* 14 cases identified as CAP v VAP by BAL on admission

Opportunities for Improvement

- \* consistent Bronch/BAL on admission
- \* RASS Goal compliance



# Standard Work Compliance

Bronch/BAL on admission:

- \* 42% of VAP cases did not have Bronch/BAL on admission
- \* RASS @ Goal – 30%

# Standard Work Compliance

Reviewed with Trauma/SICU Providers at December TPC

Reviewed with ICU Nursing Leadership

- Reported at Trauma System's meeting in January 2021 that ICU leadership is meeting to address RASS goal compliance across all ICU's. Meeting to be held beginning of February 2022.