Conclusion: Transparency in trauma costs is not common practice.Trauma Centers attempts to balance responsible financial billing and maintaining viability is an ongoing concern as trauma costs rise.Limited options are available to offset growing costs.Regulatory and public awareness of these increasing TTRF's has resulted in a push for transparency Federal and state financial support is needed to aid TC's to offset growing trauma care costs.Vigilant efforts are needed in patient advocacy to ensure all patients receive quality trauma care with justified associated charges.

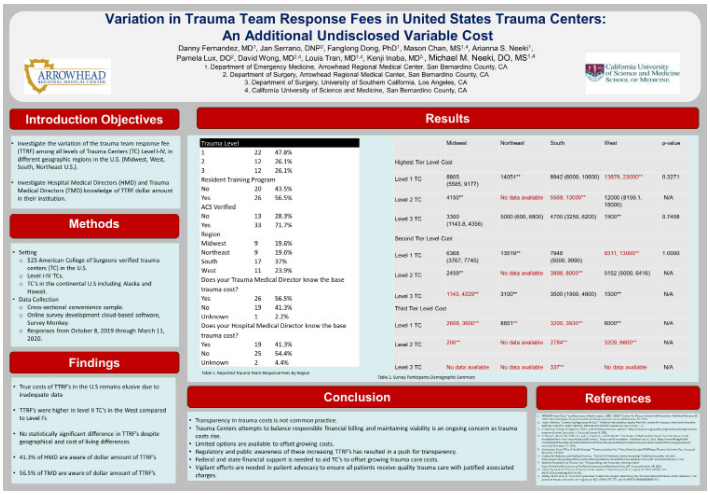

Figure 1. Variation in trauma yeam response fees in United States trauma centers: an additional undisclosed variable cost.

7 Analysis of Time-to-Disposition Intervals During Early and Late Parts of a Shift

Anne Grossestreuer; *Bryan Stenson*; David T. Chiu; Joshua W. Joseph,; Lakshman Balaji; Leon D. Sanchez; Peter S. Antkowiak

Objectives: To assess whether time-to-disposition is significantly different when a patient is seen by a provider during the early half or late half of a shift.

Background: Time-to-disposition is an important metric for emergency department throughput. We hypothesized that providers view the shift end as a key timepoint and attempt to leave as few dispositions as possible to the oncoming team, thereby making quicker decisions later in the shift. This study evaluates disposition distribution relative to when patients are assigned a provider during the course of a shift.

Methods: 50,802 cases were analyzed over the one-year study interval. 31,869 patients were seen in the early half of a shift (hours 1-4) and 18,933 were seen in the later half (hours 5+). We ran a linear mixed model that adjusted for age, gender, emergency severity index score, time of day, weekend arrivals, quarter of arrival and shift type.

Results: Median time-to-disposition for the early group was 3.25 hours (IQR 1.90-5.04), and 2.62 hours (IQR 1.51-4.31) for the late group. From our mixed model, we conclude that in the later parts of the shift, providers take on average 15.1% less time to make a disposition decision than in the earlier parts of the shift.

Conclusion: Patients seen during the latter half of a shift were more likely to have a shorter time-to-disposition than similar patients seen in the first half of a shift. This may be influenced by many factors, such as providers spending the early hours of a shift seeing new patients which generate new tasks and delay dispositions, and viewing the end of shift as a landmark with a goal to maximize dispositions prior to sign-out.

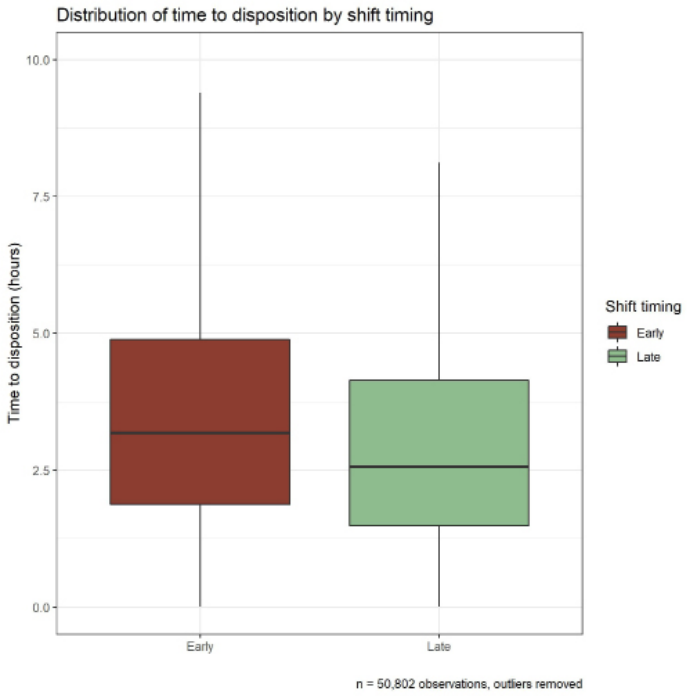

Figure 1. Distribution of time to disposition by shift timing.

Table 1. Descriptive Characteristics of the Data

Characteristic	Overall (n = 58, 802)	Early (n = 31, 869)	Late (n = 18, 933)	p-value
Age, years (median, IQR)	55.00 (35.00, 70.00)	55.00 (36.00, 70.00)	54.00 (33.00, 69.00)	<0.001
Male (n, %)	23,479 (49.2)	14,635 (45.9)	8,844 (46.7)	0.086
ESI (n %)				<0.001
1	2,823 (5.8)	1,550 (4.9)	1,273 (6.7)	
2	17,683 (34.8)	10,989 (34.5)	6,694 (35.4)	
3	26,951 (53.1)	17,264 (54.2)	9,687 (51.2)	
4	3,250 (6.4)	2,011 (6.3)	1,239 (6.5)	
5	95 (0.2)	55 (0.2)	40 (0.2)	
Time to disposition, hours (median, IQR)	2.99 (1.75, 4.81)	3.25 (1.98, 5.04)	2.62 (1.51, 4.31)	<0.001
Log of time to disposition (median, IQR)	1.10 (0.56, 1.57)	1.18 (0.64, 1.62)	0.96 (0.41, 1.46)	<0.001
Arrival (n, %)				<0.001
Daytime arrival	19,271 (37.9)	14,831 (46.5)	4,440 (23.5)	
Evening arrival	22,788 (44.9)	12,381 (38.8)	10,405 (55.0)	
Overnight arrival	8,745 (17.2)	4,657 (14.6)	4,088 (21.6)	
Weekend (n, %)	13,729 (27.0)	8,569 (26.9)	5,160 (27.3)	0.375
Quarter (n, %)				0.03
Q1	13,145 (25.9)	8,205 (25.7)	4,940 (26.1)	
Q2	12,574 (24.8)	7,796 (24.5)	4,778 (25.2)	
Q3	12,194 (24.0)	7,717 (24.2)	4,477 (23.6)	
Q4	12,889 (25.4)	8,151 (25.6)	4,738 (25.0)	
Type of Shift (n, %)				<0.001
Afternoon Shift A	10,942 (21.5)	6,218 (19.5)	4,724 (25.0)	
Afternoon Shift B	4,248 (8.4)	2,848 (8.9)	1,398 (7.4)	
Early Morning Shift	7,398 (14.6)	4,582 (14.4)	2,816 (14.9)	
Evening Shift	9,011 (17.7)	5,367 (16.9)	3,644 (19.1)	
Night Shift	10,824 (21.3)	6,842 (21.6)	3,982 (20.5)	
Regular Shift	8,381 (16.5)	5,882 (18.5)	2,499 (13.2)	

Table 1. Descriptive characteristics of the data.

Table 3. Adjusted Linear Mixed Model Coefficients

Adjusted: log(time to dispo) ~ Late_shift + age + gender + esicode + arrival + weekend + quarter + type_shift, clustered by attending ID

	Coefficient (exponentiated)	CI (exponentiated)	p-value
(Intercept)	1.958	1.863—2.056	<0.01
Late shift (hours 5+)	0.849	0.835—0.862	<0.01
Age	1.000	1.000—1.001	0.06
Gender: Male	0.911	0.898—0.924	<0.01
ESI level (reference level ESI1)			
ESI2	1.713	1.651—1.775	<0.01
ESI3	3.648	3.791—3.910	<0.01
ESI4	0.982	0.948—1.026	0.44
ESI5	0.710	0.600—0.839	<0.01
Arrival (reference level Daytime)			
Evening	0.953	0.938—0.955	<0.01
Overnight	0.944	0.912—0.977	<0.01
Weekend	0.997	0.978—1.015	0.73
Quarter (reference level Q1)			
Q2	0.971	0.952—0.991	<0.01
Q3	0.982	0.962—1.002	0.08
Q4	0.942	0.923—0.961	<0.01
Type of Shift (reference level Afternoon Shift A)			
Afternoon Shift B	0.870	0.844—0.897	<0.01
Early Morning Shift	1.050	1.005—1.060	<0.01
Evening Shift	0.890	0.867—0.912	<0.01
Night Shift	0.918	0.898—0.947	<0.01
Regular Shift	0.956	0.928—0.982	<0.01

Table 3. Adjusted linear mixed model coefficients.

8 Slack Intern Curriculum Supports Intern Preparedness and Bridges Curriculum Gaps due to COVID-19

Slack Intern Curriculum; Alisa Hayes; Daniel Axelson; Frosso Adamakos; Herman Lee; *Jonathan Chan*; Michaela Salvo; Moira Davenport; Tazeen Abbas; Thaddeus Schmitt

Objectives: Assess the effectiveness of social media implementation of an Accreditation Council for Graduate Medical Education (ACGME) milestone-based curriculum during the spring 2020 U.S. COVID-19 surge. The hypothesis is that pre-interns will report improvements in PP regarding multiple ACGME milestone topics.

Background: Transitioning to residency involves translation of academic knowledge into clinical acumen, and is complicated by variable medical school experiences. The COVID-19 pandemic presented a new challenge by displacing students from clinical rotations. Virtual educational modalities such as the Slack Intern Curriculum (SIC) have increased newly-matched "pre-intern" perceived preparedness (PP) for residency in prior years, but the SIC had never been implemented or evaluated in a pandemic with disrupted medical education.

Methods: The SIC was constructed using topics from 8 ACGME milestones in emergency medicine (EM), incorporated into 8 clinical scenarios. Residency recruitment occurred via national EM listservs; of 276 programs, 27 enrolled. Curricular implementation was on Slack workspaces. Cases included stimulus images and clinical questions. Ample discussion time, answers, and resources were provided. Trends in PP were calculated with descriptive statistics and the Wilcoxon Rank Sum test.

Results: Of 311 total pre-interns contacted, 289 (92.9%) completed a presurvey in April/May 2020, and 240 (77.2%) completed a post-survey in June/July 2020, for an 83.9% follow-through rate. Pre-interns reported statistically significant increases in PP both overall and regarding 14 of 21 milestones. See Table 1.

Conclusion: Amidst the educational disruption of the COVID-19 pandemic, pre-interns participating in the SIC reported statistically significant increases in PP. Limitations include absence of control or pre-pandemic data. Future directions include adapting the SIC to other specialties' ACGME milestones for generalizability across all fields.

Table 1: Wilcoxon Rank Sum Test summary data on perceived preparedness of United States emergency medicine-bound pre-interns. Pre-curriculum surveys were completed in April/May of 2020, and post-curriculum surveys were completed in June/July of 2020.

Milestone	Level	Pre-Survey Med	Pre-Survey Mean (SD)	Post-Survey Med	Post-Survey Mean (SD)	Comparison 95% CI*	Comparison p value†
Emergency Stabilization	Recognizing Abnormal Vitals	4	4.344 (0.695)	4	4.271 (0.736)	(-0.1948, 0.0514)	.28
	Recognizing an Unstable Patient	4	3.948 (0.787)	4	4.021 (0.659)	(-0.00007, 0.34621)	.15
Diagnosis	**Forming a Diagnostic Plan**	4	**3.516 (0.838)**	4	**3.679 (0.738)**	**(0.0289, 0.2983)**	**.03**
	Forming a Differential Diagnosis	4	3.574 (0.851)	4	3.708 (0.807)	(-0.00003, 0.27593)	.07
Diagnostic Studies	Identifying Need for Diagnostic Tests	4	3.433 (0.797)	4	3.562 (0.757)	(-0.00141, 0.26303)	.07
	Identifying the Appropriate Tests	4	3.412 (0.799)	4	3.525 (0.781)	(-0.0222, 0.2487)	.09
	Interpreting Test Results	4	3.563 (0.915)	4	3.605 (0.832)	(-0.0419, 0.2268)	.52
Pharmacotherapy	Recognizing Pharmacology of Medications	3	3.059 (1.007)	3	3.142 (0.917)	(-0.00017, 0.24741)	.50
	Selecting Appropriate Medications	3	2.865 (0.935)	3	3.108 (0.914)	(0.0058, 0.4008)	.002
	Recognizing need for Additional Resources	3	**3.215 (0.966)**	4	**3.408 (0.919)**	**(0.0324, 0.3552)**	**.01**
Disposition	**Recognizing need for Admission to Hospital**	3	**3.118 (0.870)**	4	**3.425 (0.845)**	**(0.1598, 0.4539)**	**<.001**
	Recognizing Appropriate Level of Care for Admission	3	2.857 (0.892)	3	3.267 (0.944)	(0.2783, 0.5875)	<.001
General Approach to Procedures	Recognizing Relevant Anatomy for a Procedure	3	2.983 (1.029)	3	3.179 (0.979)	(0.0245, 0.3684)	.02
	Identifying Indications/Contraindications for Procedures	3	**2.879 (0.970)**	3	**3.167 (0.967)**	**(0.1247, 0.4539)**	**<.001**
	Identifying Appropriate Equipment for Procedures	3	2.668 (0.979)	3	3.062 (0.960)	(0.2285, 0.5608)	<.001
Airway Management	Identifying Pharmacology of RSI Medications	3	2.664 (0.997)	3	3.150 (1.003)	(0.3340, 0.6573)	<.001
	Confirming Endotracheal Tube Placement	4	3.502 (1.004)	4	3.867 (0.828)	(0.2085, 0.5214)	<.001
	Recognizing Upper Airway Anatomy	3	**3.076 (1.008)**	3	**3.283 (0.999)**	**(0.0303, 0.3841)**	**.03**
Other Diagnostic and Therapeutic Procedures	Recognizing Indications for Ultrasound	4	3.519 (0.902)	4	3.804 (0.807)	(0.1391, 0.4312)	<.001
	Optimizing US Images	3	2.661 (1.165)	3	2.950 (1.108)	(0.0945, 0.4837)	.003
	Interpreting US Images	3	2.799 (1.087)	3	3.154 (1.001)	(0.1763, 0.5334)	<.001
	Overall Perceived Preparedness for Residency	3	3.107 (0.861)	3	3.350 (0.855)	(0.0974, 0.3881)	<.001

Abbreviations: Med, median; SD, standard deviation; CI, confidence interval; RSI, rapid sequence intubation; US, ultrasound.
*Confidence interval values reflect shift in location (estimated amount change) in the mean.
†Bold type indicates statistical significance.

Table 1. Wilcoxon Rank Sum Test summary data on perceived preparedness of United States emergency medicine-bound pre-interns. Pre-curriculum surveys were completed in April/May of 2020, and post-curriculum surveys were completed in June/July 2020.

9 Serious Medical Outcomes due to Single Substance Opioid Exposures

Aaron Frey; Christopher P. Holsteg; Kawai Tanabe; Moira Smith; Saumitra Rege; *Will Goodrich*

Objectives: The present study sought to evaluate the recent trends in the severe outcomes to single substance opioid exposures (SSO) reported to the U.S. poison centers (PCs).