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

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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.

Da	An Inny Fernandez, mela Lux, DO ² , D 1. Departmen 2. Dep	Add MD ¹ , Ja avid We of Emer 3, Depar	n Response F litional Undisc n Serrano, DNP ⁰ , Fanglong ng, MD ^{2,4} , Louis Tran, MD ¹ gency Medica. Arowhead Regional trenet of Surgery, University of mile University of Science and f	Closed Varia Dong, PhD ¹ , Mason Ch ⁴ , Kenji Inaba, MD ⁵ , M gional Medical Center, San Bern Medical Center, San Bern Southern California, Los A	ble Cost an, MS ^{1,4} , Arianni chael M. Neeki a Bernardina County andros County, CA naties, CA	a S. Neeki ¹ , , DO, MS ^{1,4}		California Unive of Science and N Scinool, or Mate	
Introduction Objectives				R	esults				
nvestigate the variation of the trauma team response fee TTRF) among all levels of Trauma Centers (TC) Level I-IV, in	Trauma Level	22	47.8%		Michaest	Northwast	South	West	p-value
Ifferent geographic regions in the U.S. (Midwest, West, outh, Northeast U.S.).	2	12	26.1%	Highest Tier Leve	al Cost				
nvestigate Hospital Medical Directors (HMD) and Trauma Antical Directors (TMD) knowledge of TTRF dollar amount	Resident Traini	ng Progra	43.5%	Level 1 TC	4005 (5585, 9177)	14051**	8942 (6000, 10000)	13879, 23000**	0.3271
n their institution.	Yes ACS Verified	26	56.5%	Level 2 TC	4150**	No data available	5559, 13000**	12000 (8159.1. 18000)	NIA
Methods	No Yes	13 33	28.3% 71.7%	Level 3 TC	3300 (1143.8, 4356)	5000 (600, 6800)	4700 (3250, 6200)	1900**	0.7408
	Region		19.6%	Second Tier Lew	el Cost				
Setting 525 American College of Surgeons verified trauma	Northeast South	9 17	19.6% 37%	Level 1 TC	6368 (3767, 7745)	13519**	7946 (5000, 9990)	8311, 13000**	1.0000
centers (TC) in the U.S. Level HV TCs. TC's in the continental U.S including Alaska and		11 ma Med	23.9% ical Director know the base	Level 2 TC	2459**	No data available	3898.8000**	5152 (5000, 6416)	NIA
Hawaii. Data Collection	trauma cost? Yes	26	56.5%	Level 3 TC	1143, 4229**	3100**	3500 (1900, 4800)	1500**	N/A
Cross-sectional convenience sample. Online survey development cloud based software.	No	19	41.3%	Third Tier Level 1	Dost				
Survey Monkey. Responses from October 8, 2019 through March 11, 2020.			ical Director know the base	Level 1 TC	2608, 3600**	4851**	3200, 3930**	5000**	N/A
	Yes No	19 25	41.3% 54.4%	Level 2 TC	200**	No data available	2784-	3209, 6600**	Naia
Findings	Unknown Take L reported Ta	2	4.4% parameters #, tegas	Level 3 TC Table 2 Survey Participants Do	No data available	No data available	337**	No data available	NA
True costs of TTRF's in the U.S remains elusive due to inadequate data			Concl	usion			Re	ferences	
TTRF's were higher in level II TC's in the West compared to Level Fs			ts is not common practice.	an and an installation of the life		1			el francisco fisicion for Canana Dobri por
No statistically significant difference in TTRP's despite geographical and cost of living differences	Tourna Centers attempts to balance responsible financial billing and maintaining vublity is an ongoing concern as trauma costs rise. United options are available to offect growing costs. Institution and under available to offect growing costs.						No.		
				s resulted in a push for transp set growing trauma care costs		1.2	special relations		

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 signout.

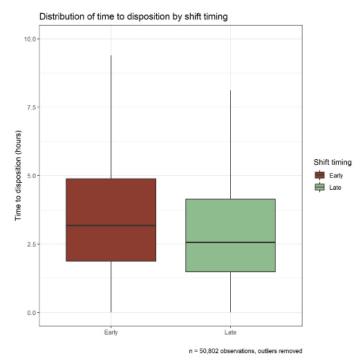


Figure 1. Distribution of time to disposition by shift timing.

Table 1 Descriptive Characteristics of the Data

Characteristic	Overall (n = 50, 802)	Early (n = 31, 866)	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 (46.2)	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 (8.7)	
2	17,883 (34.8)	10,989 (84.5)	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)	
6	95 (0.2)	65 (0.2)	40 (0.2)	
Time to disposition, hours (median, IQR)	2.99 (1.75, 4.01)	3.25 (1.90, 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 anivai	19,271 (37.9)	14.831 (46.5)	4,440 (23.5)	
Evening arrival	22,786 (44.9)	12,381 (38.8)	10,405 (55.0)	
Oversight emiral	8,745 (17.2)	4,657 (14.6)	4,008 (21.6)	
Weekend (n. %)	13,729 (27.0)	8.569 (26.9)	5,160 (27.3)	0.375
Guarter (n, %)				0.09
91	13,145 (25.9)	8.205 (25.7)	4,940 (26.1)	
Q2	12,574 (24.8)	7,795 (24.5)	4,778 (25.2)	
03	12,194 (24.0)	7,717 (24.2)	4,477 (23.6)	
Q4	12,889 (25.4)	8,161 (25.6)	4,788 (25.0)	
Type of Shift (s, %)				<0.001
Afternoon Shift A	10,942 (21.5)	6,218 (19.5)	4,724 (25.0)	
Alternoon Shift B	4,246 (8.4)	2,848 (8.9)	1,396 (7.4)	
Early Morning Shift	7,398 (14.6)	4.582 (14.4)	2,816 (14.9)	
Evening Shift	9,011 (17.7)	5.397 (16.9)	3,614 (19.1)	
NgV Shit	10,024 (21.3)	6,942 (21.8)	3,882 (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

	Coefficient (exponentiated)	CI (exponentiated)	p-valu
(Intercept)	1.958	1.863-2.066	<0.01
Late shift (hours 5+)	0.845	0.835-0.862	+0.01
Apr	1.000	1.000 - 1.001	0.06
Geoder: Male	0.911	0.898-0.924	<0.01
ESITievel (reference level ESIL)			
65/2	1.713	1.661 - 1.775	<0.01
69/9	1.848	1.791 - 1.910	+0.01
FSM	0.984	0.943-1.026	0.44
£5/5	0.710	0.000-0000	<0.01
Arrival (reference level Daytime)			
Evening	0.955	0.910-0.955	+0.01
Oversight	0.944	0.912-0.977	<0.01
Weekend	0.997	0.979-1.015	0.73
Quarter (reference level Q1)			
02	0.971	0.952 - 0.991	+0.01
0.5	0.963	0.962 - 1.002	0.06
04	0.942	0.925-0.961	+0.01
pe of Shift (reference level Afternoon Shift A)			
Afternoon Shift B	0.070	0.044-0.097	<0.01
Carly Morning Shift	1.055	1.009 - 1.069	+0.01
Evening Shift	0.890	0.887-0.912	+0.01
Wight Shift	0.918	0.890-0.947	<0.01
Regular Shift	0.956	0.925-0.982	<0.01

Table 3. Adjusted linear mixed model coefficients.

Slack Intern Curriculum Supports Intern 8 **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.

	Læel		Pre-Survey		ost-Nurvey	Comparison	
Milastone			Mean (SD)	Med	Mean (SD)	9586 <u>CP</u>	P volue
Emergency	Recognizing Abnormal Vitals	4	4.843 (0.695)	4	4.271 (0.736)	(-0.1948, 0.0514)	.28
Stabilization.	Recognizing an Unstable Potierr	4	5.946 (0.787)	4	4.971 (0.659)	(-0.0007, 0.2462)	13
D	Forming a Diagnostic Plan	4	3.516 (0.838)	-4	3.679 (0.738)	(0.0289, 0.2983)	.03
Diagnosis ·	Forming a Differential Diagnosis	4	5.574 (0.851)	4	3.708 (0.807)	(-0.0080, 0.2759)	- 307
	Identifying Need for Diognostic Tests	4	5,433 (0.797)	4	3.562 (0.757)	(-0.0051, 0.2630)	- 207
Diagnostic	Identifying the Appropriate Tests	-4	3,412 (0,799)	-4	3.525 (0.781)	(-0.0222, 0.2487)	.09
Studies	Interpreting Test Results	4	3.343 (0.915)	4	3.45 (0.832)	(-0.0419.0.2568)	.32
Phermaco-	Recognizing Pharmocology of Medications	3	5.059 (1.007)	3	3.142 (0.917)	(-0.0817, 0.2474)	30
(herapy	Scicering Appropriate Modications	3	2.865 (0.935)	3	3.108 (0.904)	(0.0858, 0.4008)	.INC
	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 (0.878)	4	3.425 (0.845)	(0.1598, 0.4549)	<00
	Recognizing Appropriate Level of Care for Admission	3	2.837 (0.892)	3	3.267 (0.944)	(0.2713, 0.5873)	<00
Ceneral	Recognizing Relevant Anatomy for a Procedure	3	2,983 (1,029)	3	3.179 (0.979)	(0.0245, 0.3684)	.02
Approach to	Identifying Indications/Contraindications for Procedures	3	2.879 (0.970)	3	3.167 (0.967)	(0.1217. 0.4539)	<00
Procaduras	Identifying Appropriate Equipment for Procedures	3	2.668 (0.979)	3	3.062 (0.960)	(0.2285, 0.5608)	<.00
Airway Management	Identifying Pharmacology of HSI Medications	3	2.664 (0.997)	3	3.150 (1.003)	(0.3140, 0.6573)	<.00
	Confirming Endstrucheal Tube Placement	4	3.502 (1.004)	4	3.867 (0.828)	(0.2085, 0.5214)	<00
	Recognizing Upper Alrway Anatomy	3	3.076 (1.068)	3	3.283 (0.999)	(0.0303.0.3841)	.03
Other Diagnostic	Recognizing Indications for Ultrasound	4	3.519 (0.902)	4	3.804 (0.807)	(0.1391, 0.4312)	<00
and Therapostic	Optimizing US Images	3	2.661 (1.165)	3	2.950 (1.108)	(0.0945, 0.4837)	.06
Procaciuras	Interpreting US Images	3	2.799 (1.087)	3	3.154 (1.001)	(0.1763, 0.5334)	<00
Overall Perceived Preparedness for Residency		3	3,107 (0,861)	3	3.350 (0.835)	(0.0974, 0.3881)	<00

¹Beld type indicates stat stical 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 postcurriculum surveys were completed in June/July 2020.

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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).