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Same Provider, Different Location: Variation in Patient Satisfaction Scores Between Freestanding and Hospital-Based Emergency Departments

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## Background

Over three decades ago, patient satisfaction, usually measured by survey became a reportable measure. Hospitals have since incorporated these surveys in an attempt to improve patient care by using these scores as a proxy for quality and effectiveness.<sup>1</sup> The survey administered by the Press Ganey Corporation survey is the most widely used survey instrument in the United States and was utilized by more than 1,000 acute care hospitals in 2012, including most academic health systems.<sup>2</sup> As payments for the Medicare Access and CHIP Reauthorization of 2015 begin in 2019, patient-experience data has become increasingly important due to financial incentives for performance based on patient satisfaction scores.<sup>3</sup>

The delivery of acute unscheduled care has evolved outside of the hospital setting. Freestanding emergency departments originated in the 1970's, however, at that time, services varied and most treated minor illness and injury and very few patients were transferred for hospital admission.<sup>4,5</sup> Emergency Department (ED) volumes have continued to increase throughout the United States and there has been demand for alternatives for acute unscheduled care.<sup>6,7</sup> Freestanding Emergency Department (FED) growth expanded rapidly, particularly in Texas after a law was passed in 2010 allowing private and independent ownership of FEDs.<sup>8</sup> Prior research has compared quality of care at FEDs with hospital based emergency departments (HBEDs) and found that FEDs have shorter wait times, higher patient satisfaction and few patients who left without being seen.<sup>9,10</sup> Other research has shown FEDs can meet American Heart Association guidelines for STEMI's, decrease volume and admission rates at the main hospital associated with FEDs, have lower admission rates for the same chief complaint, and see fewer high acuity patients.<sup>11,12,13,14,15</sup> FEDs tend to locate in areas with higher income and patient tend to be

younger and have private insurance when compared to HBEDs.<sup>8,16,17,18</sup>

Studies have shown that wait times play a significant role in patient satisfaction outcomes, independent of other factors in the ED course.<sup>19,20</sup> Pines et al. showed that both physician and facility-level patient-experience data varied greatly month to month, with physician variability being considerably higher.<sup>21</sup> Lower satisfaction scores may result in decreased revenue for hospitals and affect physician salaries. Recent trends have linked physician compensation and incentives to patient satisfaction, which makes it an increasing priority for physicians.

With a significant amount of funding at risk, hospitals have sought novel ways to increase patient satisfaction. One such method is implementation of a Fast Track in the ED to rapidly treat lower acuity patients. Hwang et al. showed that the development of an ED Fast Track improved patient satisfaction by increasing ED capacity while providing quicker service.<sup>22</sup> Bendesky et al. demonstrated that the same physician consistently received lower scores when practicing in an ED setting compared to an urgent care setting, suggesting that scores may be more about the venue than the provider.<sup>23</sup> To date, no published research has compared patient satisfaction scores of physicians or physician assistants practicing at freestanding emergency departments (FEDs) with hospital-based emergency departments (HBEDs). With the increasing presence of FEDs in the healthcare marketplace, we sought to understand if there are differences in patient satisfaction based on these two care settings.

## Methods

### *Study design and setting:*

We conducted a retrospective, cross-sectional study of patient satisfaction scores from January 1, 2018 – December 31, 2018 for patients treated during this timeframe in 6 FEDs and 11 HBEDs in a large healthcare system. The ED facilities are located in urban and suburban locations. The FEDs are part of a single large healthcare system and when patients require admission or additional evaluation not available at a FED, they are transferred to the hospital of their choice. In Ohio, facilities that are affiliated with a hospital system do not require a certificate of need. All physicians were board-certified or board-eligible and residency trained in Emergency Medicine. All physician assistants (PAs) were certified and had specialty training in Emergency Medicine which included a standardized 6-month supervised transition to practice program where APP's are introduced to Emergency Medicine at the same quaternary care emergency department. APP's with Emergency Medicine experience >5 years were exempt from the program. PAs were able to see patients independently at both the FEDs and HBEDs if they were ESI triage level of 4 or 5. Surveys were sent to patients 10 days after their ED visit. The patient satisfaction survey collected data on four domains: a) physician courtesy; b) physician listening ability; c) whether patients were informed about their treatment; and d) physician concern for patient's comfort. A Likert scale with 5 potential responses was provided for patients to rate their experience: a) very poor =1; b) poor =2; c) fair= 3; d) good = 4; and e) very good = 5. Patients who were discharged home were randomly sampled to receive a paper survey and any patient not selected for a paper survey with a valid email address on file was sent an electronic survey. Patients were excluded if they had received a survey in the previous 90 days or if they were admitted to the hospital. Satisfaction scores were analyzed as both categorical and continuous variables. Mean score and mean score difference between scores obtained from FEDs and HBEDs for each physician and

physician assistant were calculated and compared. Satisfaction score categories “very poor” and “poor” were consolidated for analysis because frequencies were significantly less in each category. A new variable “overall visit rating” was created as an overall Satisfaction score obtained per patient by provider. Overall visit rating = Providers courtesy score + Took time to listen to patient score + Kept patient informed about treatment score + concerned for patient’s comfort score. Overall visit rating ranged from 0 to 20 points. Overall visit rating was categorized into three categories based on prior research.<sup>24</sup> The institutional IRB approved this study.

### ***Statistical Analysis***

Frequency distributions were reported for all demographic characteristics of the patients and providers and were stratified by facility type (FEDs vs. HBED). Differences between frequency distribution by ED facility was tested using Pearson's Chi square. For continuous variables (age, ED length of stay (LOS), and time taken from ED arrival to assignment of first provider), the mean [standard deviation (SD)] was reported and Student’s t-test was used to assess the difference in mean scores received from patient surveys of FEDs and HBEDs. Statistical significance was determined using  $\alpha = 0.05$  as a cutoff. The difference in mean scores by type of ED facility was calculated and tested for significance with a paired t-test. Mean scores with 95% confidence interval difference for individual providers (N= 66) were calculated for each domain of the patient satisfaction survey. These results were plotted in graphs. Univariate and multivariable logistic regression analysis was conducted to predict the odds of receiving different score levels for the patient satisfaction survey by type of ED facility and adjusted for demographic characteristics of patients (age, sex, race, marital status and insurance type),

provider's demographic characteristics (age, sex and provider type) and ED length of stay.

Variables which were not significant in univariate analysis were excluded from the multivariable logistic regression model. All analyses were conducted using SAS® 9.4 (SAS Institute Inc, Cary, NC, USA).

## **Results:**

A total of 3,743 patient satisfaction survey responses were collected from patients for care provided by 45 physicians and 21 physician assistants. We included providers who received at least ten surveys from each practice setting. Paper survey response rates and electronic survey response rates are reported in Table 1. Table 2 demonstrates demographic characteristics of patients, providers and reported satisfaction scores stratified by ED facility type (FEDs vs. HBED). The average age of patients visiting all EDs was 56 years (Standard Deviation (SD):  $\pm 19.12$ ). For patients who completed the patient satisfaction survey, 63.2% were female. There was no difference in gender distribution between FEDs and HBEDs ( $P=.1346$ ).

There was a significant difference in demographic characteristics of patients (age, race, marital status and insurance type) with the exception of gender. There was also significant difference in ED LOS for patients seen at FEDs vs. HBEDs. Patients seen at FEDs were slightly younger compared to HBEDs (55 years vs 58 years;  $P=.0003$ ). Of the 66 providers included in our study, 29 (43.94%) were female and 45 (68.18%) were male. The average age of providers was 39.09 years ( $\pm 9.86$ ) [Table 3].

## **Satisfaction scores:**



**Overall visit rating:** For all survey responses, 94.52% (n=3,449) rated their overall visit as “satisfied” (11 to 20 points) and 1.67% (n=61) rated their visit as “not satisfied” (0 to 4 points). HBED patients showed a slightly higher proportion of overall visit ratings as “not satisfied” when compared to patients evaluated at FEDs (2.16% vs 1.24%). There were significant differences in the overall visit rating by type of ED facility the patient was seen at (FED vs. HBED  $P=.0022$ ). [Table 2]. Point estimates for mean overall visit rating were higher among FEDs patients when compared with HBED patients. Estimated mean difference between FED and HBED scores was 0.99 (0.76 – 1.22) [Table 4]. Figure 1 displays the mean difference point estimates with 95% CI for overall visit rating (FEDs vs. HBEDs) for individual providers (physicians and physician assistants). Seventeen providers had significant mean differences between patient satisfaction scores received from FEDs compared to HBEDs.

**Providers courtesy:** Approximately 4% of survey responders (n=132) reported “courtesy of the physician” as “very poor” or “poor” and 72.86% (n=2,698) reported their experience as “very good”. FED patients had higher proportion of physician courtesy rated as “very good” compared to HBED patients (79.20% vs 65.75%). There was a significant difference in reported rating by ED facility type visited by patients ( $P<.001$ ). Estimated mean difference rating for physician courtesy between FED vs. HBED scores were 0.19 [95% CI: 0.14 – 0.25] [Table 3]. Thirteen providers (physicians and physician assistants) had statistically significant mean score differences between their patient satisfaction rating received from FEDs and HBED for their courtesy to patients (*result not shown in table*). FED patients were 62% more likely to rate the “courtesy of the physician” as “very good” when compared to patients from HBEDs [OR: 1.62, 95%CI: 1.14 – 2.30] (*not shown in table*). After adjusting for potential confounding factors

(demographic characteristic of patients, demographic characteristics of providers and patient ED length of stay), the odds of FED patients rating providers courtesy as “very good” is 49% higher than HBED patients [OR: 1.49, 95%CI: 1.00 – 2.23] [Table 5].

**Took time to listen to patients:** Five percent (n=187) of survey responders rated the ability of providers to listen to them as “very poor” or “poor” and 71.70% (n=2,639) responded as “very good”. FEDs patients were more like to rate the providers ability to listen to patients as “very good” compared to HBED patients (77.99% vs 64.05%).

There was significant difference in patient’s rating for providers ability to “take time to listen to patients” between FEDs and HBEDs ( $P < .001$ ). Estimated mean difference reported between FED and HBED scores was 0.23 [95% CI: 0.17 – 0.29] [Table 4]. Sixteen providers had statistically significant mean score differences between their patient satisfaction rating received from FEDs and HBED for their ability in taking time to listen to patients (*result not shown in table*). FED patients were 94% more likely to rate the ability of physician to listen to patients as “very good” when compared to HBED patients [OR: 1.94, 95%CI: 1.44 – 2.62] (*not shown in table*). After adjusting for potential confounding factors, the odds of FED patients rating providers ability to listen to patients as “very good” is 61% higher than HBED patients [OR: 1.61, 95%CI: 1.12 – 2.29] [Table 5].

**Kept patient informed about treatment:** Approximately 6% (n=219) of the survey responders rated the concern of the physician to keep patients informed about treatment as “very poor” or “poor” and 68.61% (n=2,529) responded as “very good”. FED patients were more likely to rate providers concern to keep patient informed about treatment as “very good” than HBED patients

(76.22% vs 60.06%). There was significant difference in patient's rating for providers ability to "keep patient informed about treatment" between FEDs and HBEDs ( $p < 0.001$ ). Estimated mean difference reported between FEDs and HBEDs score was 0.29 [95% CI: 0.23 – 0.35] [Table 4]. Seventeen providers had statistically significant mean score differences between their patient satisfaction rating received from FEDs and HBED for their ability in keeping patients informed about treatment (*not shown in table*). FED patients were 2.34 times more likely to rate the ability of physician to keep patient informed about treatment as "very good" compared to patients from HBEDs [OR: 2.34, 95%CI: 1.76 – 3.11] (*not shown in table*). After adjusting for potential confounding factors, the odds of FED patients rating providers ability of physician to keep patient informed about treatment as "very good" is 73% higher than HBED patients [OR: 1.73, 95%CI: 1.24 – 2.41] [Table 5].

**Concern for patient's comfort:** Approximately 7% ( $n=255$ ) of the survey responders rated the degree of concern of physician for patient comfort as "very poor" or "poor" and 68.71% ( $n=2,528$ ) responded as "very good". FED patients were more likely to rate a provider's concern for patient's comfort as "very good" than HBED patients (76.14% vs 60.38%). There was significant difference in patient's rating for providers concern for patient's comfort between FEDs and HBEDs ( $P < .001$ ). Estimated mean difference reported between FED and HBED scores was 0.29 [95% CI: 0.22 – 0.36] [Table 4]. Seventeen providers had statistically significant mean score differences between their patient satisfaction rating received from FEDs and HBED for their concerns courtesy to patients (*not shown in table*). FED patients were two time more likely to rate the degree of concern of physician for patient comfort as "very good" when compared to HBED patients [OR: 2.12, 95%CI: 1.63 – 2.76] (*not shown in table*). After

adjusting for potential confounding factors, the odds of FED patients rating providers ability to listen to patients as “very good” is 58% higher than HBED patients [OR: 1.58, 95%CI: 1.16 – 2.14] [Table 5].

### **Discussion:**

In this study, patient satisfaction scores were analyzed for providers in a large health system with 17 ED locations. We found higher satisfaction scores for the same providers treating patients seen at FEDs compared to HBEDs. This finding was consistent across survey questions assessing multiple different aspects of patient interactions with providers. It is unknown as to whether these differences are attributed to differences in site-specific characteristics, changes in physician behavior between sites or unique patient populations at each ED. The timing of when patients receive their bill could impact patient satisfaction surveys if there are any unanticipated out of pocket costs associated with their visit.<sup>25</sup> Patients in our study were sent satisfaction surveys 10 days after their ED visit. Claims take on average 7.9 days to process within our system and are sent to the payors first, so patients are unlikely to receive their bill prior to their patient satisfaction survey.

With patient satisfaction now linked to federal reimbursement from Medicaid and Medicare, an emphasis has been placed on satisfaction as a measure of quality of care. In many places, this has led to physician salaries and incentives being tied to satisfaction scores. Our study shows that these scores are not consistent across different practice environments for the same providers. There are multiple factors that may account for a patient’s perception regarding quality of care, many of which are beyond the individual emergency medicine clinician’s control.

Factors contributing to patient satisfaction are complex. Prior research investigations in single center sites showed patient satisfaction in regard to overall ED care was correlated with ED specific factors such as ED wait times and crowding, and patient specific factors such as method of arrival and payer type.<sup>19,20</sup> Schwartz et al. looked at the relationship between overall ED satisfaction scores and ED administration of analgesic medications and did not find that receipt of analgesic or opioid analgesics contributed to overall scores.<sup>24</sup> Hwang et. al. found implementation of an ED fast track increased the odds of significant improvement in patient satisfaction metrics and may play an important role in improving performance.<sup>22</sup> Dayton et. al. showed that compared to national ED averages, academically affiliated FEDs had higher patient satisfaction scores (91<sup>st</sup> percentile vs. 50<sup>th</sup> percentile).<sup>10</sup> Xu et al. determined that the growth of FEDs in major metropolitan areas of Texas did not alleviate congestion in nearby hospitals.<sup>26</sup> Dark et. al. determined independent freestanding emergency departments had superior throughput measures in all areas evaluated.<sup>27</sup>

ED healthcare providers face increasing pressure to focus on patient satisfaction. We determined significant variation in patient satisfaction scores for the same providers in ED different practice environments. While we believe that patient satisfaction is an important component of the patient experience, our results bring into question the validity and utility of these scoring systems for individual providers. Further study into specific practice environment factors that may contribute to these differences in patient satisfaction scores between the FED and HBED environment is warranted before using these scores for physician reimbursement or as a measure of quality of care. Identifying contributing factors may allow for better utilization of patient satisfaction

scores and improved resource allocation from health care systems.

**Limitations:**

There were several limitations in this study. First, this study was done on a single health system. While 45 physicians and 21 PAs scores were analyzed, these results may be different for providers in other health systems and other regions. Additionally, most of the FEDs and HBEDs are in urban-suburban territories. This can influence patient responses based on population, and this must be considered when extrapolating findings to other populations, such as rural or culturally dense areas. We were unable to account for physician practice variation such as more time in one facility than another and changes from being a nocturnist to more varied practice or vice versa.

Another consideration for the significant difference in satisfaction between FEDs and HBEDs is the characteristics of each location. Facility atmosphere and site-specific characteristics may also influence a patient's perception of quality of care. Although FEDs and HBEDs are equipped to treat all acuity levels and both accept ambulance and private car arrivals, it has yet to be determined whether site-specific characteristics of FEDs lead to higher satisfaction. Further research of these dynamics would provide additional insight into the etiology of patient satisfaction.

Finally, the health system used in this study is a teaching system with residents and medical students at a number of the FEDS and HBEDs. Interactions with non-physician staff, including students, nurses, hospital technicians, EMTs, and registration personnel can greatly influence a

patient's perception of care received. Although survey results explicitly state that patients are to respond only to attending physician interactions, it is impossible to discern whether other interactions influenced the patients' responses in either direction.

**Conclusion:**

Individual physicians and physician assistants, who practice at both types of facilities, consistently received higher satisfaction ratings from patients at FEDs compared to HBEDs. Further research is needed to better understand the etiology of these differences.

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Author Contribution Section

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Courtney Smalley – Writing Original Draft; Writing - Review and Editing

McKinsey Muir – Data Curation; Writing – Review and Editing

Seth Podolsky – Methodology; Writing Original Draft

Baruch Fertel – Methodology; Data Curation; Writing Original Draft; Writing Review and Editing

**Figure 1: Difference between mean Press Ganey score for overall visit rating between FSED and HBED for physicians, showing point estimates and 95% CI.**

Table 1. HBED = Hospital-based emergency department. FED = Freestanding emergency department. This represents the number of surveys mailed and returned as well as the percent response rate for each site. Those who were not randomly selected to receive a paper survey and had a valid email address received an eSurvey (electronic survey).

Site Code	Mailed	Returned	Mailed Response Rate	Sample eSurvey Rate	eSurvey Response Rate	Total Volume	Discharge Volume
HBED 01	12,124	1,302	10.7%	23.1%	13.2%	54,402	29,532
HBED 02	8,678	1,145	13.2%	13.3%	15.2%	41,468	30,039
HBED 03	16,194	786	4.9%	47.1%	7.2%	42,448	33,502
HBED 04	19,353	2,115	10.9%	20.0%	13.0%	63,875	39,248
HBED 05	13,574	2,199	16.2%	24.0%	18.9%	50,646	28,053
HBED 06	1,672	142	8.5%	24.0%	n/a	8,502	7,204
HBED 07	14,415	580	4.0%	52.6%	7.7%	37,179	29,168
HBED 08	15,685	930	5.9%	38.5%	8.6%	65,038	42,790
HBED 09	17,030	1,143	6.7%	50.0%	11.5%	43,117	32,513
HBED 10	8,862	1,312	14.8%	33.3%	18.7%	25,832	16,829
HBED 11	9,529	449	4.7%	30.0%	7.3%	36,169	26,139
FED 01	6,135	816	13.3%	12.5%	15.0%	19,092	16,583
FED 02	5,427	772	14.2%	12.5%	15.7%	16,381	14,445
FED 03	6,553	830	12.7%	12.5%	13.7%	18,319	16,016
FED 04	6,316	567	9.0%	48.0%	9.1%	16,289	13,310
FED 05	7,111	418	5.9%	42.9%	8.4%	18,295	15,686
FED 06	6,859	845	12.3%	22.2%	13.5%	22,037	17,125

Table 2: Descriptive characteristics of patients visiting emergency facility and Press Ganey scores reported, stratified by emergency facility visited.				
Characteristics	Overall (N = 3,743)	Emergency Facilities		P value
		FEDs 1,974 (52.74)	HBED 1,769 (47.26)	
Age, in years (Mean $\pm$ SD)	56 ( $\pm$ 19.12)	55.41 ( $\pm$ 20.43)	57.66 ( $\pm$ 17.48)	0.0003
ED length of stay, in minutes (Mean $\pm$ SD)	185.04 ( $\pm$ 141.35)	133.30 ( $\pm$ 68.41)	242.70 (175.40)	<.0001
Time taken from ED arrival to assignment of first provider, in minutes (Mean $\pm$ SD)	22.43 ( $\pm$ 77.57)	17.68 ( $\pm$ 20.82)	27.74 ( $\pm$ 110.40)	0.0002
Gender, n (%)				0.1346
Female	2,365 (63.20)	1,269 (64.32)	1,096 (61.96)	
Male	1,377 (36.80)	704 (35.68)	673 (38.04)	
Age group, in years, n (%)				<.0001
< 18 years	129 (3.45)	113 (5.72)	16 (0.90)	
18 to 45	858 (22.92)	445 (22.54)	413 (23.35)	
46 to 65	1,414 (37.78)	713 (36.12)	701 (39.63)	
66 to 85	1,186 (31.69)	620 (31.41)	566 (32.00)	
86 and above	156 (4.17)	83 (4.20)	73 (4.13)	
Race, n (%)				<.0001
Whites	3,194 (85.33)	1,785 (90.43)	1,409 (79.65)	
Blacks	391 (10.45)	129 (6.53)	262 (14.81)	
Asians	21 (0.56)	12 (0.61)	9 (0.51)	
Multi-racial	45 (1.20)	20 (1.01)	25 (1.41)	
Unknown	92 (2.46)	28 (1.42)	64 (3.62)	
Marital Status, n (%)				0.0003
Single	979 (26.16)	476 (24.11)	503 (28.43)	
Married	2,068 (55.25)	1,156 (58.56)	912 (51.55)	
Divorced	424 (11.33)	206 (10.44)	218 (12.32)	
Widowed	272 (7.27)	136 (6.89)	136 (7.69)	
Insurance, n (%)				<.0001
Medicaid	436 (11.65)	173 (8.77)	263 (14.87)	
Medicare	1,490 (39.82)	747 (37.86)	743 (42.00)	
Private	1,656 (44.25)	973 (49.32)	683 (38.61)	
Self-Pay	77 (2.06)	36 (1.82)	41 (2.32)	
Others	83 (2.22)	44 (2.23)	39 (2.20)	
Patient Disposition, n (%)				0.0008
Discharged	3,717 (99.31)	1,952 (98.89)	1,765 (99.77)	
Transferred to another facility	23 (0.61)	21 (1.06)	2 (0.11)	
Others	3 (0.08)	1 (0.05)	2 (0.11)	
Press Ganey Scores				
Overall visit rating, n (%)				0.0022
Not Satisfied (0 to 4)	61 (1.67)	24 (1.24)	37 (2.16)	
Somewhat Satisfied (5 to 10)	139 (3.81)	58 (3.00)	81 (4.72)	
Satisfied (11 to 20)	3,449 (94.52)	1,851 (95.76)	1,598 (93.12)	
Physician's Courtesy, n (%)				<.0001
Very Poor /Poor	132 (3.56)	60 (3.07)	72 (4.12)	
Fair	197 (5.32)	74 (3.78)	123 (7.04)	
Good	676 (18.26)	273 (13.95)	403 (23.08)	
Very Good	2,698 (72.86)	1,550 (79.20)	1,148 (65.75)	
Took time to listen to Patients, n (%)				<.0001
Very Poor / Poor	187 (5.06)	77 (3.95)	110 (6.30)	
Fair	235 (6.36)	98 (5.03)	137 (7.84)	
Good	635 (17.18)	254 (13.03)	387 (21.81)	
Very Good	2,639 (71.40)	1,520 (77.99)	1,119 (64.05)	
Kept patient informed about treatment, n (%)				<.0001
Very Poor/Poor	219 (5.94)	83 (4.25)	136 (7.84)	
Fair	276 (7.49)	107 (5.48)	169 (9.74)	
Good	662 (17.96)	274 (14.04)	388 (22.36)	

Very Good	2,529 (68.61)	1,487 (76.22)	1,042 (60.06)	
<b>Concerned for patient's comfort, <i>n</i> (%)</b>				<.0001
Very Poor / Poor	255 (6.93)	102 (5.24)	153 (8.82)	
Fair	266 (7.23)	103 (5.30)	163 (9.40)	
Good	630 (17.12)	259 (13.32)	371 (21.40)	
Very Good	2,528 (68.71)	1,481 (76.14)	1,047 (60.38)	
*Significant P-values:< 0.05 SD: Standard Deviation; FED: Freestanding Emergency Department; HBED; Hospital Based Emergency Department				

**Table 3: Demographic characteristics of providers. (N = 66)**

<b>Gender, n (%)</b>	
Female	29 (43.94)
Male	37 (56.06)
<b>Provider Type, n (%)</b>	
Physician	45 (68.18)
Physician Assistant	21 (31.82)
<b>Age, years (mean <math>\pm</math> SD)</b>	39.09 ( $\pm$ 9.86)
<b>Age Group, years, n (%)</b>	
25 to 35	29 (46.03)
36 to 45	21 (33.33)
46 to 55	7 (11.11)
56 and above	6 (9.52)
SD: Standard Deviation	

**Table 4: Mean differences in Press Ganey scores (range 1 to 5) reported by patients in hospital-based emergency care and free-standing emergency care. (N=3,743)**

<b>Press Ganey Survey Item</b>	<b>FED N = 1,974</b>	<b>HBED N = 1,769</b>	<b>Mean Difference (95% CI) *</b>
Overall visit rating	18.48 ( $\pm$ 3.21)	17.49 ( $\pm$ 3.84)	0.99 (0.76 – 1.22)
Physician's Courtesy	4.68 ( $\pm$ 0.76)	4.48 ( $\pm$ 0.88)	0.19 (0.14 – 0.25)
Took time to listen to patients	4.63 ( $\pm$ 0.83)	4.40 ( $\pm$ 0.98)	0.23 (0.17 - 0.29)
Kept patient informed about treatment	4.59 ( $\pm$ 0.86)	4.30 ( $\pm$ 1.06)	0.29 (0.23 - 0.35)
Concern for patient's comfort	4.57 ( $\pm$ 0.91)	4.28 ( $\pm$ 1.10)	0.29 (0.22 - 0.36)
*Mean difference = Mean scores from FED – Mean scores from HBED; CI: Confidence interval			

**Table 5: Multivariable logistic regression model to assess relationship between demographic characteristics (of patients and providers) and clinical infrastructure on the Press Ganey scores reported by the patients**

	Physician's courtesy rating [N*=3,701] Adjusted Odds Ratio [95%CI] Reference rating: "Poor/Very Poor"			Took time to listen to patients rating [N*=3,694] Adjusted Odds Ratio [95%CI]			Kept patient informed about treatment rating [N*=3,684] Adjusted Odds Ratio [95%CI]			Concern for patient's comfort rating [N*=3,677] Adjusted Odds Ratio [95%CI]		
Factors	Fair	Good	Very	Fair	Good	Very	Fair	Good	Very	Fair	Good	Very Good
<b>ED Facility</b>												
FEDs	0.98 [0.59 – 1.64]	0.96 [0.62 – 1.47]	1.49 [1.00]	1.10 [0.70]	1.03 [0.69]	1.61 [1.12]	1.05 [0.67]	1.02 [0.71]	1.73 [1.24]	1.00 [0.67]	0.95 [0.68]	1.58 [1.16 –
HBED	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
<b>Gender</b>												
Female	1.08 [0.64 – 1.80]	0.67 [0.43 – 1.03]	0.64 [0.42]	0.88 [0.57]	0.67 [0.46]	0.62 [0.44]	0.90 [0.61]	0.79 [0.56]	0.71 [0.51]	0.80 [0.54]	0.73 [0.52]	0.64 [0.47 –
Male	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
<b>Age group,</b>												
18 to 45	0.15 [0.02 – 1.34]	0.15 [0.02 – 1.05]	0.10 [0.01]	0.22 [0.04]	0.19 [0.04]	0.14 [0.03]	0.29 [0.07]	0.36 [0.10]	0.24 [0.07]	0.22 [0.04]	0.18 [0.04]	0.13 [0.03 –
46 to 65	0.21 [0.02 – 1.91]	0.34 [0.04 – 2.70]	0.30 [0.04]	0.34 [0.07]	0.45 [0.09]	0.38 [0.09]	0.41 [0.09]	0.67 [0.18]	0.59 [0.18]	0.41 [0.08]	0.39 [0.08]	0.38 [0.09 –
66 and	0.38 [0.04 – 3.67]	0.96 [0.11 – 8.18]	1.06 [0.13]	0.65 [0.11]	0.99 [0.19]	1.05 [0.22]	0.75 [0.17]	1.44 [0.38]	1.42 [0.41]	0.67 [0.12]	0.92 [0.19]	1.01 [0.23 –
< 18	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
<b>Race</b>												
Whites	--	--	--	0.63 [0.35]	0.63 [0.37]	0.94 [0.58]	--	--	--	--	--	--
Others	--	--	--	0.53 [0.18]	0.83 [0.35]	0.89 [0.39]	--	--	--	--	--	--
Blacks	--	--	--	Reference	Reference	Reference	--	--	--	--	--	--
<b>Marital</b>												
Married	0.91 [0.54 – 1.54]	0.84 [0.53 – 1.32]	0.93 [0.61]	--	--	--	1.15 [0.75]	1.03 [0.71]	1.15 [0.82]	0.71 [0.46]	0.79 [0.54]	0.81 [0.57 –
Divorced	0.79 [0.35 – 1.49]	0.95 [0.47 – 1.89]	0.85 [0.44]	--	--	--	1.25 [0.66]	1.12 [0.64]	0.96 [0.57]	0.84 [0.45]	0.83 [0.49]	0.76 [0.47 –
Widowed	0.27 [0.07 – 1.00]	0.67 [0.26 – 1.74]	0.52 [0.21]	--	--	--	0.89 [0.35]	1.29 [0.58]	0.89 [0.42]	0.45 [0.16]	1.15 [0.52]	0.80 [0.38 –
Single	Reference	Reference	Reference	--	--	--	Reference	Reference	Reference	Reference	Reference	Reference
<b>Insurance</b>												
Medicaid	--	--	--	0.19 [0.04]	0.26 [0.06]	0.22 [0.05]	--	--	--	--	--	--
Medicare	--	--	--	0.22 [0.04]	0.45 [0.09]	0.35 [0.08]	--	--	--	--	--	--
Private	--	--	--	0.26 [0.05]	0.43 [0.09]	0.40 [0.09]	--	--	--	--	--	--
Others	--	--	--	0.25 [0.03]	0.19 [0.03]	0.47 [0.08]	--	--	--	--	--	--
Self-Pay	--	--	--	Reference	Reference	Reference						
<b>Provider's Age group,</b>												
36 to 45	--	--	--	0.86 [0.54 – 1.37]	0.88 [0.59 – 1.31]	1.03 [0.72 – 1.49]	--	--	--	--	--	--
46 to 55	--	--	--	0.91 [0.51]	0.93 [0.56]	0.75 [0.47]	--	--	--	--	--	--
56 and	--	--	--	0.41 [0.20]	0.64 [0.37]	0.45 [0.27]	--	--	--	--	--	--
25 to 35	--	--	--	Reference	Reference	Reference	--	--	--	--	--	--
<b>Provider</b>												
Physician Assistant	--	--	--	--	--	--	0.91 [0.54 – 1.48]	1.21 [0.80 – 1.83]	1.31 [0.90 – 1.92]	--	--	--
Physician	--	--	--	--	--	--	Reference	Reference	Reference			
<b>ED length of stay</b>	1.87 [1.25 – 2.79]	1.31 [0.93 – 1.83]	0.84 [0.61 – 1.15]	1.07 [0.75 – 1.51]	1.04 [0.77 – 1.41]	0.67 [0.51 – 0.89]	1.08 [0.77 – 1.52]	0.78 [0.58 – 1.05]	0.56 [0.43 – 0.74]	0.99 [0.71 – 1.39]	0.84 [0.63 – 1.11]	0.56 [0.43 – 0.72]

HBED: Hospital-Based Emergency Department; FSED: Free Standing Emergency Department;

N\*: Sample size used for the multivariable logistic regression model

Note: Multiple logistic regression for each Press Ganey question was adjusted for demographic characteristic of patients, demographic characteristics of provider and EDLOS which were significant in univariate logistic regression models.

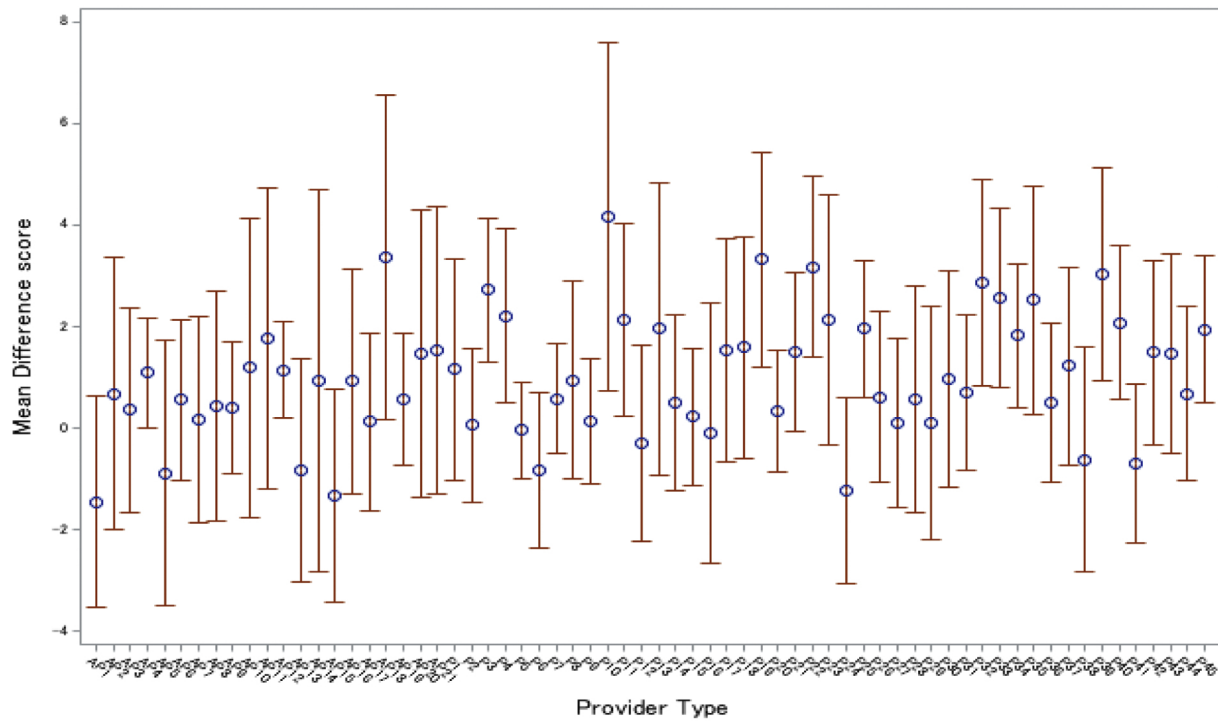


Figure 1