Key Drivers of Patient Satisfaction in a Lumbar Spine Surgery Setting

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Introduction

The Patient Experience of Care - composed of nine dimensions derived from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey - is being used by the Centers for Medicare and Medicaid Services to adjust hospital reimbursement[1]. Currently, there are minimal data on how scores on the constituent HCAHPS items impact the global dimension of satisfaction, Overall Hospital Rating (OHR). The objective of our study was to determine the key drivers of overall patient satisfaction in the inpatient lumbar spine surgery setting.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Identify which components of the patient experience of lumbar spine surgery is most strongly associated with high overall satisfaction

Results

460 patients undergoing lumbar spine surgery were included, 79.8% of which selected a top-box OHR. Overall health and prior lumbar surgery status were patient characteristics significantly associated with a top-box OHR (Table 1, Table 2). The survey items that were associated with the greatest increased odds of selecting a top-box OHR included: staff always did everything they could to help with pain (OR 12.6, 95% CI 6.7 - 23.8), and nurses were always respectful (OR 11.7, 95% CI 5.7 - 23.8). These results as well as the remaining associations between individual survey items and overall satisfaction are displayed in Table 3.

Methods

Demographic and preoperative patient characteristics were obtained. Patients selecting a top-box score for OHR (a 9 or 10 out of 10) were considered "satisfied". A baseline multivariable logistic regression model was then developed to analyze the association between patient characteristics and top-box OHR. Then multivariable logistic regression models adjusting for patient-level covariates were used to determine the association between individual components of the HCAHPS survey and a top-box OHR.

Table 1 - Population Overview

Variables		Unsatisfied (n=92, 20.0%)	Satisfied (n=368, 79.8%)	P value
Age		62.94 +/- 12.17	63.92 +/- 11.13	0.447
Gender				0.423
	Male	49/92 (53.3%)	213/368 (57.9%)	
	Female	43/92 (46.7%)	155/368	
Race				0.198
	White	89/92 (96.7%)	339/364 (93.1%)	
	Other	3/92 (3.3%)	25/364 (6.9%)	
Overall Health				0.039*
	Excellent	2/85 (2.4%)	37/356 (10.4%)	
	Very Good	28/86 (32.6%)	137/356 (38.5%)	
	Good	38/86 (44.2%)	142/356 (39.9%)	
	Fair	16/86 (18.6%)	38/356 (10.7%)	
	Poor	1/86 (1.2%)	2/356 (0.6%)	
Prior Surgery		42/92 (45.7%)	127/368 (34.5%)	0.047*
Primary Diagnosis				0.558
	Stenosis	42/92 (45.7%)	155/368 (42.1%)	
	DDD¹ or Spondylosis	21/92 (22.8%)	84/368 (22.8%)	
	Spondylolisthesis	18/92 (19.6%)	60/368 (16.3%)	
	HNP²	11/92 (12.0%)	66/368 (17.9%)	
	Spondylolysis	0/92 (0.0%)	3/368 (0.8%)	
Comorbidities				
	Cancer	24/80 (30.0%)	70/342 (20.5%)	0.065
	Chronic renal failure	3/80 (3.8%)	4/342 (1.2%)	0.129
	Diabetes	21/80 (26.3%)	73/342 (21.3%)	0.343
	Coronary artery disease	10/80 (12.5%)	46/342 (13.5%)	0.822
	Hypertension	44/80 (55.0%)	166/342 (48.5%)	0.298
	Stroke	6/80 (7.5%)	14/342 (4.1%)	0.197
Median BMI³ (IQR⁴)		29.80 (26.11 – 34.00)	29.00 (25.93 – 32.85)	0.374
Median Income (IQR)		$54,904 ($45,996 – 65,816)	$53,899 ($44,144 – 68,310)	0.761
Median Length of Hospital Stay (IQR)		3.00 (2.00 – 4.00)	3.00 (2.00 – 4.00)	0.101
Median Survey Response Time (IQR)		25.50 (17.00 – 37.00)	21.00 (16.00 – 35.00)	0.063
EQ5D⁵		0.542 +/- 0.221	0.562 +/- 0.205	0.440
PHQ⁶		7.80 +/- 5.87	7.12 +/- 5.76	0.343
PDQ⁷		76.94 +/- 28.71	73.45 +/- 28.67	0.334

¹DDD: Degenerative disc disease
²HNP: Herniated nucleus pulposus
³BMI: Body mass index
⁴IQR: Interquartile range
⁵EQ-5D: EuroQol 5-Dimensions
⁶PDQ: Pain Disability Questionnaire
⁷PHQ-9 : Patient Health Questionnaire 9
*All p values < 0.05 were considered statistically significant

Table 2 – Baseline multivariable logistic regression model predicting a top-box Overall Hospital Rating (OHR)

Variable	Odds Ratio (95% Confidence Interval)	P value
Overall health	1.59 (1.09 – 2.32)	0.016*
Prior lumbar spine surgery	0.549 (0.323 – 0.934)	0.027*
History of chronic renal failure	0.217 (0.038 – 1.245)	0.086
White race	0.191 (0.024 – 1.523)	0.118
History of cancer	0.620 (0.340 – 1.129)	0.118
History of stroke	0.528 (0.185 – 1.505)	0.232
Survey response time	1.051 (0.923 – 1.198)	0.452
Length of hospital stay	0.997 (0.981 – 1.013)	0.710
Mental health	0.987 (0.708 – 1.375)	0.936

*All p values < 0.05 were considered statistically significant

Table 3 – Individual HCAHPS items and their association with top-box Overall Hospital Rating (OHR)

Survey Item Response	Top-Box Overall Rating Adjusted OR (CI)	Adjusted P value
The hospital staff always did everything they could to help you with your pain	12.60 (6.67 – 23.79)	<0.001*
Nurses always treated you with courtesy and respect	11.66 (5.70 – 23.84)	<0.001*
Nurses always listened carefully to you	8.88 (4.90 – 16.10)	<0.001*
Before giving you any new medicine, hospital staff always described possible side effects in a way you could understand	8.44 (3.56 – 20.02)	<0.001*
Staff took your preferences and those of your family into account in deciding what your health care needs would be	8.21 (4.25 – 15.87)	<0.001*
Doctors always treated you with courtesy and respect	6.67 (3.30 – 13.51)	<0.001*
Your room and bathroom were always kept clean	6.20 (3.43 – 11.22)	<0.001*
You had a good understanding of the things you were responsible for in managing your health	6.06 (3.40 – 10.81)	<0.001*
Your pain was always well controlled	5.72 (3.11 – 10.53)	<0.001*
You always got help in getting to the bathroom or using a bedpan as soon as you wanted it	5.55 (2.88 – 10.69)	<0.001*
Doctors always listened carefully to you	5.54 (2.97 – 10.34)	<0.001*
Doctors always explained things in a way you could understand	5.06 (2.77 – 9.23)	<0.001*
The area around your room was always quiet at night	4.42 (2.42 – 8.06)	<0.001*
Nurses always explained things in a way you could understand	4.10 (2.29 – 7.34)	<0.001*
Before giving you any new medicine, hospital staff always told you what the medicine was for	3.53 (1.79 – 6.97)	0.002*
After you pressed the call button, you always got help as soon as you wanted it	3.08 (1.74 – 5.45)	<0.001*
You clearly understood the purpose for taking each of your medications	2.57 (1.49 – 4.42)	0.004*
Patient needed help from staff in using bathroom/bedpan	0.50 (0.26 – 0.96)	0.152
Hospital staff talked with you about whether you would have the help you needed when you left the hospital	2.68 (0.95 – 7.6)	0.184
You got information in writing about what symptoms or health problems to look out for after you left the hospital	3.10 (1.11 – 8.62)	0.152
You needed pain medication during your hospital stay	0.35 (0.04 – 3.54)	0.752
After leaving the hospital, you went directly to your own home	1.37 (0.642 – 2.93)	0.752

*All p values < 0.05 were considered statistically significant

Conclusions

Patient experience of care is increasingly being used to adjust hospital and physician reimbursement. The current study analyzed the key drivers of patient experience among patients undergoing lumbar spine surgery and discovered several important associations. Staff always doing everything they could to help with pain and nurses always being respectful were the strongest predictors of overall satisfaction in this population. These findings highlight opportunities for quality improvement efforts in the lumbar spine surgery setting.

References

[1] VanLare JM, Conway PH: Value-Based Purchasing - National Programs to Move from Volume to Value, **N Engl J Med** 367:292-295,2012.