Improving Patient Satisfaction in the Orthopaedic Trauma Population

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Objectives: Patient satisfaction is a key determinant of the quality of care and an important component of pay for performance metrics. The purpose of this study was to evaluate the impact of a simple intervention aimed to increase patients' understanding of their orthopaedic trauma surgeon and improve patient satisfaction with the overall quality of inpatient care delivered by the attending surgeon.

Design: Prospective quality improvement initiative using a randomized intervention.

Setting: Level 1 academic trauma center.

Patients/Participants: Two hundred twelve patients were eligible; 100 patients were randomized to the intervention group, and 112 patients were randomized to the control group. Overall, 76 patients could be reached for follow-up satisfaction survey, including 34 patients in the intervention group and 42 patients in the control group.

Intervention: Patients randomized to the intervention group received an attending biosketch card, which included a picture of the attending orthopaedic surgeon with a brief synopsis of his educational background, specialty, surgical interests, and research interests.

Main Outcome Measures: Our primary outcome measure was a patient satisfaction survey assessing patients' rating of the overall quality of inpatient care delivered by the attending surgeon.

Results: Overall, 25 (74%) of 34 patients who received an attending biosketch card reported "excellent overall quality of doctor care," whereas only 22 (52%) of 42 patients in the control group reported "excellent overall quality of doctor care" ($P = 0.05$). Age, gender, race, education, insurance status, primary injury type, and the length of hospital stay were not significant with reference to "excellent" outcome.

Conclusions: Clinically significant improvements in satisfaction with the overall quality of inpatient care by the attending surgeon were identified in patients who received a biosketch card of his or her attending orthopaedic surgeon.

Key Words: patient satisfaction, orthopaedic trauma, patient–physician communication, pay for performance

Level of Evidence: Therapeutic level II. See Instructions for Authors for a complete description of levels of evidence.

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INTRODUCTION

Patient satisfaction is a key determinant of the quality of care and an important component of pay for performance metrics. The Centers for Medicare & Medicaid Services (CMS) Hospital Inpatient Value-Based Purchasing Program implemented value-based incentive payments that link Medicare reimbursements to patient satisfaction and physician surveys completed by patients.[1] There is a paucity of data in the orthopaedic literature assessing patient satisfaction, especially regarding patients with orthopaedic trauma.

Surprisingly, up to 90% of medical inpatients are unable to correctly name their treating physician when asked to identify the physician in charge of his or her care at the time of discharge.[2–4] The orthopaedic trauma patient population is even more challenging due to traumatic injuries warranting inpatient surgery in the acute setting as opposed to elective surgeries or medical admissions. Admissions from the emergency department have been associated with a decreased ability of patients to identify their treating physician.[3] Furthermore, the acuity of these injuries does not always permit patients and surgeons to establish a strong patient–physician relationship before the surgery.

Patient–physician communication is integral to improving clinical relationships and improving patient satisfaction.[5,6] Surgeons exhibit a tendency to focus on operative quality and outcomes, whereas patients place greater value on the surgeon–patient interaction.[7,8] Establishing rapport and a strong patient–physician relationship in the acute trauma setting is challenging but being able to recognize the name and face of the attending orthopaedic surgeon is a critical step in the communication chain. The presence of attending physician photographs in patient rooms has been associated with a significant improvement in the ability to correctly identify

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the attending physician and is associated with improved patient satisfaction.[4,9]

The purpose of this prospective quality improvement study was to evaluate the impact of a simple intervention aimed to increase patient recognition of the attending orthopaedic trauma surgeon and improve patient satisfaction with the overall quality of care delivered by the attending surgeon during the inpatient stay. Patients randomized to intervention group received an attending biosketch card, whereas patients randomized to the control group did not receive a card. Our hypothesis was that the patients in the intervention group (received attending biosketch card) would have higher patient satisfaction scores regarding the overall care provided by his or her attending orthopaedic trauma surgeon.

PATIENTS AND METHODS

Study Design and Population

Our investigation was a prospective quality improvement initiative evaluating adult patients admitted to the inpatient orthopaedic trauma service at a single, high-volume, level-1 trauma center from January 2011 to December 2011 using a descriptive survey and a randomized intervention.

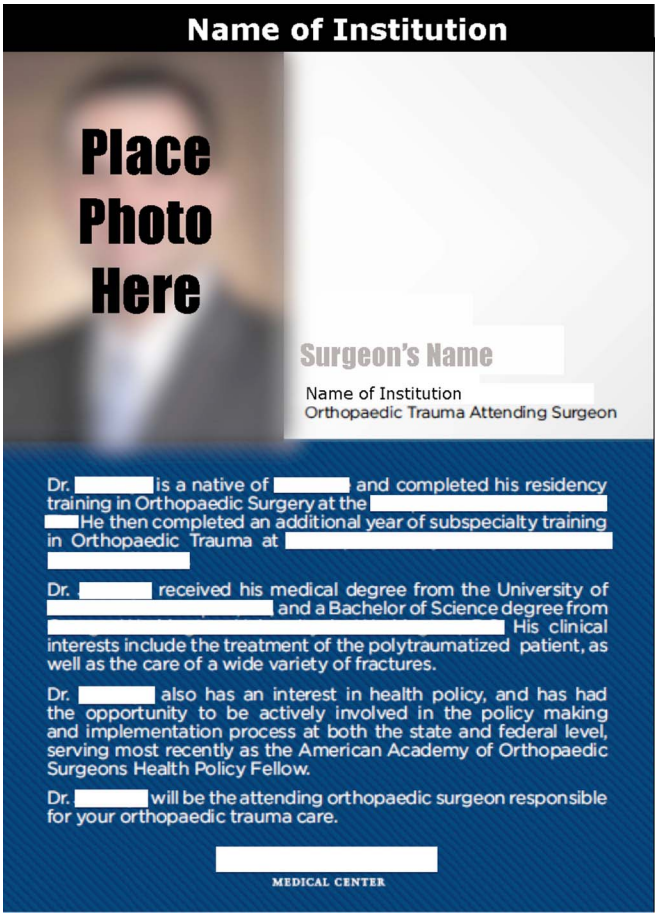

FIGURE 1. Intervention. Example of attending biosketch card.

Three hundred ninety consecutive patients were considered for inclusion. Eligible patients were 18 years or older, English speaking, and had an isolated orthopaedic injury requiring admission to the orthopaedic trauma service and orthopaedic surgery on the same admission. Criteria for exclusion included (1) previous orthopaedic trauma injuries treated at our institution, (2) traumatic brain injury, (3) admission greater than 7 days, (4) visually impaired, (5) intoxicated, (6) incarcerated, and (7) intubated or sedated.

Eligible patients were randomized to the intervention group (received attending biosketch card) or the control group (no card) using a computerized random number generator. A research assistant delivered a biosketch card within 24 hours of admission to each patient randomized to the intervention group. Both groups received standard preoperative and postoperative care. To blind the outcome measure, the research assistant did not explain the reason for the card to the patient, nor was the patient informed that he or she was part of a study. A waiver of consent was approved. Furthermore, the attending orthopaedic trauma surgeons were not informed of which patients did receive the card. Five full-time fellowship trained orthopaedic traumatologists admitted patients during the study period.

TABLE 1. Baseline Demographic and Clinical Characteristics Comparing Patients Who Completed Surveys (n = 76) Versus Patients Who Did Not (n = 136)

Characteristic	Completed Survey	Did Not Complete Survey	*P*
Mean age (SD), yr	41.5 (15.8)	42.8 (17.9)	0.61
Gender, n (%)			
Female	45 (59)	78 (57)	0.79
Male	31 (41)	58 (43)	
Race, n (%)			0.82
White	63 (83)	111 (82)	
Nonwhite	13 (17)	25 (18)	
Education, n (%)			0.36
Less than high school	9 (12)	20 (15)	
High school	33 (43)	64 (47)	
College	26 (34)	46 (34)	
Postgraduate	8 (11)	6 (4)	
Insurance, n (%)			0.67
None	16 (21)	29 (21)	
Private	44 (58)	69 (51)	
Medicaid	7 (9)	14 (10)	
Medicare	4 (5)	15 (11)	
Worker's compensation	5 (7)	9 (7)	
Primary injury, n (%)			0.96
Lower extremity/pelvis	65 (86)	116 (85)	
Upper extremity	11 (14)	20 (15)	
Mean length of stay (SD), d	3.4 (1.6)	3.5 (1.7)	0.54

Student *t* tests were used to compare continuous variables that are presented as mean (SD). Fisher exact test of χ^2 were used to compare categorical variables.

Within 2 weeks of discharge from the hospital, but before the patient's first clinic visit, a blinded third-party survey group, [Professional Resource Consultants (PRC), Inc, Omaha, NE] telephoned each patient to complete a post-discharge patient satisfaction survey. PRC is the CMS-approved survey vendor for our institution. PRC routinely completes surveys for quality improvement of our institution by randomly sampling discharged patients. However, as part of our investigation, instead of a random sampling, we independently contracted PRC using grant funding to complete a telephonic satisfaction survey for 100% of patients enrolled in our study. The protocol for the follow-up telephone calls was an attempt to reach 100% of our patient population through a minimum of 5 phone calls at separate time intervals ranging from 8:30 AM to 8:30 PM Monday through Friday, excluding holidays. During the postdischarge telephonic interview, each patient was asked questions on satisfaction adapted from the CMS Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey.[10] HCAHPS is the first national, standardized, and publicly reported survey of patients' perspectives of hospital care.[10]

Intervention

The biosketch card included a picture of the attending orthopaedic surgeon with a brief synopsis of his educational background, specialty, surgical interests, research interests, and other interests including hobbies (Fig. 1).

Measures

Demographic and Injury Characteristics

Patient characteristics were abstracted from the medical record. Data included patient age, sex, race, education, insurance, location of primary injury, length of hospital stay, or the presence of multiple orthopaedic injuries.

Satisfaction

Questions adapted from the HCAHPS survey were completed by telephonic survey. The question used to assess the primary outcome measure and the overall patient satisfaction with inpatient care delivered by the attending surgeon was "Overall, how would you rate the quality of doctor care (excellent, very good, good, fair, or poor)?" Participants were asked to rate each question on a 5-point Likert scale with scoring alternatives ranging from poor to excellent. Other questions asked in the telephonic survey included "How would you rate your doctor on treating you with consideration for your needs as an individual?" "How would you rate your doctor on availability to see you when needed?" and "How would you rate your doctor on involving you in decisions about your care?"

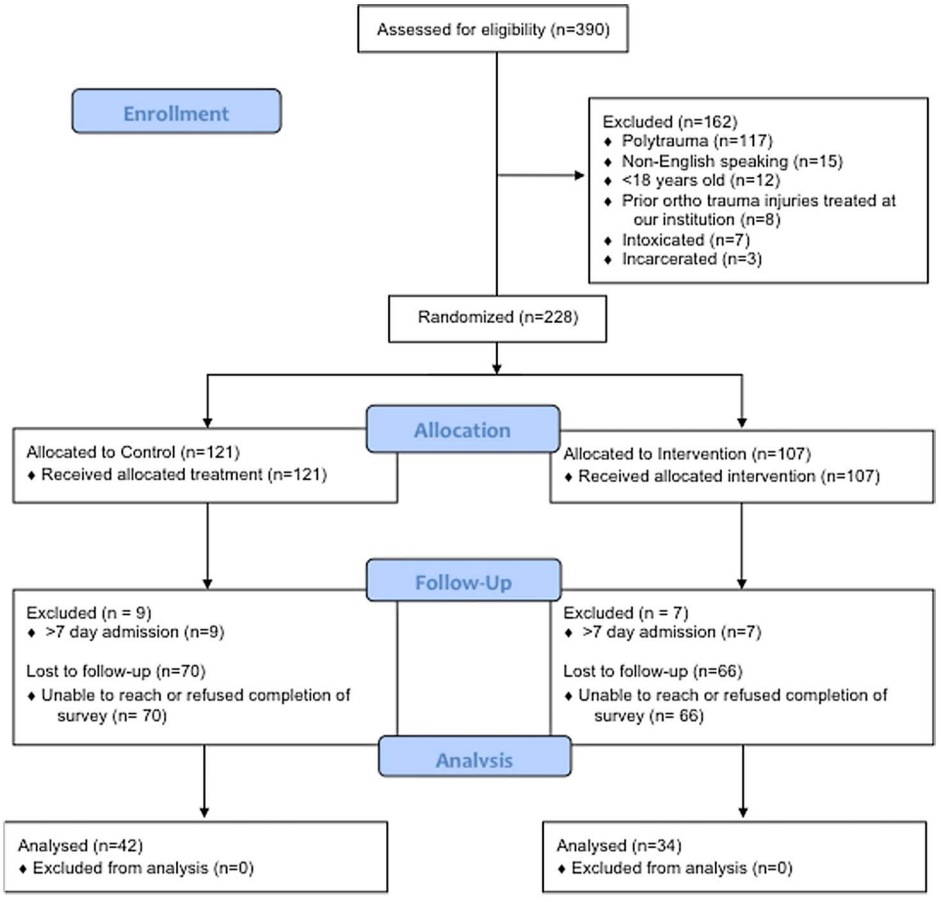

FIGURE 2. Patient flow diagram.

TABLE 2. Baseline Demographic and Clinical Characteristics of Study Population (n = 212)

Characteristic	Intervention (n = 100)	Control (n = 112)	*P*
Mean age (SD), yr	42.7 (17.3)	41.9 (17.1)	0.74
Gender, n (%)			
Female	40 (40)	49 (44)	0.58
Male	60 (60)	63 (56)	
Race, n (%)			
White	84 (84)	90 (80)	0.49
Nonwhite	16 (16)	22 (20)	
Education, n (%)			
Less than high school	13 (13)	16 (14)	0.76
High school	43 (43)	54 (48)	
College	36 (36)	36 (32)	
Postgraduate	8 (8)	6 (6)	
Insurance, n (%)			0.56
None	21 (21)	24 (21)	
Private	50 (50)	63 (56)	
Medicaid	13 (13)	8 (7)	
Medicare	8 (8)	11 (10)	
Worker's compensation	8 (8)	6 (6)	
Primary injury, n (%)			0.31
Lower extremity/pelvis	88 (88)	93 (83)	
Upper extremity	12 (12)	19 (17)	
Mean length of stay (SD), d	3.5 (1.5)	3.4 (1.8)	0.67

Student *t* tests were used to compare continuous variables that are presented as mean (SD). χ^2 or Fisher exact test were used to compare categorical variables.

Statistical Analysis

Sample size calculation was estimated in the absence of an established minimal clinically important difference for the primary outcome measure using a predicted "excellent" satisfaction rate in the control group of 40% and predicted "excellent" rate in the intervention group of 75%. Using 80% power and 5% significance, a sample size calculation revealed that 36 patients would be needed per group.

Descriptive statistics were used to summarize all study variables. Continuous variables of age and the length of hospital stay were examined for the assumptions required for parametric analyses. Patients with complete data were compared with those without follow-up data using χ^2 or Fisher exact tests. Fisher exact or χ^2 tests assessed differences in patient demographics and injury characteristics by intervention group (biosketch card vs. no card). The association between the intervention group and patient satisfaction outcome was examined using Wilcoxon rank sum tests. Satisfaction scores were then dichotomized into excellent versus very good to poor. Separate bivariate log-binomial regression analyses were used to determine the relative risk of the intervention for patient satisfaction. Stata statistical software (version 11.0; Stata, Corp, College Station, TX) was used to analyze the data. The level of significance was set at $P < 0.05$.

RESULTS

From January to December 2011, 390 consecutive patients were assessed for eligibility, and 228 patients were eligible for randomization. One hundred twenty-one patients were randomized to the control group, and 107 patients were randomized to the intervention group; however, 16 patients were excluded after randomization due to hospital stay greater than 7 days, leaving 212 eligible patients. Overall, 76 patients could be reached for telephonic survey, including 42 patients in the control group and 34 patients in the intervention group. There were no significant differences with regard to age, sex, race, insurance, location of primary injury, and the length of hospital stay between the eligible patients who had complete follow-up data (n = 76) and those who did not have complete data (n = 136) (Table 1). Patient flow diagram is shown in Figure 2.[11]

Baseline demographic and clinical characteristics of the study population by intervention group or control group (biosketch card vs. no card) are displayed in Table 2. There

TABLE 3. Patients' Ratings of Satisfaction (n = 76)

	Poor	Fair	Good	Very Good	Excellent	*P*
Question 1: Overall, how would you rate the quality of doctor care?*						0.05
Intervention (n = 34)	0 (0)	0 (0)	4 (11.8)	5 (14.7)	25 (73.5)	
Control (n = 42)	2 (4.8)	2 (4.8)	5 (11.9)	11 (26.2)	22 (52.4)	
Question 2: How would you rate your doctor on treating you with consideration for your needs as an individual?						0.89
Intervention (n = 34)	1 (2.9)	0 (0)	6 (17.6)	9 (26.5)	18 (52.9)	
Control (n = 42)	2 (4.8)	1 (2.4)	6 (14.3)	11 (26.2)	22 (52.4)	
Question 3: How would you rate your doctor on availability to see you when needed?						0.37
Intervention (n = 34)	2 (5.9)	1 (2.9)	6 (17.6)	7 (20.6)	18 (52.9)	
Control (n = 42)	3 (7.1)	1 (2.4)	11 (26.2)	9 (21.4)	18 (42.9)	
Question 4: How would you rate your doctor on involving you in decisions about your care?						0.70
Intervention (n = 34)	0 (0)	3 (8.8)	6 (17.6)	7 (20.6)	18 (52.9)	
Control (n = 42)	2 (4.8)	3 (7.1)	5 (11.9)	7 (16.7)	25 (59.5)	

All values are n (%). Wilcoxon rank sum tests were used to compare variables.
*Primary outcome measure.

were no statistically significant differences between the groups. The average age was 42.3 years, and the majority of the patients were white (82%), male (58%), privately insured (53%), and high school or greater education (86%). The average length of hospital stay was 3.4 days.

Our primary outcome measure was patient satisfaction with the "overall quality of doctor care," as noted in Table 3. There was no statistical difference between the intervention and control groups regarding the remaining questions on satisfaction. Overall, 25 (74%) of 34 patients who received an attending biosketch card reported "excellent overall quality of doctor care," whereas only 22 (52%) of 42 patients in the control group (no card) reported excellent overall quality of doctor care ($P = 0.05$). Dichotomous categorization of "excellent" responses as compared with all nonexcellent responses for the overall quality of doctor care resulted in a relative risk of 1.4 (95% confidence interval, 0.99–2.0), and P value of 0.06. No significant associations were noted between age, sex, race, insurance, location of primary injury, and the length of hospital stay and patients' rating of satisfaction with the overall quality of doctor care.

DISCUSSION

Patient satisfaction will continue to emerge as an important metric for physicians as evidenced by the recent implementation of CMS value-based incentive payments. A simple intervention, a biosketch card, can serve to improve patients' recognition of their attending surgeon and increase patient satisfaction, even in the challenging orthopaedic trauma patient population.

There is an increasing knowledge of the importance of patient awareness of the members of their treating team and the value of recognizing the attending physician directing their care. The state of South Carolina recently enacted the Blackman Hospital Patient Safety Act, which mandates that all hospital personnel wear badges to identify their name, department, and job title to improve patients' awareness of various providers.[12] Patients are also provided with written information on the specific roles of team members responsible for their care and educated on how to contact the attending physician directing their care.[12]

A weakness of the study is loss to follow-up. Only 76 of 212 eligible patients could be reached for telephonic survey completion (36% response rate). This response rate is consistent with the historical response rate of 30%–40% for our institution using standardized telephonic surveys for our orthopaedic units. Response rate of the orthopaedic units during the study period was 41%. Loss to follow-up may raise concern for attrition bias. Potentially, only patients with a polarizing admission (very satisfied with their care or very dissatisfied with their care) were willing to take time to give their opinion, and the results may not reflect the sentiment of the entire study population. We did not reach enough patients in each group to reach 80% power according to our sample size calculation. Using the "excellent" satisfaction rates for the primary outcome measure found in this study, our power was calculated to be 37%. Despite this, a clinically significant difference in satisfaction rates was detected.

Further research is needed to improve patient satisfaction in the orthopaedic population. A simple intervention in the form of a biosketch card provides patients with readily accessible objective information following encounters with attending physicians, and each member of the treating team should adopt this practice. Our institution has subsequently initiated the distribution of attending biosketch cards to new patients in the inpatient and outpatient setting.

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