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SYMPOSIUM: ALIGNING PHYSICIAN AND HOSPITAL INCENTIVES

Factors That Influence Provider Selection for Elective Total Joint Arthroplasty

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Abstract

Background The growth of consumer-directed health plans has sparked increased demand for information regarding the cost and quality of healthcare services, including total joint arthroplasty (TJA). However, the factors that influence patients' choice of provider when pursuing elective orthopaedic care, such as TJA, are poorly understood.

Questions/purposes We evaluated the factors patients consider when selecting an orthopaedic surgeon and hospital for TJA.

Methods Two hundred fifty-one patients who sought treatment from either an academic or community-based orthopaedic practice for primary TJA completed a 37-item survey using a 5-point Likert scale rating ("unimportant" to "very important") regarding seven established clinical and nonclinical dimensions of care patients considered when selecting a provider and hospital.

Result Patients rated physician manner (average Likert, 4.7) and physician quality (eg, outcomes) (average Likert, 4.6) as most important in their selection of surgeon and hospital for TJA. Despite the expressed importance of surgeon and hospital quality, only 46% of patients were able to find useful information to compare outcomes among surgeons, and 47% for hospitals that perform TJA.

Conclusions Our findings suggest physician manner and surgical outcomes are the most important considerations for patients when choosing a provider for elective TJA. Cost sharing is the least important criterion patients considered. Patients expressed high motivation to seek out provider quality information but indicated accessible and actionable sources of information are lacking. Future efforts should be directed at developing clinically relevant, easily interpretable, objective, risk-adjusted measures of physician and hospital quality.

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Introduction

The growth of consumer-directed health plans and increased cost containment pressures have sparked demand for better information regarding the cost and quality of healthcare services, including elective orthopaedic services such as total joint arthroplasty (TJA), to promote value-based

competition [14] among providers. Consumer-directed health plans presuppose patients are confident and empowered to make choices in a complex healthcare marketplace. Patient activation is a previously described measure of health engagement, with four key components: (1) patients believe their role is important, (2) patients have confidence and knowledge necessary to take action, (3) patients make active choices and decisions influencing health, and (4) patients adapt and stay the course despite challenges [7]. As price transparency and outcome assessment of healthcare services have matured, a growing number of studies [4, 9, 12, 19] have examined the way patients select health plans and primary care providers.

Though many studies have examined factors influencing patient choice of health plans and primary care doctors, there are limited data on how patients select specialists, particularly orthopaedic surgeons. Few studies have evaluated factors that patients deem relevant and important when seeking specialty care. Studies that have examined patient preferences for surgical specialists focus almost exclusively on patients undergoing coronary artery bypass grafting (CABG) [17], who are often acutely ill, need emergent procedures, and have little time to select a provider. In these studies, patients were often questioned after the intervention was complete, and thus the results are prone to recall bias [9].

Patients with primary care doctors tend to rely on their physician when selecting a specialist [6]. In a survey of 18,000 patients, 58% of those who sought a medical specialist reported selecting based exclusively on the recommendation of their primary care doctor. Primary care physicians may refer to certain specialists based on professional experience or relationships, but evidence suggests they are not responsive to performance data. A survey of 452 Pennsylvania primary care physicians examined how these practitioners used the state's published data on risk-adjusted CABG mortality among hospitals. Although more than 84% of respondents were aware of the data, only 10% considered the data very important, and less than 10% discussed the findings with patients. Sixty-two percent of responding physicians said the mortality rankings had no influence on their referral recommendations [16].

While hospital quality and outcome measures are increasingly entering the public domain, physicians have been reticent to share such information in part due to concerns about small samples sizes and inadequate risk adjustment to account for factors known to influence outcomes. Thus, surgical patients are often unaware of outcome data associated with specific surgeons and facilities. However, patients express interest in having access to such information. In a study of how publically reported data are used in healthcare decision making [17], only 12% of Pennsylvania patients who underwent a CABG knew about hospital report cards before surgery. But once informed about this consumer guide, 58% said they would have used those data in selecting a surgeon.

Recently, a number of metrics have been used to evaluate and compare provider performance, including structural [8], process [2], and outcome measures, as well as patient satisfaction [5] and cost efficiency [10]. Despite the proliferation and dissemination of provider performance measures, it is unclear what factors influence patients' choice of provider for elective specialty care.

The primary objective of our study was to evaluate the specific clinical and nonclinical factors patients consider when selecting an orthopaedic surgeon for an elective TJA. Prior research in consumer selection of health plans, hospitals, and primary care physicians have identified seven broad variables patients consider when making healthcare choices [11, 12, 19], and these were adapted to the orthopaedic setting. Our second objective was to examine consumers' use of hospital and provider data when planning for a TJA. While the first part of our survey asked patients what factors they value, this second line of inquiry addressed to what extent patients sought specific information, and to what degree available data were useful. Our third objective was to explore patients' confidence level when choosing a surgeon and hospital.

Patients and Methods

We collected data from 251 patients with end-stage degenerative arthritis of the hip or knee who presented to an academic or community-based orthopaedic practice for evaluation for elective primary TJA. Patients seeking a revision arthroplasty were excluded from the study. The patients filled out a survey designed to assess the relative importance of the factors they considered when choosing an orthopaedic surgeon and hospital for elective primary TJA.

The survey consisted of 37 questions (Appendix 1). Respondents were asked to rank the importance of clinical factors (including surgeon and hospital) and nonclinical factors (including cost, convenience, and customer service) in their choice of provider on a Likert scale of 1 to 5 with 1 = unimportant and 5 = very important. The survey was adapted and modified from a validated questionnaire previously used to assess factors patients consider when selecting a primary care physician [12]. This survey was validated using a split-sample analysis of 222 patients with varimax rotation to test for comparability, which showed the responses were stable between samples. The survey was always administered on presentation for surgical evaluation. Thus, our emphasis was on a priori preferences and values patients expressed.

Seven dimensions of care were assessed based on prior research on patient selection of primary care doctors and hospitals [12]: (1) physician reputation (eg, primary care doctor recommendation, patient ratings in satisfaction surveys, malpractice suits or complaints about the surgeon), (2) physician manner (eg, the surgeon spends adequate time answering questions, the surgeon communicates clearly, the surgeon values patient opinion), (3) physician quality (eg, the surgeon adheres to accepted performance standards [eg, delivering appropriate antibiotics to patients before surgery], the surgeon's procedure volume relative to peers, the rate of surgical complications [eg, infection or nerve damage] relative to peers, the rate of reoperation within 1 year relative to peers), (4) physician qualifications (the number of years in practice, participation in research, medical school attended, postgraduate clinical training [residency, fellowship]), (5) hospital factors (the surgeon operates in patient's hospital of choice, the total number of similar orthopaedic procedures performed in the hospital, the hospital is affiliated with a medical school, the hospital's reputation among patients and doctors), (6) customer service (the ease of scheduling an appointment, the friendliness and availability of the office staff, the appearance and environment of the office, wait time until appointment), and (7) other nonclinical factors (the surgeon's clinic and hospital are convenient to visit, patient's out-of-pocket cost for a specific surgeon and hospital).

To measure patient activation, the survey asked respondents to state their level of agreement with statements concerning their choice of provider using a Likert scale of 1 to 5 with 1 = disagree strongly and 5 = agree strongly. Here we queried whether patients sought data on providers, whether they found it, and to what degree it was useful. These questions were adapted from the Patient Activation Measure, a separate instrument validated in a national probability sample of 1515 patients by correlating higher activation to more engaged behaviors such as adhering to physician recommendations. The scale is reportedly reliable and reproducible [7].

The average Likert scale ranking for each dimension was computed and compared using factor analysis and independent t-tests. Aggregate scores for each dimension were determined based on the component questions that defined each factor patients considered in their selection of provider. Power calculations and sample size estimates were performed using data from the first 50 surveys, with the requirement that the study had 80% power to detect a difference of 0.5 points on a Likert scale of 1 to 5 using a two-sided significance level of 5%, corrected for comparisons across all seven categories. The physician reputation domain had a greater SD in early data; thus, this domain was used for power calculations. While we are not aware of other studies that have attempted to determine minimum clinical importance of Likert scale responses, the SD among domains in our initial 50 surveys suggested a 0.5-point difference would enable data stratification.

Results

In decreasing order of importance, patients rated physician manner (average Likert, 4.7), physician quality (eg, outcomes) (average Likert, 4.6), hospital quality (average Likert, 4.0), physician reputation (average Likert, 4.0), customer service (average Likert, 4.0), physician qualifications (average Likert, 4.0), and nonclinical factors (average Likert, 3.5) as most important when selecting a surgeon and hospital for TJA (Table 1). Physician manner and quality were rated higher ($p < 0.05$) than all other factors.

Patients frequently sought quality data on providers and hospitals they were considering for TJA, but fewer patients reported finding actionable data that helped with their decision making. The first section of the survey focused on what patients say they value. Seventy-five percent of patients (average Likert, 4.1) said they agreed or strongly agreed with the statement that they sought information from sources other than their primary care doctor about their prospective surgeon ($p < 0.01$) (Table 2). The second section of the survey, on patient agency, reflected what information patients used to guide their decisions. Only 46% (average Likert, 3.4) agreed or strongly agreed they were able to find useful information to compare quality and outcomes among surgeons who perform TJA ($p = 0.02$). Similarly, only 47% (average Likert, 3.4) of patients agreed or strongly agreed they found data that helped them compare one hospital to other hospitals in the area ($p = 0.07$). There was a mixed picture regarding patient activation, with

Table 1. Factors most important to patients when selecting a surgeon and hospital for total joint arthroplasty

Category	Average importance on a 5-point Likert scale (1 = unimportant; 5 = very important)
Physician manner*	4.68
Physician quality information*	4.64
Hospital quality	4.01
Physician reputation	4.00
Customer service	3.98
Physician qualifications	3.97
Nonclinical features	3.50

* Indicates factors ranked higher ($p < 0.05$) than all other factors based on factor analysis and independent, two-sided t-tests.

Table 2. Patient responses to representative related factors

Question	Average agreement on a 5-point Likert scale (1 = disagree strongly; 5 = agree strongly)
I believe that my choice of surgeon will have an important impact on my outcome	4.72
There are big differences in the quality of care among different orthopaedic surgeons	4.20
I sought information from sources other than my primary doctor, including friends, other patients, the internet, or my health plan, in selecting my surgeon	4.10
It is important in which hospital I will have my procedure	4.01
I had adequate information to choose the surgeon for my procedure	3.98
I felt quite knowledgeable about my ability to select a surgeon before I began searching for one	3.79
I found data that helped me understand how this hospital compares to other hospitals in the area	3.40
I found data that helped me understand how this surgeon compares to other surgeons	3.37
The amount I will pay out-of-pocket for my procedure was an important factor in my choice of surgeon and/or hospital	2.89
I was aware of substantial differences in the amount I would have to pay for different surgeons	2.80

patients believing their role in surgeon selection is important yet they lacked the tools to fulfill this function. There was strong agreement with the statement "I believe that my choice of surgeon will have an important impact on my outcome" (average Likert, 4.7) and "There are big differences in the quality of care among different orthopaedic surgeons" (average Likert, 4.2). Yet there were lower ratings on the ability to make what patients considered a well-informed choice; fewer respondents agreed with the statement "I had adequate information to choose a surgeon for my procedure" (average Likert, 3.9). The lowest level of activation was on cost sensitivity; many patients were neutral or disagreed with the statement "The amount I will pay out-of-pocket for my procedure was an important factor in my choice of surgeon and/or hospital" (average Likert, 2.9).

Discussion

The growth of consumer-directed health plans has sparked increased demand for information regarding the cost and quality of healthcare services, including TJA. However, the factors that influence patients' choice of provider when pursuing elective orthopaedic care, such TJA, are poorly understood. We therefore (1) examined surgeon, hospital, and customer service factors patients prioritize when selecting an orthopaedic surgeon and facility for TJA, (2) investigated whether patients value and seek surgeon and hospital quality measures, and (3) assessed patient confidence in interpreting and using these data in making healthcare decisions.

Our study has several limitations. First, respondents were asked to rate the importance of specific surgeon, hospital, and nonclinical factors independently but not to rank them in relative order of importance. While our approach enabled us to query a broader set of variables with greater specificity, this limited our ability to make direct comparisons between categories because patients were not asked to choose one category at the expense of another. However, we believe it is more valuable to understand patients' independent assessment of the importance of each variable rather than the relative importance. Second, we did not ask patients exactly how or where they obtained provider information, as this was outside the scope of this study. Future efforts should query which data sources patients use when making healthcare decisions. Third, we did not collect patient information on the response rate, although anecdotally there were no patients who refused the survey. Finally, respondents were limited to patients from two practices (one academic and one private, in different regions of the country), and patients presenting to a tertiary care academic center are overrepresented in our study compared to the national patient base [8]. The study was not designed or powered to analyze the different sites separately; thus, our study population is a combination of patients from an academic institution and a private practice. Further study is needed to understand whether these results are generalizable to patients from different practice settings in different regions of the country.

As government, health plans, hospitals, patient groups, and surgeons begin to aggregate and share data to guide patient healthcare decisions, our results suggest which

surgeon measures would be most useful to patients. More work is needed to develop measures that patients find useful; only 46% of patients in our study felt they had adequate information to compare their surgeon to other prospective surgeons. Prior research has shown, when patients do not have reliable data, they are inconsistent evaluators of provider quality. In a study of New York consumer opinions, public perception of hospital quality showed no correlation with objective measures of hospital performance [3]. Thus, in the absence of quality reporting, patient choices may be unrelated to quality. Improved data related to the quality of surgical specialty care could also help primary care providers, who are knowledgeable intermediaries to whom many patients turn for guidance. Prior research on this topic suggests primary care physicians rely on personal relationships or limited experiences, rather than population-based quality, outcomes, or satisfaction data, when recommending a surgeon [16].

Among patients who do seek comparative data on providers, we found service-oriented criteria most strongly influenced their choice of physician, and this fits with prior research. One survey of healthcare consumers found patient satisfaction and provider accessibility to be the most important attributes when selecting a potential provider [15]. A different survey of patients seeking specialists revealed physician manner and office staff quality most influenced patient choice [1]. In a regression model of how patients select hospitals for CABG surgery, proximity was the strongest predictor of where patients received care [3]. We found similar consumer priorities for such physician characteristics as clear communication (average Likert, 4.8), time spent with patient (average Likert, 4.7), and valuing patient opinions (average Likert, 4.5), but our patients did not prioritize proximity (average Likert, 3.6).

Our findings suggest patient satisfaction surveys, particularly as they relate to provider-patient communication, can play an important role in surgeon selection. While there is a tendency for the surgeon to focus on operative quality and outcome measures, patients highly value the surgeon-patient interaction. As we develop increasingly complex metrics to assess technical performance and risk-adjusted outcomes, surgeons must not lose sight of this most fundamental aspect of patient care.

Many stakeholders are pushing consumers to be more involved in their healthcare decisions, and value-based competition among providers is increasingly being used to drive quality and efficiency improvements [14]. Our results suggest patients are motivated to engage in provider selection with respect to quality but less so with cost. Seventy-five percent of respondents either agreed or strongly agreed with the statement "I believe that my choice of surgeon will have an important impact on my outcome." In contrast, only 29% of respondents agreed or strongly agreed with the statement "The amount I will pay out-of-pocket for my procedure was an important factor in my choice of surgeon and/or hospital." This may indicate patients are much more concerned about quality than out-of-pocket costs. However, relative ambivalence on cost may reflect uniform patient costs between providers. As health plans move toward tiered cost sharing for high-performance networks, patients may become more cost-sensitive. Our results suggest patients lack the resources and information that would be most useful to them in choosing a surgeon based on quality and are not yet concerned with price differences.

Many physicians have expressed concerns about the validity and relevance of publicly reported data related to provider performance, including the Pennsylvania Health Care Cost Containment Council [13] and the Surgical Care Improvement Project [18] measures, which are reported on the hospitalcompare.gov website. Providers have questioned the correlation between compliance with processes of care, such as administration of perioperative antibiotics and venous thromboembolism prophylaxis, and patient outcomes. Others have expressed concern regarding inadequate risk adjustment in public reporting of provider performance, which could unfairly penalize surgeons who care for more complex patients [2]. However, few physician groups have proposed alternative metrics to evaluate provider performance that could be useful to patients and primary care providers when selecting a physician for elective surgical interventions such as TJA.

In summary, our findings indicate physician manner and quality of care (eg, patient outcomes) are the most important considerations for patients when selecting a surgeon and hospital for elective TJA. Patients' relatively low concern for out-of-pocket costs leaves open for debate whether differential cost sharing can influence patients seeking elective specialty care. Patients recognize the importance of provider quality in determining their outcome after TJA and are highly motivated to take an active role in surgeon selection, but less than ½ of the patients found useful information to compare patient outcomes among orthopaedic surgeons and hospitals that perform TJA.

These findings underscore the need for orthopaedic surgeons to collaborate with payers, policy makers, and patient groups to develop and report clinically relevant, validated, easily interpretable, actionable, risk-adjusted quality measures related to TJA procedures. This information will inform future efforts to aggregate and report comparative information on provider performance. It will also impact how health plans, hospitals, and surgeons communicate with patients in an increasingly consumer-driven healthcare market.

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Appendix 1

Survey of Factors Influencing Consumer Selection of an Orthopedic Surgeon

How important is each of the following factors in choosing a surgeon?

	Unimportant	Of little importance	Moderately important	Important	Very important
I. Physician Reputation					
My primary care doctor recommended this particular surgeon	○	○	○	○	○
How patients rated the surgeon in a survey	○	○	○	○	○
Malpractice suits or complaints about the surgeon	○	○	○	○	○
II. Physician Manner					
The surgeon spends adequate time answering my questions	○	○	○	○	○
The surgeon discusses issues in a way that I can understand	○	○	○	○	○
The surgeon values my opinion	○	○	○	○	○
III. Physician Quality Information					
The surgeon adheres to generally accepted performance standards, such as delivering antibiotics to all patients before surgery	○	○	○	○	○
How frequently the surgeon performs the procedure compared to his/her peers	○	○	○	○	○
The rate of reoperation within 1 year of the initial surgery in the surgeon's patients compared to his/her peers	○	○	○	○	○
IV. Physician Qualificatios					
The number of years the surgeon has been in practice	○	○	○	○	○
The surgeon participates in research	○	○	○	○	○
The medical school attended by the surgeon	○	○	○	○	○
The postmedical school clinical training (residency, fellowship) completed by the surgeon	○	○	○	○	○
V. Hospital					
The surgeon will operate in my hospital of choice	○	○	○	○	○
The total number of similar orthopaedic procedures performed in the hospital	○	○	○	○	○
The hospital is affiliated with a medical school	○	○	○	○	○
The hospital has a good reputation among patients and doctors	○	○	○	○	○
The rate of surgical complications (eg, infection or nerve damage) of the surgeon compared to his/her peers	○	○	○	○	○
VI. Customer Service					
The ease of scheduling an appointment with the surgeon	○	○	○	○	○
The friendliness and availability of the surgeon's office staff	○	○	○	○	○
The appearance and environment of the office	○	○	○	○	○
How long you had to wait to get an appointment with the surgeon	○	○	○	○	○
VII. Nonclinical Features					
The surgeon's clinic and hospital are convenient for me to visit	○	○	○	○	○
The amount I will have to pay out-of-pocket to have this surgeon perform my operation, compared with the cost of other surgeons I considered	○	○	○	○	○

Please state your level of agreement with the following statements:

	Disagree strongly	Disagree	Unsure	Agree	Agree strongly
I felt quite knowledgeable about my ability to select a surgeon before I began searching for one	○	○	○	○	○
I had adequate information to choose the surgeon for my procedure	○	○	○	○	○

continued

Please state your level of agreement with the following statements:

	Disagree strongly	Disagree	Unsure	Agree	Agree strongly
I believe that my choice of surgeon will have an important impact on my outcome	◯	◯	◯	◯	◯
There are big differences in the quality of care among different orthopaedic surgeons	◯	◯	◯	◯	◯
I sought information from sources other than my primary doctor, including friends, other patients, the internet, or my health plan, in selecting my surgeon	◯	◯	◯	◯	◯
I looked for data on how this surgeon compares to other surgeons	◯	◯	◯	◯	◯
I found data that helped me understand how this surgeon compares to other surgeons	◯	◯	◯	◯	◯
I was aware of substantial differences in the amount I would have to pay for different surgeons	◯	◯	◯	◯	◯
The amount I will pay out-of pocket for my procedure was an important factor in my choice of surgeon and/or hospital	◯	◯	◯	◯	◯
It is important in which hospital I will have my procedure	◯	◯	◯	◯	◯
I looked for data on how this hospital compares to other hospitals in the area	◯	◯	◯	◯	◯
I found data that helped me understand how this hospital compares to other hospitals in the area	◯	◯	◯	◯	◯

Please answer the following question about yourself:

Please state the highest degree you completed

◯ High school or GED

◯ College

◯ Graduate School

For Staff Use Only

Patient evaluated for primary hip/knee arthroplasty

Patient has prior hip/knee arthroplasty: Yes/No

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