

# Online Ratings of Orthopedic Surgeons: Analysis of 2185 Reviews

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## Abstract

Online ratings of orthopedic surgeons have not been studied. We conducted a study to evaluate the online ratings of orthopedic surgeons in a major metropolitan region, to identify trends in ratings of orthopedic surgeons, and to analyze ratings to identify variables of significance in determining overall rating.

Website traffic was used to identify the 8 busiest physician rating websites: AngiesList.com, EverydayHealth.com, Thirdaye.com, Yelp.com, HealthGrades.com, Vitals.com, UCompareHealthcare.com, and RateMDs.com. These websites were consulted for data regarding orthopedic surgeons in a major metropolitan region with a population of 1.3 million in September 2012. Surgeon ratings were scaled from 0 to 100 for homogeneity. Of the 8 websites considered, 4 were excluded because of inaccessible or unreliable data.

The qualifying sites were HealthGrades.com, Vitals.com, UCompareHealthcare.com, and RateMDs.com, with 2185 reviews total. Across these websites, mean overall rating of orthopedic surgeons was 81.8 (between 100, *definitely recommend*, and 80, *mostly recommend*). Five variables were statistically significant ( $P$ s < .01) for higher ratings: ease of scheduling, time spent with patient, wait time, surgeon proficiency/knowledge, and bedside manner.

The growing use of the Internet as a forum for consumer feedback has dynamically affected all industries, including health care.<sup>1</sup> Patient consultation of online ratings in the course of choosing a provider has become commonplace, with 37% of Americans reporting doing so in 2010.<sup>2,3</sup> It has been noted that 30% of Americans compare the online reputations of physicians before making a decision.<sup>2,4</sup> Therefore, it is becoming important for physicians to be cognizant of their online reputations.

As patient use of Internet resources grows, it is important to have a better understanding of the online rating community.<sup>5,6</sup> Online ratings of orthopedic surgeons have not been studied.

We analyzed the major websites used to review orthopedic surgeons to better grasp how patient care translates to online surveys. The objectives of our study were to evaluate the online ratings of orthopedic surgeons in a major metropolitan region, to identify trends in ratings of orthopedic surgeons, and to analyze ratings to identify variables of significance that contribute to overall surgeon rating. Our hypothesis was that orthopedic surgeons in this metropolitan region rated online would have favorable surveys.

## Material and Methods

Our study design was observational. The initial list of potential physician rating websites was compiled from PubMed (Medline). All submissions returned from a search for online rating websites and physician online ratings were evaluated and their sources assembled. These websites were then sorted by amount of website traffic. Traffic was measured as the number of website visitors—a likely indicator of the amount of activity at each site. This approach has been previously described.<sup>2</sup> Traffic estimates were compiled for a 6-month period from February 2012 to August 2012 using 4 different sources: Google AdPlanner, Alexa.com, Compete.com, and QuantCast.com. The 8 most visited physician rating websites were identified for analysis.

These 8 websites were then consulted in September 2012 for data regarding orthopedic surgeons found geographically within the St. Louis, Missouri, metropolitan region (population 1.3 million). Data were collected from the online patient surveys. Each survey addressed the question of overall surgeon recommendation and evaluated various aspects of care, such as surgeon bedside manner. **Table I** shows an example survey from HealthGrades.com. The patient responses were converted to a scale ranging from 0 to 100 for homogeneity from 4-star or 5-star scales. For surveys with time intervals as response choices, the data were scaled by adjusting the available increments to a scale of 100, with lower wait times being scored higher. Incomplete user submissions were excluded.

## Statistical Analysis

Overall recommendation ratings were compiled across all sites and then averaged and analyzed for general trends. Each site posed a variety of questions with significant overlap. To identify the questions or variables (reflecting aspects of care) that were statistically significant in determining a surgeon's overall

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**Table I. Example HealthGrades.com Patient Survey<sup>a</sup>**

|  |                                     |                                    |                                     |   |
|--|-------------------------------------|------------------------------------|-------------------------------------|---|
| <b>Ease of scheduling urgent appointments when you feel ill</b>  |                                     |                                    |                                     |   |
| <input type="checkbox"/> Poor  | <input type="checkbox"/> Fair       | <input type="checkbox"/> Good      | <input type="checkbox"/> Very Good  | <input type="checkbox"/> Excellent      |
| <b>Office environment (cleanliness, comfort, lighting, temperature, condition)</b>   |                                     |                                    |                                     |   |
| <input type="checkbox"/> Poor  | <input type="checkbox"/> Fair       | <input type="checkbox"/> Good      | <input type="checkbox"/> Very Good  | <input type="checkbox"/> Excellent      |
| <b>Friendliness and courtesy of the office staff</b>   |                                     |                                    |                                     |   |
| <input type="checkbox"/> Poor  | <input type="checkbox"/> Fair       | <input type="checkbox"/> Good      | <input type="checkbox"/> Very Good  | <input type="checkbox"/> Excellent      |
| <b>Once you arrive for a scheduled appointment, how long do you have to wait (including wait room and exam room) before you see this provider?</b> |                                     |                                    |                                     |   |
| <input type="checkbox"/> 45+ min   | <input type="checkbox"/> 31-45 min  | <input type="checkbox"/> 16-30 min | <input type="checkbox"/> 10-15 min  | <input type="checkbox"/> Under 10 min   |
| <b>Do you trust your provider to make decisions/recommendations that are in your best interests?</b>   |                                     |                                    |                                     |   |
| <input type="checkbox"/> Definitely Not  | <input type="checkbox"/> Mostly Not | <input type="checkbox"/> Not Sure  | <input type="checkbox"/> Mostly Yes | <input type="checkbox"/> Definitely Yes |
| <b>Does the provider help you understand your condition(s)?</b>  |                                     |                                    |                                     |   |
| <input type="checkbox"/> Definitely Not  | <input type="checkbox"/> Mostly Not | <input type="checkbox"/> Not Sure  | <input type="checkbox"/> Mostly Yes | <input type="checkbox"/> Definitely Yes |
| <b>Does the provider listen to you and answer your questions?</b>  |                                     |                                    |                                     |   |
| <input type="checkbox"/> Definitely Not  | <input type="checkbox"/> Mostly Not | <input type="checkbox"/> Not Sure  | <input type="checkbox"/> Mostly Yes | <input type="checkbox"/> Definitely Yes |
| <b>Do you feel the provider spends an appropriate amount of time with you?</b>   |                                     |                                    |                                     |   |
| <input type="checkbox"/> Definitely Not  | <input type="checkbox"/> Mostly Not | <input type="checkbox"/> Not Sure  | <input type="checkbox"/> Mostly Yes | <input type="checkbox"/> Definitely Yes |
| <b>Overall: Would you recommend this provider to family and friends?</b>   |                                     |                                    |                                     |   |
| <input type="checkbox"/> Definitely Not  | <input type="checkbox"/> Mostly Not | <input type="checkbox"/> Not Sure  | <input type="checkbox"/> Mostly Yes | <input type="checkbox"/> Definitely Yes |

<sup>a</sup>Patient survey reprinted with permission from www.HealthGrades.com.

**Table II. Website Information**

|                        | Mean Overall Rating <sup>a</sup> | No. of...           |                   |                   |
|------------------------|----------------------------------|---------------------|-------------------|-------------------|
|                        |                                  | Questions in Survey | Surgeons Reviewed | Reviews Submitted |
| HealthGrades.com       | 89%                              | 6                   | 121               | 822               |
| Vitals.com             | 77%                              | 7                   | 87                | 555               |
| UCompareHealthcare.com | 78%                              | 6                   | 129               | 511               |
| RateMDs.com            | 77%                              | 4                   | 92                | 297               |

<sup>a</sup>Weighted average: 0.89(.38) + 0.77(.25) + 0.78(.23) + 0.77(.14) = 81.8%.

rating, we used StatPlus (AnalystSoft, Vancouver, Canada) to perform multivariate linear analysis of variance (ANOVA) regressions. Statistical significance was set at  $P < .05$ .

Since the overlap between surveys was incomplete, survey responses to each variable (aspect of care) could not simply be compiled across all websites. The data from each website were therefore isolated by question. Only websites that shared survey questions were compiled. For example, to study surgeon

bedside manner, we compiled all surveys containing data on surgeon bedside manner and ran regressions on the common variables. In addition, we ran isolated multivariate ANOVA linear regressions for each website with no compilation of data from other sites. This was done to analyze variables of significance in determining overall surgeon rating specific to each site to potentially highlight any discrepancies. Significance was set at  $P < .05$  as well.

### Results

The compiled traffic estimates yielded the most visited online physician rating websites in descending order: Yelp.com, Vitals.com, EverydayHealth.com, AngiesList.com, HealthGrades.com, UCompareHealthcare.com, Thirddage.com, and RateMDs.com. Of these 8 websites, 4 were excluded: AngiesList.com because of the requirement of a paid subscription, EverydayHealth.com because of insufficient user-generated content,

**Table III. Survey Question Topic Distribution**

|                         | HealthGrades.com | Vitals.com | UCompareHealthcare.com | RateMDs.com |
|-------------------------|------------------|------------|------------------------|-------------|
| Office staff courtesy   | X                | X          | X                      | X           |
| Wait time               | X                | X          | X                      | X           |
| Surgeon knowledge       | X                | X          | X                      | X           |
| Bedside manner          | X                | X          | N/A                    | X           |
| Time spent with patient | X                | X          | X                      | N/A         |
| Ease of scheduling      | X                | X          | X                      | N/A         |
| Follow-up               | N/A              | X          | X                      | N/A         |

**Table IV. Regression Results**

| <b>A. Variable-Specific</b>     |                  |            |                        |             |
|---------------------------------|------------------|------------|------------------------|-------------|
|                                 | Coefficient      | 95% CI     | P                      |             |
| Office staff courtesy           | 0.01             | 0.00-0.03  | .11                    |             |
| Wait time                       | 0.3              | 0.22-0.38  | < .0001                |             |
| Surgeon knowledge               | 0.87             | 0.81-0.92  | < .0001                |             |
| Bedside manner                  | 0.34             | 0.27-0.41  | < .0001                |             |
| Time spent with patient         | 0.33             | 0.24-0.41  | < .0001                |             |
| Ease of scheduling              | 0.13             | 0.06-0.21  | < .0001                |             |
| <b>B. Website-Specific (Ps)</b> |                  |            |                        |             |
|                                 | HealthGrades.com | Vitals.com | UCompareHealthcare.com | RateMDs.com |
| Office staff courtesy           | .8               | .09        | < .007                 | < .002      |
| Wait time                       | .8               | .08        | .05                    | < .001      |
| Surgeon knowledge               | < .0001          | < .0001    | < .0001                | < .0001     |
| Bedside manner                  | < .0001          | < .01      | —                      | < .0001     |
| Time spent with patient         | < .0001          | .78        | < .0001                | —           |
| Ease of scheduling              | .9               | .17        | < .01                  | —           |
| Follow-up                       | —                | .97        | < .001                 | —           |

Thirdage.com because of lack of an orthopedic surgery designation, and Yelp.com because of a high rate of incomplete submissions. The 4 included sites were HealthGrades.com, Vitals.com, UCompareHealthcare.com, and RateMDs.com. These 4 websites provided 2185 reviews for 131 orthopedic surgeons in the St. Louis area.

Across all 4 websites, the mean rating of orthopedic surgeons was 81.8 (100, definitely recommend; 80, mostly recommend; 60, likely recommend; 40, likely not recommend; 20, will not recommend; 0, never recommend). This mean took into account the number of reviews per surgeon so as to be weighted properly. The most thorough surveys were provided by Vitals.com, which explored 7 different aspects of care. UCompareHealthcare.com had the largest

number of surgeons with 1 or more reviews ( $n = 129$ ). The highest mean overall surgeon rating was 89%, at HealthGrades.com, and the lowest was 77%, at RateMDs.com. The largest total number of reviews was 822, at HealthGrades.com, and the lowest was 297, at RateMDs.com. General data for each website are listed in Table II. The most common survey questions evaluated office staff, wait time, and surgeon knowledge. A complete list of survey topics and their incidence across the different website surveys appears in Table III.

Five variables were of statistical significance ( $P_s < .01$ ) in determining a surgeon's overall rating: ease of scheduling, time spent with patient, patient wait time, surgeon proficiency/knowledge, and surgeon bedside manner.

Analysis of each website's survey data yielded the following results. Surgeon knowledge and bedside manner were both found to be statistically significant factors in determining overall surgeon recommendation for every website. Each site had an individual distribution of statistically significant variables and corresponding coefficients. The only variable found to be significant in the website-specific regressions but not the variable-specific regressions was office staff courtesy, significant only for RateMDs.com and UCompareHealthcare.com. Compiled results of significance, including 95% confidence intervals, are listed in **Table IV**.

## Discussion

The compiled mean online rating for orthopedic surgeons in a metropolitan region was 81.8, slightly above *mostly recommend*. This affirms earlier research in other medical and surgical fields suggesting that physicians who are rated online tend to receive generally high ratings.<sup>2,7,8</sup> Despite the fact that Vitals.

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com was the most visited website of the 4 that qualified, it had the fewest number of surgeons reviewed ( $n = 87$ ). This suggests that website traffic as a whole is not entirely indicative of user-generated content, despite previous research suggesting otherwise.<sup>2,6</sup>

Most of the surveys from the different websites overlapped, with each variable or survey question topic appearing in the surveys of at least 2 websites. This trend is also seen in earlier research of online patient surveys.<sup>5</sup> This establishes some common ground among the websites in what aspects of care contribute to forming an opinion or rating of a provider's care (**Table III**).

Aspects of care that significantly affect the overall rating of surgeons online are listed in **Table IV**. These correlations demonstrate a statistically significant relationship with higher overall recommendation ratings. The highest coefficients were surgeon bedside manner and proficiency/knowledge. An improvement in these areas is correlated with the most improvement in overall rating. The significance of bedside manner was established in a previous analysis.<sup>9</sup>

During inpatient care, a survey of patients' hospital experience is being captured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). This survey compares various hospitals and is available to the public.<sup>10</sup> The

Centers for Medicare and Medicaid Services (CMS) supports the HCAHPS survey, and the Patient Protection and Affordable Care Act includes this survey to calculate value-based incentive payments.<sup>11</sup>

For the individual physician, however, for-profit companies (rather than CMS) have taken the lead in offering consumer surveys of providers. Advertising and marketing services support these websites. Segal and colleagues<sup>12</sup> evaluated the online ratings of 600 physicians performing lumbar spine surgery, total knee arthroplasty, and bariatric surgery. They found that high-volume surgeons can be distinguished from low-volume surgeons based on the number of reviews, comments, and proportion of positive and negative comments. Nevertheless, the websites can be manipulated, as all that is needed is an e-mail address to log in and complete a survey. Thus, competitors and proponents of a surgeon, such as implant sales personnel and office staff, can potentially input biased comments.

In another surgical specialty, urology, Ellimootil and colleagues<sup>8</sup> searched for 500 urologists on Vitals.com and noted 80% of urologists had at least 1 survey. They noted that 86% of urologists had a positive rating, and written reviews were positive in 53% of cases. They also noted that, as these websites are becoming prevalent, it is important that surgeons take ownership and proactively ask patients with positive experiences to submit surveys to counteract existing or anticipated negative surveys.

This study had some limitations. In several cases, only a portion of the rating website was dedicated to health care or orthopedic surgery. Therefore, overall traffic is not entirely indicative of the level of user activity in health care reviewing. However, website subdomain-specific traffic estimates are proprietary information and therefore unavailable. This was accounted for by analyzing the total number of reviews of qualifying websites to ensure sufficiency in sample sizes. Another study weakness was our focus on a single geographic area rather than a national evaluation. To further validate the findings of this study, we intend to perform additional studies in other metropolitan regions. Recall bias is also a potential limitation, as the surveys are completed exclusively retroactively, and at different times by patients. Also, the severity of patient complaints is not taken into account, and this may bias patient perceptions of interactions with physicians.

## Conclusion

Profit-driven online physician rating websites are growing in number and popularity.<sup>13,14</sup> This directly applies to orthopedic surgery. Although online recommendation levels do not necessarily correlate with physician skill, they affect patient decisions. Understanding what factors influence online recommendations is crucial.<sup>12,15</sup> It is also not clear if online ratings affect patterns of primary care providers' referrals to specialists. Given the expansion of online physician ratings, further studies of strategies that physicians can use to manage their online reputations would be useful.<sup>16-19</sup>

In this study, we found that orthopedic surgeons in a metropolitan region had a mean online rating of 81.8, between 100,

definitely recommend, and 80, mostly recommend, across the 4 busiest commercial online rating websites. Aspects of care that most significantly contributed to surgeons' overall rating included surgeon bedside manner and proficiency/knowledge. Other significant variables were ease of scheduling, time spent with patient, and wait time.

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