**Website Ratings of Physicians and Their Quality of Care**

One-third of consumers in the United States who consulted physician website ratings reported selecting and/or avoiding physicians because of these ratings. However, little is known about the validity of these ratings. Available studies have focused mostly on hospital website ratings or non-US website ratings. We partially address this gap by measuring the association between US physician website ratings and traditional quality measures (QMs) of clinical and patient experience.

**Methods** | We used a sample of 1299 physicians who completed an American Board of Internal Medicine Hypertension or Diabetes Practice Improvement Module between July 1, 2011, and November 30, 2012. Quality measures were drawn from about 25 Practice Improvement Module medical record abstractions and patient survey responses (59% response rate per physician). From medical record abstractions, we computed overall, intermediate outcome, and clinical process-of-care composites based on an expert panel’s assessment of quality. We also computed 2 QMs each for clinical and patience experience.

Website physician rating measures were drawn from Internet searches in which each physician’s name, specialty, and city were entered into the Google search engine. We extracted information from 8 freely available leading health-based websites. This information included physician rating, the number of patient ratings per physician, and search ranking. We normalized physician website ratings by dividing each rating by the website’s maximum score (eg, 4 of 5 stars equals 80%).

Physician-level QMs were regressed on website ratings. Regressions were estimated separately for each QM and controlled for physician, patient, and website characteristics. We estimated a model using all 8 websites and another model limited to the website with the highest Google search result as it may be more representative of what consumers view.

The project was reviewed by the University of Maryland College Park institutional review board and was determined to be exempt from institutional review board review. All data applied in this analysis were analyzed anonymously. Physicians who enroll in an American Board of Internal Medicine certification program enter into a business associates agreement that permits the American Board of Internal Medicine use of their de-identified data at an aggregate level for research purposes (www.abim.org/privacy.aspx). After linking publicly available rating data from the Internet, we were blinded to the physicians’ identities and the data were de-identified and were viewed and analyzed in aggregate. Patient survey data did not include any protected health information or other identifiers and were collected by physicians participating in the American Board of Internal Medicine’s maintenance of certification program; therefore, informed consent could not be collected. Furthermore, no names of patients were recorded.

**Results** | Physician website ratings existed for 61.0% of physicians, with 5.6 patient ratings per physician and a mean normalized rating of 81.6% (Table 1).

The associations between physician website ratings and clinical QMs were small and statistically insignificant (≤0.3 percentage point change associated with a 20 percentage point rating change; P > .05) (Table 2). For patient experience QMs, associations were also small but were statistically significant (≤1.7 percentage point change associated with a 20 percentage point rating change; P < .05). For example, regression results indicate that a physician with a website rating of just 1 of 5 stars...
Table 2. Association Between Quality Measures and a 20-Percentage-Point Change in Normalized Physician Website Ratings

<table>
<thead>
<tr>
<th>Dependent Quality Measures</th>
<th>Unadjusted Physician PIM Quality Measure Percentage Score, Mean (SD)</th>
<th>First Physician Website Rating Sample Change in Dependent Measure, % (95% CI)</th>
<th>P Value</th>
<th>All Physician Website Rating Sample Change in Dependent Measure, % (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clincial quality measures&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall composite</td>
<td>69 (14)</td>
<td>-0.2 (-1.1 to 0.7)</td>
<td>.64</td>
<td>0.0 (-0.8 to 0.7)</td>
<td>.91</td>
</tr>
<tr>
<td>Process-of-care composite</td>
<td>77 (19)</td>
<td>0.0 (-1.2 to 1.2)</td>
<td>.99</td>
<td>0.3 (-0.7 to 1.4)</td>
<td>.53</td>
</tr>
<tr>
<td>Outcomes composite</td>
<td>64 (15)</td>
<td>-0.3 (-1.2 to 0.6)</td>
<td>.46</td>
<td>-0.3 (-1.0 to 0.4)</td>
<td>.42</td>
</tr>
<tr>
<td>Blood pressure controlled, %</td>
<td>64 (20)</td>
<td>0.0 (-1.1 to 1.2)</td>
<td>.93</td>
<td>-0.1 (-1.1 to 0.8)</td>
<td>.75</td>
</tr>
<tr>
<td>Low-density lipoprotein controlled, %</td>
<td>72 (22)</td>
<td>-0.3 (-1.6 to 0.9)</td>
<td>.62</td>
<td>0.0 (-1.0 to 1.0)</td>
<td>.97</td>
</tr>
<tr>
<td>Patient experience quality measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good/excellent overall care satisfaction, %&lt;sup&gt;4,6&lt;/sup&gt;</td>
<td>80 (16)</td>
<td>1.6 (0.6 to 2.6)</td>
<td>.002</td>
<td>0.8 (0.0 to 1.6)</td>
<td>.05</td>
</tr>
<tr>
<td>Very good/excellent self-care support, %&lt;sup&gt;5,7&lt;/sup&gt;</td>
<td>76 (14)</td>
<td>1.7 (0.7 to 2.7)</td>
<td>&lt;.001</td>
<td>1.3 (0.5 to 2.1)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Abbreviation: PIM, Practice Improvement Module.

* Models are estimated by binomial regression with a logit link separately for each quality measure. This accounts for dependent measures bounded by zero and 1. Regressions control for the specific PIM completed, generalist vs subspecialist, and patient panel characteristics. Patient panel characteristics include the percentage in race groups (white, black, Hispanic, Asian, other, and unknown); 10-year age groups (<40, 40-49, 50-59, 60-69, 70-79, and ≥80 years); and type of insurance groups (private, Medicare, Medicaid, uninsured/self-pay, other, and unknown).

<sup>2</sup> Standard errors are adjusted for ratings across multiple sites using Huber-White adjustment.

<sup>3</sup> Each measure is assessed as a physician-level percentage score scaled between 0% and 100%.

<sup>4</sup> Very good or excellent refer to 4 or 5, respectively, as assessed on a 5-point Likert-type scale.

<sup>5</sup> Based on a single question about care satisfaction.

<sup>6</sup> Based on a series of questions about satisfaction with self-care support: (1) encouraging questions and answering clearly, (2) providing information on taking medication properly, (3) providing information on proper diet, (4) showing an understanding of living with diabetes (diabetes PIM only), (5) providing information on adverse effects of medications (diabetes PIM only), (6) teaching foot care (diabetes PIM only), and (7) teaching home blood glucose monitoring (diabetes PIM only).

Discussion | We found no evidence that physician website ratings were associated with clinical QMs. We did find a statistically significant, but small, association between physician website ratings and 2 Practice Improvement Module measures of patient experience. Overall, the weak associations we found could have resulted from the low number of website ratings per physician or because patients whose ratings are reported on websites are not typical of the overall population of patients treated by the physicians in our sample. Alternatively, weak associations may have been due to inherent limitations of our Practice Improvement Module data related to their content, sample structure, and chronic condition focus. Finally, we did not examine associations with patients’ narratives on the website.

Notably, a study of ratings for websites in the United Kingdom reported stronger associations with practice-level QMs than we found. Between 0% and 100%.

Had 79% of their patients rate overall quality of their care as very good or excellent vs 82% for a physician who had a perfect 5 out of 5 rating. Overall, results were similar across website samples.

Overall, our study provides valuable information to consumers considering the usefulness of physician website ratings.

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Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Gray, Vandergrift, McCullough, Lipner.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Gray, Vandergrift, McCullough, Lipner.

Administrative, technical, or material support: Vandergrift, Gao, Lipner.

Study supervision: Gray, Lipner.

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Geographic Accessibility to Clinical Trials for Advanced Cancer in the United States

Clinical trials yield critical evidence to guide the care of patients with cancer. According to commonly used practice guidelines, “...the best management of any cancer patient is in a clinical trial.” Nonetheless, only about 2% to 7% of US adult patients with cancer participate in clinical trials. Poor accrual to clinical trials has far-reaching implications in the way it affects the pace of progress, cost of drug development, and generalizability of study findings.

Prior studies exploring trial enrollment have identified several barriers. However, geographic barriers to participation in clinical trials remain underexplored. A survey of patients with cancer revealed that most were not willing to travel for trial participation. We sought to estimate the geographic accessibility of clinical trials for advanced cancer in the United States.

Methods | Data regarding clinical trials and associated sites were derived from ClinicalTrials.gov. We identified all actively accruing trials that evaluated first-line treatments for metastatic breast, prostate, colorectal, and non–small cell lung cancers. Inclusion was limited to these malignant neoplasms because they are the most commonly diagnosed and most frequent causes of cancer death in the United States. Institutional review board approval was waived by Icahn School of Medicine at Mount Sinai.

ClinicalTrials.gov was queried on September 16, 2012, and 227 trials associated with 5011 sites met the criteria for inclusion. The 1-way driving time from each US zip code to the nearest breast, prostate, colorectal, or non–small cell lung cancer trial site was calculated using MapPoint 2013 (Microsoft Corporation). Calculations for each cancer type were performed with each zip code in the contiguous United States as the point of origin and the zip code of the nearest trial site as the destination.

The proportion of patients with metastatic breast, prostate, colorectal, or non–small cell lung cancer residing within x minutes of the nearest trial site was calculated by weighting each origin zip code by the estimated proportion of the total number of people in the United States with metastatic cancer represented within that zip code. Because data regarding the geographic distribution of patients with metastatic disease in the US are not available, we used cancer-specific mortality data (wonder.cdc.gov) to approximate the number and distribution of patients with metastatic disease because most of these patients die of their illness; cancer-related deaths are uncommon at earlier stages of disease.

Results | We found that 45.6%, 50.2%, 52.2%, and 38.4% of patients with metastatic breast, prostate, colorectal, and non–small cell lung cancer, respectively, would need to drive more than 60 minutes 1 way to access a clinical trial site (Table). The Mountain, West North Central, and West South Central regions were generally associated with the longest travel times (Figure).

Discussion | We found that clinical trials for advanced cancer have poor geographic accessibility for many people in the United States. According to a 2010 Institute of Medicine report, “Sites for clinical trials are frequently selected on the basis of where the investigators are located, as opposed to where the patients are, creating difficulties in patient recruitment.”

There are limitations to our analysis. The minimum travel time that affects the decisions that patients with cancer make about their care is not known. Patients living in metropolitan and rural areas may value travel time differently. We likely underestimated travel time, and many patients will not meet eligibility criteria for the trial that is nearest to them. We also examined the most common cancer types; for rare cancers, trial accessibility is likely worse. We limited our analysis to metastatic cancers. Although

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Patients, No.</th>
<th>&lt;30 min</th>
<th>30 min to &lt;1 h</th>
<th>1 h to &lt;2 h</th>
<th>2 h to &lt;3 h</th>
<th>3 h to &lt;4 h</th>
<th>&gt;4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>40 981</td>
<td>24.9</td>
<td>29.3</td>
<td>27.8</td>
<td>11.6</td>
<td>4.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Prostate</td>
<td>28 699</td>
<td>23.4</td>
<td>26.4</td>
<td>33.9</td>
<td>11.5</td>
<td>3.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Colorectal</td>
<td>50 641</td>
<td>21.1</td>
<td>26.7</td>
<td>33.6</td>
<td>13.3</td>
<td>2.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Non-small cell lung</td>
<td>157 183</td>
<td>28.1</td>
<td>33.5</td>
<td>28.7</td>
<td>8.1</td>
<td>1.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

* Number and geographic distribution of patients with metastatic disease approximated by using cancer-specific mortality data from wonder.cdc.gov.