Patient perception of physician reimbursement in elective shoulder surgery

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Background: A previous study revealed that patients perceived physician reimbursement to be much higher than current Medicare schedules for hip and knee replacement. The purpose of this study was to evaluate patient perception of surgeon reimbursement for total shoulder replacement (TSA) and rotator cuff repair (RCR).

Methods: The study surveyed 250 patients. Patients were asked what they believe a surgeon should be reimbursed for performing TSA and RCR. Patients were then asked to estimate what Medicare reimbursed for each of these procedures. We then revealed the Medicare reimbursement rate for TSA and RCR, and patients were asked to comment. Finally, patients were asked whether surgeons with advanced shoulder training should receive additional payments.

Results: Patients thought that surgeons should receive $13,178 for TSA and $8459 for RCR. Patients estimated actual Medicare reimbursement was $7177 for TSA and $4692 for RCR. Eighty percent of patients stated that Medicare reimbursement was too low for TSA, 75% thought that payment for RCR was lower than what it should be. Less than 1% of patients felt that it was higher than it should be. A total of 87% of patients thought that surgeons with advanced shoulder training should be reimbursed at a higher rate.

Conclusion: Patients perceived the values of TSA and RCR were much higher than current Medicare schedules. This is in agreement with prior surveys. Continued decreases in Medicare reimbursements may force surgeons to not participate in Medicare and create a potential access issue. Further investigation should focus on identifying how many surgeons may opt out.

Level of evidence: Survey Study, Patients.

Keywords: Reimbursement; shoulder; surgery; replacement; rotator cuff

During the past decade, health care reform has been a largely debated topic in politics. Medicare has consistently been the benchmark by which all other insurance companies set physician reimbursement schedules. During the
last 20 years. Medicare has gradually decreased physician reimbursement.\textsuperscript{1,4,6} This gradual decline in physician reimbursement has forced physicians and surgeons with a high volume of Medicare patients to evaluate the cost-effectiveness of continuing to accept Medicare patients. Many orthopedic procedures, such as joint replacements, are performed in older individuals who often use Medicare as their primary insurance. Total shoulder replacement (TSA) and rotator cuff repair (RCR) are 2 such procedures that are often performed in Medicare recipients.

Although Medicare reimbursement has slowly declined, the physician’s cost to practice and the cost of living have increased. These increases have forced many physicians to reevaluate not only participation in Medicare but also the feasibility of continuing to practice medicine at all. Given the complex state of medical billing, one question has never really been evaluated: What exactly do patients perceive that surgeons are reimbursed for procedures? Foran et al\textsuperscript{3} found that patients overestimated surgeon reimbursement for hip and knee replacement by almost $7000. In addition, 67\% of patients felt that orthopedic surgeons were under-reimbursed for hip and knee replacement.\textsuperscript{3} The current survey is an evaluation of patient perceptions regarding shoulder replacement and arthroscopic RCR. Our hypothesis of this study was that patients would overestimate the amount that surgeons are reimbursed for these 2 common shoulder procedures.

**Materials and methods**

A paper survey was administered to 300 consecutive patients with complaints of shoulder pain at 3 orthopedic practices in different states. The surveys were anonymous and were administered while patients were waiting to be seen by the physician. The completed survey was placed in a sealed envelope by the patient and collected by the office staff to maintain patient confidentiality.

The survey consisted of 3 separate sections. The first section asked questions regarding demographic information such as age, sex, history of previous TSR or RCR, education level, annual household income, and type of primary medical insurance (Medicare, Medicaid, Tri-care, health maintenance organization, preferred provider organization, none, or other). This section also included a box for patients to check if they did not wish to participate in the study.

The second section contained the following open-ended questions:

1. What do you think is a reasonable fee that an orthopedic surgeon should receive to perform a total shoulder replacement?
2. How much do you estimate that Medicare actually pays an orthopedic surgeon for performing a total shoulder replacement and 90 days of care following surgery?
3. What do you think is a reasonable fee that an orthopedic surgeon should receive to perform a rotator cuff repair?
4. How much do you estimate that Medicare actually pays an orthopedic surgeon for performing a rotator cuff repair and 90 days of care following surgery?

For a comparison with other common procedures, patients were also asked the following questions:

1. What do you think is a reasonable fee that a cardiac surgeon should receive to perform an open-heart coronary bypass surgery?
2. How much do you estimate that Medicare actually pays a cardiac surgeon for performing an open-heart coronary bypass surgery and 90 days of care following surgery?
3. What do you think is a reasonable fee that a general surgeon should receive to perform an appendectomy, that is, removing the appendix?
4. How much do you estimate that Medicare actually pays a general surgeon for performing an appendectomy and 90 days of care following surgery?

To ensure that patients understood that their answers should only include the surgeon's fees and not the total fee for the operation the following statement was included after each of these eight questions: “The fee includes the operation itself, the time your surgeon spends with you in the hospital and his or her care for you 90 days after surgery. The fee DOES NOT include preoperative evaluation or the fee the hospital gets paid.”

In the third section, the actual amounts that Medicare reimburses physicians were revealed to the patient. ATSR was listed at $1633, and a RCR was listed at $1175. This was based on the national average reimbursement for these procedures for 2012. The patients were asked to indicate whether they thought those amounts were “much lower,” “a little lower,” “about right,” “a little more,” or “way more” than a surgeon should make for these procedures. They were asked:

1. Do you think a surgeon with specialized fellowship training in shoulder surgery (including rotator cuff repair and shoulder replacement) should receive additional payment for performing a total shoulder replacement or rotator cuff repair?
2. If you answered Yes, what do you think is a reasonable additional payment that an orthopaedic surgeon with specialized fellowship training in shoulder surgery should receive to perform a rotator cuff repair or shoulder replacement?

Finally there was a section for patients to add additional comments.

Surveys were evaluated for outliers with responses that were greater than 3 standard deviations more than the average. Any such responses were omitted. Data were converted from Excel (Microsoft, Redmond, WA, USA) into R data sets for analysis (R Core Team, 2012; R Foundation for Statistical Computing, Vienna, Austria). Statistical comparisons were made between paired responses using the differences of the log (fee) for the paired responses, equivalent to the log of their ratio. The log transformation was applied to satisfy the assumption for the $F$ tests and the $t$ tests. The within-group comparisons in Tables I-III were performed using ranks of paired differences using the Wilcoxon–Mann-Whitney test. The between group differences were calculated using analysis of variance.

**Results**

Surveys were given to 300 patients, and 250 (55\% women, 45\% men) were completed for an 83\% response rate. The
respondents were a mean age of 52.3 years (range, 20-86 years). Of the 250 patients, 19 had previously had a TSR, and all were happy with the outcome. Fifty-two patients had previously had a RCR, and 71% were happy with the outcome.

Education levels and household income are listed in Figures 1 and 2. On average, patients perceived that a reasonable fee for a TSA would be $13,178 and that a RCR would be worth $8459. Patients then estimated on average that Medicare paid surgeons $7177 for a TSR and $4692 for a RCR. The actual amounts that surgeons receive from Medicare are $1633 for a total shoulder replacement and $1175 for a rotator cuff repair (Table IV). All P values were <.01. Patients overestimated physician reimbursement and placed a higher monetary value on each procedure than was reimbursed.

For comparison with other general surgeries, patients were asked to indicate what they felt appropriate fees for open heart coronary bypass graft surgery and an appendectomy would be. Patients indicated that an open heart coronary bypass graft surgery should be worth $21,565 and an appendectomy should be worth $7717. Patients perceived that Medicare actually reimbursed surgeons $11,653 for open heart coronary bypass graft surgery and $4307 for an appendectomy.

When patients were asked whether surgeons with advanced fellowship training should receive any additional payment when performing surgical procedures, 87% answered yes. Patients responded that there should be an increase in payment by 47%, or $10,365.

Also, when patients were asked to indicate whether Medicare’s reimbursements for TSA and RCR were reasonable, 64% answered that TSA reimbursement was “much lower” than they thought it should be, 15.9% answered “somewhat lower,”...
6.7% answered “about right,” 1.5% answered “somewhat higher,” and less than 1% answered “much higher.” For RCR, 57.7% answered that reimbursement was “much lower” than acceptable, 18% answered “somewhat lower,” 11.8% answered “about right,” 1.5% answered “somewhat higher,” and less than 1% answered “much higher.”

We stratified the responses by household income of the respondents. These averages are listed in Table I. We also evaluated the responses by education level. These data are listed in Table II. Patients who had undergone RCR were grouped by whether they were happy or unhappy with their outcome. These results are listed in Table III. All patients who had undergone TSA were happy. Comparisons were also made between the different stratified categories within each of the Tables. There were no significant differences between any of the groups listed in Tables I-III using analysis of variance.

Of all the respondents, 53 patients provided comments at the end of the survey.

**Discussion**

With the passing of the health care reform bill in 2010, legislators brought the rising cost of health care to the forefront of American politics. Although the consensus opinion was that health care in this country was too costly and rising at a rapid pace, the actual breakdown of where these dollars are spent remained nebulous. Our thought was that many citizens likely assumed that physician reimbursement accounted for the bulk of this because patients usually view their health care providers as the center point of their care. As a result, we hypothesized that patients would likely overestimate the reimbursement physicians receive for procedures and place a higher value on 2 common shoulder procedures than surgeons currently receive from Medicare.

Very little data exist on this topic. Ross et al surveyed patients about doctors’ pay in the mid-1980s and found that 70% of patients viewed physicians as overpaid. This contrasts with the results of the current study and other more recent surveys that suggest a potential shift in perceptions during the last 20 to 30 years. Hayden et al surveyed 1000 residents in a North Texas city regarding total knee arthroplasty and received 121 responses. They found that patients believed physicians should be reimbursed $5080 for a total knee arthroplasty, which was almost 4 times the actual payment at the time. Foran et al recently reported patients’ perceptions regarding the value and reimbursement for hip and knee replacement and noted that patients placed a significantly higher monetary value on these procedures and drastically overestimated physician reimbursement for these procedures. The current study is an extension of that study concept applied to 2 common shoulder procedures, RCR and TSA.

Patients placed an approximate value of $13,000 on TSA and $8500 for RCR, which are much higher than the actual reimbursements. There was a general awareness that physicians did not receive the reimbursement for a procedure that it was actually valued at. As corroboration, patients perceived that Medicare reimbursed surgeons approximately half of the value of a procedure. Approximately 80% of the respondents felt that reimbursement was lower than they expected for RCR and TSA.

![Figure 1](image1.png) Education level of respondents.

![Figure 2](image2.png) Household income of respondents.

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**Table IV** Surgical reimbursements

<table>
<thead>
<tr>
<th>Operation</th>
<th>Reasonable fee</th>
<th>Medicare reimbursement</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated</td>
<td>Actual</td>
<td></td>
</tr>
<tr>
<td>Coronary artery</td>
<td>$21,565</td>
<td>$11,653</td>
<td>$.001</td>
</tr>
<tr>
<td>bypass graft</td>
<td></td>
<td>$2250</td>
<td></td>
</tr>
<tr>
<td>Total shoulder</td>
<td>$13,178</td>
<td>$7177</td>
<td>$.001</td>
</tr>
<tr>
<td>replacement</td>
<td></td>
<td>$1633</td>
<td></td>
</tr>
<tr>
<td>Appendectomy</td>
<td>$7717</td>
<td>$4307</td>
<td>$.001</td>
</tr>
<tr>
<td>Rotator cuff repair</td>
<td>$8459</td>
<td>$4692</td>
<td>$.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1175</td>
<td></td>
</tr>
</tbody>
</table>
verbally with the authors during the visit. Most were surprised at the actual reimbursement to physicians for these procedures. Many also explained that they did not have a frame of reference or ability to gauge the value of procedures.

Patients placed a higher value on TSA than they did on RCR, which was not surprising. This cohort did place a similar value on TSA compared with the value placed on hip and knee replacement by the previous study cohort reported by Foran et al. Our patients also placed a higher value on open heart surgery than they did for any other procedure. They placed a higher value on RCR than they did for appendectomy. This gives insight into patient perceptions of the relative complexities of each procedure. Also, almost 90% of respondents felt that surgeons with specialized training in shoulder surgery should receive substantial additional payment for TSA and RCR.

Limitations of the study include that it was a survey of patients in a surgeon’s office waiting to be evaluated and treated for a shoulder problem. Another sample bias potentially exists given the higher-than-average education and income levels of the respondents. These patients might have overvalued the procedures because of their own shoulder problems. As a result, these values could change significantly if a group with no shoulder complaints were polled. In addition, the questionnaire asked first what the value of a procedure was and then asked what the reimbursement was. This could have prompted patients to assume that the actual reimbursement was less than the value of a procedure. Finally, the final page of the survey included the current reimbursement for TSA and RCR. Despite the survey design and instructions, it is possible that patients might have looked ahead to this page and altered their answers accordingly. Also, patients were not asked what they would be willing to pay for a procedure, which could possibly be a more accurate assessment of the value they place on a procedure.

Comments were made at the end of the survey by 53 people. Common responses included, “I felt that I was too uninformed on cost and payment,” “Most doctors are underpaid for surgeries,” “I feel the public should be more aware,” and “Surgeons should be compensated for their experience/training.” These comments suggest that the public is misinformed about the reimbursement process for surgeons. This may be because in our current system, insurance companies serve as an intermediary between the patient and the physician.

With the future of health care uncertain, understanding patient perceptions and opinions about physician reimbursement will be a vital component to physicians’ responses to proposed reimbursement decreases. Also, with the number of shoulder replacements projected to increase significantly during the next 5 years, policy makers will be faced with tough decisions regarding reimbursements. If a physician opts out of Medicare and possibly private insurances, the notion of what a procedure is worth will be very important. This survey may serve as a benchmark for this. Results of this survey may increase public awareness regarding reimbursement and the potential ramifications of continued decreases.

**Conclusion**

Patients perceived the value of TSA and RCR was much higher than current Medicare schedules. This is in agreement with prior surveys. Continued decreases in Medicare reimbursements may force surgeons to not participate in Medicare and thus create a potential access issue. Further investigation should focus on identifying how many surgeons might opt out.

**Disclaimer**

The authors, their immediate families, and any research foundations with which they are affiliated have not received any financial payments or other benefits from any commercial entity related to the subject of this article.

**Supplementary data**

Supplementary data related to this article can be found online at http://dx.doi.org/10.1016/j.jse.2014.06.034.

**References**