

# Insurance status affects access to physical therapy following rotator cuff repair surgery: A comparison of privately insured and Medicaid patients

Miranda J. Rogers,<sup>1</sup> Ian Penvose,<sup>2</sup>  
Emily J. Curry,<sup>3</sup> Joseph W. Galvin,<sup>4</sup>  
Xinning Li<sup>5</sup>

<sup>1</sup>Department of Orthopedic Surgery, University of Utah, Salt Lake City, UT; <sup>2</sup>Northeastern University, Boston, MA; <sup>3</sup>Boston University School of Public Health, Boston, MA; <sup>4</sup>Harvard Medical School, Department of Orthopedic Surgery, Boston, MA; <sup>5</sup>Boston University School of Medicine, Boston, MA, USA

## Abstract

Rotator cuff repair (RCR) is an effective procedure to relieve shoulder pain and dysfunction. Postoperative physical therapy (PT) plays an integral role in the overall success of RCR. Insurance status has been shown to be an important predictor of postoperative PT utilization. This study evaluated the effect of insurance status on access to PT services following RCR. One hundred thirty-eight PT clinics were contacted in the Greater Boston metropolitan area. Clinics were contacted on two separate occasions and presented with a fictitious acutely postoperative RCR patient in need of PT. Insurance status was reported as Medicaid or private insurance. Overall, 133 (96.4%) accepted private insurance, whereas only 71 (51.4%) accepted Medicaid ( $P=0.019$ ). Medicaid patients were offered a first available appointment at a mean of 8.3 days (95% CI: 7.13-9.38, range: 0-31) versus a mean of 6.3 days (95% CI: 5.3-7.22, range: 0-19,  $P=0.001$ ) for private patients. Clinic location was not associated with access to PT or time to first appointment. Insurance status affects access to PT services and time to first available appointment in patients following RCR surgery in a major metropolitan area.

## Introduction

Rotator cuff pathology is the most common source of shoulder pain and dysfunction in adult populations, with an annual rate of 10 per 1000 person-years.<sup>1,2</sup> When

conservative management fails to relieve symptoms, arthroscopic or open rotator cuff repair is an effective treatment with excellent results.<sup>3,4</sup> Although controversy exists regarding the optimal physical therapy [physical therapy (PT)] protocol after surgery, there is consensus that postoperative rehabilitation is essential to a successful surgical outcome.<sup>5,6</sup> Despite agreement among orthopedic surgeons on the importance of therapy, many patients struggle to access care due to their insurance status.<sup>7-9</sup>

Following passage of the Patient Protection and Affordable Care Act [Affordable Care Act (ACA)], also known as Obamacare, the number of patients insured by Medicaid increased dramatically.<sup>10</sup> Since then, several investigations have highlighted the disparities in access to orthopedic care based on insurance status.<sup>11,12</sup> Patterson et al. found that for patients with acute rotator cuff tears, privately insured patients were 8.8 times more likely than those with Medicaid to obtain an appointment.<sup>7</sup> Most notably, Arshi *et al.* reported that privately insured patients had better access to PT services after rotator cuff repair when compared to Medicare patients.<sup>8</sup> Similarly, we sought to determine the association of insurance status and access to therapy, comparing privately insured patients to a Medicaid population.

The purpose of this study is to determine the effect of insurance status on access to PT services following rotator cuff repair surgery. We hypothesize that there will be no differences in access to rehabilitation services following rotator cuff repair surgery between those patients with private insurance and Medicaid.

## Materials and Methods

We identified 138 PT clinics in the greater Boston metropolitan area,<sup>13</sup> by searching on Google, Yelp, and the American Physical Therapy Association website. We also recorded the location of each PT clinic and grouped them accordingly. A fictitious script (See Appendix 1) was generated creating a mock scenario for a patient inquiring about PT rehabilitation services after rotator cuff repair surgery. The script read “I just had surgery to repair my rotator cuff 1 week ago, and I saw my orthopedic surgeon today for the first postoperative visit. My surgeon would like me to start therapy as soon as possible, and I have a PT script with his protocol.” The fictitious patient then either stated that they had government sponsored Medicaid insurance (Health Standard) or private insurance

Correspondence: Xinning Li, Boston University School of Medicine, 850 Harrison Ave., Dowling 2-North Boston, MA 02118, USA.

Tel.: +1.508.816-3939.

E-mail: xinning.li@gmail.com

Key words: rotator cuff repair, physical therapy, insurance status, access to care, Medicaid Insurance.

Acknowledgements: the authors would like to thank Anthony DeGiacomo, MD for his assistance with data analysis for this project.

Contributions: MJR, IP: Substantial contributions to conception/design of the work, drafting the work, final approval of the version to be published and accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. EJC: Substantial contributions to the conception/design of the work, acquisition, analysis and interpretation of the data; revising work critically for important intellectual content, final approval of the version to be published and accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. JWJ, XL: Substantial contribution to the interpretation of data for the work; revising work critically for important intellectual content, final approval of the version to be published and accountable for all aspects of the work in ensuring that questions related to the accuracy.

Conflict of interest: Dr. Xinning Li is on the editorial or governing board of the following journals: American Journal of Sports Medicine, Journal of Bone and Joint Surgery – American, Journal of Medical Insight, Orthopedic Reviews, and World Journal of Orthopedics. All other authors have no disclosures.

Funding: None.

Received for publication: 15 January 2019.

Accepted for publication: 20 January 2019.

This work is licensed under a Creative Commons Attribution NonCommercial 4.0 License (CC BY-NC 4.0).

©Copyright M.J. Rogers et al., 2019

Licensee PAGEPress, Italy

Orthopedic Reviews 2019;11:7989

doi:10.4081/or.2019.7989

(Blue Cross Blue Shield PPO). The mock patient next asked, “Do you take my insurance?” A ‘yes’ or ‘no’ response was recorded. Physical therapy clinics were called twice. The first phone encounter inquired about the availability of therapy services in

a patient with Medicaid insurance. The second phone encounter followed the same script for a fictitious privately insured patient. Additional data points collected for each scenario included the next available appointment, any additional required visit fees, and the reason for not accepting the insurance. Furthermore, if the insurance was not accepted, we recorded whether the clinic was able to refer the patient to another location. Utilizing United States Census Data, median income and percentage of all households living in poverty was collected and stratified by the town in which the practice was located.

Descriptive statistics for all variables were determined and compared between groups. In addition, means and 95% confidence intervals were calculated for the number of days until the next available appointment. Statistical analysis included comparison of insurance acceptance by PT office location. Additional analyses examined differences between insurance type acceptance based on additional required fees, time to next available appointment and median income. Continuous variables were analyzed with a student T-test and categorical variables were analyzed with a chi-square test. Statistical significance was set at a P-value of 0.05.

## Results

Of the 138 PT clinics in Boston which were called on 2 separate occasions, 133 (96.4%) accepted private insurance, whereas only 71 (51.4%) accepted Medicaid (Table 1). These results met statistical significance ( $P=0.019$ ). As one would expect, there were not any PT clinics that accepted only Medicaid; however, 62 (44.9%) clinics accepted only private insurance. Of those clinics that accepted only private insurance, 22 (35%) were able to refer the patient to a clinic that would accept Medicaid.

Additionally, a significant difference was identified between insurance plans in terms of days to first appointment offered, with those on Medicaid plans encountering a mean 8.3 day wait (95% CI: 7.13-9.38, range: 0-31). Individuals with private insurance were offered first appointments at a mean of 6.3 days (95%CI: 5.3-7.22, range: 0-19,  $P=0.001$ ). A similar result was observed when the PT clinic accepted both private and public insurance. Those patients with Medicaid had an 8.3 day wait and the privately insured had a 6.4 day wait, ( $P=0.0013$ ).

We also found that the clinic location, when stratified by mean income or poverty

level, did not significantly affect the access to PT services ( $P>0.05$ ) or the time to first available appointment ( $P>0.05$ ).

## Discussion

The results of this study reveal that insurance status affects access to PT following rotator cuff repair. Specifically, an adult in the greater Boston area with Medicaid is much less likely to obtain a postoperative PT appointment after rotator cuff repair surgery when compared to a similar patient with private insurance. Furthermore, we found that insurance status is significantly associated with time to first available appointment. Medicaid patients were offered first available appointments, which were a mean 2 days later than the privately insured (8.3 vs. 6.3, respectively).

A critical component of the ACA was the expansion of the Medicaid coverage to include individuals with incomes at or below 133% of the poverty level. After the third open enrollment period in early 2016, roughly 20 million have acquired insurance between the Marketplace, Medicaid expansion, young adults remaining on a parent's plan, and other coverage provisions. As a result, the uninsured rate has dropped to a low of 9.1%.<sup>14</sup> While these numbers are superficially encouraging, access to insurance does not equate to access to timely, specialized care. Several recent studies have evaluated Medicaid access to outpatient orthopedic care and have highlighted the obvious disparity.<sup>11,12</sup> In addition to insurance status being significantly associated with perioperative outcomes in orthopedic procedures,<sup>15</sup> it has also been identified as a significant predictor of access to orthopedic surgical care and rehabilitation services.<sup>7,8</sup> Arshi *et al.*<sup>8</sup> retrospectively evaluated the utilization of PT after rotator cuff repair in privately insured and Medicare patients. The authors found that PT utilization in Medicare patients (41.8-43.2%) was significantly less than in privately insured patients (81-82.9%).<sup>8</sup> Although our study design was different than this retrospective review, and we evaluated Medicaid patients instead of Medicare, we found similar

results. Despite the variability in PT protocols after rotator cuff repair surgery, timely referral to an experienced physical therapist is important. Therefore, an additional objective of the study was to determine if insurance status affected time to first available appointment. Our results indicate that the time to initial appointment was significantly different between the two groups, with privately insured patients being offered an appointment to start therapy a mean of 2 days earlier. Furthermore, the timeframe range was greater for the Medicaid group compared to the privately insured group (0-31 vs. 0-19, respectively). The implications of these findings are important, and should be considered when counseling patients preoperatively and coordinating postoperative care.

A strength of this study is that it adds to prior research aimed at assessing the availability of PT services after rotator cuff repair surgery based on insurance status. This is also, to our knowledge, the first study to directly compare access to PT after rotator cuff repair in a population of Medicaid and privately insured patients. Additionally, our utilization of commonly trafficked Internet resources to identify clinics enabled our study design to accurately simulate the manner in which the average patient would seek out local therapy services. Finally, the PT clinics were blinded to the data collection process by the use of a standardized fictitious patient scenario, which provided exposure to the scheduling process and decision-making process utilized by each practice.

This study had several limitations. The use of a hypothetical patient scenario required improvisation in the face of unique reactions in order to accommodate the natural variations encountered between practices. In light of this, study investigators ensured that all pertinent details (insurance status, nature of surgery, date of procedure) were delivered over the course of each contact. It is also important to keep in mind the many social factors that contribute to a patient's ability to access rehabilitation services, all of which could not be addressed here. The more nuanced aspects of these factors include, the possibility that

**Table 1. Summary of number of clinics contacted, percent accepting a particular insurance type and mean time to first available appointment in days.**

	Medicaid	Private Insurance	P-value
Number of clinics contacted	138	138	n/a
Accepted insurance (n)	(71) 51.4%	(133) 96.4%	0.019
Mean time to first available appointment (days)	8.3	6.3	0.001

those who are publicly insured may be limited in their ability to seek out alternative clinics that are amenable to their insurance plan if they are rejected initially. In addition, we were unable to isolate and codify the reasons behind denying public insurance, as they are difficult to clarify over telephone communication. This study was also conducted in a metropolitan area where the state has undergone Medicaid expansion, so the study findings may not be applicable to states where Medicaid expansion has not taken place or more rural areas in the United States. Finally, the clinical impact of both limited and/or delayed access to PT services could not be assessed within the scope of this study.

## Conclusions

In conclusion, the results of this study demonstrate that insurance status affects access to physical therapy services in patients following rotator cuff repair surgery in a major metropolitan area. Medicaid patients had less access to physical therapy as compared to the privately insured. Also, in this population, the time to first available appointment was significantly less in the privately insured as compared to Medicaid patients. Orthopedic surgeons should consider these findings when coordinating care in this patient population in order to optimize postoperative access to care and ultimately surgical outcomes.

## References

1. Tashjian RZ. Epidemiology, natural history, and indications for treatment of rotator cuff tears. *Clin Sports Med* 2012; 31:589-604.
2. Vincent K, Leboeuf-Yde C, Gagey O. Are degenerative rotator cuff disorders a cause of shoulder pain? Comparison of prevalence of degenerative rotator cuff disease to prevalence of nontraumatic shoulder pain through three systematic and critical reviews. *J Shoulder Elbow Surg* 2017;26:766-73.
3. Lapner PL, Sabri E, Rakhra K, et al. A multicenter randomized controlled trial comparing single-row with double-row fixation in arthroscopic rotator cuff repair. *J Bone Joint Surg Am* 2012;94:1249-57.
4. Cole BJ, McCarty LP 3rd, Kang RW, et al. Arthroscopic rotator cuff repair: prospective functional outcome and repair integrity at minimum 2-year follow-up. *J Shoulder Elbow Surg* 2007; 16:579-85.
5. Mollison S, Shin JJ, Glogau A, Beavis RC. Postoperative rehabilitation after rotator cuff repair: a web-based survey of AANA and AOSSM members. *Orthop J Sports Med* 2017;5: 2325967116684775.
6. Ross D, Maerz T, Lynch J, et al. Rehabilitation following arthroscopic rotator cuff repair: a review of current literature. *J Am Acad Orthop Surg* 2014;22:1-9.
7. Patterson BM, Spang JT, Draeger RW, et al. Access to outpatient care for adult rotator cuff patients with private insurance versus Medicaid in North Carolina. *J Shoulder Elbow Surg* 2013;22:1623-7.
8. Arshi A, Kabir N, Cohen JR, et al. Utilization and costs of postoperative physical therapy after rotator cuff repair: a comparison of privately insured and Medicare patients. *Arthroscopy*. 2015;31:2392-9.
9. Draeger RW, Patterson BM, Olsson EC, et al. The influence of patient insurance status on access to outpatient orthopedic care for flexor tendon lacerations. *J Hand Surg Am* 2014;39:527-33.
10. Kaiser Family Foundation. A guide to the Supreme Court's decision on the ACA's Medicaid Expansion [Internet]. [Place unknown]: KFF;2012. Available from: <https://www.kff.org/health-reform/issue-brief/a-guide-to-the-supreme-courts-decision/>.
11. Patterson BM, Draeger RW, Olsson EC, et al. A regional assessment of Medicaid access to outpatient orthopaedic care: the influence of population density and proximity to academic medical centers on patient access. *J Bone Joint Surg Am* 2014;96:e156.
12. Labrum JT 4th, Paziuk T, Rihn TC, et al. Does Medicaid insurance confer adequate access to adult orthopaedic care in the era of the Patient Protection and Affordable Care Act? *Clin Orthop Relat Res* 2017;475:1527-36.
13. Wikipedia. Greater Boston. [Place unknown]:Wikipedia;2016. Available from: [https://en.wikipedia.org/wiki/Greater\\_Boston#Definitions](https://en.wikipedia.org/wiki/Greater_Boston#Definitions)
14. Centers for Disease Control and Prevention. Health Insurance Coverage. Atlanta GA: CDC; 2016. Available from: <http://www.cdc.gov/nchs/fastats/health-insurance.htm>
15. Li X, Veltre DR, Cusano A, et al. Insurance status affects postoperative morbidity and complication rate after shoulder arthroplasty. *J Shoulder Elbow Surg* 2017;26:1423-31.