

The Influence of Medical Insurance on Patient Access to Orthopaedic Surgery Sports Medicine Appointments Under the Affordable Care Act

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Background: The goal of the Patient Protection and Affordable Care Act (PPACA) was to expand patient access to health care. Since the rollout of the PPACA, Medicaid patients have demonstrated difficulty obtaining appointments in some specialty care settings.

Purpose: To assess the effect of insurance type (Medicaid and private) on patient access to orthopaedic surgery sports medicine specialists for a semiurgent evaluation of a likely operative bucket-handle meniscus tear. The study was designed to determine whether disparities in access exist since the PPACA rollout.

Study Design: Cohort study; Level of evidence, 2.

Methods: The design was to call 180 orthopaedic surgery sports medicine specialists in 6 representative states (California, Ohio, New York, Florida, Texas, and North Carolina) between June 2015 and December 2015. An appointment was requested for the caller's fictitious 25-year-old-brother who had suffered a bucket-handle meniscus tear. Each office was called twice to assess the ease of obtaining an appointment: once for patients with Medicaid and once for patients with private insurance. For each call, data pertaining to whether an appointment was given, wait times, and barriers to receiving an appointment were recorded.

Results: A total of 177 surgeons were called within the study period. Overall, 27.1% of offices scheduled an appointment for a patient with Medicaid, compared with 91.2% ($P < .0001$) for a patient with private insurance. Medicaid patients were significantly more likely to be denied an appointment due to lack of referral compared with private patients (40.2% vs 3.7%, $P < .0001$), and Medicaid patients were more likely to experience longer wait times for an appointment (15 vs 12 days, $P < .029$). No significant differences were found in patients' access to orthopaedic surgery sports medicine specialists between Medicaid-expanded and -nonexpanded states. Medicaid reimbursement for knee arthroscopy with meniscus repair was not significantly correlated with appointment success rate or patient waiting periods.

Conclusion: Despite the passage of the PPACA, patients with Medicaid have reduced access to care. In addition, patients with Medicaid confront more barriers to receiving appointments than patients with private insurance and wait longer for an appointment.

Keywords: bucket-handle tear; insurance; meniscus; Affordable Care Act

Medicaid is a federal and state medical insurance program for United States (US) citizens with limited income and resources. The Patient Protection and Affordable Care Act (PPACA) incentivized states to expand Medicaid eligibility to include all adults with incomes below 138% of the federal poverty level (\$33,534 for a 4-person household).¹³ As of March 2016, 32 states have chosen to increase their income

criteria, and because of this an additional 10.8 million patients have enrolled in Medicaid since 2010.^{2,12} In total, as of December 2015, 71.7 million Americans (22.5% of the total US population) were enrolled in Medicaid and Children's Health Insurance Program.⁵

However, patients with Medicaid do not necessarily have equitable access to medical care.²³ While many primary care physicians (PCPs) are accepting new patients with Medicare and private insurance, fewer are willing to see new Medicaid patients.⁴ This is thought to be due to Medicaid's low reimbursement, burdensome paperwork, and

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the complexity of patient profiles due to factors such as comorbidities.¹¹

As evidence has mounted that patients with Medicaid face more barriers to see their PCPs,³ similar trends have been observed for Medicaid patients accessing orthopaedic surgery specialty care.^{1,6,14-16} This is of particular concern for patients who suffer injuries that require time-sensitive surgery within an acute window, such as bucket-handle meniscus tears. Patients surgically treated in the acute period are more amenable to a meniscal repair,²² and there is recent evidence that patients with Medicaid or no insurance who suffered a bucket-handle meniscus tear initially presented later to an orthopaedic surgeon (79% of insured patients presented <6 weeks compared with 30% of underinsured patients) and had their surgery later than those with Medicare or private insurance (89% of insured patients had a <6-week presentation to surgery compared with 58% underinsured patients).²⁴ Furthermore, Venkatchalam et al²⁶ have shown that for meniscal repairs, early repair (within 3 months of injury) has shown better results (91% success rate) compared with repairs carried out later (58% success rate).

Our study focused on the effect of the different types of insurance (Medicaid or private insurance) on the ability of patients to obtain appointments with orthopaedic surgery sports medicine specialists. The purpose of this study was to assess the effect of insurance type on patient access to orthopaedic surgery sports medicine specialists for a semi-urgent evaluation of a likely operative bucket-handle meniscus tear. We chose bucket-handle meniscus tears because this injury requires surgical treatment but does not require an emergent workup. We hypothesized that patients with Medicaid would face more obstacles when seeking an appointment and have longer waiting periods compared with patients with private insurance.

We compared access to care in states with expanded Medicaid versus states without expanded Medicaid for 2 reasons. First, states with expanded Medicaid had a substantial increase in the overall number of patients with Medicaid in their states, and this should correlate to an increased physician workload. Second, as the PPACA has been credited with granting health care access to over 12 million Americans who previously did not have insurance, we wanted to see if patients with Medicaid in states with expanded Medicaid were able to schedule appointments to access care.

METHODS

The study population included board-certified orthopaedic surgeons who were members of the American Orthopaedic Society for Sports Medicine (AOSSM). These surgeons were

based in 6 representative states: 3 were Medicaid expanded (California, Ohio, New York) while 3 were not (Florida, Texas, and North Carolina). These states were selected because they represent diverse geographic areas and health care marketplaces. For each state, an alphabetized list of surgeons was generated from the AOSSM website.²⁵ Each surgeon received a randomly generated number from Microsoft Excel's RAND function, and each state's list was called in ascending order. If a number was disconnected or inaccurate, it was excluded from the calling list, and the next number was selected until 30 surgeons were called per state. We selected 30 surgeons from each state because our power analysis indicated that the combined size would be adequate for creating 2 cohorts (Medicaid and private insurance).

The design was to call 30 surgeons per state for a total of 180 surgeons between the months of June 2015 and December 2015. Calls were to be suspended by the first week of December, as patients would start a new year of insurance enrollment. Each state had more than 30 AOSSM members, so not all AOSSM members were called.

Each office was called to make an appointment for the caller's fictitious 25-year-old brother. The caller followed a standardized protocol to limit intra- and interoffice variation (see Appendix). The scenario was a request for the patient's brother to be evaluated for a bucket-handle tear. The patient was injured out of state, and a magnetic resonance image (MRI) demonstrated a bucket-handle tear. The patient had been told that he might need surgery. Every surgeon called was specifically asked if he or she would accept the patient for evaluation of a bucket-handle tear and possible surgery. If the physician would not perform the procedure, the response was removed from the dataset, and the next number was called. The scenario required a single call for each insurance type, with the patient having Medicaid or private (BlueCross) insurance. The interval between calls was at least 1 week, and the second call was made by the same investigator. Offices never identified that they recognized the caller during the second interaction.

The following data were recorded from each attempt at making an appointment: date of phone call and date of appointment if given. If the office did not give an appointment, they were asked for reasons why. If a denial occurred for a patient with Medicaid, we asked for a referral to another office that accepted Medicaid. Barriers to care included any office requirement that prevented the patient from obtaining an appointment during the phone call. Barriers that were recorded included whether the patient's insurance was accepted, whether the office required the patient's insurance card ID number, whether the office required a PCP referral, and whether the office required that imaging needed to be reviewed before an appointment

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would be granted. We considered barriers to obtaining an initial appointment, such as requiring a referral from a PCP, as an unsuccessful attempt at making an appointment. The waiting period for an appointment was obtained by calculating the time between the date of the call and the date of the appointment. For both appointment success rates and waiting periods, the data were stratified into 2 groups: states with expanded Medicaid eligibility (California, New York, Ohio) and states without expanded Medicaid eligibility (Florida, North Carolina, Texas). While the appointment date was recorded, actual appointments were not scheduled, so as to not take appointments from actual patients. A sub-analysis of Medicaid acceptance was conducted on physician practice characteristics, examining physician affiliation (private vs academic), practice size (solo vs group), and population density (urban vs nonurban).

We obtained the Medicaid reimbursement rates for knee arthroscopy with meniscus repair by querying each state's reimbursement rate using Current Procedural Terminology (CPT) code 29882.

A prospective power analysis determined that our sample size needed to include 88 surgeons to detect an effect size of at least 0.2 between the acceptance rate of Medicaid versus private insurance. The power analysis was for a combined study of 6 states. We used G*Power analysis software to determine the sample size. The effect size of 0.2 was referenced from previous studies on the effect of insurance on acceptance rates that the research team had previously published.¹⁴ We used the chi-square test or Fisher exact test to analyze differences in acceptance rate based on the type of insurance. To compare the waiting periods for an appointment, we used a nonparametric analysis because the data were not normally distributed. We performed logistic regression analysis to detect whether reimbursement for a bucket-handle meniscus repair was a significant predictor for successfully making an appointment for patients, and a linear regression analysis to evaluate whether reimbursement predicted waiting periods. Unless otherwise stated, all statistical testing was performed 2-tailed at $\alpha = .05$. We included confidence intervals where relevant.

The university's institution review board approved this study.

RESULTS

Between the months of June 2015 and December 2015, a total of 177 offices were called across 6 states (3 states with expanded Medicaid eligibility [California, New York, and Ohio] and 3 states without expanded Medicaid eligibility [Florida, North Carolina, and Texas]) for a total of 348 calls (177 for Medicaid and 171 BlueCross insurance). Three of the 180 total surgeons were not called because the research team was not able to complete all 180 calls within the study period (June 2015 to December 2015). In addition, 6 of the 177 offices were not called for the BlueCross scenario because of time constraints. The total number of surgeons called for each state and the relative total percentage of AOSSM surgeons per state are listed in Table 1.

TABLE 1
Total Surgeons Called for Each State and the Relative Total Percentage of AOSSM Surgeons per State^a

State	Total AOSSM Surgeons	Offices Called per State	Percentage of AOSSM Surgeons Called per State
California	273	30	11
New York	206	27	13
Ohio	113	30	27
Florida	113	30	37
North Carolina	80	30	38
Texas	197	30	15

^aAOSSM, American Orthopaedic Society for Sports Medicine.

TABLE 2
Success Rates of Orthopaedic Surgery Sports Medicine Physicians Willing to Provide Appointments to New Patients According to 2 Different Payment Mechanisms^a

Appointment Granted	Payment Method	
	Medicaid	Private
All states		
Yes, n (%)	48 (27.1)	156 (91.2)
No, n (%)	129 (72.9)	15 (8.8)
P value ^b		<.0001
States with expanded Medicaid eligibility		
Yes, n (%)	19 (22.6)	69 (87.3)
No, n (%)	65 (78.4)	10 (12.7)
P value ^b		<.0001
States without expanded Medicaid eligibility		
Yes, n (%)	29 (30.9)	87 (94.6)
No, n (%)	64 (69.1)	5 (5.4)
P value ^b		<.0001

^aNo significance between appointment success rates in Medicaid expanded and nonexpanded states.

^bComparison with Medicaid.

Across all states, 46% (81/177) of offices accepted Medicaid and 96% (164/171) accepted BlueCross.

The rate across all states of successfully obtaining an appointment was 27.1% for Medicaid patients and 91.2% for patients with BlueCross ($P < .0001$) (Table 2). In states with expanded Medicaid eligibility, the success rate for obtaining an appointment was 22.6% for Medicaid patients and 87.3% for patients with BlueCross ($P < .0001$). In states without expanded Medicaid eligibility, the success rate for obtaining an appointment was 30.9% for Medicaid patients and 94.6% for patients with BlueCross.

Medicaid patients experienced the majority of the barriers to obtaining an appointment. For patients with Medicaid, insurance status was the most common reason for the inability to schedule an appointment (54% not accepted, compared with 4% for BlueCross, $P < .0001$). For Medicaid patients who were not able to schedule an initial appointment because their insurance was not accepted, the

TABLE 3
Orthopaedic Surgery Sports Medicine Practices
Requiring Primary Care Physician Referrals
Before Scheduling an Appointment^a

Referral Required	Payment Method	
	Medicaid	Private
All states		
Yes, n (%)	33 (40.2)	6 (3.7)
No, n (%)	49 (59.8)	155 (96.3)
P value ^b		<.0001
States with expanded Medicaid eligibility		
Yes, n (%)	13 (40.6)	5 (6.8)
No, n (%)	19 (59.4)	68 (93.2)
P value ^b		<.0001
States without expanded Medicaid eligibility		
Yes, n (%)	20 (40.0)	1 (1.1)
No, n (%)	30 (60.0)	87 (98.9)
P value ^b		<.0001

^aNo significance between percentage of offices that required referrals in expanded and nonexpanded states.

^bComparison with Medicaid.

majority of offices were not aware of another orthopaedic surgeon who would accept Medicaid (out of 95 offices that did not accept Medicaid, 14 were able to refer the patient to another office that accepted Medicaid). The second most common barrier to obtaining an appointment was the need for a referral from a PCP. Across all states, the percentage of patients requiring a PCP referral was 40.2% for patients with Medicaid and 3.7% for patients with BlueCross ($P < .0001$) (Table 3). This relationship was consistent within states with expanded Medicaid eligibility and states without expanded Medicaid eligibility (Table 3). There was no significant difference in the percentage of offices requiring a PCP referral before scheduling an appointment between states with expanded Medicaid eligibility and states without expanded eligibility.

For those patients who were able to successfully schedule an appointment, the waiting periods differed by insurance type. Overall, Medicaid patients waited on average 15 days for an appointment while BlueCross patients waited 12 days ($P = .029$) (Table 4). In states with expanded Medicaid eligibility, the waiting periods were significantly longer for Medicaid patients versus BlueCross patients (19 vs 15 days, $P = .049$). Waiting periods for patients with Medicaid and BlueCross were not significantly different in states without expanded Medicaid eligibility. There was no significant difference in waiting periods between states with expanded Medicaid eligibility versus states without expanded eligibility (Table 4), irrespective of insurance.

Medicaid reimbursements for knee arthroscopy with meniscus repair (CPT code 29882) varied across states (Table 5). California paid the highest reimbursement (\$558.45) and Florida paid the lowest (\$392.30). Logistic and linear regression analysis did not demonstrate a significant relationship between reimbursement and appointment success incidence or waiting periods.

TABLE 4
Waiting Period Organized by Insurance Type

	Payment Method	
	Medicaid	Private
Comparison by insurance type		
All states		
Waiting period, d, mean (95% CI)	15 (10-21)	12 (7-17)
P value		.029 ^a
States with expanded Medicaid eligibility		
Waiting period, d, mean (95% CI)	19 (5-33)	15 (4-25)
P value		.049 ^a
States without expanded Medicaid eligibility		
Waiting period, d, mean (95% CI)	13 (9-17)	10 (8-11)
P value		.2
Comparison by Medicaid expansion		
States with expanded Medicaid eligibility, n	19	15
States without expanded Medicaid eligibility, n	13	10
P value	.46	.95

^aComparison with Medicaid.

TABLE 5
Medicaid Reimbursements for Bucket-Handle Meniscus
Repair (CPT and HCPCS 29882) in 2014 by State

State	Medicaid Reimbursement (\$)
California ^a	558.45
Texas	567.24
Florida	392.30
Ohio ^a	500.97
New York ^a	395.08
North Carolina	505.09
Average	502.4975

^aStates with expanded Medicaid eligibility. CPT, Current Procedural Terminology; HCPCS, Healthcare Common Procedure Coding System.

Physician practice characteristics, such as physician affiliation (private vs academic), practice size (solo vs group), and population density (urban vs nonurban) did not demonstrate a significant effect on Medicaid acceptance (Table 6).

DISCUSSION

Our study demonstrates that Medicaid patients had a more challenging experience finding a surgeon who would accept Medicaid (27.1% vs 91.2% private insurance, $P < .0001$), faced more barriers to receiving an appointment than patients who had private insurance (40.2% of Medicaid patients required a referral vs 3.7% of private patients, $P < .0001$), and across all states, experienced longer wait times once the appointments were scheduled (15 vs 12 days private insurance, $P = .029$).

TABLE 6
The Effect of Physician Characteristics
on Medicaid Acceptance

Physician Characteristic	Medicaid Acceptance, n (%)
Practice size (n ^a)	
Single (21)	2 (9.5)
Group (160)	42 (26.3)
P value	.093
Location (n ^a)	
Urban (162)	42 (25.9)
Nonurban (19)	2 (10.5)
P value	.139
Affiliation (n ^a)	
Private (145)	32 (22.1)
Academic (36)	12 (33.3)
P value	.158

^an indicates number of offices.

Our national survey of orthopaedic surgery sports medicine specialists demonstrated that patients with Medicaid continue to have low rates of successfully scheduling an appointment. These results are consistent with previous studies on patient access to orthopaedic specialty care, which found that those with Medicaid had the lowest acceptance rate for joint replacement and hand surgical specialties.¹⁴⁻¹⁶ This study is unique in that it explores patient access to orthopaedic surgery sports medicine specialists since the passage of the PPACA.

We designed this study to identify if patients requiring semiurgent care would have delayed workups. In examining the effect of insurance type on differences in the workups of patients with anterior cruciate ligament injuries in South Florida, Baraga et al¹ demonstrated that Medicaid patients received a diagnosis approximately 2 months after their injury, while patients with private insurance were diagnosed at a median of 2 weeks after their injury. In addition, patients with Medicaid had more doctor's visits than patients with private insurance prior to diagnosis (3 vs 4).¹ Our study demonstrated that Medicaid patients waited on average 3 to 4 extra days to be seen, but we were unable to project whether the patient's ultimate presentation to the surgeon was delayed due to delays in seeing their PCP and obtaining the necessary referrals. An increased wait time of 3 to 4 days likely does not have any significant clinical implications. Although Sood et al²⁴ correlated the time from meniscal injury to surgery with the ability to repair a bucket-handle tear, the respective time frame was within 6 weeks of injury versus after 6 weeks.

Our regression analysis did not find a significant relationship between appointment success rates and Medicaid reimbursement rates. In addition, our analysis did not find a significant relationship between waiting periods and Medicaid reimbursement rates. Although studies have stressed the importance of increased reimbursements on physician participation, these results are consistent with previous studies on patient access to orthopaedic surgery specialty care.^{15,16}

The analysis of physician practice characteristics demonstrated that none of the characteristics had a significant

effect on Medicaid acceptance. There has been an observed decrease in Medicaid acceptance with other surgical specialties,¹⁶ in which surgeons who were in physician-owned practices were less likely to accept Medicaid.

There is evidence in the literature that Medicaid patients have worse access to orthopaedic surgery specialty care than patients with Medicare or private insurance.^{6,14,19,21} Poor access is postulated to result in Medicaid patients presenting with long-standing pathology that has progressed further than it would in patients with private insurance.¹⁰ There are many reasons that contribute to the poorer access to specialty care with Medicaid insurance, such as Medicaid's low reimbursement,^{7,20,23} Medicaid patients' increased complexity,¹⁰ Medicaid's onerous insurance paperwork and extended payment periods,^{11,18} and Medicaid patients' difficulty obtaining prompt appointments with their PCPs.⁸ Given these challenges, surgeons may view patients who have taken the initiative to obtain a PCP referral as more amenable to treatment.

Of note, Medicaid programs in 3 states included in our study (North Carolina, Texas, and New York) required a PCP referral in order to see a specialist. However, many of the surgeons in these states scheduled appointments for patients with Medicaid without a PCP referral, suggesting that this decision was based on surgical practice policy. In addition, the majority of practices in these states reported that they simply do not accept Medicaid as an insurance policy, not that they required a referral, which is consistent with results from previous studies.¹⁴⁻¹⁶

Especially for patients in underserved communities with limited resources, the requirement for a patient to have a PCP referral is a potential barrier to care. Patients with limited health care knowledge and ability to coordinate their care are less likely to be able to complete this requirement. Our study found that the requirement for a referral was more likely to be placed on Medicaid patients than on private patients (40% of Medicaid patients vs 4% of private patients, $P < .001$). We did not assess whether these patients would have been able to obtain appointments if they had PCP referrals, as our study was designed to capture potential barriers to care. However, we can infer from acceptance rates of offices that did not require Medicaid patients to have a PCP referral that Medicaid patients' wait times would be longer than those of patients with private insurance.

Some potential solutions to assist patients with the requirement to have a PCP referral may be to remove specialists' requirement for a referral or to provide financial incentives that would motivate PCPs to see patients promptly and reimburse PCPs for coordinating care of these patients.

Limitations

Regarding our study's limitations, our investigation was limited to 6 states, and only about 30 surgeons were surveyed from each state, which corresponds to a very small sample of the total population of surgeons who are able to treat a bucket-handle tear. Some of the results might have reached significance if more regions had been included. In addition, we were unable to control for potential

confounding factors, such as physicians' clinic schedules or office policies. Another limitation is that not all of the planned calls were completed. Out of 360 planned calls, 12 calls were not completed, which represents 3% of all planned calls. The team had to stop making calls toward the end of December because a new insurance enrollment period began the following year.

The PPACA focused on reducing the number of uninsured patients by expanding Medicaid enrollment eligibility, based on the premise that insured patients will be healthier because they have access to care. However, it has been demonstrated that health insurance status does not correlate with overall health,⁹ particularly when expanding Medicaid, an insurance that has been grappling with poor patient access.¹⁷ A new strategy needs to be devised to incentivize more orthopaedic surgery sports medicine specialists to provide care for Medicaid patients. Potential solutions to encourage more specialists to accept Medicaid may include increased reimbursement rates and reducing paperwork requirements.

CONCLUSION

Despite the passage of the PPACA, patients with Medicaid have reduced access to care. In addition, patients with Medicaid confront more barriers to receiving appointments than do patients with private insurance, and they must wait longer for an appointment.

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APPENDIX

Patient Background Information and Telephone Script

1. Date of Birth: 7/24/1990
2. Bucket-handle tear
3. No medical problems, no previous surgeries
4. MRI out of state
5. No emergency room previously
6. Not previously seen by your clinic or hospital, he would be a new patient
7. Asked how early he could be scheduled for an appointment
8. Script:

“I’m trying to find an orthopaedic surgeon for my 25-year-old brother. He was playing soccer at an out-of-state tournament last weekend when he heard a pop and had pain in his knee. He has been unable to fully straighten the knee. He went to the local emergency room, and they obtained a MRI that showed he had a bucket-handle tear, and that he should follow up with an orthopaedic sports doctor within 2 weeks for possible surgery. Does Dr. X treat bucket-handle tears?

If yes → Are you taking new patients with Medicaid/BlueCross insurance?

If yes → When is the earliest he could be seen by the doctor?