## <div wwy1f"=""><div pyavq"=""><div xxeql"="">Comparing total knee arthroplasty outcomes between Medicaid and private insurance patients at a single high-volume institution

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INTRODUCTION:

Total knee arthroplasty (TKA) is one of the most common elective procedures currently performed. The number of total knee arthroplasties performed each year is expected to increase with persistent socioeconomic status (SES) disparities. Prior studies have examined the differences in need, access, willingness to undergo surgery, and outcomes following TKA across SES levels, and have reported that less education and lower income individuals were associated with increased need for arthroplasty based on Western Ontario and McMaster Universities Arthritis index, while also experiencing significantly lower incidence rates of surgery, all while being equally willing to undergo total joint arthroplasty as higher SES members.

The current data on patient reported outcome measures (PROMs) following total joint arthroplasty remains mixed, with some studies reporting that patients of lower SES reporting worse PROMs than those of higher SES, while others report that there are no differences in PROMs or readmission rates following TKA.

Despite prior studies, little is known about the extent to which insurer status as a surrogate for SES, when comparing Medicaid and Private insurance patients, affect peri-operative outcomes, 2 year revision total joint arthroplasty, or readmission rates.

This study is looking at two very different patient populations in terms of insurer status operated on by similar surgeons here at HSS. This study is significant because it can help us investigate when all else being equal (surgeon, patients matched for co-morbidities, ethnicity, BMI, sex, etc.) 1) does insurance status as a surrogate for SES affect outcomes, and if so, 2) in what ways and how much? The ability to identify pre-operatively those patients who are at risk of a worse outcome following total knee arthroplasty could help in the implementation of measures that could be directed towards them to improve their final outcomes. Currently, neither CMS nor any known private payer incorporates race/ethnicity or socioeconomic status into their risk-adjustment algorithms. Exclusion of these patient factors means that hospitals caring for a high proportion of patients who are minority or poor, or both, could be inaccurately designated as low-performing hospitals.

METHODS:

We retrospectively reviewed patients undergoing primary unilateral TKA from our institution between 2/1/2016 and 12/31/2023. Patients were placed into cohorts by insurance status at the time of the procedure: Medicaid or Private. Secondary osteoarthritis patients, bilateral TKA patients, Medicare, and Medicaid patients eligible for Medicaid for reasons other than SES were excluded from the study. Patients were also stratified based on the quartile of their home ZIP code median income from the United States Census Bureau data. Patient specific information, medical comorbidities, range of motion pre-and post-operatively, patient knee radiographs, insurance payer, perioperative outcomes, complications, readmission, revision surgery, disposition status upon discharge were obtained from the patients' medical records. The primary outcome measure was the need for revision surgery within the first two years following primary arthroplasty. Secondary outcome measures included disposition status, 90-day complications rates, readmission to the hospital for TKA related pathology, and need for manipulation surgery within the first two years. KOORs Jr Scores were also recorded and evaluated to compare PROMs between groups.

**RESULTS**:

This study included 8,961 primary TKA patients. Medicaid patients were found to have a higher BMI both on average and when grouped as Class II or higher obesity, had a higher percentage of female patients, and a higher percentage of non-white patients. While Medicaid patients did report a lower percentage of former or current smokers, they did have higher co-morbidities based on the Charlson Index and in the higher volume conditions.

There was no statistically significant difference in the rate of revision, re-operation, and readmission between the groups (P=0.184, 0.204, 0.062, respectively). MUA was statistically higher in the Medicaid group (7% vs. 5%, P=0.022). Stiffness was significantly higher in the Medicaid group (7% vs. 3%, P=0.001). Besides the early follow-up (3 weeks and 6 months), Medicaid patients reported significantly lower KOOS JR scores compared to commercial patients.

DISCUSSION AND CONCLUSION: At our institution, despite increased co-morbidities, higher BMIs, and lower SES, Medicaid patients have no statistically difference in revision, re-operation, and readmission in the first two years following TKA, and significantly lower KOOS JR scores. This data highlights that in the hands of experienced surgeons, post-operative outcome measures following TKA are not always disparate when looking at patients of very different backgrounds.



	Commercial		Medicald				
Characteristic	N Mean		SD N Hean			SD	P-value
Are, Mean (SD)	1.962	58.7	4.3	299	51.7	4.7	0.97
BMI, Mean (SD)	8,620	33.0	6.7	298	33.8	5.4	0.02
CharlsonComorbidityIndex, Mean (SD)	8,062	0.4	0.8	222	0.8	1.1	0.00
Koosi/Pre, Mean (SD)	6,216	48.0	14.5	102	35.7	15.5	0.00
FemaleSex, Freq. (%)							
м	8,662	3,508	40%	299	64	21%	0.00
r	8,662	5,154	60%	299	235	79%	
Age, Freq. (%)							
46-55	8,962	1,970	23%	299	68	23%	1.00
56-64	8,662	6,692	77%	299	231	77%	
8MI, Freq. (%)							
8MI<30	8,620	3,138	36%	298	78	20%	0.00
Obese Class I (30-34.9)	8,620	2,493	25%	298	101	34%	
Obese Class II (35-39.9)	8,620	1,968	1996	298	76	20%	
Obese Class III (40+)	8,920	1,321	15%	298	43	14%	
FirstBace, Freq. (%)							
White or Caucasian	8,662	6,719	78%	293	75	25%	0.00
Black or African American	8,962	903	10%	299	112	37%	
Asian, Native Haweiien, or Other Pacific Islander	8,662	275	3%	299	28	9%	
Other	8,962	585	7%	299	83	28%	
Patient Declined/Unknown	8,662	176	2%	299		0%	
SmokingStatus, Freq. (%)							
Never	8,662	5,564	64%	299	210	70%	0.00
Former	8,662	2,576	30%	299	69	20%	
Ourrent	8,662	490	6%	299	20	10%	
Patient Declined/Unknown	8,962	24	0%	299		0%	
CharlsonComorbidity							
ChronicPulmonaryDisease, Freq. (%)	8,662	1,215	14%	293	67	22%	0.00
DiabetesWithoutChronicCx, Freq. (%)	8,662	901	10%	299	61	20%	0.00
NheumaticDisease, Heg. (%)	8,982	351	4%	299	24	8%	0.00
RenalDisease, Freq. (%)	8,662	197	2%	299		3%	0.40
PeripheralVascularDisease, Freq. (%)	8,662	138	2%	299	10	3%	0.01
Piscoverosease, med. (%)	0,002	110	116	20		3%	0.01
Myocardiaarnarcolori, Freq. (%)	8,982	108	1%	299		29	0.24
Disperservini Crimonicux, Preg. (%)	8,662	105	1%	299		4%	0.00
roughting, rieq. (my	8,982	36	1%	299		0%	0.07
Congestiveneer or anure, Freq. (%)	8,662	93	1%	299		2%	0.04
Contractor and Contractor and Print, (%)	8,962		1%	- 200		194	0.44
reprovicerussesse, ried. (%)	8,662	40	0%	299	- 1	0%	1.00
Metastaticsoupliumor, Preq. (%)	8,662	7	0%	299		0%	1.00
HWARDS, Freq. (%)	8,982		0%	299		194	0.02
Procentration of the second seco	8,662		0%	290		0%	0.15
Dementia, Freq. (%)	8,982	2	0%	299	2	1%	0.00
merripeegaivarapiegia, ried, (%)	8,662	1	0%	299		0%	1.0

	Commerci	al	Medicaid		
Characteristic	(N=8,662)		(N=299)	P-value	
Revision1_YN, Freq. (%)	164	2%	2	1%	0.184
Reoperation1_YN, Freq. (%)	667	8%	29	10%	0.204
Readmission1_YN, Freq. (%)	181	2%	11	496	0.062
MUA_YN, Freq. (%)	392	5%	22	7%	0.022
Stiffness_ICD10, Freq. (%)	275	3%	20	7%	0.001
ThromboembolicDisease_ICD10, Freq. (%)	78	1%	1	0%	0.524
DeepPji_ICD10, Freq. (%)	41	0%	2	196	0.655
BearingSurfaceWear_ICD10, Freq. (%)	32	0%	0	0%	0.626
ImplantLoosening_ICD10, Freq. (%)	12	0%	0	0%	1.000
Instability_ICD10, Freq. (%)	9	0%	0	0%	1.000
NeuralDeficit_ICD10, Freq. (%)	5	0%	0	0%	1.000
Osteolysis_ICD10, Freq. (%)	5	0%	0	0%	1.000
ImpFx_TibInsertDissoc_ICD10, Freq. (%)	4	0%	1	0%	0.156
ExtensorMechDisrupt_ICD10, Freq. (%)	3	0%	0	0%	1.000
VascularInjury_ICD10, Freq. (%)	0	0%	0	0%	N
PeriprostheticFracture ICD10, Freq. (%)	0	0%	0	0%	N