

# Impact of Surgeon Type on Total Ankle Arthroplasty Readmission, Complication, and Infection Rates

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**INTRODUCTION:** Total ankle arthroplasty (TAA) remains an attractive surgical option to address end-stage ankle pathology in appropriately selected patients. When successful, TAA can yield high patient satisfaction and marked improvements in patient-reported outcomes. However, surgical complications can lead to significant clinical impairment. TAA can be performed by both orthopaedic surgeons and non-orthopaedic surgeons – however, no prior study has compared TAA outcomes based on surgeon type.

**METHODS:** Utilizing Medicare claims from 2016 to 2019, we retrospectively identified patients ≥65 years of age who underwent TAA based on CPT coding. Patients on Medicare HMO, under age 65, and dual-eligible patients were excluded. Within this dataset, provider type was identified, allowing for comparisons between orthopaedic and non-orthopaedic surgeons. We compared groups based on readmission, all-complication, and infection rates within 1-year of TAA using logistic regressions controlling for age, sex, race, and comorbidity. To help mitigate bias, we also performed a propensity matched model with the same variables. Data were reported as percentage point (PPT) differences (95% CI) between groups, with a positive number indicating higher rate of complications among patients treated by non-orthopaedic surgeons.

## RESULTS:

During our study timeframe, 8,244 Medicare patients underwent TAA – 6,928 were performed by orthopaedic surgeons and 1,316 were performed by non-orthopaedic surgeons. There were no differences between groups based on age, sex, or race. Readmission rates were similar between groups (p=0.058). TAA performed by non-orthopaedic surgeons had higher all-complication rates (43.4% vs. 36.7%, p<0.001) and infection rates (8.9% vs. 4.7%, p<0.001) compared to orthopaedic surgeons. These differences in all-complication risk in non-orthopaedic surgeons were further seen in logistic regression analyses (5.8 ppt (95% CI: 2.3, 9.4), p<0.001) and propensity matched analyses (5.6 ppt (95% CI: 2.1, 9.2), p<0.001). Group-differences were also revealed in infection risk through logistic regression analyses (3.9 ppt (95% CI: 2.0, 5.9), p<0.001) and propensity matched analyses (3.8 ppt (95% CI: 1.8, 5.8), p<0.001).

**DISCUSSION AND CONCLUSION:** TAA performed by non-orthopaedic surgeons had greater all-complication and infection rates as compared to TAA done by orthopaedic surgeons.

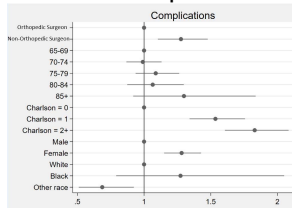
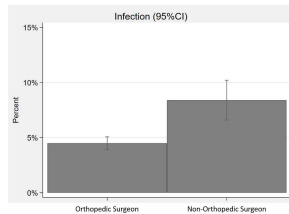


Table 1: Descriptive statistics by surgical specialty

	Surgeon Type		p-value
	Orthopaedic Surgeon	Non-Orthopaedic Surgeon	
Age	72.7 (5.3)	72.5 (5.0)	0.208
Age Group (5-year increment)			0.529
65-69	2318 (33.4%)	434 (33.0%)	
70-74	2275 (32.8%)	407 (30.7%)	
75-79	1590 (21.3%)	283 (21.5%)	
80-84	462 (6.6%)	115 (8.7%)	
85+	177 (2.6%)	27 (2.1%)	
Sex			208
Male	3847 (55.5%)	706 (53.6%)	
Female	3081 (44.5%)	610 (46.4%)	
Race (3 groups)			215
White	6540 (94.4%)	1200 (95.0%)	
Black	100 (1.4%)	11 (0.8%)	
Other	288 (4.2%)	55 (4.2%)	

Table 2: Relative differences in readmission, all-complication, and infection rates following discharge for total ankle replacement among Medicare beneficiaries by surgeon type

Complication Type	Surgeon Type	Odds Ratio (95% CI)		p-value
		Orthopaedic	Non-Orthopaedic	
Readmission	OR = 1.04	1.027	2.014 (1.01, 4.00)	0.058
All Complications	OR = 1.17	1.11	4.10 (2.93, 5.80)	<0.001
Infection	OR = 1.87	1.11	4.10 (2.93, 5.80)	<0.001