

Impact of Socioeconomic Factors in Outpatient Peripheral Nerve Reconstruction

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OBJECTIVES

- To determine if socioeconomic factors influence the utilization of nerve allograft versus autograft for peripheral nerve reconstruction in ambulatory surgery centers

METHODS

- Dataset: Healthcare Cost and Utilization Project National Ambulatory Surgery Sample (NASS) for the year 2018
 - Patients were identified by CPT code if they underwent nerve reconstruction with nerve allograft (CPT 64910, 64912, or 64913) or autograft (CPT 64890-64901, 64911).
 - Univariate analysis was performed with Pearson chi-square test, Fisher exact test, or Kruskal-Wallis H test where appropriate.
 - Multivariate logistic regression was performed

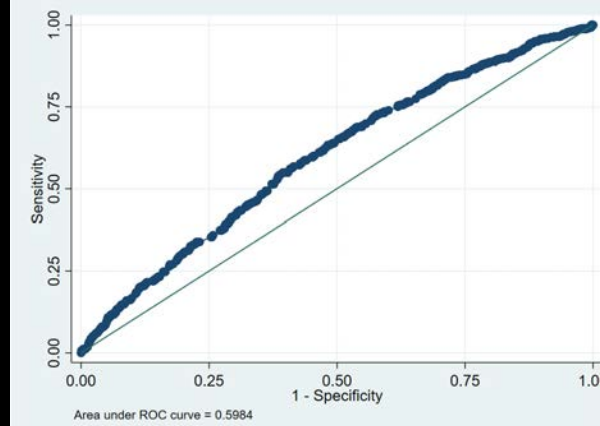


Figure 1. ROC curve for the multivariate model predicting use of nerve autograft vs. allograft using only patient and hospital socioeconomic factors. Note the relatively poor AUC, 0.598.

	Demographic	Odds Ratio (95% CI)	P Value
Gender	Male	Reference	
	Female	0.68 (0.56-0.83)	<0.01
Age	18-33	0.97 (0.95-0.99)	<0.01
	34-49	1.12 (1.02-1.21)	0.02
	>50	0.77 (0.62-0.97)	0.03
Patient Income	<\$46K	Reference	
	\$46K-59K	1.14 (0.87-1.47)	0.30
	\$59K-79K	1.17 (0.89-1.52)	0.26
	>\$79K	1.09 (0.81-1.46)	0.57
Patient Insurance	Medicare	Reference	
	Medicaid	1.10 (0.71-1.71)	0.66
	Private Insurance	1.06 (0.72-1.56)	0.78
	Self-Pay	1.04 (0.61-1.78)	0.90
	No-Pay	0.99 (0.12-8.30)	0.99
Hospital Location/Teaching Status	Rural	Reference	
	Urban Non-teaching	1.35 (0.65-2.80)	0.42
Hospital Region	Urban Teaching	2.51 (1.30-4.87)	<0.01
	Northeast	Reference	
	Midwest	1.34 (1.02-1.77)	0.04
Hospital Ownership	South	0.97 (0.73-1.30)	0.83
	West	1.22 (0.89-1.66)	0.21
	Public	Reference	
Hospital Ownership	Private (not-for-profit)	1.20 (0.91-1.57)	0.19
	Private (investor-owned)	1.42 (0.91-2.21)	0.13

Table 1. Multivariable logistic regression of patient and hospital factors and Odds Ratios for use of nerve autograft for nerve reconstruction.

RESULTS

- 5,082 patients had nerve reconstruction performed with either nerve allograft or autograft at an ambulatory surgery center in 2018.
 - A total of 537 (10.6%) patients underwent nerve reconstruction with nerve autograft and 4,543 (89.4%) patients underwent nerve reconstruction with nerve allograft.
 - Females ($p < 0.01$) and patients younger than 33 ($p < 0.01$) or older than 50 ($p < 0.03$) were more likely to receive nerve allograft than autograft.
 - Hospitals in the Midwest ($p = 0.04$) and those that were urban, teaching hospitals ($p < 0.01$) were more likely to use autograft over allograft.
 - There was no significant association between the patient insurance, income, or hospital ownership and the type of nerve graft used

CONCLUSION

- There are gender and geographic differences in the selection of nerve autograft or allograft in the ambulatory surgery setting, though limited socioeconomic influence.

