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Appendix Table 1. Sensitivity Analysis: Probability that a patient's "true income" falls within the assigned range utilized in multivariable regression modeling

	Non-Readmitted Patients	Readmitted Patients	
		0-30 days	31-90 days
Estimated Income by Location, Exact Age, Race, Gender, Employment Status, Health Insurance			
<$31,000	***452 (19.8%)***	***198 (66.2%)***	***26 (23.3%)***
99% (P<0.01)	200 (42.4%)	98 (49.5%)	7 (26.9%)
95% (P<0.05)	290 (64.2%)	177 (89.4%)	16 (61.5%)
90% (P<0.10)	335 (74.1%)	195 (98.5%)	25 (96.2%)
80% (P<0.20)	398 (88.1%)	198 (100.0%)	26 (100.0%)
75% (P<0.25)	448 (99.1%)	198 (100.0%)	26 (100.0%)
50% (P<0.50)	452 (100.0%)	198 (100.0%)	26 (100.0%)
$31,000-$46,000	***662 (29.9%)***	***41 (13.7%)***	***37 (33.9%)***
99% (P<0.01)	147 (22.2 %)	8 (19.5%)	3 (8.11%)
95% (P<0.05)	199 (30.0%)	18 (43.9%)	10 (27.0%)
90% (P<0.10)	344 (52.0%)	25 (61.0%)	15 (40.5%)
80% (P<0.20)	476 (71.9%)	31 (75.6%)	26 (70.3%)
75% (P<0.25)	598 (90.3%)	41 (100.0%)	36 (97.3%)
50% (P<0.50)	662 (100.0%)	41 (100.0%)	37 (100.0%)
$46,001-$62,000	***500 (22.6%)***	***37 (12.5%)***	***21 (19.3%)***
99% (P<0.01)	104 (20.8%)	14 (37.8%)	2 (9.5%)
95% (P<0.05)	160 (32.0%)	19 (51.4%)	9 (42.9%)
90% (P<0.10)	136 (27.2%)	23 (62.2%)	15 (71.4%)
80% (P<0.20)	460 (92.0%)	34 (91.9%)	16 (76.2%)
75% (P<0.25)	500 (100.0%)	37 (100.0%)	19 (90.5%)
50% (P<0.50)	500 (100.0%)	37 (100.0%)	21 (100.0%)
>$62,000	***598 (27.0%)***	***25 (7.76%)***	***25 (22.9%)***
99% (P<0.01)	293 (49.0%)	12 (48.0%)	1 (4.0%)
95% (P<0.05)	442 (73.9%)	16 (64.0%)	13 (52.0%)
90% (P<0.10)	550 (92.0 %)	19 (76.0%)	18 (72.0%)
80% (P<0.20)	585 (97.8%)	24 (96.0%)	25 (100.0%)
75% (P<0.25)	598 (100.0%)	25 (100.0%)	25 (100.0%)
50% (P<0.50)	598 (100.0%)	25 (100.0%)	25 (100.0%)

The public-use versions of the American Community Survey (ACS) provided by the US Census Bureau generated an income *distribution* associated with a patient's specific data - that is, all incomes associated with persons who lived in the same "Public Use Micro Area" that shared demographic criteria with the patient of interest (i.e. shared the exact age, identified as the same detailed race, sex, employment status, insurance status, and education level). Each patient was assigned the median income value associated with their specific distribution. No distribution had more than 5,000 persons. Using the distribution of incomes, the present analysis assessed, what is the probability that the patient's true income lies within the range of incomes that they were assigned? The data reported here shows the "number of patients that met the specific threshold probability in the leftmost column (% of patients that met the threshold probability)". For example, among 677 non-readmitted patients whose assigned income was >$ 62,000 we could conclude with 90% certainty that for 613 of those patients, their true income resided within their assigned quartile.

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Appendix Table 2: Unadjusted univariate and adjusted multivariable logistic regression models for sensitivity analysis. [a]

	0-30 Day Readmission *n = 298*	
	Unadjusted OR (95% CI)	**Sensitivity Model Adjusted OR (95% CI)** [b]
Community Prevalence of Obesity		
Per 5 increase in prevalence	**1.40 (1.25 - 1.56)**	
Community Prevalence of Diabetes		
Per 5 increase in prevalence	**1.88 (1.32 – 2.69)**	
Community Educational Attainment		
Per 10% increase in percentage with education less than college	1.06 (0.99 - 1.13)	
Community Diversity		
Per 10% increase in percentage of non-white residents	**1.13 (1.08 - 1.17)**	
Geographic Access to Primary Care		
Per 500 person increase per PCP	**1.32 (1.16 – 1.49)**	**1.22 (1.04 - 1.39)**
Community Poverty		
Per 5% increase in the percentage of families living under the FPL	**1.21 (1.15 - 1.28)**	**1.11 (1.01 – 1.19)**
Area Deprivation Index		
Per decile increase	**1.27 (1.21 - 1.33)**	**1.25 (1.17 - 1.36)**
Patient's Age Cohort		
<45 Years	*1.00 [Reference]*	
45-54 Years	**1.92 (1.22 – 3.03)**	**1.83 (1.14 – 2.85)**
55-64 Years	**2.76 (1.69 – 4.49)**	**2.44 (1.50 – 3.86)**
≥65 Years	**1.97 (1.33 – 2.93)**	**2.18 (1.40 – 3.23)**
Patient's Self-Identified Race		
White Race	*1.00 [Reference]*	
Black/African American Race	**2.24 (1.74 – 2.88)**	0.97 (0.68 – 1.37)
Patient's Self-Identified Gender		
Male Gender	*1.00 [Reference]*	
Female Gender	0.89 (0.68 - 1.10)	**1.53 (1.01 – 1.93)**
Patient's Medical Comorbidities		
Per 1 Increase in Charleson Score	1.06 (1.00 - 1.14)	1.06 (0.94 - 1.14)
Specific Comorbidity: Diabetes		
Comorbid Diabetes	**1.32 (1.04 - 1.71)**	1.16 (0.73 - 1.62)
Community Economic Inequality (GINI)		
Per 0.05 Increase in GINI Index	**1.73 (1.43 -2.10)**	
Median Household Value		
1st quartile (<$163,988.0)	**1.71 (1.23 - 2.38)**	
2nd quartile ($163,988-$233,277)	1.24 (0.87 - 1.76)	
3rd quartile ($233,278-$333,830)	0.85 (0.59 - 1.24)	

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4th quartile (>$333,830.0)	*1.00 [Reference]*	
Estimated Patient Total Income		
1st quartile (<$31,000)	**11.55 (7.88 - 13.80)**	**8.10 (4.88 - 15.10)**
2nd quartile ($31,000-$46,000)	**1.70 (1.14 – 2.38)**	**3.21 (2.25 - 7.12)**
3rd quartile ($46,001-$62,000)	1.85 (1.04 – 3.28)	1.03 (0.52 - 1.98)
4th quartile (>$62,000)	*1.00 [Reference]*	
Population Density (Persons/Mile ^{2})		
Each 500 persons/mile^2 increase	**1.06 (1.04 – 1.08)**	1.05 (1.0 – 1.09)
Spinal Pathology and Procedure		
Arthrodesis for lumbar deformity	0.90 (0.70 - 1.16)	0.82 (0.60 - 1.04)
Lumbar stenosis/radiculopathy [1-2 Level ALIF/PLIF with Decompression]	0.97 (0.76 - 1.24)	0.94 (0.73 – 1.18)
Arthrodesis for thoracic deformity	1.80 (0.90 - 3.57)	1.45 (0.70 – 3.02)
Thoracic stenosis/radiculopathy [Long PCF with Thoracic Decompression]	**2.65 (1.41 - 4.98)**	**2.70 (1.51 - 4.99)**
Arthrodesis for Cervical Deformity	0.89 (0.61 - 1.31)	0.80 (0.50 - 1.26)
Cervical stenosis/radiculopathy [1-2 Level ACDF/PCF with Decompression]	1.06 (0.82 - 1.36)	1.01 (0.68 - 1.20)
Other [<3 Level Laminotomy, Laminectomy)	1.23 (0.97 - 1.56)	1.35 (1.01 - 1.80) $^{++}$
Model Null Hypothesis Testing		**X^2 = 168.46******

[a] Odds ratios for readmission at POD 30 among spine surgery patients. Bolded OR indicates significance at α=0.05 for unadjusted models, α=0.003 for the adjusted 0-30 day readmission model. For the sensitivity analysis, the present analysis discerned the probability that a patient's true income was within the assigned income range. For those patients who did not meet 90% confidence of having an income within their surrogate, presumed quartile, their "estimated patient total income" was assigned to be in the next, closest quartile and the multivariable regression was re-run.
[b] Variables added to the adjusted 0-30 day readmission model were discerned using a forward, stepwise selection method and modified using literature review.
$^{++}$ indicates that OR found significance at P<0.05 but not at $\alpha_{altered}$.
ALIF: anterior lumbar interbody fusion; PLIF: posterior lumbar interbody fusion; ACDF: Anterior cervical discectomy and fusion; PCF: Posterior cervical fusion; FPL: Federal poverty line