

Table S4: Estimated Hospital Level Usage Rate of Two or More Non-Opioid Analgesics Based on Mixed-Effects Models with Increasing Levels of Adjustment for Patient and Hospital-Level Factors

Models	$\beta_0$ (SE) <sup>a</sup>	$\sigma^2$ (SE) <sup>b</sup>	Multimodal Therapy Usage Rate (%)		
			Average Hospital <sup>c</sup>	2.5 Percentile <sup>d</sup>	97.5 Percentile
Unadjusted	0.043 (0.070)	1.54 (0.13)	51.07	8.38	92.26
<i>Adjusted for:</i>					
Surgery Type	0.098 (0.072)	1.63 (0.14)	52.44	8.29	93.07
Surgery Type, <u>Demographics, Year of Hospitalization</u>	0.089 (0.073)	1.65 (0.14)	52.21	8.09	93.13
Surgery Type, Demographics, Year of Hospitalization, <u>Medical Co-Morbidities</u>	0.088 (0.073)	1.65 (0.14)	52.21	8.09	93.13
Surgery Type, Demographics, Year of Hospitalization, Medical Comorbidities, <u>Pain Related Conditions, Psychiatric Comorbidities, Medication Usage</u>	0.092 (0.072)	1.61 (0.14)	52.30	8.34	92.97
Surgery Type, Demographics, Year of Hospitalization, Medical Comorbidities, Pain Related Conditions, Psychiatric Comorbidities, Medication Usage and <u>Hospital Characteristics</u>	0.17 (0.071)	1.56 (0.13)	54.24	9.28	93.21

<sup>a</sup>  $\beta_0$  is the marginal (averaged across hospitals) odds of using multimodal therapy for a patient with the mean propensity score

<sup>b</sup> Estimate of the between-hospital variation. The random intercept  $b_j$  for each hospital is assumed to be normally distributed with mean 0 and variance  $\sigma^2$ .  $\sigma^2$  represents the hospital-specific deviation from  $\beta_0$ . With increasing levels of adjustment, there is less unexplained variation and  $\sigma_b^2$  is expected to decrease.

<sup>c</sup> Prescribing proportion for the “average” patient, defined as a patient with a mean propensity score. The average differs slightly between models since different factors are being adjusted for in the various models; it is estimated as  $\exp(\beta_0)/[1 + \exp(\beta_0)]$ .

<sup>d</sup> Range determined from observed predicted values