

Supplemental Online Table. Odds Ratios Indicating the Effects of Nurse Staffing and the Nurse Work Environment on Survival to Discharge, Before and After Adjusting for Other Hospital Characteristics and Patient Characteristics

Predictors	Unadjusted Bivariate	Adjusted for Nursing, Hospital and Patient Characteristics	ICU Patients Only	Medical- Surgical Patients Only
	N = 11,160		N = 7,175	N = 3,985
<u>Nursing Characteristics</u>				
Intensive Care Unit Staffing	1.02 (0.86-1.21)	1.02 (0.90-1.15)	1.05 (0.86-1.29)	—
Medical Surgical Staffing	0.94*** (0.92-0.97)	0.95* (0.91-1.00)	—	0.94* (0.90-0.99)
Work Environment	0.70* (0.53-0.92)	0.81* (0.67-0.98)	0.87 (0.66-1.14)	0.76* (0.61-0.95)
<u>Other Hospital Characteristics</u>				
Beds				
251-500	1.19 (0.91-1.55)	0.96 (0.78-1.17)	1.00 (0.79-1.27)	0.85 (0.65-1.12)
≥501	1.08 (0.83-1.42)	0.91 (0.73-1.13)	0.83 (0.60-1.15)	1.01 (0.74-1.36)
Teaching Status				
Minor	0.87 (0.71-1.07)	1.00 (0.83-1.20)	1.00 (0.76-1.33)	0.99 (0.80-1.22)
Major	1.13 (0.70-1.82)	0.92 (0.70-1.22)	0.88 (0.59-1.30)	0.96 (0.71-1.30)
Technology Status				
	1.32* (1.05-1.66)	1.24* (1.04-1.47)	1.35* (1.06-1.71)	1.11 (0.87-1.41)
Urban				
	1.22 (0.78-1.89)	1.38* (1.02-1.88)	1.52* (1.00-2.31)	1.19 (0.80-1.77)
State				
Pennsylvania	0.86 (0.68-1.07)	1.09 (0.85-1.40)	0.90 (0.60-1.35)	1.26 (0.88-1.80)
Florida	1.15 (0.71-1.88)	1.13 (0.91-1.40)	0.95 (0.72-1.27)	1.19 (0.92-1.55)
New Jersey	0.92 (0.67-1.25)	1.34** (1.08-1.66)	1.21 (0.88-1.65)	1.35* (1.02-1.79)
Non-profit				
	1.26 (0.96-1.67)	1.07 (0.79-1.46)	1.48 (0.94-2.33)	0.77 (0.57-1.06)
System member				
	0.93 (0.69-1.25)	0.99 (0.79-1.25)	1.14 (0.84-1.54)	0.89 (0.70-1.15)
Medicaid % (top decile)				
	0.93 (0.66-1.30)	1.23* (1.01-1.49)	1.18 (0.92-1.52)	1.26 (0.95-1.68)

Patient and Event Characteristics

Age	0.99* (0.99-1.00)	0.99*** (0.98-0.99)	0.98*** (0.98-0.99)	0.99*** (0.98-0.99)
Arrest Location	0.67*** (0.55-0.81)	0.87 (0.74-1.02)	—	—
Monitored	1.31* (1.00-1.71)	1.84*** (1.40-2.40)	1.75 (0.65-4.70)	1.83*** (1.40-2.38)
Witnessed	1.14 (0.99-1.32)	1.38*** (1.14-1.68)	1.21 (0.98-1.49)	1.44** (1.13-1.83)
Initial Shockable Rhythm	3.43*** (2.68-4.39)	3.23*** (2.58-4.03)	4.06*** (3.09-5.35)	2.26*** (1.75-2.92)
Mechanical Ventilation	0.39*** (0.34-0.45)	0.48*** (0.41-0.56)	0.45*** (0.37-0.56)	0.68* (0.49-0.95)
Septicemia	0.43*** (0.35-0.53)	0.58*** (0.48-0.71)	0.55*** (0.39-0.78)	0.63*** (0.51-0.78)
Hepatic Insufficiency	0.49*** (0.37-0.65)	0.60*** (0.45-0.80)	0.45*** (0.29-0.70)	0.91 (0.66-1.25)
Hypotension	0.44*** (0.36-0.53)	0.65*** (0.54-0.77)	0.57*** (0.47-0.71)	0.83 (0.64-1.07)
Metastatic or Hematologic Malignancy	0.50*** (0.40-0.62)	0.51*** (0.41-0.64)	0.42*** (0.30-0.59)	0.63* (0.43-0.92)
Intravenous Vasopressor	0.42*** (0.32-0.56)	0.59*** (0.49-0.71)	0.59*** (0.49-0.71)	0.70 (0.42-1.18)

Notes: ICU Staffing and Medical-Surgical Staffing are measured by the ratios of patients to nurses; the Work Environment measure contrasts hospitals with poor environments with hospitals with mixed or good environments; the referent categories for beds, teaching status, technology status, non-profit, and urban are <200 beds, non-teaching, non-high technology, for-profit, and rural, respectively; Our models include dummy variables for state leaving one state (California) as the reference category; the reference categories for the system member variable is non-system member; high Medicaid is an indicator of being in the top decile of hospitals for the percentage of inpatient days that are Medicaid and the reference category is not in the top decile; age is coded in years; arrest location is coded as occurring on an ICU unit (1) vs. medical surgical unit (0); all other patient characteristics are coded as present (1) vs. absent (0).

* p<0.05; ** p<0.01; *** p<0.001