Supplementary Material

Contents

Supplementary Table S1. Characteristics of Hospitals in New York State among Dementia Cohort, Stratified by Institution of a Palliative Care Program

	Institution of Palliative Care Program	
	No (N =29)	Yes (N = 24)
ICU Volume, Median (IQR) [†]	0.10 (0.07 – 0.13)	0.09 (0.07 – 0.12)
ICU Volume, N(%)[†]		
0.01 – 0.05	1 (3.5)	3 (12.5)
0.05 – 0.07	6 (20.7)	3 (12.5)
0.07 – 0.10	4 (13.8)	9 (37.5)
0.10 – 0.15	12 (41.4)	7 (29.2)
0.15 – 0.20	1 (3.5)	1 (4.2)
0.20 – 0.50	3 (10.3)	1 (4.2)
Teaching hospital, N (%)[*]	12 (41.4)	14 (58.3)
Bed size, N (%)[†]		
100-399	27 (93.1)	19 (79.2)
>=400	2 (7.0)	5 (20.8)
Total admissions, median (IQR)[†]	7,052 (4,818 – 10,114)	12,115 (8,565 – 18,398)
Total surgical operations, median (IQR)[†]	6,630 (3,756 – 8,219)	8,450 (6,019 – 13,405)
Full time equivalent physicians and dentists, median (IQR) [†]	21 (7 – 45)	29 (9 – 57)
Full time equivalent registered nurses, median (IQR) [†]	244 (161 – 409)	402 (256 – 617)

IQR, interquartile range.

[*] As data was matched by hospital year, several hospitals had characteristics change during the study period. For the purposes of the table, each hospital was assigned based on the category to which they belonged for the majority of years of the study period.

[†] ICU volume was defined as the number of admissions at a hospital with intensive care/number of overall admissions. As data was matched by hospital year, hospitals had varying values by year. For the purposes of the table, values were averaged over the study period and assigned to each hospital prior to calculating summary statistics.

Supplemental Table S2. Difference-in-Differences Analysis Examining the Effect of Instituting a Palliative Care Program on Resource Utilization in Patients with Dementia who transferred from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)

	Primary Analysis				
	Unadjusted Outcomes			Difference-in-Differences Estimator* (95% CI)	P value
	Institution of Palliative Care Program				
	Yes (N =6,920)		No (N =5,023)		
Primary Outcome	Before	After			
Discharge to hospice, %‡	4.2	7.0	4.1	0.92 (0.43 – 1.42)	0.76
Secondary Outcomes					
Dialysis, %‡	2.2	3.0	1.7	1.17 (0.85 – 1.48)	0.59
Mechanical ventilation, %‖§	42.8	51.2	25.1	0.76 (0.16 – 1.36)	0.43
Hospital length of stay days, median (IQR) †§	7 (4-11)	6 (3-11)	6 (3-9)	1.01 (1.00-1.03)	0.04
Died during hospitalization	7 (2-13)	6 (2-12)	5 (2-11)	1.00 (0.98-1.06)	0.62
Survived to hospital discharge	7 (4-10.5)	6 (4-10)	6 (4-9)	1.02 (1.00-1.05)	0.001
ICU bed utilization days, median (IQR) †§	4 (2 – 7)	4 (2 – 8)	3 (1 – 5)	1.02 (0.81 – 1.24)	0.83

CI, confidence interval; IQR, interquartile range; ICU, intensive care unit.

* This column reports the relative risk, odds ratio or incidence rate ratio as appropriate. All models are adjusted for age, gender, race, type of insurance, urban residence, risk of mortality during hospitalization, year of admission, and hospital characteristics including teaching hospital, hospital bed size, total admissions per year/total number of beds, total number of surgical operations performed/total number of beds, full-time equivalent physicians/total number of beds, full-time equivalent registered nurses/total number of beds and ICU volume.

‖ Results of multilevel robust poisson regression, with hospital as a random effect.

‡ Results of multilevel logistic regression, with hospital as a random effect.

† Results of multilevel negative binomial regression, with hospital as a random effect.

§ Only includes patients who died in ICU.