Supplementary Online Content

Ashana DC, Chen X, Agiro A, et al. Advance care planning claims and health care utilization among seriously ill patients near the end of life. *JAMA Netw Open*. 2019;2(11):e1914471. doi:10.1001/jamanetworkopen.2019.14471

eFigure. Overlap in Propensity Score Between Patients With and Without Billed Advance Care Planning Encounters
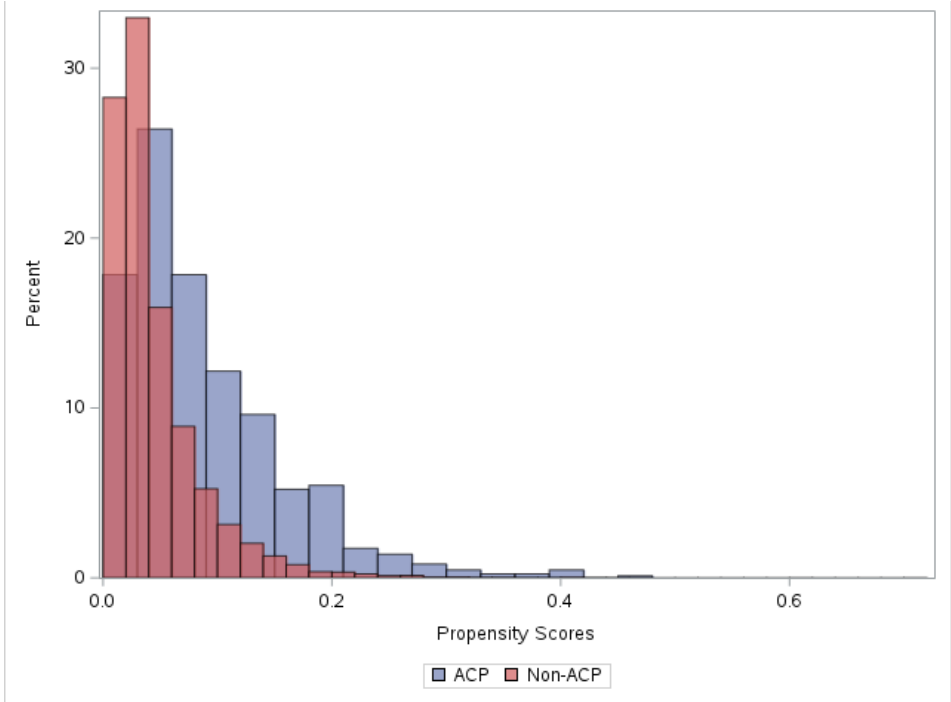
eTable 1. Characteristics of Seriously Ill Patients With and Without Billed Advance Care Planning Encounters After 1:3 Propensity Score Matching

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This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure. Overlap in propensity score between patients with and without billed advance care planning encounters.

Definition of abbreviations: ACP = advance care planning. The likelihood of having a billed ACP encounter was modeled as a logistic regression adjusting for demographic variables (age, female gender and census region), Deyo-Charlson Comorbidity Index, behavioral health conditions (depression, anxiety, adjustment disorder), and baseline all-cause medical and hospitalization costs. The propensity scores indicate the probability of having a billed ACP encounter and range from 0 to 1.

eTable 1. Characteristics of seriously ill patients with and without billed advance care planning encounters after 1:3 propensity score matching

Patient characteristics	All patients with serious illness		
	Patients receiving ACP[a]	Patients without ACP claim	Standardized difference [b]
Patients, No.	855	2,565	
Age, mean (SD)	81.4 (8.2)	81.5 (7.9)	-0.02
Gender, %			0.03
Male	45.7	46.0	-0.01
Female	54.3	54.0	0.01
Region, %			0.02
Northeast	27.0	26.2	0.02
Midwest	51.1	51.6	-0.01
South	19.1	19.2	-0.01
West	2.8	3.1	-0.02
Dey-Charlson Comorbidity Index, mean (SD)	6.0 (3.1)	5.9 (3.2)	0.02
Number of Deyo-Charlson Comorbidities, %			0.00
0	0.7	1.3	-0.06
1-2	3.5	3.9	-0.02
≥3	95.8	94.9	0.04
Number of serious illness diagnoses, mean (SD)	1.4 (0.8)	1.4 (0.8)	-0.01
Serious illness diagnosis, %			
COPD	22.9	21.1	0.05
ADRD	14.7	13.7	0.03
Fibrotic lung disease	8.8	8.9	-0.01
Advanced solid malignancy	12.4	16.0	-0.10
Neurodegenerative disease	0.1	0.5	-0.07
ESRD	2.3	2.4	-0.01
Heart failure	80.4	80.2	0.01
Number of hospital admissions, mean (SD)	2.0 (2.0)	1.9 (2.2)	0.01
Number of ER visits, mean (SD)	1.0 (1.5)	1.1 (2.2)	-0.06
Total medical costs, mean $ (SD) [c]	45,691 (46,512)	43,584 (49,659)	0.04
Hospitalization	29,841 (37,832)	26,329 (39,716	0.09
Outpatient services	12,401 (16,225)	14,012 (19,570)	-0.09
ER	1,227 (2,075)	1,292 (2,494)	-0.03
Total pharmacy costs, mean $ (SD)	5,998 (12,440)	5,851 (12,518)	0.01

Definition of abbreviations: ACP = advance care planning; ADRD = Alzheimer's disease and related dementias; COPD = chronic obstructive pulmonary disease; ER = emergency room; ESRD = end-stage renal disease; SD = standard deviation.

[a] We retained 855 of 864 total patients (99.0%) in the ACP group after matching.
[b] Comparing all patients receiving ACP and all patients without an ACP claim.
[c] Includes costs paid by the health plan and the patient.

eTable 2. Propensity score matched analysis of outcomes of seriously ill patients with a billed advance care planning encounter compared to patients without a billed advance care planning encounter

Outcomes	IRR	95% CI	P value
Hospice use	2.38	2.06-2.76	<0.001
Death	2.03	1.55-2.65	<0.001
Hospitalization	1.27	1.16 - 1.39	<0.001
With ICU admission	1.16	0.98 - 1.36	0.08
Without ICU admission	1.33	1.19 - 1.49	<0.001
Emergency room visit	1.07	0.95 - 1.20	0.29
Intensive therapy use	0.74	0.68 - 0.81	<0.001
Intubation and mechanical ventilation	1.26	0.82 - 1.93	0.29
Gastrostomy tube insertion	1.28	0.54 - 3.05	0.58
Dialysis	0.74	0.66 - 0.82	<0.001
Enteral or parenteral nutrition	1.06	0.77 - 1.47	0.71
Chemotherapy	0.62	0.51 - 0.74	<0.001

Definition of abbreviations: CI = confidence interval; IRR = incidence rate ratio.

eTable 3. Medical and pharmacy costs for seriously ill patients with and without billed advance care planning encounters in 1:3 propensity score matched analyses

Costs	Patients receiving ACP [a]	Patients without ACP claim	Cost difference	P value
Total PMPM medical costs, mean $ (SD)	10,094 (132,603)	3,586 (13,974)	6,508	<0.001
Hospitalization	8,564 (132,631)	2,326 (13,696)	6,238	0.83
ER	117 (394)	128 (655)	-10	0.92
Pharmacy PMPM costs, mean $ (SD)	423 (1,117)	491 (1,207)	-68	0.02

Definition of abbreviations: ER = emergency room; PMPM = per member per month; SD = standard deviation. All US dollar amounts were adjusted to 2017 values using the consumer price index.

[a] We retained 855 of 864 total patients (99.0%) in the ACP group after matching.