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Association of Early Patient-Physician Care Planning Discussions and End-of-Life Care Intensity in Advanced Cancer

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Abstract

Background: Early patient-physician care planning discussions may influence the intensity of end-of-life (EOL) care received by veterans with advanced cancer.

Objective: The study objective was to evaluate the association between medical record documentation of patient-physician care planning discussions and intensity of EOL care among veterans with advanced cancer.

Methods: This was a retrospective cohort study. Subjects were 665 veteran decedents diagnosed with stage IV colorectal, lung, or pancreatic cancer in 2008, and followed till death or the end of the study period in 2011. We estimated the effect of patient-physician care planning discussions documented within one month of metastatic diagnosis on the intensity of EOL care measured by receipt of acute care, intensive interventions, chemotherapy, and hospice care, using multivariate logistic regression models.

Results: Veterans in our study were predominantly male (97.1%), white (74.7%), with an average age at diagnosis of 66.4 years. Approximately 31% received some acute care, 9.3% received some intensive intervention, and 6.5% had a new chemotherapy regimen initiated in the last month of life. Approximately 41% of decedents received no hospice or were admitted within three days of death. Almost half (46.8%) had documentation of a care planning discussion within the first month after diagnosis and those who did were significantly less likely to receive acute care at EOL (OR: 0.67; $p=0.025$). Documented discussions were not significantly associated with intensive interventions, chemotherapy, or hospice care.

Conclusion: Early care planning discussions are associated with lower rates of acute care use at the EOL in a system with already low rates of intensive EOL care.

Introduction

THERE HAVE BEEN RECENT CALLS for the routine integration of palliative care services alongside cancer care for patients with advanced stage disease following increased recognition of the relatively strong evidence base for palliative care.^{1–3} An important aspect of palliative care is patient-provider communication about end-of-life (EOL) care planning and preferences. Such discussions are associated with less

aggressive care and lower costs near death, and earlier hospice referral.^{4–7} Timing of EOL discussions appears to be important; a prospective study of patients with stage IV lung or colorectal cancer found that patients who had EOL discussions *before* the last month of life were less likely to receive inappropriately aggressive care.⁷ Because prognostication may be difficult, the diagnosis of advanced disease can serve as an important signal to providers for initiating care planning discussions. Several cancer care guidelines now recommend

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having care planning discussions early in the trajectory of advanced cancer, to allow the patient and family adequate time to prepare and plan for the future.^{8–10}

The Veterans Affairs (VA) health system has a strong track record of providing timely and high-quality palliative services to its patients,^{11–13} with equivalent or better cancer treatment compared to fee-for-service (FFS) Medicare.¹⁴ Prior studies of cancer care have also demonstrated that compared to FFS Medicare, the VA provides less intensive EOL care,¹⁵ with equivalent or better survival.¹⁶ Given increasing policy attention to improving health care efficiency, it is important to understand the extent to which early care planning communication can decrease potentially inappropriate care use at the EOL within an efficient delivery system.

We examined the association between documented patient-physician care planning discussions in the first month following diagnosis of stage IV cancer and the intensity of care received in the last month of life. We hypothesized that patients who had an early care planning discussion would be less likely to receive high-intensity care at the EOL.

Methods

Study sample

Data for this study were drawn from the VA National Cancer Quality Assessing Symptoms, Side Effects and Indicators of Supportive Treatment (ASSIST) study, which evaluated the quality of supportive care in a national sample of veterans identified from the VA Central Cancer Registry and diagnosed with stage IV colorectal, lung, or pancreatic cancer in 2008.¹³ From an initial sampling frame of 424 veterans with pancreatic, 3184 with lung, and 628 with colorectal cancers, we randomly sampled from each cancer type and confirmed study eligibility on the basis of (1) stage IV cancer and (2) documentation that the veteran was alive >30 days after diagnosis with >1 hospitalization >2 days OR >2 VA encounters of any type (to ensure enough VA care experience to collect necessary data). In order to evaluate the intensity of care in the last month of life, we evaluated the subset of all 665/719 veterans who died during the study period (2008–2011).

Data sources and variables

The VA national ASSIST study utilizes a set of reliable, valid, and feasible chart-based quality indicators (QIs) vetted by an expert panel^{17,18} to characterize the quality of oncology supportive care across three domains—pain, nonpain symptoms, and information and care planning. As described previously,¹³ three experienced nurse reviewers conducted a detailed medical record abstraction for each veteran in the study from the date of their metastatic cancer diagnosis in 2008 until death or until three years after diagnosis (i.e., up to the end of the study period in 2011). From these abstractions, we collected all data elements necessary to ascertain whether EOL discussions took place, as well as personal demographics (age, gender, race/ethnicity, marital status, urban versus rural residence, and co-pay exemption status) and clinical variables including cancer type, survival time, and comorbidity as measured by the Adult Comorbidity Evaluation-27 (ACE-27). We supplemented missing medical record documentation for race/ethnicity with VA administrative data in

7.8% of cases. We obtained residence location (i.e., urban versus rural) and co-pay exemption status from VA administrative data. In the VA, co-pay exemption for medication is based on income eligibility and is a useful proxy for income.

Primary independent variable: Early care planning discussion

To identify early care planning discussions, we used data abstracted for one of the ASSIST QIs, specified as, “If a patient is newly known to have advanced cancer after a surgery, diagnostic test, or physical examination, THEN a discussion including prognosis and advance care planning should be documented within one month or a reason why such a discussion did not occur.” To identify the occurrence of a discussion in either the inpatient or outpatient setting, we used documentation of a physician note (1) describing the patient’s care preferences or (2) describing a discussion attempting to elicit the patient’s care preferences within one month of the diagnosis of stage IV cancer. We did not use documentation of an advance directive (AD) to identify a care planning discussion, because ADs may be completed without an attendant patient-provider discussion of preferences.

Dependent variable: Intensity of end-of-life care

We used existing indicators of the intensity of EOL care^{19,20} to characterize care received across four outcomes:

- 1) Acute care in the last 30 days of life: >1 ER visit in the last 30 days of life, >1 inpatient hospital admission in the last 30 days of life, >14 inpatient hospital days in the last 30 days of life, or in-hospital death.
- 2) Intensive intervention in the last 30 days of life: ≥1 ICU admission in the last 30 days of life, new hemodialysis in the last 30 days of life, gastric tube placement in the last 30 days of life, new mechanical ventilation in the last 30 days of life, or death despite attempts at cardiopulmonary resuscitation (CPR).
- 3) “Late” chemotherapy: New chemotherapy regimen initiated in the last 30 days of life or receipt of chemotherapy in the last 14 days of life.
- 4) “Late” or no hospice care: Hospice care received within three days of death or no hospice care.

Data for these variables, including date of death, were obtained as part of the medical record abstraction process to evaluate all ASSIST QIs. Because veterans with Medicare can receive hospice care through their Medicare benefit rather than through the VA, we supplemented VA medical record data with Centers of Medicare and Medicaid Services (CMS) administrative data to capture hospice use under FFS Medicare. We also used CMS administrative data to ascertain date of death when the medical record indicated death in a non-VA facility.

Statistical analyses

Descriptive statistics summarized decedent characteristics at the time of advanced cancer diagnosis. We calculated bivariate associations between patient characteristics and receipt of aggressive care in the last month of life using Pearson

TABLE 1. DESCRIPTION OF THE ASSIST DECEDENT COHORT (N=665)

<i>Cohort characteristics</i>	<i>N (665)</i>	<i>% or mean (SD)</i>
Age at diagnosis	665	66.4 (10.4)
Gender		
Male	646	97.1
Female	19	2.9
Race/ethnicity		
White (Non-Hispanic)	497	74.7
Black (Non-Hispanic)	133	20.0
Asian-Pacific Islander (Non-Hispanic)	10	1.5
Hispanic	25	3.8
Residence location status		
Urban	448	67.4
Rural	208	31.3
Highly rural	9	1.4
Marital status		
Married	297	44.7
Lives with significant other	37	5.6
Single/separated/ divorced/widowed	307	46.2
(No data)	24	3.6
Primary cancer		
Colorectal	223	33.5
Lung	233	35.0
Pancreatic	209	31.4
Survival after diagnosis (months)		
Colorectal	223	12.2 (8.8)
Lung	233	7.6 (6.7)
Pancreatic	209	5.0 (4.2)
Adult Comorbidity Evaluation score		
None	44	6.6
Mild	258	38.8
Moderate	163	24.5
Severe	200	30.1
Co-pay exempt for medication		
Yes	429	64.5
No or no data	236	35.5
EOL care planning discussion in first month following diagnosis		
Yes	311	46.8
No	354	53.2
Acute care in last month of life		
None	460	69.2
Any ^a	205	30.8
> 1 ER visit	10	1.5
> 1 inpatient hospital admission	68	10.2
> 14 inpatient hospital days	60	9.0
Died in hospital	150	22.6
Intensive Interventions		
None	603	90.7
Any ^b	62	9.3
Admission to ICU	59	8.9
New hemodialysis in last month of life	0	0.0
Gastric tube placement	4	0.6
New mechanical ventilation	11	1.7
Died receiving CPR	5	0.8

(continued)

TABLE 1 (CONTINUED)

<i>Cohort characteristics</i>	<i>N (665)</i>	<i>% or mean (SD)</i>
Chemotherapy		
None	238	35.8
Any ^c	427	64.2
New chemotherapy regimen initiated in last month of life	43	6.5
Received chemotherapy in last 14 days of life	55	8.3
Hospice care		
None/late hospice ^d	269	40.5
Hospice admission ≥ 3 days before death	396	59.6

^aProportion of patients who had one or more acute care interventions.^bProportion of patients who had one or more intensive interventions.^cProportion of patients receiving any chemotherapy during the study period.^dLate hospice = admission to hospice < 3 days before death.

ASSIST, Assessing Symptoms, Side Effects and Indicators of Supportive Treatment study.

chi-square tests or Student's t-tests where appropriate. We estimated the effect of early discussion on intensiveness of care at the EOL using multivariate logistic regression models adjusted for patient demographic and clinical characteristics, including survival time. We included survival time as a covariate to account for aggressiveness of patients' cancers and overall clinical status, and differential timing of care planning discussions based on patients' and providers' estimation of these two factors. We hypothesized that in addition to those patients with a documented early care planning discussion, patients with longer survival would also be less likely to receive high-intensity care at the EOL. To test whether patients who had *both* an early care planning discussion *as well as* longer survival would have an even lower likelihood of receiving high-intensity care at the EOL than if they only had one of those factors, we ran an additional regression model testing the effect of the interaction between survival time and early care planning discussion. All analyses were performed using statistical software SAS (SAS version 9.3; SAS Institute, Inc., Cary, NC). The institutional review board of the VA Greater Los Angeles Healthcare System approved the study.

Results

Cohort description

Of the 665 veteran decedents in our study, 223 (33.5%) had colorectal cancer, 233 (35.0%) had lung cancer, and 209 (31.4%) had pancreatic cancer (see Table 1). The majority were male (97.1%), white (74.7%), with an average age at diagnosis of 66.4 years, and resided in urban locations (67.4%). Half were either married (44.7%) or living with a significant other (5.6%). Mean survival time after diagnosis was 12.2 months for colorectal, 7.6 months for lung, and 5.0 months for pancreatic cancer patients. Many veterans had

either moderate (24.5%) or severe (30.1%) comorbidity. Most were co-pay exempt (64.5%).

Early care planning discussion

Almost half (46.8%) of the veteran decedents in our study had an early (i.e., within the first month after diagnosis) care planning discussion documented in the medical record (see Table 1). Both cancer type as well as survival time were associated with having a discussion in bivariate analyses (see Table 2). A greater proportion of veterans with pancreatic and lung cancer had early care planning discussions than those with colorectal cancer (55% and 46.8%, respectively, versus 39%; $p=0.004$). In addition, veterans who had an early care planning discussion had shorter survival on average than veterans who did not have an early discussion (6.8 months versus 9.7 months; $p<0.0001$).

TABLE 2. BIVARIATE PATIENT CHARACTERISTICS ASSOCIATED WITH EARLY END-OF-LIFE CARE PLANNING DISCUSSIONS

Patient characteristic	% patients with EOL care planning discussions or mean	P-value
Age at diagnosis		
<60 years	40.7	
60–75 years	47.2	
>75 years	52.9	0.08
Gender		
Male	46.9	
Female	42.1	0.68
Race/ethnicity		
White (Non-Hispanic)	48.1	
Black (Non-Hispanic)	41.4	
Asian-Pacific Islander (Non-Hispanic)	70.0	
Hispanic	40.0	0.21
Residence		
Urban	48.4	
Rural/highly rural	43.3	0.21
Marital status		
Married/partnered	47.0	
Single/separated/divorced/widowed/no data	46.5	0.90
Primary cancer		
Colorectal	39.0	
Lung	46.8	
Pancreatic	55.0	0.004
Adult Comorbidity Evaluation score		
None	43.2	
Mild	48.1	
Moderate	47.9	
Severe	45.0	0.87
Co-pay exempt for medication		
Yes	45.2	
No or no data	49.6	0.28
Survival time (months)		
Discussion (No)	9.7	
Discussion (Yes)	6.8	<0.0001

Intensity of care received at the end of life

Approximately one-third of veteran decedents in our sample received some form of acute care in the last month of life (30.8%). About 1 in 10 (9.3%) received some intensive intervention in the last month, mostly ICU stays (8.9%) (see Table 1). Receipt of chemotherapy in the last month of life was more common, with 64.2% of decedents receiving any chemotherapy during that period; however, only 6.5% of decedents had a new chemotherapy regimen initiated in the last month of life and only 8.3% received chemotherapy in the last 14 days of life. Almost 41% of decedents were admitted to hospice less than three days before their death or received no hospice.

Early care planning discussions and intensity of EOL care received

In unadjusted analyses (see Table 3), early care planning discussions were not significantly associated with receipt of acute care (27% versus 34% had an early care planning discussion; $p=0.07$); intensive care (8% versus 10% had an early discussion; $p=0.42$); chemotherapy (11% versus 12% had an early discussion; $p=0.53$); or late/no hospice care (37% versus 43% had an early discussion; $p=0.16$). However, after controlling for other factors in multivariate analyses, veteran decedents who had an early discussion were significantly less likely to receive acute care at the EOL (OR: 0.67; $p=0.025$) than patients who did not (see Table 4). Early care planning discussion was not associated with less-intensive interventions, late chemotherapy, or hospice use. A separate model including an interaction between early care planning discussions and survival time yielded similar results; however, the hypothesized interaction was not found to be significant (OR: 1.04; $p=0.14$) and therefore that model is not presented here.

Other veteran characteristics and intensity of EOL care received

When controlling for other factors, survival time, older age, cancer type, and being co-pay exempt for medications were associated with lower intensity of care at the EOL (see Table 4). Veteran decedents with longer survival time were less likely to receive acute care (OR: 0.95; $p=0.000$); intensive interventions (OR: 0.94; $p=0.013$); and no/late hospice (OR: 0.95; $p=0.000$). Veterans >75 years of age were less likely than younger patients to receive EOL chemotherapy (OR: 0.46; $p=0.029$) or no/late hospice (OR: 0.59; $p=0.014$). Veterans with lung (OR: 0.60; $p=0.014$) and pancreatic cancer (OR: 0.45; $p=0.000$) were less likely to receive no/late hospice than colorectal cancer patients. Finally, patients who were co-pay exempt for medication were almost twice as likely to receive hospital care (OR: 1.86; $p=0.001$) than those not exempt.

Discussion

In a nationally representative sample of veterans with stage IV colorectal, lung, or pancreatic cancer, we found that having a patient-physician care planning discussion within one month of their diagnosis was associated with receiving less potentially burdensome, acute care in the last 30 days of life, but not significantly associated with receipt

TABLE 3. UNADJUSTED ASSOCIATIONS BETWEEN PATIENT CHARACTERISTICS AND END-OF-LIFE CARE INTENSITY

Patient characteristic	<i>Acute care in last month of life^a</i>		<i>Intensive interventions^b</i>		<i>Chemotherapy^c</i>		<i>Hospice Care^d</i>	
	% or mean	P-value	% or mean	P-value	% or mean	P-value	% or mean	P-value
Age at diagnosis								
< 60 years	33.3		9.6		11.9		44.1	
60–75 years	29.3		9.6		13.1		41.8	
> 75 years	31.4	0.63	8.5	0.92	7.2	0.16	33.3	0.11
Gender								
Male	30.7		9.3		11.5		40.7	
Female	36.8	0.56	10.5	0.69 ^e	10.5	1.00 ^e	31.6	0.42
Race/Ethnicity								
White (Non-Hispanic)	29.6		9.7		11.5		40.2	
Black (Non-Hispanic)	36.1		9.0		12.0		39.9	
Asian-Pacific Islander (Non-Hispanic)	20.0		10.0		10.0		40.0	
Hispanic	32.0	0.45	4.0	0.88 ^e	8.0	0.98 ^e	48.0	0.89
Residence								
Urban	33.0	0.08	9.6	0.73	13.0	0.08	42.6	0.10
Rural/highly rural	26.3		8.8		8.3		35.9	
Marital status								
Married/partnered	30.5		9.0		13.5		38.6	
Single/separated/divorced/widowed/no data	31.1	0.87	9.7	0.76	9.4	0.10	42.3	0.33
Primary cancer								
Colorectal	31.4		9.9		9.9		45.7	
Lung	32.2		10.7		12.5		39.5	
Pancreatic	28.7	0.71	7.2	0.41	12.0	0.66	35.9	0.11
Survival time (months)								
Aggressive care (no)	8.9		8.5		8.5		9.0	
Aggressive care (yes)	7.2	0.005	6.6	0.051	7.3	0.17	7.4	0.01
Adult Comorbidity Evaluation score								
None	34.1		11.4		11.4		38.6	
Mild	29.8		8.5		9.7		40.7	
Moderate	31.9		8.6		14.1		39.3	
Severe	30.5	0.93	10.5	0.84	11.5	0.59	41.5	0.97
Adult Comorbidity Evaluation score								
None	34.1		11.4		11.4		38.6	
Mild	29.8		8.5		9.7		40.7	
Moderate	31.9		8.6		14.1		39.3	
Severe	30.5	0.93	10.5	0.84	11.5	0.59	41.5	0.97
Co-pay exempt for medication								
Yes	35.0		9.1		10.5		42.0	
No or no data	23.3	0.002	9.8	0.78	13.1	0.30	37.7	0.29
EOL care planning discussion in first month following diagnosis								
Yes	27.3		8.4		10.6		37.6	
No	33.9	0.07	10.2	0.42	12.2	0.53	42.9	0.16

^aAcute care in the last 30 days of life: More than 1 ER visit, more than 1 hospitalization, more than 14 hospital days, or death in hospital.

^bIntensive care in the last 30 days of life: ICU admission, new hemodialysis, gastric tube placement, new mechanical ventilation, or died while receiving CPR.

^cChemotherapy in the last 30 days of life: New chemotherapy regimen initiated in last month of life or receipt of chemotherapy in last 14 days of life.

^dHospice care: None or late (within 3 days of death) hospice care.

^e≥25% of cells have expected counts < 5, so Fisher's Exact Test was used to calculate *p*-values.

of intensive interventions, chemotherapy, or hospice care. Longer survival, older age, and having lung or pancreatic cancer were also associated with lower-intensity EOL care. In contrast, veterans who were co-pay exempt for medication were almost twice as likely to receive acute care

at the EOL compared to those who were not exempt. Talking with patients soon after a diagnosis of metastatic cancer about planning for their future care may help patients access more patient-centered care options aimed at improving quality of life.

TABLE 4. MULTIVARIATE ASSOCIATIONS BETWEEN PATIENT CHARACTERISTICS AND END-OF-LIFE CARE INTENSITY

Patient characteristic	Acute care in last month of life ^a		Intensive interventions ^b		Chemotherapy ^c		Hospice care ^d	
	OR	P-value	OR	P-value	OR	P-value	OR	P-value
Age at diagnosis								
<60 years	1.09	0.69	1.02	0.95	0.84	0.56	1.12	0.57
60–75 years ^e								
>75 years	0.96	0.87	0.78	0.48	0.46	0.029	0.59	0.014
Gender								
Male ^e								
Female	1.39	0.51	1.14	0.87	0.86	0.85	0.69	0.48
Race/ethnicity								
White (Non-Hispanic) ^e								
Black (Non-Hispanic)	1.26	0.28	0.90	0.76	0.96	0.89	0.89	0.57
Asian-Pacific Islander (Non-Hispanic)	0.70	0.67	1.20	0.87	0.69	0.73	1.14	0.85
Hispanic	1.12	0.81	0.41	0.39	0.63	0.55	1.33	0.50
Residence								
Urban ^e								
Rural/highly rural	0.72	0.09	0.85	0.60	0.57	0.06	0.71	0.06
Marital status								
Married/partnered ^e								
Single/separated/divorced/widowed/no data	0.88	0.45	0.98	0.93	0.65	0.10	1.06	0.73
Primary cancer								
Colorectal ^e								
Lung	0.88	0.56	0.85	0.63	1.13	0.71	0.60	0.014
Pancreatic	0.67	0.09	0.48	0.06	0.91	0.77	0.45	0.000
Adult Comorbidity Evaluation score								
None	1.25	0.54	1.08	0.89	1.02	0.97	0.83	0.60
Mild	1.07	0.76	0.81	0.51	0.85	0.62	1.00	0.99
Moderate	1.15	0.57	0.82	0.60	1.25	0.49	0.95	0.82
Severe ^e								
Co-pay exempt for medication								
Yes	1.87	0.001	0.91	0.74	0.82	0.46	1.16	0.39
No or no data ^e								
EOL care planning discussion in first month following diagnosis								
Yes	0.67	0.025	0.74	0.28	0.79	0.35	0.75	0.09
No ^e								
Survival time (months)	0.95	0.000	0.94	0.013	0.97	0.10	0.95	0.000

^aAcute care in the last 30 days of life: More than 1 ER visit, more than 1 hospitalization, more than 14 hospital days, or death in hospital.

^bIntensive care in the last 30 days of life: ICU admission, new hemodialysis, gastric tube placement, new mechanical ventilation, or died while receiving CPR.

^cChemotherapy in the last 30 days of life: New chemotherapy regimen initiated in last month of life or receipt of chemotherapy in last 14 days of life.

^dHospice care: None or late (within 3 days of death) hospice care.

^eRepresents reference category.

Our findings suggest that even in an efficient health care system such as the VA, having early care planning discussions may still help patients and families avoid inappropriately aggressive care and achieve improved patient-centered outcomes. For example, utilization of ICU care in our sample was considerably lower than existing utilization estimates among Medicare poor-prognosis cancer patients²² and compared favorably with estimates from a recent cohort study of patients with stage IV lung or colorectal cancer,⁷ yet we found that early care planning discussions were still associated with significantly lower odds of receiving acute care at the EOL. This association may be even more pronounced in health care systems with higher rates of aggressive care at the EOL.

As we hypothesized, patients who had early documentation of care planning discussions as well as those with longer

survival were more likely to receive lower-intensity EOL care. Prior work has suggested patients need time to cultivate an awareness and acceptance of their prognosis before they can consider the range of care options available to them at the EOL,²³ which may not be possible among patients with limited survival or if discussions about the EOL occur too close to death. Our findings underscore the importance of initiating care planning discussions as early as possible, particularly given the difficulty in predicting death; and they support such discussions as an important policy lever to improve the efficiency of advanced cancer care.

The finding that patients with shorter overall survival or with cancers with particularly poor prognoses (e.g., pancreatic cancer) were more likely to have had a care planning discussion supports prior work suggesting clinicians may

wait for a “signal” of imminent decline or death before initiating such discussions. In a survey of physicians caring for cancer patients in various health care settings, many physicians reported delaying discussion of EOL options with terminally ill patients until the onset of severe symptoms or until curative options had been exhausted.²⁴

It is also possible that a cancer patient whose clinical status is actively deteriorating may be more open to engaging in a care planning discussion. Despite guidelines recommending such discussions be held early in the disease course, some patients with stage IV cancer may not want to discuss EOL care early, leading clinicians to delay these discussions until absolutely necessary. Other data suggests ‘readiness’ is an important patient and family component of EOL decision making.²⁵ The diagnosis of metastatic cancer may serve as an actionable opportunity to discuss prognosis and foster patient readiness to consider their EOL care options.

There are several limitations to our study. First, although we controlled for several factors available through chart review and administrative data that we hypothesized would be associated with both early EOL care planning discussions as well as the intensity of care received at the EOL, including survival time, cancer type, age, and comorbidity, there may be other factors we could not control for that are correlated with both our outcome and primary predictor variable. In particular, we did not have information on other care planning discussions that may have occurred at other time points in the illness trajectory. Second, we were unable to evaluate the content of care planning discussions and do not know who (i.e., patient or physician) initiated these discussions or why they were initiated. It is possible that patients with existing preferences for comfort-oriented care initiated care planning discussions early to facilitate less-intensive EOL care. We also did not have information on the context of the care planning discussion, e.g., if they were conducted as part of a palliative care consultation or other structured care process. Third, some markers of aggressive care (e.g., intensive interventions) were rare, and we may not have had the statistical power to fully estimate the relationship between early discussions and intensity of care in these areas. Finally, we relied on chart documentation of care planning discussions and aggressive markers of care and may have overlooked care not documented in the VA medical record. Still, evidence of additional care planning discussions is likely to further support our findings.

Our study supports the role of early care planning discussions in decreasing intensive and potentially inappropriate care use at the EOL among an advanced cancer population. Care planning discussions can be held in any setting and by any provider, which is particularly significant in light of increasing palliative care workload and a growing palliative care workforce shortage. Even in an efficient delivery system with low rates of high-intensity EOL care, care planning discussions mattered, underscoring the saliency of this issue in non-VA settings where intensive EOL care is more common. Further investigation into how care planning discussions can facilitate both comfort-oriented and patient-centered choices that promote quality of life at the EOL is needed.

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