

Original Article

Physician and Patient Characteristics Associated With More Intensive End-of-Life Care



Paul R. Duberstein, PhD, Richard L. Kravitz, MD, MSPH, Joshua J. Fenton, MD, MPH, Guibo Xing, PhD, Daniel J. Tancredi, PhD, Michael Hoerger, PhD, MSCR, Supriya G. Mohile, MD, MS, Sally A. Norton, PhD, RN, Holly G. Prigerson, PhD, and Ronald M. Epstein, MD

Department of Psychiatry (P.R.D., R.M.E.), University of Rochester School of Medicine and Dentistry, Rochester, New York; Department of Health Behavior, Society, and Policy (P.R.D.), Rutgers University School of Public Health, Piscataway, New Jersey; Department of Internal Medicine (R.L.K.), University of California, Davis, Sacramento, California; Center for Healthcare Policy and Research (R.L.K., J.J.F., G.X., D.J.T.), University of California, Davis, Sacramento, California; UC Davis Comprehensive Cancer Center (R.L.K., J.J.F.), University of California, Davis, Sacramento, California; Department of Family and Community Medicine (J.J.F.), University of California, Davis, Sacramento, California; Department of Pediatrics (D.J.T.), University of California, Davis, Sacramento, California; Tulane Cancer Center (M.H.), Tulane University, New Orleans, Louisiana; Departments of Psychology, Psychiatry, and Medicine (M.H.), Tulane University, New Orleans, Louisiana; James P. Wilmot Cancer Center (S.G.M., R.M.E.), University of Rochester School of Medicine and Dentistry, Rochester, New York; Department of Medicine (S.G.M., S.A.N., R.M.E.), University of Rochester School of Medicine and Dentistry, Rochester, New York; School of Nursing (S.A.N.), University of Rochester, Rochester, New York; Division of Geriatrics and Palliative Medicine (H.G.P.), Department of Medicine, Weill Cornell Medicine, New York, New York; Cornell Center for Research on End-of-Life Care (H.G.P.), New York, New York; and Department of Family Medicine (R.M.E.), University of Rochester School of Medicine and Dentistry, Rochester, New York, USA

Abstract

Context. Although patient and physician characteristics are thought to be predictive of discretionary interventions at the end of life (EoL), few studies have data on both parties.

Objective. To test the hypothesis that patient preferences and physician attitudes are both independently associated with discretionary interventions at the EoL.

Methods. We report secondary analyses of data collected prospectively from physicians ($n = 38$) and patients with advanced cancer ($n = 265$) in the Values and Options in Cancer Care study. Predictor variables were patient attitudes toward EoL care and physician-reported comfort with medical paternalism, assessed indirectly using a modified version of the Control Preference Scale. We explored whether the magnitude of the physician variable was influenced by the inclusion of particular patient treatment-preference variables (i.e., effect modification). Outcomes were a *chemotherapy use score* (≤ 14 days before death [scored 2], 15–31 days before death [scored 1], and >31 days [scored 0]) and an *emergency department visit/inpatient admission score* (two or more admissions in the last 31 days [scored 2], one admission [1], and 0 admissions [0]) in the last month of life.

Results. Chemotherapy scores were nearly 0.25 points higher if patients expressed a preference for experimental treatments with unknown benefit at study entry (0.238 points, 95% CI = 0.047–0.429) or reported an unfavorable attitude toward palliative care (0.247 points, 95% CI = 0.047–0.450). A two-standard deviation difference in physician comfort with medical paternalism corresponded to standardized effects of 0.35 (95% CI = 0.03–0.66) for chemotherapy and 0.33 (95% CI = 0.04–0.61) for emergency department visits/inpatient admissions. There was no evidence of effect modification.

Conclusion. Patient treatment preferences and physician attitudes are independently associated with higher levels of treatment intensity before death. Greater research, clinical, and policy attention to patient treatment preferences and physician comfort with medical paternalism might lead to improvements in care of patients with advanced disease. *J Pain Symptom Manage* 2019;58:208–215. © 2019 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Address correspondence to: Paul R. Duberstein, PhD, Department of Health Behavior, Society, and Policy, Rutgers University School of Public Health, 683 Hoes Lane West, Piscataway, NJ 08854 USA. E-mail: paul.duberstein@rutgers.edu

Accepted for publication: April 12, 2019.

Key Words

Advanced cancer, biomedical ethics, chemotherapy, end of life, emergency department, health care utilization, hospitalization, palliative care, physician attitudes, patient treatment preferences

Introduction

Public opinion surveys show that most individuals prefer to die peacefully at home,¹ but many die in hospitals shortly after receiving treatments that have been described as potentially burdensome,^{2,3} potentially avoidable,⁴ intensive,⁵ unduly intensive,⁶ inappropriate,^{7,8} futile,⁹ misused,¹⁰ and aggressive.^{11–13} End-of-life (EoL) care is a hotly debated topic,^{8,14} and the language used to describe that care is similarly contested. We use the term “discretionary interventions at the end of life” (DIALs) to refer to treatments, procedures, or services that most of the public would prefer to avoid when asked to imagine the final days of life.^{15,16} We focus on chemotherapy use and hospitalizations or emergency department (ED) visits in the last 30 days of life,¹¹ as they have been shown to be associated with worse caregiver bereavement outcomes,¹⁷ worse patient quality of life at the EoL,¹⁸ and clinician moral distress, burnout, and turnover.^{19,20}

Improving the use of DIALs has proven to be challenging,^{21–25} but there has been some progress,^{26,27} and the growing literature potentially points to new directions for interventions.^{28–35} For example, physician and patient psychosocial attributes (e.g., religious beliefs, emotion), including attitudes toward particular interventions, have been shown to be associated with DIALs.^{28–34} Although conceptual models suggest that patient and physician attributes would each independently be predictive of DIALs,^{36–39} prior studies have tended to examine patients or physicians, not both simultaneously. Without data on both parties, it is impossible to distinguish between patient- and physician-level effects,⁴⁰ undermining efforts to develop evidence-based interventions and policies.

Such data, which are uniquely available in the Values and Options in Cancer Care clinical trial,⁴¹ could inform clinical care and the conceptualization of interventions to improve the use of discretionary interventions and EoL care. In these secondary analyses, we tested the hypothesis that chemotherapy use and ED visits/inpatient admissions in the final 30 days of life would both be associated with patients’ treatment preferences and physician comfort with paternalistic decision-making, assessed indirectly by asking physicians how comfortable they would feel if a patient asked them to make decisions about their medical care.

Methods

Overview

Our analysis was based on survey data from Values and Options in Cancer Care, a cluster-randomized trial that evaluated whether a communication intervention could improve the quality of communication between oncologists and patients with advanced cancer and their caregivers ([clinicaltrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT01485627) identifier: NCT01485627).⁴¹ The intervention improved the quality of communication between oncologists and patients/caregivers but had no effect on DIALs before death.⁴¹ The institutional review boards at the University of Rochester and University of California, Davis approved the study. All participants provided written informed consent.

Setting and Subjects

Oncologists and patients were recruited from community-based cancer clinics, academic medical centers, and community hospitals in Western New York and Sacramento, California. Oncologists were eligible if they treated nonhematologic malignancies. They were randomly assigned to intervention vs. control, stratified by subspecialty (breast cancer vs. other). Of 52 oncologists who were contacted, 43 enrolled and 38 were randomized to intervention or control groups. Patients of enrolled oncologists were eligible if they were aged ≥ 21 years, provide written informed consent in English, and had Stage IV nonhematologic cancer; patients with stage III cancer were eligible if their oncologist reported they “would not be surprised” if they died within 12 months.⁴² We identified 453 potentially eligible patients of whom 265 enrolled.⁴¹

Data Collection

All patient-reported data were collected by research assistants who orally administered interview questions. Oncologists provided data via written self-report. Trained nurses and physicians used a structured form to abstract utilization data from charts of deceased patients received from hospitals, doctors’ offices, and hospices.

Independent Variables

There were two classes of independent variables: patient-reported treatment preferences and oncologist comfort with medical paternalism.

Patient-Reported Treatment Preferences. At study entry, patients were provided with the following hypothetical scenario designed to prime them to consider the prospect that treatment will not work: “If your cancer doctor advised you that there is no further anticancer treatment available that would be helpful, which of the following would you want?” Patients rated the following three options on a five-point scale ranging from “definitely no” to “definitely yes”: 1) “*Experimental treatments*—such as experimental chemotherapy with unknown benefit for your disease”; 2) “*Life support*—a breathing machine, a tube for feeding, or electric shock to the heart”; and 3) “*Palliative care*—which is comfort care, focusing on quality of life but not cure.” Patients’ responses to treatment-preference items have been shown to be associated with fear of death and dying.⁴³ Given our interest in responses reflecting patient preference for physically intensive discretionary interventions, patients who responded they “possibly” or “definitely” wanted experimental treatments or life support were compared with those who responded “unsure” or “no.” Similarly, patients who responded they “possibly” or “definitely” did not want palliative care were compared with those who responded they wanted palliative care or were “unsure.”

Oncologist-Reported Comfort With Biomedical Paternalism. Previous research suggests that the use of some DIALs might reflect a culture of biomedical paternalism.^{30,44} We used a modified version of the Control Preference Scale⁴⁵ to indirectly assess the extent to which oncologists report feeling comfortable with that culture. At study entry, oncologists responded to the following item: “Physicians have varying levels of comfort making decisions about treatments with their patients. Overall, how comfortable would you feel if a patient requested that you make decisions using all that is known about the treatments?” Response options ranged from 1 (“not at all”) to 5 (“very”). Higher scores were presumed to reflect greater comfort with, and confidence in, paternalistic decision-making.

Dependent Variables (Health Care Utilization in the Last Month of Life)

Abstracters who were blinded to study hypotheses reviewed medical records for evidence of chemotherapy use and emergency department/hospital admissions in the last 30 days of life.¹¹ Outcome variables were a chemotherapy score (≤ 14 days before death [scored 2], 15–31 days before death [1], and >31 days [0]) and an ED/inpatient admission score (two or more admissions in the last 31 days [scored 2], one admission [1], and 0 admissions [0]).

We carefully monitored the quality and reproducibility of the coding. Re-abstraction of 10 charts by trained fourth-year medical students revealed few inconsistencies, which were all resolved by senior clinical researchers (R. L. K. and R. M. E.) in favor of the original abstractions.

Covariates

We adjusted for covariates that have been associated with DIALs in previous studies, including patient age, education (high school or less vs. more than high school), and gender. We also adjusted for study arm (intervention vs. control), study site (New York vs. California), oncologist subspecialty (breast cancer vs. other), and cancer aggressiveness. Less aggressive cancers were defined prospectively as cancers of the breast, colon, or prostate.

Statistical Analyses

We were interested in exploring whether the magnitude of the effect of oncologist comfort with medical paternalism was influenced by the inclusion of particular patient treatment-preference variables. As such, all models simultaneously examined the oncologist comfort with paternalism variable alongside one patient treatment-preference variable. Associations between each of the independent and outcome variables were thus examined in six separate regressions. Sensitivity analyses were conducted to evaluate the independent effects of the three patient preference variables (entered simultaneously) and statistical interactions between those variables and the oncologist variable. Mixed-effects linear regression with robust standard error estimation was used to model the relationships between independent variables and chemotherapy use and ED/inpatient stay. All models were specified to account for the nesting of patients (the units of analysis) within physicians (the units of randomization). To facilitate interpretation of regression findings, we report parameter estimates with 95% CIs for the independent variables as well as standardized effect sizes associated with a two-standard deviation (SD) difference in the oncologist paternalism variable, approximately a two-point difference on this five-point scale. All statistical inferences were based on two-sided tests with $P < 0.05$ considered statistically significant. All analyses were conducted using SAS, version 9.4 (Cary, NC).

Results

Data were abstracted from medical charts for all 151 patients who died before November 2015. Median survival was 16 months. Descriptive statistics are provided in Table 1. A minority of the deceased cohort was

Table 1
Descriptive Statistics as a Function of Mortality Status in
October 2015

	Mortality Status	
	Deceased (<i>n</i> = 151)	Alive (<i>n</i> = 114)
Covariates		
Randomization arm, <i>n</i> (%)		
Intervention	71 (47)	59 (52)
Control	80 (53)	55 (48)
Site, <i>n</i> (%) ^a		
Sacramento, California	38 (25)	56 (49)
Western New York	113 (75)	58 (51)
Breast cancer oncologist		
No	126 (83)	92 (81)
Yes	25 (17)	22 (19)
Patient age, mean (SD)	65.2 (10.6)	63.2 (12.2)
Gender, <i>n</i> (%)		
Male	69 (46)	50 (44)
Female	82 (54)	64 (56)
Patient education, <i>n</i> (%)		
High school or less	44 (29)	29 (25)
Some college or more	107 (71)	85 (75)
Cancer aggressiveness, <i>n</i> (%) ^b		
Aggressive	89 (59)	44 (39)
Less aggressive	62 (41)	70 (61)
Independent Variables		
Oncologist comfort with medical paternalism	3.2 (1.2)	3.3 (1.1)
Patient prefers experimental treatments, <i>n</i> (%) ^{c,d}		
Yes	50 (33)	32 (28)
No	101 (67)	81 (72)
Patient prefers life support, <i>n</i> (%) ^{c,d}		
Yes	18 (12)	12 (11)
No	133 (88)	102 (89)
Patient prefers palliative care, <i>n</i> (%) ^{c,e}		
Yes	138 (91)	110 (96)
No	13 (9)	4 (4)

^aDisproportionately more deaths occurred in New York than California because enrollment began a year earlier in New York.

^bPatients with more aggressive cancers were more likely to die during the follow-up period than those with cancers of the breast, colon, or prostate.

^cItem was rated on a five-point scale (definitely no, possibly no, unsure, possibly yes, and definitely yes). See text for item wording.

^dPatients who responded they “possibly” or “definitely” wanted this intervention were compared with all others.

^ePatients who responded they “possibly” or “definitely” did not want this intervention were compared with all others.

favorably disposed toward receiving experimental (31%) and life-sustaining treatments (11%). Few (6%) wished to eschew palliative care. The mean (SD) oncologist comfort with paternalism score was 3.2 (1.1) on a scale of 1 to 5, with 5 indicating greater comfort with paternalism.

Table 2 reports the findings of the multivariable analyses. Chemotherapy scores were higher when patients expressed a preference for experimental treatments at study entry and when their oncologist reported greater comfort with paternalism. For each unit increase in the oncologists’ comfort with paternalism scores, the mean chemotherapy score increased by 0.090 (after accounting for patient preference for experimental treatments) or 0.102 (after accounting for preferences for life-sustaining

treatment and hospice). A two-SD difference in oncologist comfort with paternalism corresponded to standardized effects of 0.35 (95% CI = 0.03–0.66) for chemotherapy. The mean EoL chemotherapy scores of patients who expressed a preference for experimental treatments with unknown benefit were 0.238 (95% CI = 0.047–0.429) higher than those who did not prefer experimental treatments. Patients who would prefer to avoid palliative care had significantly higher mean chemotherapy scores (0.247, 95% CI = 0.047–0.450). Patient preference for life support was not significantly associated with chemotherapy scores.

ED/inpatient admission scores were higher when oncologists reported being more comfortable with medical paternalism. A two-SD difference in oncologist comfort with medical paternalism corresponded to a standardized effect of 0.33 (95% CI = 0.04–0.61).

There was no evidence that the effect of oncologist comfort with medical paternalism was influenced by patient preference. For chemotherapy, parameter estimates for the oncologist variable ranged from 0.071 to 0.073 (Table 2). For ED/inpatient admissions, parameter estimates ranged from 0.090 to 0.102.

When all three patient preference variables were entered simultaneously, the findings were substantively similar. Oncologist comfort with paternalism was significantly associated with both outcomes. Chemotherapy scores were higher when patients expressed a preference for experimental treatments and lack of preference for palliative care. Consistent with the main analyses, there were no discernible statistical interactions between patient preference variables and oncologist comfort with biomedical paternalism (Supplemental Table 1)

Discussion

There have been numerous calls for more judicious use of discretionary interventions at the EoL.^{8,44} A crucial step in intervention development is the identification of risk factors for DIALs. Conceptual models of DIALs suggest that attributes of both patients and physicians should be examined,^{36,37} and the methodological literature in health services suggests that data on both parties are needed to distinguish patient-level effects from physician-level effects.⁴⁰ To the best of our knowledge, this is the first study of DIALs to examine psychosocial attributes of both patients and physicians.

We showed that physician comfort with medical paternalism and patient preferences for experimental treatments were both independently associated with chemotherapy use at the EoL. There was no evidence of effect modification. Our findings underscore the limitations of piecemeal efforts targeting oncologists

Table 2
Multivariable Analyses Predicting DIALs in the Final Month of Life

	Chemotherapy ^a	ED/Hospital Admissions ^b
Patient prefers experimental treatments	0.238 (0.047, 0.429) (<i>P</i> = 0.015)	0.001 (−0.169, 0.170) (<i>P</i> = 0.994)
Oncologist comfort with paternalism	0.090 (0.008, 0.172) (<i>P</i> = 0.032)	0.071 (0.008, 0.134) (<i>P</i> = 0.027)
ICC	0.042	0.086
RMSE	0.596	0.501
Patient prefers life support	−0.094 (−0.418, 0.230) (<i>P</i> = 0.556)	−0.094 (−0.370, 0.182) (<i>P</i> = 0.501)
Oncologist comfort with paternalism	0.102 (0.016, 0.188) (<i>P</i> = 0.021)	0.073 (0.009, 0.136) (<i>P</i> = 0.025)
ICC	0.054	0.084
RMSE	0.607	0.500
Patient does not prefer palliative care	0.247 (0.047, 0.45) (<i>P</i> = 0.02)	0.151 (−0.048, 0.349) (<i>P</i> = 0.135)
Oncologist comfort with paternalism	0.102 (0.016, 0.187) (<i>P</i> = 0.016)	0.072 (0.009, 0.135) (<i>P</i> = 0.026)
ICC	0.051	0.094
RMSE	0.604	0.499

This table reports the results [linear regression coefficients (95% CIs), that is, adjusted mean differences] of three separate multivariable regression analyses of the effects of oncologist comfort with medical paternalism on two outcomes, chemotherapy score (≤ 14 days before death [scored 2], 15–31 days before death [scored 1], and > 31 days [scored 0]) and ED/hospital admission score (two or more admissions in the 31 days before death [scored 2], one visit [scored 1], and 0 visits [scored 0]). The top panel examined the role of patient preference for experimental treatments; the middle panel examined the role of patient preference for life support; the bottom panel examined the role of patient preference for palliative care. All analyses controlled for patient age, gender, education, and disease aggressiveness, none of which were significantly associated with study outcomes. Statistically significant values are in bold.

DIALs = discretionary interventions at the end of life; ED = emergency department; ICC = intraclass correlation; RMSE = the root mean square error (i.e., the square root of the sum of the between-physician and residual error variance components).

^aThe mean (SD) chemotherapy use score was 0.33 (0.61).

^bThe mean (SD) ED/inpatient admission score was 0.24 (0.55).

alone (as opposed to oncologists *and* patients) in efforts to modify chemotherapy use in late stages of advanced disease. Patient treatment preferences were not associated with ED/inpatient stays, but patients of oncologists who reported feeling more comfortable with paternalistic decision-making were more likely to use these costly and potentially burdensome services. Increased use of ED and inpatient services at the EoL might be a consequence of side effects from chemotherapy,⁴⁶ but we do not have sufficient power to evaluate this hypothesis definitively in these secondary analyses.

These findings have conceptual, clinical, and ethical implications. Conceptually, the health services literature has been dominated by a rationalist actor model of decision-making.^{47,48} That model has tremendous heuristic value but even its most prominent advocates have recognized its limitations. For example, five decades ago, the distinguished health economist Victor Fuchs⁴⁸ argued that physicians and their employers were psychologically motivated by a “technological imperative,” hinting that nonrational factors might influence high-stakes medical decisions. Fuchs observed that health care was one of only two economic sectors where “technologists have so much control over demand.” The other sector, he averred, was “the military in time of total war” (pg. 192). By linking health care utilization to the behavior of supply-side purveyors of technology, Fuchs presciently anticipated one of the core themes in the current literature on overtreatment and low-value care.^{38,47,49,50} More interestingly, by drawing an analogy between medicine and the military, Fuchs seemed to imply that the

prospect of annihilation could lead decision-makers to abandon, if only temporarily, widely accepted rationalist principles. The “war on cancer” has mythic and ethical dimensions in our society. Patients and physicians are expected to “fight” and “battle” with weapons provided by the pharmaceutical industry to “target” tumors. Our data show that there are individual differences in patient willingness to be drafted into this war, with implications for quality of life at the EoL. Patient motives for enlisting remain poorly understood, however.

In a Pulitzer Prize-winning book published a few years after Fuchs’s article appeared, Becker hypothesized that the fear of death is a powerful motivator of human behavior.⁵¹ This clinically compelling hypothesis^{52,53} is now supported by decades of research,⁵⁴ and there is growing evidence that death anxiety motivates patient preferences for some DIALs.⁴³ Conceptual models of DIALs might benefit from more explicit statements about the role of emotions in patients’ treatment preference and physicians’ ethical attitudes, particularly when considering matters of life and death.

Clinically, if we assume that patient treatment preferences or physician comfort with biomedical paternalism are products of more fundamental psychological constructs such as death anxiety,^{43,55,56} our findings suggest a need to pivot away from information-intensive interventions toward those that attend to emotion, values, or personality.⁵⁷ For example, patients who are more willing to endure experimental treatments may be less skeptical about medical care⁵⁸ and more easily persuaded to try something new even in the absence of any

demonstrated efficacy because they wish to “fight” the cancer. Starting with the SUPPORT study,²⁵ it has been assumed that helping patients and families understand the gravity of the prognosis by providing information could decrease DIALs by shifting preferences. However, there is growing evidence that information alone is inadequate⁵⁰; patient prognostic understanding and preferences are influenced not only by clinical information but also by deeply held beliefs.⁵⁹ One of the few interventions that was effective in reducing DIALs involved training physicians to value and acknowledge patients’ core beliefs and emotions.²⁷ By illustrating the independent contributions of patient and physician personal attributes, the present study provides further justification for the design of EoL interventions that address their beliefs and emotions while also offering the necessary infrastructure support and scaffolding of services that are so vital to EoL care.

The implications of these findings for ethical care delivery should be considered. The ethos of shared decision-making^{60,61} arguably represents a challenge to the culture of medical paternalism, and we have provided empirical data that are consistent with that view. Physician comfort with medical paternalism might contribute to potentially unwarranted variation in care. The nontrivial standardized effects of physician comfort with medical paternalism quantify variation in EoL care (chemotherapy, hospital stays) attributable to oncologists’ responses to a hypothetical patient. Wilkinson and Truog⁶² have discussed the “luck of the draw”—the idea that patients end up being assigned to particular physicians by chance. Of course, chance plays a greater role in the inpatient setting than in the outpatient oncology setting, where patients can shop for doctors. Nonetheless, even in outpatient settings, patients are often assigned to physicians based on availability and subspecialization, not patient choice. The role of chance in patient-physician assignments poses ethical dilemmas insofar that prospective patients are unaware of the presence of variability across physicians in comfort with medical paternalism and other hidden attributes that could influence patient outcomes.

Several limitations should be acknowledged. Generalizability is limited by the cohort, which was relatively small for utilization research, disproportionately white, relatively well educated, and comprising participants in New York and California who were willing to enter a clinical trial to improve communication. Findings cannot be presumed to generalize to patients with hematological cancers. The psychosocial attributes studied here, patient treatment preferences and oncologist comfort with medical paternalism, were examined at one timepoint and are related to unmeasured psychological constructs⁴³ and the social

norms of important communities in which patients and clinicians are embedded.⁴⁴ The Control Preference Scale was not designed to measure comfort with biomedical paternalism. Positive responses to the question “How comfortable would you feel if a patient requested that you make decisions using all that is known about the treatments?” might simply reflect physician self-confidence or desire to be respectful of patients’ wishes. Consequently, our claims about oncologist comfort with biomedical paternalism must be viewed with caution, even in this exploratory study. Finally, the *P* value threshold (0.05) was not corrected for multiple testing in this exploratory study.

In conclusion, in this first simultaneous study of patient and oncologist psychosocial risk factors for DIALs, physician comfort with medical paternalism and patient preference for experimental treatments were independently associated with receipt of chemotherapy at the EoL. Patients of physicians who report being very comfortable with paternalism were also more likely to use other costly services. Interventions are needed to modify trajectories of EoL health care use in a manner that countenances the inherent emotional and psychosocial complexities for all involved parties. Greater research, clinical, and policy attention to patient treatment preferences and physician comfort with medical paternalism might strengthen care delivery and improve patients’ experiences at the EoL.

Disclosures and Acknowledgments

The authors have nothing to disclose. The work reported here was supported by grants from the National Cancer Institute (R01CA168387, R01CA140419, and R35CA197730).

References

1. Hamel L, Wu B, Brodie M. Views and experiences with end-of-life medical care in the U.S. Report# 9013. Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2017.
2. Gozalo P, Teno JM, Mitchell SL, et al. End-of-life transitions among nursing home residents with cognitive issues. *N Engl J Med* 2011;365:1212–1221.
3. Teno JM, Gozalo PL, Bynum JP, et al. Change in end-of-life care for Medicare beneficiaries: site of death, place of care, and health care transitions in 2000, 2005, and 2009. *JAMA* 2013;309:470–477.
4. Daly B, Hantel A, Wroblewski K, et al. No exit: identifying avoidable terminal oncology intensive care unit hospitalizations. *J Oncol Pract* 2016;12:e901–e911.
5. Loggers ET, Maciejewski PK, Paulk E, et al. Racial differences in predictors of intensive end-of-life care in patients with advanced cancer. *J Clin Oncol* 2009;27:5559–5564.

6. Gidwani-Marszowski R, Needleman J, Mor V, et al. Quality of end-of-life care is higher in the VA compared to care paid for by traditional Medicare. *Health Aff* 2018;37:95–103.
7. Good M, Gadmer N, Ruopp P, et al. Narrative nuances on good and bad deaths: internists' tales from high-technology work places. *Soc Sci Med* 2004;58:939–953.
8. Wolf SM, Berlinger N, Jennings B. Forty years of work on end-of-life care - from patients' rights to systemic reform. *N Engl J Med* 2015;372:678–682.
9. Huynh TN, Kleerup EC, Raj PP, Wenger NS. The opportunity cost of futile treatment in the ICU. *Crit Care Med* 2014;42:1977–1982.
10. Elshaug AG, Rosenthal MB, Lavis JN, et al. Levers for addressing medical underuse and overuse: achieving high-value health care. *Lancet* 2017;390:191–202.
11. Earle CC, Landrum MB, Souza JM, Neville BA, Weeks JC, Ayanian JZ. Aggressiveness of cancer care near the end of life: is it a quality-of-care issue? *J Clin Oncol* 2008;26:3860–3866.
12. Wright AA, Keating NL, Ayanian JZ, et al. Family perspectives on aggressive cancer care near the end of life. *JAMA* 2016;315:284–292.
13. Barnato AE, Farrell MH, Chang CC, Lave JR, Roberts MS, Angus DC. Development and validation of hospital "end-of-life" treatment intensity measures. *Med Care* 2009;47:1098–1105.
14. Tinetti ME. The retreat from advanced care planning. *JAMA* 2012;307:915–916.
15. Steihauser KE, Clipp EC, McNeilly M, Christakis NA, McIntyre LM, Tulskey JA. In search of a good death: observations of patients, families, and providers. *Ann Intern Med* 2000;132:825–832.
16. Meier EA, Gallegos JV, Montross-Thomas LP, Depp CA, Irwin SA, Jeste DV. Defining a good death (successful dying): literature review and a call for research and public dialogue. *Am J Geriatr Psychiatry* 2016;24:261–271.
17. Wright AA, Zhang B, Ray A, et al. Associations between end-of-life discussions, patient mental health, medical care near death, and caregiver bereavement adjustment. *JAMA* 2008;300:1665–1673.
18. Prigerson HG, Bao Y, Shah MA, et al. Chemotherapy use, performance status, and quality of life at the end of life. *JAMA Oncol* 2015;1:778–784.
19. Piers RD, Azoulay E, Ricou B, et al. Perceptions of appropriateness of care among European and Israeli intensive care unit nurses and physicians. *JAMA* 2011;306:2694–2703.
20. Lambden JP, Chamberlin P, Kozlov E, et al. Association of perceived futile or potentially inappropriate care with burnout and thoughts of quitting among health-care providers. *Am J Hosp Pall Med* 2018. [Epub ahead of print].
21. Bailey FA, Williams BR, Woodby LL, et al. Intervention to improve care at life's end in inpatient settings: the BEACON trial. *J Gen Intern Med* 2014;29:836–843.
22. Bakitas M, Lyons KD, Hegel MT, et al. Effects of a palliative care intervention on clinical outcomes in patients with advanced cancer the PROJECT ENABLE II randomized controlled trial. *JAMA* 2009;302:741–749.
23. Temel JS, Greer JA, Muzikansky A, et al. Early palliative care for patients with metastatic non-small-cell lung cancer. *N Engl J Med* 2010;363:733–742.
24. Carson SS, Cox CE, Wallenstein S, et al. Effect of palliative care-led meetings for families of patients with chronic critical illness: a randomized clinical trial. *JAMA* 2016;316:51–62.
25. [Anonymous]. A controlled trial to improve care for seriously ill hospitalized patients. The study to understand prognoses and preferences for outcomes and risks of treatments (SUPPORT). The SUPPORT principal investigators. *JAMA* 1995;274:1591–1598.
26. Greer JA, Pirl WF, Jackson VA, et al. Effect of early palliative care on chemotherapy use and end-of-life care in patients with metastatic non-small-cell lung cancer. *J Clin Oncol* 2012;30:394–400.
27. Lautrette A, Darmon M, Megarbane B, et al. A communication strategy and brochure for relatives of patients dying in the ICU 356:469–478. *N Engl J Med*. 2007;357:203.
28. Wright AA, Mack JW, Kritek PA, et al. Influence of patients' preferences and treatment site on cancer patients' end-of-life care. *Cancer* 2010;116:4656–4663.
29. Baker LC, Bundorf MK, Kessler DP. Patients' preferences explain a small but significant share of regional variation in Medicare spending. *Health Aff (Millwood)* 2014;33:957–963.
30. Cutler D, Skinner J, Stern AD, Wennberg D. Physician beliefs and patient preferences: A new look at regional variation in health care spending. [NBER Working Paper No. 19320] 2013:1–39.
31. Phelps AC, Maciejewski PK, Nilsson M, et al. Religious coping and use of intensive life-prolonging care near death in patients with advanced cancer. *JAMA* 2009;301:1140–1147.
32. Fujisawa D, Temel JS, Traeger L, et al. Psychological factors at early stage of treatment as predictors of receiving chemotherapy at the end of life. *Psychooncology* 2015;24:1731–1737.
33. Schenker Y, Tiver GA, Hong SY, White DB. Association between physicians' beliefs and the option of comfort care for critically ill patients. *Intensive Care Med* 2012;38:1607–1615.
34. Hui D, Cerana MA, Park M, Hess K, Bruera E. Impact of oncologists' attitudes toward end-of-life care on patients' access to palliative care. *Oncologist* 2016;21:1149–1155.
35. Pirl WF, Lerner J, Traeger L, Greer JA, El-Jawahri A, Temel JS. Oncologists' dispositional affect and likelihood of end-of-life discussions. *J Clin Oncol* 2016;34:9.
36. Prigerson HG, Maciejewski PK. Dartmouth atlas: putting end-of-life care on the map but missing psychosocial detail. *J Support Oncol* 2012;10:25–28.
37. Kelley AS, Morrison RS, Wenger NS, Ettner SL, Sarkisian CA. Determinants of treatment intensity for patients with serious illness: a new conceptual framework. *J Palliat Med* 2010;13:807–813.
38. Nassery N, Segal JB, Chang E, Bridges JF. Systematic overuse of healthcare services: a conceptual model. *Appl Health Econ Health Policy* 2015;13:1–6.

39. Emanuel EJ, Fuchs VR. The perfect storm of overutilization. *JAMA* 2008;299:2789–2791.
40. Rodriguez HP, Scoggins JF, von Glahn T, Zaslavsky AM, Safran DG. Attributing sources of variation in patients' experiences of ambulatory care. *Med Care* 2009;47:835–841.
41. Epstein RM, Duberstein PR, Fenton JJ, et al. Effect of a patient-centered communication intervention on oncologist-patient communication, quality of life, and health care utilization in advanced cancer: the VOICE randomized clinical trial. *JAMA Oncol* 2017;3:92–100.
42. Downar J, Goldman R, Pinto R, Englesakis M, Adhikari NKJ. The "surprise question" for predicting death in seriously ill patients: a systematic review and meta-analysis. *CMAJ* 2017;189:484–493.
43. Carmel S, Mutran E. Wishes regarding the use of life-sustaining treatments among elderly persons in Israel: an explanatory model. *Soc Sci Med* 1997;45:1715–1727.
44. Barnato AE. Challenges in understanding and respecting patients' preferences. *Health Aff* 2017;36:1252–1257.
45. Degner LF, Sloan JA, Venkatesh P. The control preferences scale. *Can J Nurs Res* 1997;29:21–43.
46. Liu TW, Chen JS, Wang HM, Wu SC, Hung YN, Tang ST. Quality of end-of-life care between medical oncologists and other physician specialists for Taiwanese cancer decedents, 2001-2006. *Oncologist* 2009;14:1232–1241.
47. Fisher E, Welch H. Avoiding the unintended consequences of growth in medical care - how might more be worse? *JAMA* 1999;281:446–453.
48. Fuchs VR. The growing demand for medical care. *N Engl J Med* 1968;279:190–195.
49. Relman AS. The impact of market forces on the physician-patient relationship. *J R Soc Med* 1994;87(Suppl 22):22–24; discussion 24-5.
50. Schlesinger M, Grob R. Treating, fast and slow: Americans' understanding of and responses to low-value care. *Milbank Q* 2017;95:70–116.
51. Becker E. The denial of death. New York: Free Press, 1973.
52. Meier D, Back A, Morrison R. The inner life of physicians and care of the seriously ill. *JAMA* 2001;286:3007–3014.
53. Solomon S, Lawlor K. Death anxiety: the challenge and the promise of whole person care. In: Hutchinson TA, ed. *Whole person care: A new paradigm for the 21st century*. Springer Science+Business Media, LLC, 2011:97–107.
54. Burke BL, Martens A, Faucher EH. Two decades of terror management theory: a meta-analysis of mortality salience research. *Personal Social Psychol Rev* 2010;14:155–195.
55. Schulz R, Aderman D. Physicians death anxiety and patient outcomes. *Omega J Death Dying* 1979;9:327–332.
56. Rodenbach RA, Rodenbach KE, Tejani MA, Epstein RM. Relationships between personal attitudes about death and communication with terminally ill patients: how oncology clinicians grapple with mortality. *Patient Educ Couns* 2016;99:356–363.
57. Duberstein P, Meldrum S, Fiscella K, Shields CG, Epstein RM. Influences on patients' ratings of physicians: physicians' demographics and personality. *Patient Educ Couns* 2007;65:270–274.
58. Fiscella K, Franks P, Clancy CM. Skepticism toward medical care and health care utilization. *Med Care* 1998;36:180–189.
59. Duberstein PR, Chen M, Chapman BP, et al. Fatalism and educational disparities in beliefs about the curability of advanced cancer. *Patient Educ Couns* 2018;101:113–118.
60. Wirtz V, Cribb A, Barber N. Patient-doctor decision-making about treatment within the consultation—a critical analysis of models. *Soc Sci Med* 2006;62:116–124.
61. Entwistle VA, Watt IS. Treating patients as persons: a capabilities approach to support delivery of person-centered care. *Am J Bioeth* 2013;13:29–39.
62. Wilkinson DJ, Truog RD. The luck of the draw: physician-related variability in end-of-life decision-making in intensive care. *Intensive Care Med* 2013;39:1128–1132.

Appendix

Supplemental Table 1
Multivariable Analyses Predicting DIALs in the Final Month of Life

	Chemotherapy ^a	P-value	ED/Hospital Admissions ^b	P-value
Patient prefers experimental treatments	0.295 (0.081, 0.508)	0.007	0.027 (−0.157, 0.21)	0.772
Patient prefers life support	−0.174 (−0.52, 0.173)	0.323	−0.101 (−0.387, 0.185)	0.483
Patient does not prefer palliative care	0.342 (0.108, 0.575)	0.005	0.158 (−0.045, 0.362)	0.126
Oncologist comfort with paternalism	0.094 (0.019, 0.170)	0.014^c	0.073 (0.009, 0.136)	0.026^d
ICC	0.012		0.087	
RMSE	0.589		0.502	

This table reports the results [linear regression coefficients (95% CIs), that is, adjusted mean differences] of multivariable regression analyses of the effects of patient treatment preferences and oncologist comfort with medical paternalism on the chemotherapy score (≤ 14 days before death [scored 2], 15–31 days before death [scored 1], and > 31 days [scored 0]) and the ED/hospital admission score (two or more admissions in the final 31 days [scored 2], one visit [scored 1], and 0 visits [scored 0]). All analyses controlled for patient age, gender, education, and disease aggressiveness, none of which were significantly associated with study outcomes. Statistically significant values are in bold.

DIALs = discretionary interventions at the end of life; ED = emergency department; ICC = intraclass correlation; RMSE = the root mean square error (i.e., the square root of the sum of the between-physician and residual error variance components).

^aThe mean (SD) chemotherapy use score was 0.33 (0.61).

^bThe mean (SD) ED/inpatient admission score was 0.24 (0.55).

^cA two-SD difference in oncologist paternalism corresponded to standardized effects of 0.37 (95% CI = 0.08–0.66) for this outcome.

^dA two-SD difference in oncologist paternalism corresponded to standardized effects of 0.33 (95% CI = 0.04–0.62) for this outcome.