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Race and Ethnicity and Satisfaction with Communication in the Intensive Care Unit

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Introduction

High quality communication between health care providers and families is essential to providing proper end-of-life (EOL) care.¹ Compared with Whites, minority patients receive more intensive care and are less likely to use hospice at EOL,^{2–6} and their family members are more likely to report poor quality EOL care.^{7–9} Receipt of intensive care rather than comfort care and poor communication with clinicians are associated with decisional regret among bereaved minority family members.¹⁰

Despite the link between high quality communication and quality EOL care, few studies exist that have investigated whether disparities in communication are responsible for the known racial and ethnic disparities in EOL care. In a previous study, we have shown that clinicians are less than half as likely to have an EOL care discussion with black patients with serious illness compared with whites.¹¹ When these discussions occur, prognostic information is given less often to black patients.¹² This is problematic because discussions including information on expected length of life have been shown to be critical to facilitating hospice enrollment.¹³ Overall, communication has been shown to be less effective in ensuring goal-concordant care for Black patients compared with Whites.¹⁴

Although these disparities in *quantity* of components of communication have been shown, studies of *quality* of communication have been more equivocal. In primary care, physicians have been found to display less patient-centeredness and more verbal dominance when communicating with Black patients.¹⁵ In the acute care setting, one simulation study found that physician non-verbal communication differed when the race of the simulated patient was randomly varied.¹⁶ However, other studies failed to show a clear disparity in patient reported quality of communication.^{17,18} In fact, Coats, *et al.* showed increased satisfaction with communication among racial and ethnic minorities and those of lower socioeconomic

status in a study of enhanced communication in serious illness in the outpatient setting.¹⁸ Measures of satisfaction with communication for seriously ill patients in the acute care setting, particularly in the ICU, have not been compared by race or ethnicity. The objective of this study was to evaluate differences in satisfaction with communication in the ICU between caregivers of different racial and ethnic groups. We hypothesized that White caregivers would report higher satisfaction compared with other racial and ethnic groups.

Methods

This study protocol was approved by the Albert Einstein College of Medicine/Montefiore Medical Center IRB (protocol #2017–8220).

Setting

This study took place in 3 ICUs of two hospitals of a major academic medical center. Together these hospitals provide just over 1,000 beds to a diverse population of patients in the Bronx, and >55,000 annual admissions. The ICUs range in size from 10–22 beds. The patient population of these hospitals includes >30% Black, >40% Hispanic and approximately 20% White patients.¹¹

Patient Identification and Subject Recruitment

Patients were screened for inclusion criteria first by using the electronic medical record (EMR) to identify new patients and then by confirming with nursing and house staff that the patient had friends or relatives who communicated with the ICU team about the patient's care. Inclusion criteria were: (1) patient expected to remain in the ICU for at least 2 days, (2) patient could not participate in their own medical decision-making for a period time, and (3) patient had at least one family member or close friend who interacted with the ICU staff. Patients were excluded if they were admitted to the ICU after elective surgery. Once patients were identified, family members were approached during visiting hours in the ICU. No more than two friends or family members were surveyed per patient, and health care proxies and first-degree relatives were prioritized with the assistance of the nursing and house staff, who identified which caregivers were most involved in communicating about the patient's care. Friends of the patient were only included if they were actively involved in medical decision-making and no close relatives were available. Oral informed consent was obtained from subjects by the researchers at the time of survey administration. Subjects were excluded if they were less than 18 years of age, did not consent to participate, or could not communicate in English.

Survey Tools

The FS-ICU is a validated instrument that was designed for measurement of family satisfaction with care and communication in the ICU. The FS-ICU includes questions about symptom management, coordination of care, concern and caring of staff, emotional support, skill and competence of clinicians and communication items that assess frequency, completeness and comprehension of communication. The Quality of Communication Questionnaire is a validated tool that has two subscales; general communication and end-of-life communication. The Quality of Communication Questionnaire includes items assessing

clinician communication behaviors such as “using words you can understand” and “looking you in the eye.” It also contains specific items assessing communication about EOL issues such as “talking to you about how long you [or your loved one] might have to live” and “talking to you about what dying might be like.” Both questionnaires have been validated for use in evaluating family satisfaction with care and health care provider communication in the acute care setting and ICU.^{19,20} The survey tool consisted of both the complete Quality of Communication Questionnaire (19 questions) and the complete FS-ICU 24-item tool, excluding the additional 3 questions for bereaved family members (24 questions included). Additionally, survey respondents were asked to provide their age, gender, race, ethnicity, highest level of education, and relationship to patient. The complete instrument is available in the Appendix

Survey Administration

The survey tool was administered in person to qualifying subjects with the exception of 3 surveys administered by phone due to inability of the participant to travel to the hospital. Research team members administering surveys were not part of the clinical team caring for the patient. Between July 15 2018 and November 4, 2018, 454 patients were screened for eligibility and exclusion criteria. Patients’ caregivers were approached by research assistants in the ICU when the patient met eligibility criteria. If the caregiver was not physically present, the research assistant reached out to them by phone and arranged a time to conduct the interview in person. After obtaining consent, participants were given an iPad to complete the survey. The research assistant was available to assist participants with limited literacy.

Patient Characteristics

The patient’s EMR was used to record the patient’s demographic information and clinical characteristics, including age, gender, race, ethnicity, comorbid conditions, ICU length of stay prior to study entry, receipt of palliative care services, and code status.

Statistical analysis

Data analysis was conducted primarily using statistical software (*Stata Statistical Software/SE*: Release 15.1, 2017; StataCorp LP, College Station, TX). Kruskal-Wallis Tests were used to evaluate for univariable associations between race and ethnicity and FS-ICU score. A multivariable linear regression model was developed to test the association between race and ethnicity and FS-ICU score while controlling for clinical and demographic confounding variables. Variables were chosen for inclusion that would be expected to be related to respondent ratings of quality of communication. These included age and gender of both the patient and respondent, relationship of the respondent to the patient, insurance status, indicators of severity of illness such as Charlson Comorbidity Index, Sequential Organ Failure Assessment Score and hospital mortality, and indicators of EOL treatment preferences such as Do Not Resuscitate orders. Palliative care consultation was also included as an indicator of treatment preferences and because communication by the palliative care team may influence overall ratings of communication. We estimated that 36 respondents would be needed in each race/ethnicity group to obtain 80% power to detect a clinically meaningful 10-point difference in total FS-ICU score at the $\alpha=0.05$ level of significance.

Results

Of 194 eligible patients, the researchers were able to reach a caregiver for 118 patients, 22 of whom declined to give consent for the survey (response rate 49.5%). Four patients had two participating family members each for a total of 100 completed surveys (see Figure). Given the low response rate to questions from the QOC, the study was stopped after 100 surveys were completed.

Patient Characteristics and Clinical Outcomes

The mean age of patients included in the study was 63.8, and slightly more than half were male (53%). According to race and ethnicity recorded in the EMR, 19% of the patients were White, non-Hispanic, 34% Black, non-Hispanic, 31% Hispanic and 16% were listed as unknown or other race/ethnicity. (Table 1). The patient population had a high level of morbidity, with a mean Charlson Comorbidity Index of 4.7, and a high level of mortality, with 41.7% of patients deceased on discharge (Table 1). Forty-five patients had a code status change from full code to either DNR/DNI, DNI without DNR, or DNR without DNI during their admission. Of the patients that did have a code status change, the majority (82%) had their code status changed after survey administration (Supplemental Figure). Similarly, 50 patients had a palliative care consult placed. Of the patients that did have a palliative care consult, the majority (74%) had their consult placed after survey administration (Supplemental Figure).

Respondent Baseline Characteristics

The mean age of caregivers who completed the survey was 52.5, and the majority were female (70%) (Table 1). The majority of respondents (63%) lived in the vicinity of the city in which the hospital is located, and 44% lived with the patient prior to admission. Almost all (88%) identified as the primary medical decision-maker for the patient and 66% reported previous experience with a loved one in the ICU. The level of education was collected for a smaller subset of respondents (N=63). Nearly equal proportions of respondents had a high school diploma or lesser level education (47.5%) versus college degree or high level of education (52.5%). Race and ethnicity of the respondent was collected in this same subset of patients and was found to agree with race and ethnicity of the patient most of the time (Supplemental Table). The mean time from admission to ICU to survey administration was 7.8 days (Supplemental Figure).

Impact of Race and Ethnicity on FS-ICU Score

The mean FS-ICU Score was similar regardless of race and ethnicity of the patient, with all groups having high scores, indicating an overall high level of satisfaction with communication. Mean FS-ICU Score was 84.2 (SD 20.5) for white non-Hispanic patients, 83.3 (SD 16.2) for black non-Hispanic patients, 82.7 (SD 17.8) for Hispanic or Latino patients, and 80.9 (SD 18.8) for patients that belonged to either another racial/ethnic group or who their race and ethnicity was not known ($p=0.92$). No significant differences were found between the groups for the decision-making (FS-DM) [$p=0.78$] or care (FS-Care) [$p=0.90$] subscales (Table 2). Correspondingly, no significant differences were found in mean FS-ICU score regardless of the race and ethnicity of the survey respondent [$p=0.86$].

No difference in FS-ICU total score was found using a multivariable linear regression model to control for patient and respondent characteristics (Table 3). Because there was more than one family respondent for several patients, a sensitivity analysis was conducted using a mixed effects model to evaluate a random intercept effect of respondent nested within patient. The results were not significantly different from the linear regression model (data not shown).

Quality of EOL Communication versus Overall Satisfaction with Communication

Many of the survey respondents were unable to answer questions on the QOC survey around end of life communications. The majority of survey respondents answered “don’t know” or “didn’t do” when asked to rate the ICU doctors on “talking to you about how long the patient/your family member might have to live” (non-response 73.2% overall, 87.5% white, 75.8% black, 66.7% Hispanic, 66.7% other or unknown) ($p=0.12$ for differences between groups), “asking about your spiritual and religious beliefs” (non-response 76.3% overall, 87.5% white, 75.8% black, 70.0% Hispanic, 80.0% other or unknown) ($p=0.47$ for differences between groups), and “how comfortable do you feel your doctor is talking about dying?” (non-response 63.5% overall, 81.3% white, 57.6% black, 60.6% Hispanic, 64.2% other or unknown) ($p=0.42$ for differences between groups). Because of the high rate of non-response to these key questions, the QOC was not scored or analyzed.

Discussion

This study did not support the hypothesis that racial and ethnic minority caregivers would report poorer quality of communication in the ICU. Race and ethnicity were not found to influence overall satisfaction with communication. The racial and ethnic backgrounds of this studies’ population are highly diverse and the majority of the patients served by the hospital come from lower socioeconomic backgrounds. Other characteristics of the patients did not influence FS-ICU score. In this diverse setting, family members and friends of ICU patients reported high satisfaction with communication overall. While this reflects positively on the quality of care provided at our institution, this study does not rule out differential communication as an important driver of disparities in EOL care.

While overall satisfaction with communication was high, significant gaps in the content of communication were identified. Despite a high in-patient mortality rate and high comorbidity, most family members and friends could not answer questions about doctors’ communication about death and dying in the QOC. Reflecting this, few respondents felt that they could estimate how comfortable the ICU physicians were in discussing death, raising the possibility that discussions regarding the potential death of the patient did not often occur or were not recalled. Guidelines recommend conducting a family conference and giving prognostic information including probability of survival within 72 hours of ICU admission.²¹ Our respondents were interviewed an average of almost 8 days after ICU admission, by which point such a conference should have occurred. Interventions that are common after EOL care discussions, namely code status changes and palliative care consultation, only occurred after a significant amount of time had elapsed since ICU admission. Taken together, these findings may indicate that physicians prioritize discussing

treatments and interventions that must be decided on at beginning of ICU admission in order to direct care, but are reluctant to have broader discussions regarding EOL care.

Our findings are similar to those from more than a decade ago,²² and suggest that although there has been increasing attention to goals of care communication, there is significant room for improvement. The American Thoracic Society (ATS) guidelines recommend that goals of care be broached early in the course of serious illness.²³ Additionally, it is our medical center's policy that family meetings including goals of care discussion should occur within the first several days of admission to the ICU. An adequate understanding of values and goals cannot be obtained without a frank discussion of the risk of death. Surrogates report wanting prognostic information and have advised that the possibility of death should be broached early on in the course of critical illness.²⁴

The lack of difference in satisfaction by race and ethnicity may reflect ceiling effects given the uniformly high ratings. In addition these ratings of quality of communication may be influenced by inappropriately optimistic information given by the ICU clinicians. Therefore, this study does not address the question of whether quality of communication influences disparities in EOL care, since quality of communication around EOL care specifically was not captured.

Few respondents reported being asked about their spiritual and religious beliefs, which often play a significant role in how individuals process dying and illness in loved ones, and is emphasized in ATS guidelines.²³ Again, this may reflect the physicians' focus on interventions that are necessary to direct care, and less focus on communication regarding EOL. Alternatively, it is also possible that physicians are delaying communication of prognostic information until later in the ICU admission or hospitalization, as suggested by the high percentage of patients receiving palliative care services at some point in their hospital course.

Non-response to ratings of prognostic communication, communication about spiritual beliefs and communication about death were more common for non-Hispanic white patients. This is opposite from patterns of prognostic information-sharing seen in other studies.¹² However, non-response on physician rating of communication is an imprecise measure of actual communication. Further research would be needed to confirm this finding.

Limitations

The main limitation of this study is that it is a cross-sectional single-center observational study and results may not be generalizable to other populations. Importantly, this survey methodology relies on caregiver report rather than direct observation and measurement of quality of communication. Recall bias and social desirability bias cannot be entirely ruled out.

Response bias may have contributed to the overall high ratings of communication if less satisfied family members were less likely to participate. However, less than 20% of those contacted declined to participate, limiting the effect of this bias. The high non-response to items on the QOC could have been influenced by the selection of respondents because

family members other than the respondent may have had these conversations with clinicians. This problem was addressed in three ways. First, nursing and house staff were consulted to identify caregivers involved in communication. Second, health care proxies and first-degree relatives were prioritized as evidenced in Table 1. Third, 88% of respondents self-identified as the primary decision-maker for the patient. Taken together, this suggests that the respondents were the primary communicators with the ICU team.

Due to the FS-ICU and Quality of Communication questionnaires only being validated in English, non-English speaking family members of patients were excluded, which may have had a significant impact on our results. Another significant limitation is the more limited sample size for the level of education of the survey respondents, prohibiting adjusting for this variable in analysis. Given that health literacy may effect communication, this is an important area of future research. The majority of respondents were interviewed for survey after being approached in the ICU. It is possible that family members who had most of their contact with physicians over the phone due inability to come to the ICU were missed in our sample population, and this again may have biased our results, given that the study team was unable to reach a participant for 76 eligible patients. The study was slightly underpowered to detect a 10-point difference between groups in the primary outcome. However, given the negligible absolute differences in the FS-ICU score across racial and ethnic groups, it is unlikely that recruiting further subjects would have resulted in statistically or clinically significant differences.

Strengths

Despite these limitations, this study has important strengths. We used tools that have been previously validated in populations similar to the current study population. This study builds on previous work by sampling a diverse population with high numbers of racial and ethnic minority participants.^{19,20} Social desirability bias was minimized by using research assistants who were not part of the ICU care team, and recall bias was minimized by interviewing caregivers during the ICU stay. Future directions include further research into the effect of education and age on satisfaction with communication, as well as interventions aimed towards improving physician comfort with discussing EOL care.

Conclusion

While quality of communication appears high in the critical care setting, improvements in delivery and timing of EOL communication are warranted. Further research is required to determine the relationship between EOL communication and disparities in quality of EOL care.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

1. Bernacki RE, Block SD. Communication about serious illness care goals: a review and synthesis of best practices. *JAMA Intern Med.* Dec 2014;174(12):1994–2003.

2. Du XL, Parikh RC, Lairson DR. Racial and geographic disparities in the patterns of care and costs at the end of life for patients with lung cancer in 2007–2010 after the 2006 introduction of bevacizumab. *Lung cancer (Amsterdam, Netherlands)*. 12 2015;90(3):442–450.
3. Abdollah F, Sammon JD, Majumder K, et al. Racial Disparities in End-of-Life Care Among Patients With Prostate Cancer: A Population-Based Study. *Journal of the National Comprehensive Cancer Network : JNCCN*. 9 2015;13(9):1131–1138. [PubMed: 26358797]
4. Nayar P, Qiu F, Watanabe-Galloway S, et al. Disparities in end of life care for elderly lung cancer patients. *J Community Health*. 10 2014;39(5):1012–1019. [PubMed: 24643730]
5. Connor SR, Elwert F, Spence C, Christakis NA. Racial disparity in hospice use in the United States in 2002. *Palliat Med*. 4 2008;22(3):205–213. [PubMed: 18477714]
6. Connor S, Elwert F, Spence C, Christakis N. Racial disparity in hospice use in the United States in 2002. *Palliative Medicine*. 2008;22:205–213. [PubMed: 18477714]
7. Lee JJ, Long AC, Curtis JR, Engelberg RA. The Influence of Race/Ethnicity and Education on Family Ratings of the Quality of Dying in the ICU. *J Pain Symptom Manage*. 1 2016;51(1):9–16. [PubMed: 26384556]
8. Johnson KS. Racial and Ethnic Disparities in Palliative Care. *Journal of Palliative Medicine*. 2013;16(11):1329–1334. [PubMed: 24073685]
9. Welch LC, Teno JM, Mor V. End-of-Life Care in Black and White: Race Matters for Medical Care of Dying Patients and their Families. *Journal of the American Geriatrics Society*. 2005;53:1145–1153. [PubMed: 16108932]
10. Smith-Howell ER, Hickman SE, Meghani SH, Perkins SM, Rawl SM. End-of-Life Decision Making and Communication of Bereaved Family Members of African Americans with Serious Illness. *Journal of Palliative Medicine*. 2016/02/01 2016;19(2):174–182. [PubMed: 26840853]
11. Chuang E, Hope AA, Allyn K, Szalkiewicz E, Gary B, Gong MN. Gaps in Provision of Primary and Specialty Palliative Care in the Acute Care Setting by Race and Ethnicity. *J Pain Symptom Manage*. 11 2017;54(5):645–653.e641. [PubMed: 28760524]
12. Ingersoll LT, Alexander SC, Priest J, et al. Racial/ethnic differences in prognosis communication during initial inpatient palliative care consultations among people with advanced cancer. *Patient Educ Couns*. 1 2 2019.
13. Gramling R, Ingersoll LT, Anderson W, et al. End-of-Life Preferences, Length-of-Life Conversations, and Hospice Enrollment in Palliative Care: A Direct Observation Cohort Study among People with Advanced Cancer. *J Palliat Med*. 2 2019;22(2):152–156. [PubMed: 30526222]
14. Mack JW, Weeks JC, Wright AA, Block SD, Prigerson HG. End-of-life discussions, goal attainment, and distress at the end of life: predictors and outcomes of receipt of care consistent with preferences. *Journal of Clinical Oncology*. 2010;28(7):1203–1208. [PubMed: 20124172]
15. Johnson RL, Roter D, Powe NR, Cooper LA. Patient race/ethnicity and quality of patient-physician communication during medical visits. *Am J Public Health*. 12 2004;94(12):2084–2090. [PubMed: 15569958]
16. Elliott AM, Alexander SC, Mescher CA, Mohan D, Barnato AE. Differences in Physicians' Verbal and Nonverbal Communication With Black and White Patients at the End of Life. *J Pain Symptom Manage*. 1 2016;51(1):1–8. [PubMed: 26297851]
17. Long AC, Engelberg RA, Downey L, et al. Race, income, and education: associations with patient and family ratings of end-of-life care and communication provided by physicians-in-training. *J Palliat Med*. 4 2014;17(4):435–447. [PubMed: 24592958]
18. Coats H, Downey L, Sharma RK, Curtis JR, Engelberg RA. Quality of Communication and Trust in Patients With Serious Illness: An Exploratory Study of the Relationships of Race/Ethnicity, Socioeconomic Status, and Religiosity. *J Pain Symptom Manage*. 10 2018;56(4):530–540.e536. [PubMed: 30025937]
19. Wall RJ, Engelberg RA, Downey L, Heyland DK, Curtis JR. Refinement, scoring, and validation of the Family Satisfaction in the Intensive Care Unit (FS-ICU) survey. *Crit Care Med*. 1 2007;35(1):271–279. [PubMed: 17133189]
20. Engelberg R, Downey L, Curtis JR. Psychometric Characteristics of a Quality of Communication Questionnaire Assessing Communication about End-of-Life Care. *Journal of Palliative Medicine*. 2006/10/01 2006;9(5):1086–1098. [PubMed: 17040146]

21. Curtis JR, White DB. Practical guidance for evidence-based ICU family conferences. *Chest*. 10 2008;134(4):835–843. [PubMed: 18842916]
22. LeClaire MM, Oakes JM, Weinert CR. Communication of prognostic information for critically ill patients. *Chest*. 9 2005;128(3):1728–1735. [PubMed: 16162781]
23. Lanken PN, Terry PB, Delisser HM, et al. An official American Thoracic Society clinical policy statement: palliative care for patients with respiratory diseases and critical illnesses. *Am J Respir Crit Care Med*. 4 15 2008;177(8):912–927. [PubMed: 18390964]
24. Anderson WG, Cimino JW, Ernecoff NC, et al. A multicenter study of key stakeholders' perspectives on communicating with surrogates about prognosis in intensive care units. *Annals of the American Thoracic Society*. 2 2015;12(2):142–152. [PubMed: 25521191]

Figure:
Participant flow diagram *At the time of assessment

Table 1.**Patient and Respondent Characteristics**

Patient Characteristics	N=96
Gender, Male (%)	53 (%)
Age, years (mean, SD)	63.8 (14.3)
Race, Ethnicity (%)	
<i>White, Non-Hispanic</i>	18 (18.8)
<i>Black, Non-Hispanic</i>	33 (34.4)
<i>Hispanic or Latino</i>	30 (31.3)
<i>Unknown or Other</i>	15 (15.6)
Insurance (%)	
<i>Medicare</i>	38 (39.6)
<i>Medicaid</i>	19 (19.8)
<i>Private</i>	18 (18.8)
<i>Dual Medicare & Medicaid</i>	21 (21.9)
Charlson Comorbidity Index (mean, SD)	4.7 (3.0)
Died during admission (%)	40 (41.7)
Respondent Characteristics	N=100
Gender, Male (%)	30 (30)
Age (mean, SD)	52.5 (13.6)
Relationship to Patient (%)	
<i>Child</i>	39 (39)
<i>Spouse</i>	23 (23)
<i>Sibling</i>	20 (20)
<i>Parent</i>	7 (7)
<i>Other Relative or Friend</i>	11 (11)

Table 2.

Mean FS-ICU scores by race and ethnicity (n=100)

	White, Non-Hispanic	Black, Non-Hispanic	Hispanic or Latino	Unknown or Other	P-value
FS-Total mean (SD)	84.2 (20.5)	83.3 (16.2)	82.7 (17.8)	80.9 (18.8)	0.92
FS-DM mean (SD)	85.8 (22.9)	85.2 (15.5)	83.6 (19.0)	81.5 (22.1)	0.78
FS-Care mean (SD)	83.6 (19.3)	81.7 (18.5)	82.0 (18.0)	80.4 (17.3)	0.90

Table 3.

Linear regression model of FS-ICU total score while controlling for patient and respondent variables

FS-ICU	Coefficient	Standard Error	P-value	95% Confidence Interval
White, Non-Hispanic	ref	ref	ref	ref
Black, Non-Hispanic	1.29	5.75	0.82	−10.17, 12.7
Hispanic or Latino	1.55	5.84	0.79	−10.07 – 13.17
Unknown or Other	0.77	7.20	0.92	−13.57 – 15.11
Age of patient	0.18	0.24	0.44	−0.29 – 0.66
Gender of respondent	−6.90	4.23	0.11	−15.33 – 1.53
Gender of patient	−0.41	4.41	0.93	−9.19 – 8.37
Relationship to patient				
Sibling	−3.33	6.15	0.59	−15.58 – 8.93
Child	−12.71	5.56	0.03	−23.79 – −1.64
Parent	4.22	8.75	0.63	−13.21 – 21.65
Other Relative	−9.21	7.02	0.19	−23.18 – 4.77
Friend	14.7	20.08	0.47	−25.27 – 54.67
Insurance				
Medicaid	4.99	6.48	0.44	−7.91 – 17.90
Private	−7.24	6.78	0.29	−20.75 – 6.26
Dual Eligible	−0.98	5.13	0.85	−11.19 – 9.22
Prior DNR *	7.51	8.54	0.38	−9.50 – 24.51
Subsequent DNR *	−2.84	7.47	0.70	−17.71 – 12.02
Prior Palliative Consult	−0.05	6.61	0.99	−13.22 – 13.12
Subsequent Palliative Consult	1.90	5.42	0.73	−8.90 – 12.69
CCI **	−0.20	0.79	0.80	−1.77 – 1.38
SOFA score ***	0.74	0.53	0.17	−0.32 – 18.0
Died during admission	−0.30	5.65	0.96	−11.54 – 10.95

* DNR = Do Not Resuscitate order prior to interview or subsequent to interview.

** CCI = Charlson Comorbidity Index score.

*** SOFA score = Sequential Organ Failure Assessment score.