Pilot of the Life-Sustaining Treatment Decisions Initiative Among Veterans With Serious Illness

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Abstract

Background: Prior to national spread, the Department of Veterans Affairs implemented a pilot of the life-sustaining treatment decisions initiative (LSTDI) to promote proactive goals of care conversations (GoCC) with seriously ill patients, including policy and practice standards, an electronic documentation template and order set, and implementation support. **Aim:** To describe a 2-year pilot of the LSTDI at 4 demonstration sites. **Design:** Prospective observational study. **Setting/Participants:** A total of 6664 patients who had at least one GoCC. **Results:** Descriptive statistics characterized patient demographics, goals of care, LST decisions, and risk of hospitalization or mortality among patients with at least one GoCC. Participants were on average 71.4 years old, 93.2% male, 87.1% white, and 64.7% urban; 27.3% died by the end of the pilot period. Fifteen percent lacked decision-making capacity (DMC). Nonmutually exclusive goals included to be cured (7.6%), to prolong life (34%), to improve/maintain quality of life (61.5%), to be comfortable (53%), to obtain support for family/caregiver (8.4%), to achieve life goals (2.1%), and other (10.5%). Many GoCCs resulted in a do not resuscitate (DNR) order (58.8%). Patients without DMC were more likely to have comfort-oriented goals (77.3% vs 48.8%) and a DNR (84% vs 52.6%). Chart abstraction supported content validity of GoCC documentation. **Conclusion:** The pilot demonstrated that standardizing practices for eliciting and documenting GoCCs resulted in customized documentation of goals of care and LST decisions of a large number of seriously ill patients and established the feasibility of spreading standardized practices throughout a large integrated health care system.

Keywords

life-sustaining treatment decisions, goals of care conversations, decision-making capacity, serious illness

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Background

Advance care planning (ACP) is essential to high quality care for seriously ill patients.[1-3] Advance care planning includes processes to foster communication regarding patients' values, goals, and preferences for future care.[4-6] Advance directives (ADs), including living wills and durable powers of attorney for health care, are the most common forms of ACP and are used to document preferences for future care after loss of decision-making capacity (DMC). Ideally, ACP should occur before a crisis that requires emergent decisions[5] regarding life-sustaining treatments (LSTs).[7]

Earlier ACP is associated with less burdensome medical care at the end of life, earlier hospice referral, and better care-giver bereavement adjustment.[8-10] However, despite evidence that ACP improves outcomes, many patients do not complete ADs. Even when ADs are completed, they are often too vague to guide decisions about use of LSTs in specific clinical circumstances. In addition, the time pressures, immediate needs, and medical focus of visits often frustrate efforts to prioritize discussions about goals for care.[4,11]

In order to address known barriers to ACP in clinical practice and to foster goal aligned care among Veterans with serious, life-limiting illness,[12] the Department of Veterans Affairs (VA) Veterans Health Administration (VHA) National Center for Ethics in Health Care (NCEHC) implemented the Life-Sustaining Treatment Decisions Initiative (LSTDI).[13] Life-Sustaining Treatment Decisions Initiative uses a coordinated set of strategies[14] to foster proactive conversations about goals, values, and preferences for LSTs and document them in a standardized progress note template and order set in the electronic health record (see Figure 1).

The VA NCEHC initiated a multiyear demonstration project in 2014 to establish proof of concept and to inform and improve development of materials and approaches before national LSTDI rollout in 2017.[14] Department of Veterans Affairs' intervention components reflect the best extant evidence to support goals of care communication.[4,15,16] Intervention elements of the LSTDI, informed by and improved through experiences during the demonstration project, included:

1. Clear, enterprise-wide practice standards for conducting, documenting, and supporting high quality conversations about goals of care and LST decisions.
2. Standardized electronic record tools for documenting goals of care conversations (GoCC) and LST decisions, including durable LST orders.
3. Staff training and materials to enhance proficiency in conducting, documenting, and supporting GoCC.
4. Implementation support to assist local site champions in leading local process changes.
5. Application of predictive analytic tools to help clinicians identify high-risk patients who would benefit from a proactive GoCC.

We describe the early experience with the VA's LSTDI initiative to improve serious illness communications at the 4 geographically and operationally diverse demonstration sties.

Method

Ethics Statement

The Stanford/VA Palo Alto Institutional Review Board (IRB) exempted this work from IRB review as quality improvement.

Setting

Four VA health care systems participated in the LSTDI demonstration project between December 31, 2013, and December 31, 2016: Captain James A. Lovell Federal Health Care Center, North Chicago, Illinois; VA Black Hills Health System, Fort Meade and Hot Springs, South Dakota; William S. Middleton Memorial Veterans Hospital, Madison, Wisconsin; and VA Salt Lake Health Care System, Salt Lake City, Utah. These sites were selected based on their commitment to test and implement all aspects of the LSTDI, and facility characteristics required by the VHA Informatics Council for testing national electronic health record templates (at least one site with over 150 000 enrolled patients, at least one site with an integrated health record database across 2 facilities). All sites provide inpatient, outpatient, and home care services, and have outpatient primary care clinics at locations separate from the primary medical center(s). Three sites have on-site long-term care facilities and hospice beds.

Intervention

Tools and processes implemented during the demonstration project included policy and practice standards, an electronic health record note template and order set, clinician training materials, and implementation support. Sites agreed to implement a draft version of VHA Handbook 1004.03, LST Decisions: Eliciting, Documenting, and Honoring Veterans' Values, Goals, and Preferences.[13] The policy establishes practice standards to make GoCC routine and the documentation of goals of care and LST decisions easily accessible for every Veteran with a serious illness.

The LST progress note template encodes clinical data elements in VA's Corporate Data Warehouse (CDW), a database of all VA sites. This LST note captures a set of health factors and binary indicators are then generated for each of the LST health factors; this allows for derivation of categorical variables to indicate whether information associated with each specific health factor had been documented or not during an encounter. The template fields include decision-making capacity, goals of care, resuscitation preferences, and consent for the LST plan are listed as mandatory for LST completion.

The VA NCEHC furnished assistance and resources including a multidisciplinary, monthly implementation calls with each facility's LSTDI Advisory Board, provider tools (eg, educational modules, worksheets, and pocket cards), a durable

LIFE-SUSTAINING TREATMENT

*1. Does the patient have capacity to make decisions about life-sustaining treatment?
☐ HELP ME understand decision-making capacity.

*1. Decision-Making Capacity
○ The patient has capacity to make decisions about life-sustaining treatments.
○ The patient lacks capacity to make decisions about life-sustaining treatments and has a surrogate.
○ The patient lacks capacity to make decisions about life-sustaining treatments and has no surrogate.

2. Who is the person authorized under VA policy to make decisions for the patient if/when the patient loses decision-making capacity?
☐ HELP ME identify the authorized surrogate.

○ Authorized surrogate if/when the patient loses decision-making capacity:
○ The patient has no surrogate authorized to make health care decisions if/when the patient loses decision-making capacity.

3. Have you reviewed available documents that reflect the patient's wishes regarding life-sustaining treatments? Example: advance directives, state-authorized portable orders (e.g., POLST, MOST), Life-Sustaining Treatment notes/orders.
☐ HELP ME decide which documents I must review, and when to review them with the patient (or surrogate).

○ No advance directive, state-authorized portable orders (e.g., POLST, MOST), or Life-Sustaining Treatment notes/orders were available in the record or presented by the patient (or surrogate).
○ I reviewed with the patient (or surrogate) all active advance directive(s), state-authorized portable orders (e.g., POLST, MOST), or Life-Sustaining Treatment notes/orders available in the record or presented by the patient (or surrogate).

4. Does the patient(or surrogate) have sufficient understanding of the patient's medical condition to make informed decisions about life-sustaining treatments?
☐ HELP ME decide what to do if the patient (or surrogate) does not have sufficient understanding of the patient's condition to make informed decisions about life-sustaining treatments.

○ Yes. The patient's (or surrogate's) understanding is consistent with the medical facts.
○ Other: (e.g., the patient lacks decision-making capacity and has no surrogate)

Figure 1. Life-sustaining treatment template.

electronic health record order set for documentation of LST decisions, and an electronic health record progress note template that collects data elements related to goals of care and LST decisions.[14] Technical assistance was provided related to installation of new electronic health record tools, policy interpretation, and addressing implementation challenges. Sites established LSTDI advisory boards, chaired or cochaired by clinical champions, to oversee implementation of new practices required in this policy.

Analysis Approach

Drawing on LST health factor data, records with one or more missing data in the 4 required fields (decision-making capacity, goals of care, cardiopulmonary resuscitation [CPR] status, and consent), were excluded from analysis (eg, early test cases). Test patients and those under age of 18 were excluded from the cohort. We examined data associated with the first GoCC for each patient in the resulting cohort. We describe frequencies for each data field and calculated standardized mean

differences (SMD) to assess differences between decisions made by patients with those made by surrogates on behalf of patients without DMC.

We obtained demographic and clinical information from the VA's CWD. Age was calculated at the time GoCCs were documented using the LST progress note. The Care Assessment Need (CAN) score is a predictive analytic tools to help clinicians identify high-risk patients who would benefit from a proactive GoCC. The CAN score is expressed as a percentile from 0 (lowest) to 99 (highest) and indicates risk for hospitalization or death based on multiple data points within the electronic health record.[17] We used the most recent CAN score prior to the conversation, if available, otherwise we used the first available subsequent CAN score limiting CAN scores to 1 year prior the intervention period and 2 years after. Encompassing an individual probability of hospitalization or mortality at 12 months between 1.3% and 94.7%, we described the relative risk of hospitalization or death among patients with documented GoCC using their corresponding CAN score, characterizing the number and percentage of patients within the following 4 groups of CAN scores: $<80, \geq 80, \geq 90, \geq 95$.

We described clinical and demographic features of patients, overall and by facility, using means and medians when applicable as well as SMD. Drawing on a taxonomy used previously to describe patients' serious illnesses and outcomes,[18] we used a set of mutually exclusive, hierarchical clinical diagnoses of serious illness: (1) end-stage liver disease (ESLD), (2) end-stage renal disease (ESRD), (3) cancer, (4) cardiopulmonary conditions (congestive heart failure or chronic obstructive pulmonary disease), (5) dementia, (6) frailty, and (7) other conditions. Analyses were performed on MS SQL Server and R (version 3.5.1).

Chart Abstraction Methods

We used retrospective chart review to understand apparent discrepancies between health factor data (eg, inconsistency with patients documented understanding of medical condition, goals of care or ability to participate in medical decision-making in various aspects of the note) and implicitly validate documentation in the LST note. Several members of the team, with extensive experience developing chart abstraction tools to assess quality, developed the tool (A.M.W., R.C.G.) using a simple Excel sheet to manually record results. We conducted the review on the same day, with A.M.W. supervising the review to ensure consistent application of the tool. Reviewers had experience conducting abstractions of palliative care and communication notes (K.A.L., R.C.G., M.H.). We sampled 5 to 15 cases per type of apparent discrepancy to review. For example, one type of discrepancy we examined was when LST documentation indicated patient had decision-making capacity but someone other than the patient was the source of consent to treatment. Examining such instances showed that in the majority of cases a patient was making decisions with the support of a surrogate. The Online Appendix includes a list of apparent discrepancies indicated by health factor data and reviewed by the team.

Results

### Patient Characteristics and Site Differences

A total of 6664 patients participated in at least one GoCC that was documented in an LST progress note in the electronic health record (see Figure 2). Of these, 1288 (19%) patients had more than one documented GoCC. Table 1 shows demographics by site. Most patients with documented GoCC were male (93.2%), non-Hispanic white (87.1%), and on average 71.4 years old ($\pm$15.9 years). Less than half of patients were married (45.9%); 25.2% were divorced, 15.7% were widowed, 11.7% were never married, and 1.5% separated. Most (64.7%) lived in urban areas. Among the entire cohort, the average CAN score was 74.8 ($\pm$24.9). Patients with conversations had diverse serious illnesses: ESLD (6.0%), ESRD (2.4%), cancer (13.4%), cardiopulmonary conditions (32.5%), dementia (6.1%), frailty (7.5%), and other serious illnesses (24.0%). Most patients (72.7%) were still living at the end of the study period; at site A, 9.9% of the patients who had GoCC died, compared to 38.6%, 37.7%, and 31.8% at sites B, C, and D, respectively.

The number of patients with a documented GoCC at the end of the study period at each of the 4 facilities was 2 080 at site A (Ave CAN = 69.1), 704 at site B (Ave CAN = 78.5), 1811 at site C (Ave CAN = 76.6), and 2 069 at site D (Average CAN = 76.4). Median CAN score was 85 at all sites except site A where it was 80. All the sites except site A had very small numbers and proportions of African American patients with documented GoCC (eg, less than 3%). At site A, 21% (n = 437) of patients with documented GoCCs were African American. Variations between sites may have resulted from differences in site characteristics (eg, size, complexity, and geographic location), characteristics of the population served, and how sites chose to implement the LSTDI (eg, initiating implementation primarily in inpatient settings and then spreading to outpatient clinics).

Implicit Validity of LST Documentation Among Patients With and Without Decision-Making Capacity

Goals of care for patients with DMC were more likely to include life-prolongation and improving or maintaining quality of life, while goals identified for patients without DMC were more likely to include "to be comfortable" (see Table 2). There were no differences between patients with respect to the goal "to be cured" of a specific illness; this goal was included in the records of only 7.7% of those with capacity and 7.1% of those who lacked capacity.

Patients with DMC were more likely (25.9%) than patients without DMC (20.4%) to have documented preferences for CPR in the event of cardiopulmonary arrest and "full scope of treatment" in circumstances other than cardiopulmonary arrest. Surrogates for patients without DMC were also less likely to support transfer to a hospital (9.7% vs 2.1%) or
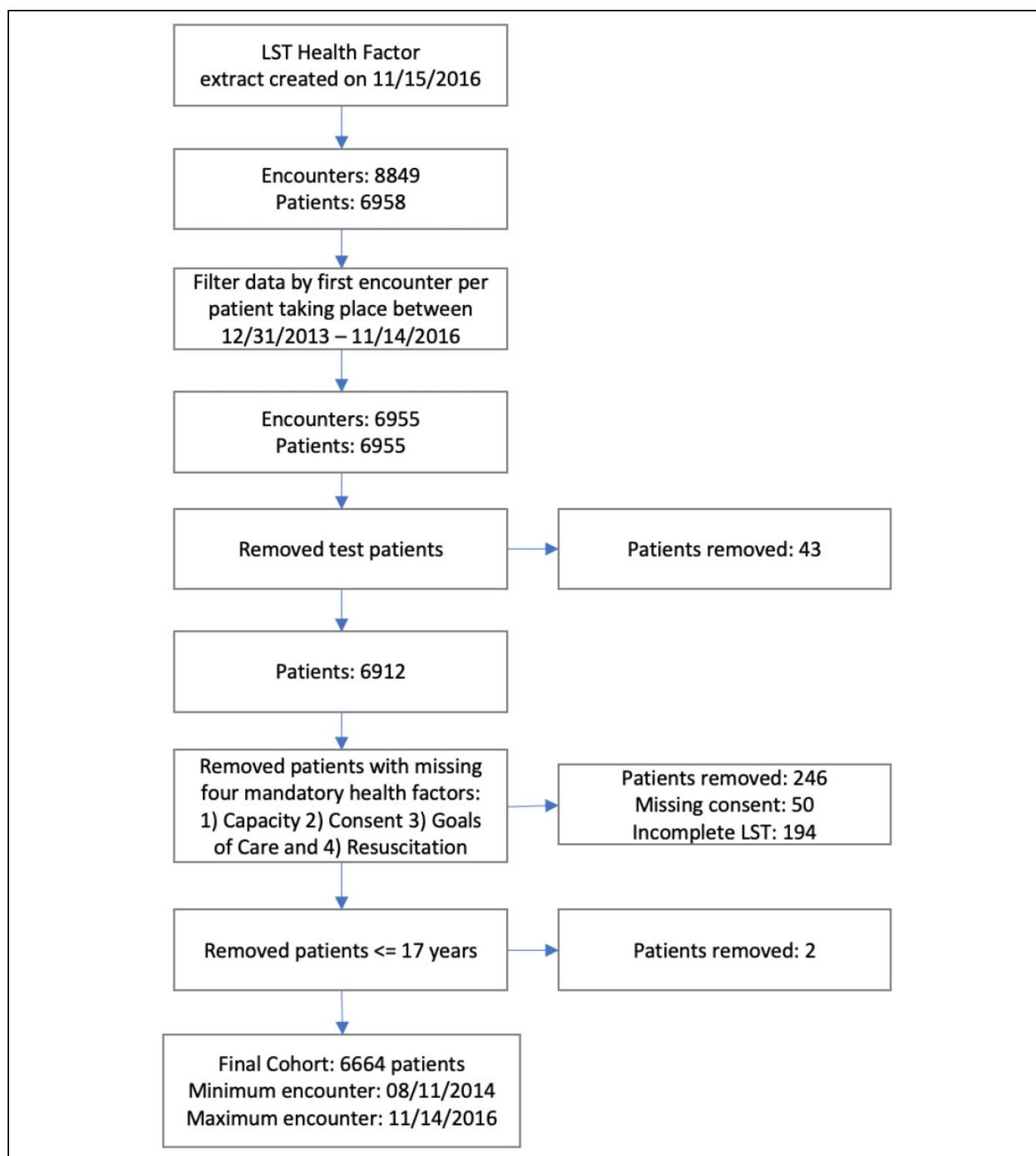
Figure 2. Patient CONSORT diagram.

intensive care unit (12.8% vs 8.1%), respectively compared to patients with DMC.

Chart reviews generally supported the validity of clinician documentation of GoCCs using the LST progress note template and highlighted the limits of standardized "check boxes" to capture complex, nuanced information (see online Appendix 1). Clinicians often used available open text fields to provide clarifying information. For example, the "other" check box and associated open text field for the question "Does the patient (or surrogate) have sufficient understanding of the patient's

Table 1. Demographic Characteristics by Sites.

Demographic characteristics	Overall, n (%), N = 6664	Site A, n (%), n = 2080	Site B HCS, SD, n (%), n = 704	Site C, n (%) n = 1811	Site D, n (%), n = 2069	SMD
Gender						
Male	6208 (93.2%)	1772 (85.2%)	675 (95.9%)	1751 (96.7%)	2010 (97.1%)	0.22
Age[a]						
	71.4 ± 15.9	62.3 ± 19.5	78.0 ± 11.8	74.3 ± 11.6	75.7 ± 12.1	
Marital status						0.28
Married	3056 (45.9%)	872 (41.9%)	328 (46.6%)	852 (47%)	1004 (48.5%)	
Divorced	1677 (25.2%)	475 (22.8%)	178 (25.3%)	489 (27%)	535 (25.9%)	
Widowed	1046 (15.7%)	242 (11.6%)	133 (18.9%)	283 (15.6%)	388 (18.8%)	
Never married	780 (11.7%)	450 (21.6%)	54 (7.7%)	164 (9.1%)	112 (5.4%)	
Separated	100 (1.5%)	38 (1.8%)	10 (1.4%)	22 (1.2%)	30 (1.4%)	
Unknown	5 (0.1%)	3 (0.1%)	1 (0.1%)	1 (0.1%)	0 (0%)	
Deceased						0.38
Yes	1819 (27.3%)	206 (9.9%)	272 (38.6%)	683 (37.7%)	658 (31.8%)	
No	4845 (72.7%)	1814 (90.1%)	432 (61.4%)	1128 (62.3%)	1411 (68.2%)	
Race						0.54
White	5806 (87.1%)	1565 (75.2%)	633 (89.9%)	1628 (89.9%)	1980 (95.7%)	
Black or African American	527 (7.9%)	437 (21%)	5 (0.7%)	47 (2.6%)	38 (1.8%)	
Asian	33 (0.5%)	23 (1.1%)	0 (0%)	2 (0.1%)	8 (0.4%)	
American Indian or Alaska Native	64 (1%)	5 (0.2%)	40 (5.7%)	7 (0.4%)	12 (0.6%)	
Native Hawaiian or Other Pacific Islander	46 (0.7%)	23 (1.1%)	2 (0.3%)	16 (0.9%)	5 (0.2%)	
Multiracial	103 (1.5%)	14 (0.7%)	5 (0.7%)	67 (3.7%)	17 (0.8%)	
Unknown by patient	22 (0.3%)	11 (0.5%)	3 (0.4%)	7 (0.4%)	1 (0%)	
Declined to answer	20 (0.3%)	1 (0%)	2 (0.3%)	12 (0.7%)	5 (0.2%)	
Missing	43 (0.6%)	1 (0%)	14 (2%)	25 (1.4%)	3 (0.1%)	
Ethnicity						0.24
Not Hispanic or Latino	6345 (95.2%)	1967 (94.6%)	684 (97.2%)	1722 (95.1%)	1972 (95.3%)	
Hispanic or Latino	198 (3%)	93 (4.5%)	15 (2.1%)	7 (0.4%)	83 (4%)	
Unknown by patient	30 (0.5%)	16 (0.8%)	1 (0.1%)	7 (0.4%)	6 (0.3%)	
Declined to answer	82 (1.2%)	1 (0%)	1 (0.1%)	73 (4%)	7 (0.3%)	
Missing	9 (0.1%)	3 (0.1%)	3 (0.4%)	2 (0.1%)	1 (0%)	
Urban/Rural						1.09
Urban	4314 (64.7%)	1814 (87.2%)	196 (27.8%)	671 (37.1%)	1633 (78.9%)	
Rural	1952 (29.3%)	232 (11.2%)	282 (40.1%)	1120 (61.8%)	318 (15.4%)	
Highly rural	360 (5.4%)	2 (0.1%)	222 (31.5%)	19 (1%)	117 (5.7%)	
Missing	38 (0.6%)	32 (1.5%)	4 (0.6%)	1 (0.1%)	1 (0%)	
Health condition						0.51
ESLD	401 (6.0%)	87 (4.2%)	47 (6.7%)	159 (8.8%)	108 (5.2%)	
ESRD	161 (2.4%)	43 (2.1%)	14 (2.0%)	48 (2.7%)	56 (2.7%)	
Cancer	894 (13.4%)	165 (7.9%)	133 (18.9%)	341 (18.8%)	255 (12.3%)	
Cardiopulmonary	2168 (32.5%)	572 (27.5%)	250 (35.5%)	650 (35.9%)	696 (33.6%)	
Dementia	407 (6.1%)	85 (4.1%)	66 (9.4%)	106 (5.9%)	150 (7.2%)	
Frailty	502 (7.5%)	200 (9.6%)	31 (4.4%)	109 (6.0%)	162 (7.8%)	
Other	1601 (24.0%)	870 (41.8%)	88 (12.5%)	268 (14.8%)	375 (18.1%)	
Missing	530 (8.0%)	58 (2.8%)	75 (10.7%)	130 (7.2%)	267 (12.9%)	
CAN[b] Score						0.45
CAN < 80	2441 (36.6%)	780 (37.5%)	239 (33.9%)	651 (35.9%)	771 (37.3%)	
CAN ≥ 80	1038 (15.6%)	266 (12.8%)	106 (15.1%)	311 (17.2%)	355 (17.2%)	
CAN ≥ 90	910 (13.7%)	211 (10.1%)	107 (15.2%)	277 (15.3%)	315 (15.2%)	
CAN ≥ 95	1716 (25.8%)	338 (16.2%)	215 (30.5%)	554 (30.6%)	609 (29.4%)	
Missing	559 (8.4%)	485 (23.3%)	37 (5.3%)	18 (1.0%)	19 (0.9%)	
CAN Score[c]	74.8 + 24.9	69.1 + 27.6	78.5 + 21.7	76.6 +24.2	76.4 + 23.6	

Abbreviations: CAN, Care Assessment Need; ESLD, end-stage liver disease; ESRD, end-stage renal disease; SMD, standardized mean differences.

[a]Overall age distribution; (1st qrt=64, median =72, 3rd qrt =84, max =105)

[b]CAN is the Care Assessment Need Score

[c]Overall CAN Score distribution:(1st qrt =60, median =85, 3rd qrt =95, max =99)

Table 2. The Association Between Decision-Making Capacity and Health Factors.

Health factor	n (%), 6664	DMC (Yes), 5693	DMC (No), 971	SMD
Have you reviewed available documents about the patients LST wishes?				
Not documented	3032 (45.5%)	2840 (66%)	192 (19.8%)	0.67
Presence of advance directives	3632 (54.5%)	2853 (0%)	779 (80.2%)	
Does the patient or surrogate have sufficient understanding to make an informed decision?				
Yes[a]	3713 (55.7%)	2905 (51%)	808 (83.2%)	0.73
Other[a]	26 (0.4%)	12 (0.2%)	14 (1.4%)	0.14
Missing	2926 (43.9%)	2776 (48.8%)	150 (15.4%)	
What are the patient's goals of care?				
To be cured	509 (7.6%)	440 (7.7%)	69 (7.1%)	0.02
To prolong life	2264 (34%)	2122 (37.3%)	142 (14.6%)	0.54
To improve or maintain quality of life	4101 (61.5%)	3605 (63.3%)	496 (51.1%)	0.25
To be comfortable	3530 (53%)	2779 (48.8%)	751 (77.3%)	0.62
To obtain support for family/caregiver	562 (8.4%)	435 (7.6%)	127 (13.1%)	0.18
To achieve life goals	142 (2.1%)	124 (2.2%)	18 (1.9%)	0.02
Other	700 (10.5%)	598 (10.5%)	102 (10.5%)	<0.001
Missing	0 (0%)	0 (0%)	0 (0%)	
What is the current plan for LSTs, other than CPR?				
Full scope of treatment	1673 (25.1%)	1475 (25.9%)	198 (20.4%)	0.65
Limit LST	1590 (23.9%)	1261 (22.2%)	329 (33.9%)	
No LST except for comfort	717 (10.8%)	477 (8.4%)	240 (24.7%)	
Missing	2684 (40.3%)	2480 (43.6%)	204 (21%)	
Artificial nutrition	1590	1261	329	
No artificial nutrition	238 (15%)	167 (13.2%)	71 (21.6%)	0.20
Limit artificial nutrition	121 (7.6%)	98 (7.8%)	23 (7%)	0.05
Missing	1231 (77.4%)	996 (79%)	235 (71.4%)	
Artificial hydration				
No artificial hydration	38 (2.4%)	20 (1.6%)	18 (5.5%)	0.14
Limit artificial hydration	70 (7.6%)	52 (4.1%)	18 (5.5%)	0.08
Missing	1482 (93.2%)	1189 (94.3%)	293 (89.1%)	
Artificial ventilation				
No invasive ventilation	798 (50.2%)	647 (1.6%)	151 (45.9%)	0.12
No noninvasive ventilation	51 (3.2%)	33 (2.6%)	18 (5.5%)	0.12
Limit mechanical ventilation	248 (15.6%)	221 (17.5%)	27 (8.2%)	0.06
Missing	558 (35.1%)	406 (32.2%)	152 (46.2%)	
Transfers between level of care				
No transfers to ICU except for comfort	144 (9.1%)	102 (8.1%)	42 (12.8%)	0.15
No transfers to hospital except for comfort	58 (3.6%)	26 (2.1%)	32 (9.7%)	0.21
Limit transfers as follows	69 (4.3%)	45 (3.6%)	24 (7.3%)	0.13
Missing	1353 (85.1%)	1109 (87.9%)	244 (74.2%)	
Other				
Limit other LST	N/A	N/A	N/A	
Missing	1590 (100%)	1261 (100%)	329 (100%)	<0.001
Cardiopulmonary resuscitation	6664	5693	971	
Full code: attempt CPR	2743 (41.2%)	2601 (45.7%)	142 (14.6%)	0.73
DNAR/DNR: do not attempt CPR	3812 (57.2%)	2996 (52.6%)	816 (84%)	
DNAR/DNR with exception	109 (1.6%)	96 (1.7%)	13 (1.3%)	
Missing	0 (0%)	0 (0%)	0 (0%)	
Person providing LST consent who provided consent for LST plan				
The patient	5651 (84.8%)	5626 (98.8%)	25 (2.6%)	7.10
The surrogate	991 (14.9%)	66 (1.2%)	925 (95.3%)	
MDC review committee approved	4 (0.1%)	0 (0%)	4 (0.4%)	
MDC committee will be initiated within 24 hours	7 (0.1%)	0 (0%)	7 (0.7%)	
Facility	11 (0.2%)	1 (0%)	10 (1%)	
Missing	0 (0%)	0 (0%)	0 (0%)	

Abbreviations: CPR, cardiopulmonary resuscitation; DNAR, Do Not Attempt Resuscitation; DMC, decision-making capacity; DNR, do not resuscitate; ICU, intensive care unit; LST, life-sustaining treatment; MDC, Multidisciplinary Committee; N/A, Not Applicable; SMD, standardized mean differences.
[a]One patient overlapped in the two categories

medical condition to make informed decisions about life-sustaining treatment?" was used in one case to provide information about the patient's choice of surrogate (his wife) and the clinician's concerns ("She does not seem to be an appropriate surrogate decision maker due to her own cognitive deficits."). Chart abstraction also identified opportunities to increase the flexibility of the template to capture complex clinical situations. Chart reviews also served to characterize the dynamic and longitudinal nature of GoCC, in that apparent discrepancies between template notes over time often reflected an evolving clinical circumstance or illness progression (eg, full code of an emergency admission, followed by treatment limitations after surrogates were contacted).

Discussion

The 4 facilities participating in the demonstration project implemented new practices and processes to more systematically elicit, document, and honor the goals of care and LST decisions of seriously ill patients. During the 2-year pilot period, over 6000 GoCC were conducted and documented in the LST progress note and LST order set. Template usage supported the validity of the conduct and documentation of GoCC. For instance, a lack of decision-making capacity was associated with comfort-related goals and limits to LSTs. These findings generally agree with United States population data showing preferences for limiting life-prolonging treatments (eg, feeding tube use) among many patients with dementia.[19,20] Documentation captured changes in goals and treatment preferences over time, suggesting that the LST template may have utility throughout a patient's course of illness. While data and chart reviews indicated that LST documentation generally reflected appropriate underlying communication about goals and treatment decisions, results also reflected the tensions between standardization of documentation practices and flexibility required to document decision-making in complex clinical circumstances.

Few programs to date have shown success in implementing goals of care GoCC across a health care system, much less a system with the national reach of the VA.[21,22] The VA is diverse in both its population (eg, multiracial) and geography (eg, highly rural as well as urban) and is spread across nearly 150 local geographic units in all states and territories. In that regard, the VA's LSTDI implementation generalizability reflects challenges of improving communication at scale.

Further research will elucidate how site- and population-level variability may impact effectiveness and outcomes of GoCC. Despite the variability in patient characteristics, clinicians participating in the LSTDI pilot generally appropriately identified and conducted GoCC with high-risk patients or their surrogates (eg, "the right patients at the right time"). Patient identification is a key element of every successful palliative care intervention; although prior interventions have mostly relied solely on clinician identified poor prognosis.[23] Life-sustaining treatment decisions initiative encourages the use of Veteran-specific predictive analytic tools in addition to a "surprise" question (ie, Would you be surprised if this patient experienced a life-threatening event in the next 1-2 years?) and other forms of clinical judgment.[14] Overall, it is reassuring that large numbers of high-risk patients were reached by VA's initial efforts, suggesting the feasibility of the current initiative and its ability to scale and reach Veterans in need GoCC to guide decision-making about LSTs. We note the difference in completion by race-ethnicity with African Americans less likely than others to receive goals of care communication. A recent large national study confirmed that nonwhites in general were less likely to receive GoCC in VA; this preliminary information is confirmed by broader national data and indicates a disparity requiring attention.[24]

Although our results are only descriptive, they illustrate the challenges and opportunities (eg, population differences, intervention adaptation, and implementation variability) that other multisite serious illness communication interventions may face. Future implementation opportunities include ensuring that proactive GoCC are conducted equitably across diverse groups and clinical settings. Future research will help elucidate how patients' goals and decisions change over the course of different illness trajectories, and the associated impact on health care utilization.

Department of Veterans Affairs is a large, integrated health system serving a distinct population. Given the complexity of the VA system, however, these practices are likely adaptable for achieving goals of care communications and documentation in other health care settings. The serious illness condition categories we used are general, and may not reflect the full complexity of how conditions influence goals and LST decisions, particularly when comorbidity is accounted for; however, they have proven useful in understanding palliative and end-of-life care among Veterans with varied diagnoses.[18]

In summary, the VA's LSTDI demonstration project established proof of concept and feasibility of a national goals of care communication and documentation intervention. The ultimate goal of this LSTDI goes beyond simply documenting care to ensuring that goal concordant care is actually delivered. Evaluating that however goes beyond the scope of this analysis and should be the subject of future work. As the largest integrated health care system in the United States, VA's experience is an important benchmark for efforts by other health care systems' implementing proactive GoCC with high-risk patients.

Authors' Note

Karleen F. Giannitrapani and Anne M. Walling are co-first authors. Randall C. Gale is a posthumous.

Acknowledgments

References

1. Sudore RL, Lum HD, You JJ, et al. Defining advance care planning for adults: a consensus definition from a multidisciplinary Delphi panel. *J Pain Symptom Manage*. 2017;53(2):431-432.

2. Bischoff KE, Sudore R, Miao Y, Boscardin WJ, Smith AK. Advance care planning and the quality of end-of-life care in older adults. *J Am Geriatr Soc*. 2013;61(2):209-214.

3. Bernacki RE, Block SD. Communication about serious illness care goals. *JAMA Intern Med*. 2014;174(12):1994.

4. Dying in America. *Improving Quality and Honoring Individual Preferences Near the End of Life*. Washington, DC: The National Academies Press; 2015.

5. Sinuff T, Dodek P, You JJ, et al. Improving end-of-life communication and decision making: the development of a conceptual framework and quality indicators. *J Pain Symptom Manage*. 2015;49(6):1070-1080.

6. Sudore RL, Fried TR. Redefining the "planning" in advance care planning: preparing for end-of-life decision making. *Ann Intern Med*. 2010;153(4):256-261.

7. Silveira MJ, Kim SY, Langa KM. Advance directives and outcomes of surrogate decision making before death. *N Engl J Med*. 2010;362(13):1211-1218.

8. Ahluwalia SC, Tisnado DM, Walling AM, et al. Association of early patient-physician care planning discussions and end-of-life care intensity in advanced cancer. *J Palliat Med*. 2015;18(10):834-841.

9. Mack JW, Cronin A, Keating NL, et al. Associations between end-of-life discussion characteristics and care received near death: a prospective cohort study. *J Clin Ocol*. 2012;30(35):4387-4395.

10. Wright AA, Keating NL, Ayanian JZ, et al. Family perspectives on aggressive cancer care near the end of life. *JAMA*. 2016;315(3):284-292.

11. An PG, Rabatin JS, Manwell LB, et al. Burden of difficult encounters in primary care: data from the minimizing error, maximizing outcomes study. *Arch Intern Med*. 2009;169(4):410-414.

12. Walling AM, Tisnado D, Asch SM, et al. The quality of supportive cancer care in the veterans affairs health system and targets for improvement. *JAMA Intern Med*. 2013;173(22):2071.

13. US Department of Veterans Affairs, Veterans Health Administration. *Life-Sustaining Treatment Decisions: Eliciting, Documenting and Honoring Patients' Values, Goals and Preferences*. VHA Handbook 1004.03; 2017. Accessed April 10, 2019. http://vaww.va.gov/vhapublications/ViewPublication.asp?pub_ID=4308.

14. Foglia MB, Lowery J, Sharpe VA, Tompkins P, Fox E. A comprehensive approach to eliciting, documenting, and honoring patient wishes for care near the end of life: the Veterans Health Administrations life-sustaining treatment decisions initiative. *Joint Commiss J Quality Patient Safety*. 2019;45(1):47-56.

15. Bernacki RE, Block SD, American College of Physicians High Value Care Task Force. Communication about serious illness care goals: a review and synthesis of best practices. *JAMA Intern Med*. 2014;174(12):1994-2003.

16. Lakin JR, Koritsanszky LA, Cunningham R, et al. A systematic intervention to improve serious illness communication in primary care. *Health Aff*. 2017;36(7):1258-1264.

17. Ruiz JG, Priyadarshni S, Rahaman Z, et al. Validation of an automatically generated screening score for frailty: the Care Assessment Need (CAN) score. *BMC Geriatr*. 2018;18(1):6.

18. Wachterman MW, Pilver C, Smith D, Ersek M, Lipsitz SR, Keating NL. Quality of end-of-life care provided to patients with different serious illnesses. *JAMA Intern Med*. 2016;176(8):1095.

19. Barstow C, Shahan B, Roberts M. Evaluating medical decision-making capacity in practice. *Am Fam Physician*. 2018;98(1):40-46.

20. Clarke G, Fistein E, Holland A, Barclay M, Theimann P, Barclay S. Preferences for care towards the end of life when decision-making capacity may be impaired: a large scale cross-sectional survey of public attitudes in great Britain and the United States. *PLoS One*. 2017;12(4):8.

21. Hammes BJ, Rooney BL, Gundrum JD. A comparative, retrospective, observational study of the prevalence, availability, and specificity of advance care plans in a county that implemented an advance care planning microsystem. *J Am Geriatr Soc*. 2010;58(7):1249-1255.

22. Ciemins EL, Stuart B, Gerber R, Newman J, Bauman M. An evaluation of the advanced illness management (AIM) program: increasing hospice utilization in the San Francisco bay area. *J Palliat Med*. 2006;9(6):1401-1411.

23. Singer AE, Goebel JR, Kim YS, et al. Populations and interventions for palliative and end-of-life care: a systematic review. *J Palliat Med*. 2016;19(9):995-1008.

24. Levy C, Ersek M, Scott W, et al. Life-sustaining treatment decisions initiative: early implementation results of a National Veterans Affairs Program to honor veterans' care preferences. *J Gen Intern Med*. 2020:9.