


Life-Sustaining Treatment Decisions Initiative: Early Implementation Results of a National Veterans Affairs Program to Honor Veterans' Care Preferences



Cari Levy, MD, PhD^{1,2} , Mary Ersek, PhD, RN, FPCN^{3,4,5}, Winifred Scott, MPH⁶, Joan G. Carpenter, PhD, CRNP, FPCN^{3,4}, Jennifer Kononowech, LMSW⁷, Ciaran Phibbs, PhD⁶, Jill Lowry, PsyD⁸, Jennifer Cohen, PhD, MPH^{8,9}, and Marybeth Foglia, RN, PhD, MA^{8,10}

¹Department of Veterans Affairs, Rocky Mountain VA Medical Center, Aurora, CO, USA; ²Division of Health Care Policy and Research, University of Colorado School of Medicine, Aurora, CO, USA; ³Department of Veterans Affairs, Corporal Michael J. Crescenz VA Medical Center, Philadelphia, PA, USA; ⁴University of Pennsylvania School of Nursing, Philadelphia, PA, USA; ⁵Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, USA; ⁶Department of Veterans Affairs, Palo Alto, CA, USA; ⁷Department of Veterans Affairs, Ann Arbor Center for Clinical Management Research, Ann Arbor, MI, USA; ⁸Department of Veterans Affairs, National Center for Ethics in Health Care, Washington, DC, USA; ⁹Department of Epidemiology, University of Washington School of Public Health, Seattle, WA, USA; ¹⁰Department of Bioethics and Humanities, University of Washington School of Medicine, Seattle, WA, USA.

BACKGROUND: On July 1, 2018, the Veterans Health Administration (VA) National Center for Ethics in Health Care implemented the Life-Sustaining Treatment Decisions Initiative (LSTDI). Its goal is to identify, document, and honor LST decisions of seriously ill veterans. Providers document veterans' goals and decisions using a standardized LST template and order set.

OBJECTIVE: Evaluate the first 7 months of LSTDI implementation and identify predictors of LST template completion.

DESIGN: Retrospective observational study of clinical and administrative data. We identified all completed LST templates, defined as completion of four required template fields. Templates also include four non-required fields. Results were stratified by risk of hospitalization or death as estimated by the Care Assessment Need (CAN) score.

SUBJECTS: All veterans with VA utilization between July 1, 2018, and January 31, 2019.

MAIN MEASURES: Completed LST templates, goals and LST preferences, and predictors of documentation.

RESULTS: LST templates were documented for 108,145 veterans, and 85% had one or more of the non-required fields completed in addition to the required fields. Approximately half documented a preference for cardiopulmonary resuscitation. Among those who documented specific goals, half wanted to improve or maintain function, independence, and quality of life while 28% had a goal of life prolongation irrespective of risk of hospitalization/death and 45% expressed a goal of comfort. Only 7% expressed a goal of being cured. Predictors of documentation included VA nursing home residence, older age, frailty, and comorbidity, while non-Caucasian race, rural residence, and receipt of care in a lower complexity medical center were predictive of no documentation.

CONCLUSIONS: LST decisions were documented for veterans at high risk of hospitalization or death. While few expressed a preference for cure, half desire, cardiopulmonary resuscitation. Predictors of documentation were generally consistent with existing literature. Opportunities to reduce observed disparities exist by leveraging available VA resources and programs.

KEY WORDS: end of life; seriously ill; veteran.

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BACKGROUND

Care of persons with serious, life-limiting illnesses requires open, ongoing communication and documentation of the person's values, goals, and preferences for life-sustaining treatments (LSTs).^{1, 2} The Physician Orders for Life-Sustaining Treatments (POLST) paradigm is widely used to translate goals and preferences for LSTs among those with life-limiting illness into actionable medical orders. These orders accompany patients across care settings and direct the response of emergency personnel. Studies indicate that POLST completion is associated with preference-sensitive care.^{3–6}

Despite the promise and successes of the POLST paradigm,⁷ participation in the program is low, including among veterans,⁸ and implementation challenges remain. For example, accessibility of the POLST is variable and portability often relies on physically transporting hard copy across care settings, a process that is prone to errors. Moreover, the orders must be integrated into the health record and available at the point of care. Only a few states, most notably Oregon,⁹ and several healthcare systems¹⁰ maintain a state- or system-wide registry of POLST

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forms that are widely accessible across settings. POLST forms are completed for patients who have a very short life expectancy as well as those who will spend many years living with serious illness.^{11, 12} Moreover, many clinicians lack the skills and confidence to conduct robust goals of care conversations, which may result in inaccurate or incomplete representations of patient preferences.^{13–17} Like advance directives, POLST forms can also be misinterpreted.^{18, 19} Finally, a systematic implementation of POLST programs and ongoing quality improvement efforts are sporadic.^{13, 20}

Adapting and improving upon the POLST paradigm, the Veterans Health Administration (VA) National Center for Ethics in Healthcare (NCEHC) began implementing an initiative across VA's national healthcare system. Based on available evidence cited above, the VA updated its policy and established practice standards for eliciting, documenting, and honoring seriously ill veterans' goals of care and LST decisions.²¹ The policy is one component of the Life-Sustaining Treatment Decisions Initiative (LSTDI), a multi-pronged, evidence-based, cultural change initiative. This multi-component program includes the following: (1) high-level leadership engagement and buy-in; (2) comprehensive, interdisciplinary staff education and communication skills training in conducting and documenting goals of care conversations (GoCCs); (3) a standardized, durable, and portable LST template and order set that are embedded in the EHR; (4) technology tools to identify high-risk patients, monitor implementation, and promote quality improvement; and (5) a program to evaluate short- and long-term outcomes of the LSTDI.²² The policy requires practitioners to initiate proactive GoCCs with veterans (or their designated surrogate decision-maker) who are at a high risk of a life-threatening clinical event in the next 1–2 years. Practitioners document these conversations and decisions in an LST template and order set in the electronic healthcare record (EHR). This policy change allows for extraction and monitoring of LST preference documentation. Prior to this policy change, LST preferences could not be extracted from the VA EHR.

The purpose of this exploratory analysis was to (1) evaluate early implementation of the LSTDI across the VA's healthcare system as demonstrated in the number and completeness of LST templates and order sets; (2) characterize the goals and LST decisions of veterans with completed LST templates; and (3) identify predictors of documenting preferences on the standardized LST template. As such, this paper is the first to document the comprehensive implementation of a program using an adaptation of the POLST paradigm in a national healthcare system.

METHODS

Data for this analysis were extracted from the VA's Corporate Data Warehouse (CDW), which integrates databases containing electronic medical records, the Managerial Cost

Accounting System, Medical SAS datasets, the Vital Status File, the Assistant Deputy Under Secretary for Health Enrollment Files, and other administrative data sources (http://www.hsrd.research.va.gov/for_researchers/vinci/cdw.cfm). The cohort included 5,576,279 veterans who used VA-provided or VA-purchased care between July 1, 2018, and January 31, 2019 (defined as having recorded cost data during this period). Veterans were assigned to one of 137 facilities based on where the veterans received most of their care during the 7-month study time frame. We excluded veterans who received care at any of the four LSTDI demonstration sites which had established proof of concept prior to national rollout.²² Veterans assigned to Manila, Philippines, also were excluded because of fundamental differences in the structure of the care systems (see Fig. 1).

LST Template. The standardized template and order set entitled "Life-Sustaining Treatment" (Fig. 2) consists of eight fields, four of which are mandatory: The mandatory elements are decision-making capacity; patient's goals of care (broad goals such as "to be cured" or "to be comfortable"); oral informed consent for the LST plan; and cardiopulmonary resuscitation [CPR] status. Veterans can elect more than one goal on the LST template. Templates with documented answers for the four mandatory fields are deemed completed. Once the template and associated LST orders are entered into the EHR, select data elements called LST health factors (i.e., computerized data elements that capture patient information for which no standard code exists) are stored in the CDW, where they can be retrieved and analyzed.

For the analysis, we included LST templates completed by January 31, 2019. For veterans with more than one LST template completed, only the most recent template was retained for analysis (Fig. 1).

Care Assessment Need Scores. Care Assessment Need (CAN) scores predict risk of three outcomes—hospitalization, mortality, and hospitalization/mortality—for two periods, 90 days and 1 year. Scores are available at the point of care for all veterans who are assigned a primary care provider. The score is based on patient characteristics including demographics, diagnoses, vital signs, utilization, pharmacy data, and laboratory values. Scores range from 0 (lowest risk) to 99 (highest risk) and are reported in increments of 5 from 0 to 94 and by 1 from 95 to 99.^{23, 24} Veterans in the cohort were stratified into four categories based on their CAN score for the risk of hospitalization and/or mortality within 1 year. Those with a missing CAN score (e.g., veterans lacking an assigned primary care provider) were assigned to a fifth category. Because CAN scores change over time, we used the score closest to the study time frame (July 1, 2018–January 31, 2019) which involved searching for CAN scores within 90 days before the start of the study time frame (July 1, 2018) and with 90 days after the end of the study time frame (January 31, 2019). We retained the CAN score that was closest to July 1, 2018.

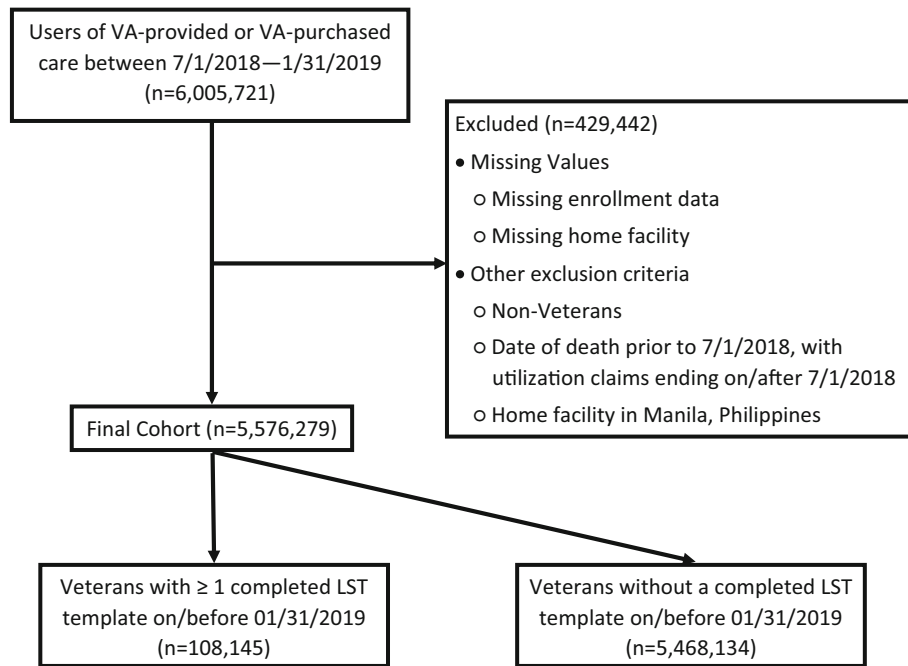


Figure 1 Cohort identification flowchart.

Covariates. Age, marital status, race/ethnicity gender, rurality of VA setting where veterans received majority of care, medical facility complexity (1a, 1b, 1c, 2, 3; lower number and letter indicates higher complexity), and stay in a VA nursing home were included as covariates in the analysis. We also included the JENTM (JEN Associates) Frailty Index, which quantifies the risk of nursing home admission and is significantly associated with Medicare/Medicaid expenditures. A score of 0–2 is considered low risk, 3–5 moderate risk, and ≥ 6 high risk.²⁵ Finally, as a measure of comorbidities associated with healthcare costs, we included the Center for Medicare & Medicaid Services Hierarchical Condition Category (HCC) risk adjustment model.²⁶

Analysis. The LSTDI encourages prioritization of veterans with CAN scores of 95–99; thus, we examined completion rates across four CAN score groupings (< 90, 90–94, 95–97, 98–99). Within each CAN score category, chi-square tests were used to examine differences between veterans with and without a completed LST template. Wilcoxon’s rank-sum tests were used to identify significant differences in the continuous variables. Logistic regression was used to describe patient- and facility-level predictors of template completion after adjusting for CAN scores, VA nursing home stay, HCC score, JENTM Frailty Index score, age, marital status, race/ethnicity, gender, rurality, and facility complexity. Continuous variables were categorized to create dummy indicators in the model. We used SAS Enterprise Guide 7.1 for table construction and STATA-MP V. 13.0 for all multivariate analyses.

Finally, we also examined the numbers of new and cumulative completed LST templates by month to assess for trends in completion following implementation of the initiative. As

an indicator of the robustness of the GoCC and initiative effectiveness, we also calculated the percentage of LST templates with non-required fields completed.

The VA Office of Research and Development determined that this analysis was for quality improvement and not subject to human research regulations; thus, no IRB approval was obtained.

RESULTS

Among 5,576,279 veterans in the cohort, 108,145 veterans had a completed LST template (Table 1). Higher CAN scores were associated with higher LST completion rates; 24% of veterans with the highest scores (98–99) compared with < 1% of veterans with scores of < 90 had completed templates. Completion was higher for older veterans across all CAN score categories; this difference was most pronounced in veterans with CAN scores of 98–99, where 17% of those under age 65 had completed a template compared with 39% of veterans over age 90. The mean age for veterans with a completed template was 70.2 for those with CAN scores of < 90 and 74.3 in the highest CAN score group (Table 1).

The strongest predictor of template completion (Table 2) was the VA nursing home stay (OR 14.5, 95% CI 14.12–14.97). Other highly predictive patient-level factors included higher CAN scores, a JENTM Frailty Index score of 6–13 (OR 12.5, 95% CI 11.99–13.10), and an HCC score in the top quartile (OR 8.61, 95% CI 8.14–9.11). Age older than 64 years and non-married status also predicted completion while Hispanic ethnicity (OR 0.87, 95% CI 0.85–0.90), all non-Caucasian race categories (African American OR 0.70, 95% CI 0.69–0.72; American Indian/Alaskan Native OR 0.89, 95%

Life-Sustaining Treatment (LST) Template and Orders	
<p>*1. Does the patient have capacity to make decisions about life-sustaining treatments?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> The patient has capacity to make decisions about life-sustaining treatments <input type="checkbox"/> The patient lacks capacity to make decisions about life-sustaining treatments and has a surrogate. <input type="checkbox"/> The patient lacks capacity to make decisions about life-sustaining treatments and has no surrogate.
<p>2. Who is the person authorized under VA policy to make decisions for the patient if/when the patient loses decision-making capacity?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Authorized surrogate if/when the patient loses decision-making capacity:][text box] <input type="checkbox"/> The patient has no surrogate authorized to make health care decisions if/when the patient loses decision-making capacity.
<p>3. Have you reviewed available documents that reflect the patient's wishes regarding life-sustaining treatments? Examples: advance directives, state-authorized portable orders (e.g., POLST, MOST), life-sustaining treatment templates/orders.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> No advance directive, state-authorized portable orders, or life-sustaining treatment templates/orders were available in the record or presented by the patient (or surrogate) [optional text box] <input type="checkbox"/> I reviewed with the patient (or surrogate) all active advance directives (s), state-authorized portable orders, or life-sustaining treatment templates/orders available in the record and/or presented by the patient (or surrogate)
<p>4. Does the patient (or surrogate) have sufficient understanding of the patient's medical condition to make informed decisions about life-sustaining treatments?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Yes. The patient's (or surrogate's) understanding is consistent with the medical facts. <input type="checkbox"/> Other (e.g., the patient lacks decision-making capacity and has no surrogate)[text box]
<p>*5. What are the patient's goals of care? (Select all that apply. Do not attempt to rank the goals of care here)</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Patient's goals of care in their own words, or as stated by the surrogate: <input type="checkbox"/> To be cured of: <input type="checkbox"/> To prolong life <input type="checkbox"/> To improve or maintain function, independence, quality of life <input type="checkbox"/> To be comfortable <input type="checkbox"/> To obtain support for family/caregiver <input type="checkbox"/> To achieve life goals, including:
<p>6. What is the current plan for use of life-sustaining treatments?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> FULL SCOPE OF TREATMENT in circumstances OTHER than cardiopulmonary arrest. <input type="checkbox"/> LIMIT LIFE-SUSTAINING TREATMENT, as follows: <ul style="list-style-type: none"> <i>Artificial Nutrition</i> <ul style="list-style-type: none"> <input type="checkbox"/> No artificial nutrition (enteral or parenteral) <input type="checkbox"/> Limit artificial nutrition as follows: [text box] <i>Artificial Hydration</i> <ul style="list-style-type: none"> <input type="checkbox"/> No artificial hydration (enteral, IV, or subcutaneous) except if needed for comfort <input type="checkbox"/> Limit artificial hydration as follows: [text box] <i>Mechanical Ventilation</i> <ul style="list-style-type: none"> <input type="checkbox"/> No invasive mechanical ventilation (e.g., endotracheal or tracheostomy tube) <input type="checkbox"/> No non-invasive mechanical ventilation (e.g., CPAP, BiPAP) <input type="checkbox"/> Limit mechanical ventilation as follows: [text box] <i>Transfers between Levels of Care</i> <ul style="list-style-type: none"> <input type="checkbox"/> No transfers to the ICU except if needed for comfort <input type="checkbox"/> No transfers to the hospital except if needed for comfort <input type="checkbox"/> Limit transfers as follows (e.g. patient wishes to remain at home if possible): [text box] <i>Limit Other Life-Sustaining Treatment as follows (e.g., blood products, dialysis):</i> [text box] <input type="checkbox"/> NO LIFE-SUSTAINING TREATMENT in circumstances OTHER than cardiopulmonary arrest. <ul style="list-style-type: none"> *CARDIOPULMONARY RESUSCITATION (CPR) <input type="checkbox"/> Full Code: Attempt CPR <input type="checkbox"/> DNAR/DNR: Do not attempt CPR <input type="checkbox"/> DNAR/DNR with exception: ONLY attempt CPR during the following procedure: [text box]
<p>7. Who participated in this discussion?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Document participants and other relevant information: [text box]
<p>*8. Who has given oral informed consent for the life-sustaining treatment plan outlined above?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> The patient has given oral informed consent for the life-sustaining treatment plan. <input type="checkbox"/> The surrogate has given oral informed consent for the life-sustaining treatment plan. Name of the surrogate providing consent: <input type="checkbox"/> The patient lacks decision-making capacity and has no surrogate. <ul style="list-style-type: none"> <input type="checkbox"/> The LST plan has been approved through the multidisciplinary committee review process.
<p>*Items in bold are required</p>	

Figure 2 Life-Sustaining Treatment (LST) template and orders.

Table 1 Characteristics of Veterans Stratified by Care Assessment Need Score and with a Documented Life-Sustaining Treatment Template, N=5,576,279 (n=108,145 with completed template; n=5,468,134 without completed template)

	Care Assessment Need (CAN) score and associated risk of hospitalization or death									
	Lowest risk CAN score < 90		Moderate risk CAN score 90–94		High risk CAN score 95–97		Highest risk CAN score 98–99		Missing CAN score Undetermined risk	
	Total N	GoCC: %yes	Total N	GoCC: %yes	Total N	GoCC: %yes	Total N	GoCC: %yes	Total N	GoCC: %yes
Overall	4,680,421	< 1	270,900	6	164,515	11	113,014	24	347,429	2
Patient characteristic										
Age categories*, N (%)	4,680,412		270,899		164,515		112,969		347,415	
< 65	2,285,024	< 1	92,653	4	52,877	8	32,427	17	174,548	< 1
65–70	903,458	< 1	65,199	6	38,967	11	25,381	23	45,618	2
71–80	987,940	1	68,963	7	42,089	13	28,479	26	68,058	2
81–90	419,000	2	34,564	9	23,903	16	20,226	32	44,975	3
> 90	84,990	3	9520	13	6679	21	6456	39	14,216	4
Mean age (years)		70.22		72.25		72.64		74.30		74.38
Gender										
Male	4,257,885	< 1	252,153	6	155,510	12	108,497	24	318,633	2
Female	422,536	< 1	18,747	4	9005	9	4517	20	28,796	< 1
Race/ethnicity										
Caucasian	3,163,913	< 1	181,818	7	109,855	12	73,455	26	211,325	2
African American	802,223	< 1	57,196	4	35,891	8	26,942	19	43,150	2
Hispanic or Latino	308,250	< 1	15,528	6	9414	12	6792	27	18,414	1
American Indian or Alaskan Native	43,765	< 1	2505	5	1521	11	955	24	4030	< 1
Asian	55,324	< 1	1266	4	678	7	359	21	4430	< 1
Native Hawaiian or other Pacific Islander	40,800	< 1	2215	5	1198	11	775	24	2462	1
Unknown or declined to answer	266,146	< 1	10,372	6	5958	11	3736	23	63,618	< 1
Marital status										
Married	2,650,890	< 1	116,874	7	65,904	13	40,048	27	160,889	1
Divorced	962,000	< 1	82,861	5	52,743	10	337,479	22	46,932	3
Widowed	193,000	2	22,579	8	15,823	15	13,941	30	14,431	4
Never married	606,479	< 1	34,551	5	21,399	9	15,145	20	44,156	2
Separated	139,274	< 1	12,651	4	7932	9	5952	19	7631	2
Unknown	128,778	< 1	1384	7	714	14	449	29	73,390	< 1
JEN™ Frailty Index	4,680,421	5.59	270,900	6.68	164,515	7.27	113,014	8.24	347,429	7.37
Hierarchical	4,680,421	2.16	270,900	2.96	164,515	3.59	113,014	4.90	347,429	4.04
Category Condition score										
Facility characteristics										
VAMC urban/rural classification, N (%)										
Urban	4,272,784	< 1	252,007	6	154,432	12	107,202	24	325,648	1
Rural	407,637	< 1	18,893	5	10,083	9	5812	22	21,781	2
Facility complexity, N (%)										
Level 1a, 1b, 1c	3,741,633	< 1	224,737	6	139,178	12	98,551	25	285,156	2
Level 2, 3	938,788	< 1	46,163	5	25,337	10	14,463	21	62,273	1

Due to the large sample size, statistical tests were statistically significant at the $p < 0.001$ level but not clinically meaningful

*Age missing for some subjects

CI 0.83–0.96; Asian OR 0.59, 95% CI 0.53–0.66; unknown OR 0.84, 95% CI 0.81–0.87), female gender (OR 0.92, 95% CI 0.89–0.95), rural location (0.76, 95% CI 0.73–0.78), and care in a low-complexity facility (OR 0.63, 95% CI 0.62–0.64) were associated with lower odds of completion.

Documented treatment preferences are summarized in Table 3. Between 43 and 54% of veterans’ goals of care focused on maintaining function and independence, and 41–64% focused on comfort. The preference for comfort increased for veterans with higher CAN scores, whereas the desire to prolong life decreased with higher CAN scores. Over half of veterans (56%) with the lowest CAN scores wanted CPR whereas 43% with the highest scores wanted CPR. In templates containing data for non-required elements (N=69,557), trends were similar for non-cardiopulmonary events; that is, more veterans in the higher

CAN groups or their surrogates chose to limit other LSTs. Preferences to limit or forgo other LSTs such as artificial nutrition, hydration, hospitalizations, and ICU transfers did not differ significantly among different CAN score groups.

Among veterans who selected “to be comfortable” as a goal of care, most chose to forego CPR; however, one in four veterans who selected a goal of comfort also wanted cardiopulmonary resuscitation. A similar pattern was observed for other LSTs; approximately 23% of veterans who selected a goal of comfort indicated that they also preferred a full scope of treatment (data not shown).

Appendix Figure 3 summarizes trends in LST template completion over the first 7 months of implementation. Rates of new LST templates and orders were fairly consistent, averaging approximately 11,000 templates monthly. The

Table 2 Patient- and Facility-Level Predictors of Goals of Care Conversations Documented in a Life-Sustaining Treatment Template

Covariates	Odds ratio	Lower 95% CI	Upper 95% CI
Care Assessment Need (CAN) score category			
Reference: CAN scores 0–89			
CAN scores 90–94	1.67	1.64	1.71
CAN scores 95–97	2.38	2.33	2.42
CAN scores 98–99	4.23	4.14	4.31
Missing CAN score	1.82	1.75	1.89
VA nursing home stay			
Reference: no VA nursing home stay			
VA nursing home stay	14.54	14.12	14.97
Hierarchical Condition Category (HCC) category			
Reference: HCC score 1st quartile 0–<0.38			
HCC score 2nd quartile 0.38–<0.65	1.47	1.38	1.56
HCC score 3rd quartile 0.65–<1.11	2.75	2.60	2.91
HCC score 4th quartile 1.11–16.63	8.61	8.14	9.11
JEN™ Frailty Index category			
Reference: JFI scores 0–2			
JFI scores 3–5	3.70	3.54	3.86
JFI scores 6–13	12.53	11.99	13.10
Age category			
Reference: age ≤ 64			
Age 65–70	1.10	1.07	1.12
Age 71–80	1.22	1.20	1.25
Age 81–90	1.69	1.65	1.73
Age ≥ 91	2.43	2.35	2.50
Marital status			
Reference: married			
Divorced	1.19	1.17	1.21
Widowed	1.22	1.19	1.25
Never married	1.21	1.18	1.24
Separated	1.13	1.09	1.18
Unknown	1.36	1.28	1.44
Race/ethnicity			
Reference: Caucasian			
African American	0.70	0.69	0.72
Hispanic	0.87	0.85	0.90
American Indian/Alaskan	0.89	0.83	0.96
Native			
Asian	0.59	0.53	0.66
Native Hawaiian/Pacific Islander	0.78	0.72	0.85
Unknown/declined to state	0.84	0.81	0.87
Gender			
Reference: male			
Female	0.92	0.89	0.95
Urban/rural (location where veterans received majority of care)			
Reference: urban			
Rural	0.76	0.74	0.78
Facility complexity			
Reference: level 1A, 1B, 1C			
Levels 2 and 3	0.63	0.62	0.64

Adjusted for CAN scores, VA nursing home stay, HCC score, JEN™ Frailty Index score, age, marital status, race/ethnicity, gender, rurality, and facility complexity

proportion of templates that went beyond the required four elements was also consistent (≈ 84% across all months).

DISCUSSION

The LSTDI was designed to proactively elicit, document, and honor the goals, values, and LST decisions of seriously ill veterans across the VA's national healthcare

system. The initiative promotes high-quality GoCC and standardized, readily accessible LST templates and orders. In the first 7 months of implementation in 137 VA facilities, over 225,000 completed LST templates among 108,145 unique veterans have been entered into the VA electronic health record. We saw expected completion patterns, in that older veterans and those at the highest risk for hospitalization or death were more likely to have a completed LST template compared with younger veterans and those in the moderate and lowest risk groups. This finding suggests that clinicians are appropriately prioritizing documentation of LST preferences with veterans experiencing serious illness who are at the highest risk for hospitalization and/or death. Nearly a quarter of those in the highest risk group completing an LST template in this early phase is encouraging but likely a higher percentage in this highest risk category should have documented LST templates. This early success may reflect the extensive training included in the multi-pronged initiative. This training included identifying high-risk patients using CAN scores and other prognostic indicators such as comorbidity and frailty, but continued work will be necessary to improve and identify appropriate benchmarks.²²

Although an impressive number of LST templates were completed, the number of veterans who are eligible for LST completion (i.e., at a high risk for a life-threatening clinical event in the next 1–2 years) is difficult to determine. The LSTDI recommends having GoCCs and documenting LST preferences with specific veterans (e.g., those with high CAN scores) in certain contexts (e.g., upon admission to an inpatient unit or nursing home)²²; nonetheless, these are guidelines, not requirements, to allow for clinician judgment.²⁷ Thus, calculating the appropriate “denominator” for this population is a challenge, though one that is not unique to the VA.^{28, 29} The VA currently is exploring using CAN scores of 95 or above to estimate of the denominator; however, like the many other available prognostic tools, the CAN score is not a perfect predictive indicator.^{23, 29, 30} Another measure of success is to monitor the percentage of decedents who have completed LST templates and orders. Using this and other metrics, facilities can design quality improvement initiatives. This work is ongoing and evolving.

Prior research has shown that as many as 69% of POLST forms are incomplete with at least one section that is left blank.³¹ In contrast, over 80% of LST templates completed in the initial phase of LSTDI implementation included documentation of non-required elements, such as preferences about hydration, antibiotics, and hospitalization. This finding suggests that clinicians are discussing preferences more comprehensively than simply the required LST template elements.

We found that a relatively consistent number of templates are completed monthly. This pattern may indicate

Table 3 Treatment Decisions Responses by Veterans or Authorized Surrogates with Completed Life-Sustaining Treatment Templates Stratified by Care Assessment Need Scores

	Care Assessment Need (CAN) score and associated risk of hospitalization or death									
	CAN score <90		CAN scores 90–94		CAN scores 95–97		CAN scores 98–99		Missing CAN score	
	N = 40,103		N = 16,539		N = 18,861		N = 27,357		N = 5285	
	Provided response for item	%	Provided response for item	%	Provided response for item	%	Provided response for item	%	Provided response for item	%
Required LST template items										
The patient lacks capacity to make decisions about life-sustaining treatments	5287	13	2358	14	2951	16	5158	19	2855	54
Goals of care—respondent could pick one or more of the following 7 items										
To improve or maintain function, independence, and quality of life	21,146	53	8996	54	10,252	54	14,531	53	2251	43
To be comfortable	16,592	41	7277	44	8434	45	13,015	48	3393	64
To prolong life	11,978	30	4834	29	5390	29	7288	27	1057	20
Goals of care in own words	7409	18	3065	19	3466	18	5279	19	890	17
To be cured of	3000	7	1137	7	1322	7	1669	6	217	4
To obtain support family/caregiver	2876	7	1287	8	1352	7	1881	7	419	8
To achieve life goals	1047	3	387	2	455	2	687	3	148	3
Cardiopulmonary events: full code	22,644	56	8534	52	9199	49	11,754	43	1499	28
Non-required LST template items										
Non-cardiopulmonary events—respondent could pick one of the following 2 items	N = 26,045		N = 10,615		N = 11,962		N = 17,333		N = 3602	
Full scope of treatment	15,862	61	5910	56	6505	54	8788	51	1228	34
Limit specific LSTs	5781	22	2781	26	3338	28	5221	30	1355	38
For those who chose to limit specific LSTs—respondents could choose one or more of the following items	N = 5427		N = 2624		N = 3158		N = 4947		N = 1302	
No invasive mechanical ventilation	3817	70	1881	72	2309	73	3707	75	961	74
No non-invasive mechanical ventilation	429	8	199	8	250	8	372	8	202	16
Limitations on mechanical ventilation	938	17	423	16	515	16	706	14	153	12
No artificial nutrition	2057	38	992	38	1136	36	1712	35	607	47
Limitations on artificial nutrition	751	14	346	13	399	13	562	11	170	13
No artificial hydration	579	11	265	10	327	10	445	9	203	16
Limitations on artificial hydration	816	15	365	14	426	13	620	13	285	22
Limitations on ICU transfers	536	10	269	10	283	9	525	11	245	19
Limitations on hospital transfers	285	5	121	5	162	5	286	6	265	20
Limitations on specific transfers	347	6	181	7	202	6	275	6	197	15
Limitations on other life-sustaining treatments	1432	26	716	27	858	27	1375	28	426	33

that a “steady state” has been achieved at this early stage of national implementation. It may also reflect the current limits with regard to the number of clinicians who are trained in conducting GoCCs. Palliative care specialists are often asked to conduct GoCCs with patients and families, but the current and projected shortage of specialists underscores the need to train non-palliative care clinicians.^{1, 32} The NCEHC addressed these needs by offering intensive train-the-trainer workshops for prescribing clinicians (i.e., physicians, nurse practitioners, and physician assistants) and other clinicians (e.g., nurses, social workers, clinical psychologists), who then conduct trainings in their home facilities. To date, over 13,000 VA clinicians have been trained in conducting GoCCs and documenting

treatment preferences in the LST template (NCEHC, unpublished data). The impact on these training efforts has yet to be measured.

Approximately 25% of veterans who indicated the goal “to be comfortable” also wanted cardiopulmonary resuscitation and other LSTs such as mechanical ventilation. These dual preferences appear to be inconsistent, and similar conflicting choices have been documented in non-VA studies^{15, 17, 33} Inconsistent choices are concerning in that they may lead to care that is not aligned with the patient’s true preferences.³¹ Several explanations for the discrepancies are possible. For example, these choices might reflect low-quality GoCCs that left veterans without sufficient, accurate knowledge upon which to

make informed decisions, a deficiency that has been identified in earlier studies.^{16, 17} On the other hand, these choices may recognize the complex, fluid nature of a person's goals. For instance, a person may want relief from the uncomfortable side effects of chemotherapy while receiving aggressive, life-prolonging therapies. Finally, they may reflect the particular practice milieu at the VA, where veterans are not required to choose between hospice/palliative care and disease-modifying therapies, and instead may choose concurrent care.³⁴ Research is needed to determine the degree to which inconsistent preferences for comfort and aggressive LSTs represent misunderstanding or well-considered choices.

Our analysis showed that non-Caucasian race and non-Hispanic ethnicity are associated with lower odds of LST template completion, a finding that is consistent with other studies of POLST orders.^{35, 36} While these differences represent statistically significant differences in LST template completion, the magnitude of the difference is lower than in non-veteran documentation of LST preferences. This may be explained by a muting of racial and ethnic disparities observed in the VA compared with other healthcare systems.³⁷ The Office of Health Equity is collaborating with NCEHC to address the observed differences.³⁸ Template completion was also lower among veterans in rural areas, a difference that has also been found in previous studies.³⁹ This difference may be attributed to a lack of access to hospice and palliative care or a fundamental difference in how people from rural areas approach end-of-life care.^{40, 41} The VA has an opportunity to mitigate these differences, in that veterans living in rural areas have better continuity of care with primary care providers compared with non-veterans.³⁷ Thus, efforts to reduce rural disparities in LST completion could specifically focus efforts on rural primary care providers. Other approaches include leveraging the VA telehealth infrastructure and using group visit models to engage veterans in conversations about their goals of care.⁴²

Limitations to this study include the unique, predominately male veteran population, which hinders generalization to other patient groups. Moreover, this analysis provides a global look at implementation. Future studies are needed to examine many aspects of the LSTDI, such as identifying barriers and facilitators to implementation. For example, as of December 18, 2019, 8% of initial GoCCs were conducted in nursing homes, 40% in outpatient settings, and 52% in inpatient settings which may provide an opportunity to study barriers to completion in outpatient clinics and facilitators in inpatient. An additional study of the unexpected findings such as a higher likelihood of unmarried veterans completing LST templates will be needed. This analysis does not include a longitudinal analysis of trends, including changes in veterans'

preferences over time¹⁰; and facility, unit, and clinician variations across the system. It also is critical to evaluate the success of the LSTDI by examining the degree to which GoCCs and LST template completion lead to concordance between care preferences and actual care delivery. Earlier studies have demonstrated generally high concordance between preferences documented on POLST forms and actual care that is delivered within the VA.^{5, 41} Nonetheless, we have yet to examine concordance between preferences documented on LST templates and actual care provided. Finally, we did not specifically examine the quality of the GoCC that underlie the preferences documented in the LST template. This is particularly important given the evidence from other studies suggesting that POLST conversations are not uniformly of high-quality.^{16, 17}

We believe that this analysis is the first to describe early implementation of a comprehensive national program to elicit and document the values, goals, and treatment preferences for persons with serious illness. As such, the VA's multi-component LSTDI can inform science and policy, especially vis-à-vis the use of portable LST orders (e.g., POLST). Although some states such as Oregon and Maryland, as well as Kaiser Permanente, have contributed important findings related to POLST use,^{10, 14, 27, 39, 43, 44} the VA experience represents a unique opportunity to examine the processes and outcomes across a large integrated healthcare system. Furthermore, the VA's commitment to implementation science has been incorporated into ongoing evaluation activities.^{45, 46} These studies and projects will strengthen the empirical foundations of quality improvement across the VA and other healthcare systems.

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Corresponding Author: Cari Levy, MD, PhD; Department of Veterans Affairs, Rocky Mountain VA Medical Center, Aurora, CO, USA (e-mail: Cari.Levy@va.gov).

Compliance with Ethical Standards:

The VA Office of Research and Development determined that this analysis was for quality improvement and not subject to human research regulations; thus, no IRB approval was obtained.

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Disclaimer: The views expressed in this article are those of the author(s) and do not necessarily represent the views of the Department of Veterans Affairs.

Appendix

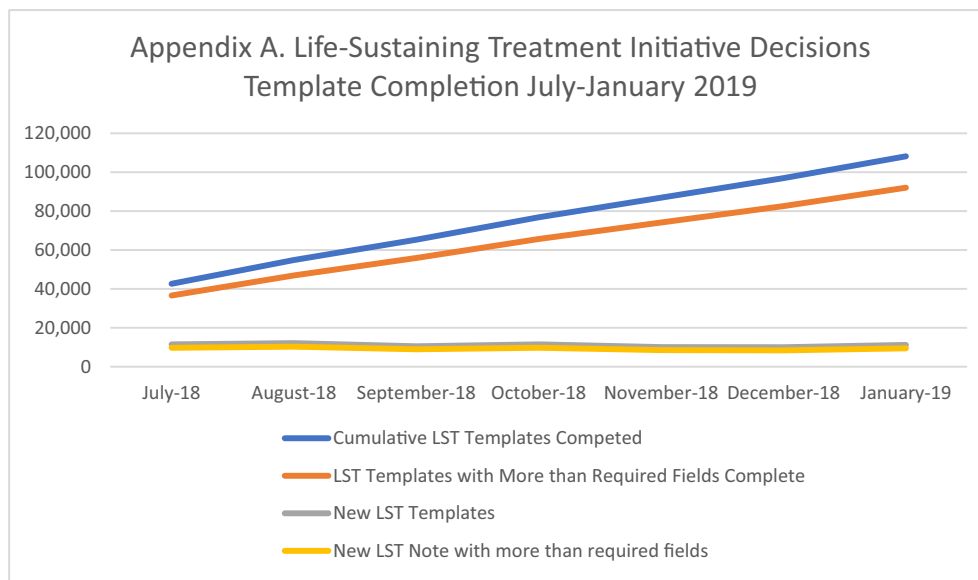


Figure 3 Life-Sustaining Treatment initiative decisions template completion July–January 2019.

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