THE GERONTOLOGICAL SOCIETY OF AMERICA®

The Gerontologist
cite as: *Gerontologist*, 2016, Vol. 56, No. 4, 714–722
doi:10.1093/geront/gnv019
Advance Access publication March 20, 2015

OXFORD

Research Article

Nursing Home Residents' Preferences on Physician Orders for Life Sustaining Treatment

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Received September 14, 2014; Accepted January 13, 2015

Decision Editor: Rachel Pruchno, PhD

Abstract

Purpose of the Study: Previous studies examining preferences documented in Physician Orders for Life Sustaining Treatment (POLST) have found that most sampled POLSTs show a preference to limit care. These studies were conducted in states that are relatively ethnically homogeneous. This study investigated the POLST preferences of nursing home residents in an ethnically diverse state—California—that requires nursing homes to document whether residents execute POLST.

Design and Methods: Data were collected from POLST forms executed by 941 residents in a convenience sample of 13 nursing homes in Southern California. The study analyzed data from 4 POLST form items: signatory (resident vs. surrogate decision-maker) and care preferences related to: (a) resuscitation; (b) medical intervention; and (c) artificially administered nutrition. Descriptive, comparative, and regression analyses are reported at both individual and facility levels.

Results: Of reviewed POLSTs, 46.8% documented a preference for "do not resuscitate" (DNR); 47.3% documented limits on medical intervention; and 52% documented limits on artificially administered nutrition. Residents in nursing homes serving comparatively larger populations of older residents and White residents had lower odds of electing the full care option for each of the POLST's 3 care items; those in nursing homes serving comparatively larger populations of Hispanic residents had higher odds of electing long-term artificially administered nutrition.

Implications: This study found lower rates of POLST choices limiting care than previous studies, possibly because the sampled nursing homes served a more ethnically- and age-diverse population. California's requirement that nursing homes document whether residents execute POLST also may have indirectly influenced choice patterns.

Keywords: Physician Orders for Life Sustaining Treatment, End-of-life care, Nursing homes, Patient preferences, Resident-centered care

The Physician Orders for Life Sustaining Treatment (POLST) form allows individuals with serious illnesses to express their preferences for life-sustaining treatments and comfort measures, including use of cardiopulmonary resuscitation (CPR), medical intervention, and artificially administered nutrition. POLST forms—brightly colored, two-sided documents—were first introduced in Oregon in 1995. Today, 15 states have endorsed POLST programs and 28 are developing such programs (National POLST Paradigm, 2014). California, the setting for this study, legally recognized POLST in 2009.

Studies have shown that the POLST helps ensure that end-of-life (EOL) care is consistent with a patient's preferences (Fromme, Zive, Schmidt, Cook, & Tolle, 2014; Hickman et al., 2010). A recent, large-scale examination of 17,902 POLST forms in Oregon's

POLST registry, for instance, found that decedents who elected comfort care only at the end of life were less likely to die in a hospital while decedents who elected full treatment were more likely to die in a hospital (Fromme et al., 2014). Because it helps ensure that EOL care preferences are honored, POLST is widely recommended for individuals, including many nursing home residents, who are medically frail or have a serious health condition.

Care Preferences Documented in POLSTs

Previous investigations of POLST choices provide initial evidence of the specific care preferences documented in these forms. While the studies' samples differed—they targeted, variously, nursing home residents, discharged hospital patients, hospice patients, and participants in a statewide POLST registry—each found that a majority of its sampled population elected at least some limits on care (Fromme et al., 2014; Fromme, Zive, Schmidt, Olszewski, & Tolle, 2012; Hickman et al., 2009, 2011; Hickman, Nelson, Smith-Howell, & Hammes, 2014; Hickman, Tolle, Brummel-Smith, & Carley, 2004). One nursing home study, for instance, examined POLST choices for 355 older (age 65+) residents in seven nursing homes in Oregon and found that do-not-resuscitate (DNR) orders were present on 88% of the forms. Similarly, 88% of these forms documented limits on medical intervention and 87% limits on artificially administered nutrition (Hickman et al., 2004). In the other studies, the percentage of individuals electing DNR orders ranged from 53.4% of 176 hospitalized patients discharged to nursing facilities (Hickman et al., 2014) to 99% of 275 deceased hospice patients (Hickman et al., 2009). With respect to reports of medical intervention, 66.1% to 99% of sampled individuals in four studies expressed a preference for limited care interventions or comfort care only at the end of life (Fromme et al., 2014; Hickman et al., 2009, 2011, 2014), and, in three studies, 89.5% to 97% placed limits on artificially administered nutrition (Hickman et al., 2009, 2011, 2014) (not each cited study reported results for all possible POLST choices.).

California POLST

As a strategy for encouraging POLST use, the California Department of Health in 2010 mandated that nursing homes document whether residents have a POLST and, for residents that do, their preferences for care (California Department of Health, 2014). More specifically, California requires nursing homes to document whether a resident has a POLST in a special "state-defined" section (Section S) of the federally required Minimum Data Set (MDS) assessment instrument, which virtually all nursing homes use to assess residents within 14 days of admission (California Department of Health, 2014). California is the only state that has elected to use MDS Section S to document residents' POLST use (Centers for Medicare and Medicaid Services, 2010).

It should be noted that POLST completion is voluntary. Recognizing this, California's MDS Section S "requires facilities to report whether a resident has a POLST form, (but) it does not require facilities to use POLST nor does it require an individual resident to have a POLST" (Coalition for Compassionate Care of California, 2014b, p. 1). In California, Section S data are used for statistical analyses, not for facility evaluation purposes (Coalition for Compassionate Care of California, 2014a).

Limitations of Current POLST Research

Previous POLST studies, cited earlier, were conducted in just three states—Oregon, Wisconsin, and West Virginia—and sampled relatively homogenous groups, comprised largely of Caucasians (Fromme et al., 2014, 2012; Hickman et al., 2009, 2011, 2014, 2004). Additionally, there is no data examining POLST preferences within a state that requires nursing homes to document residents' POLST use (or nonuse) in the MDS. Further, little is known about the relationship between POLST choices and patient and facility characteristics. This study was designed to address these knowledge gaps by investigating nursing home residents' POLST preferences in an ethnically diverse state that requires nursing homes to document whether residents have executed a POLST.

Our research approach was guided by principles of the shared decision-making model, which recognizes the central importance of allowing patients and their providers to make health care decisions jointly, so that care plans reflect the best clinical evidence available and honor the patient's values and preferences (Makoul & Clayman, 2006). The model is especially applicable in preference-sensitive healthcare situations, such as those anticipated in the POLST, in which the choice among one or more clinically appropriate treatment options is best guided by the patient's values and preferences. While patient-centeredness and shared decision-making are at the heart of recommended EOL care practices, national and state policies are starting to solidify around the notion that most Americans favor some limits on EOL care. Indeed, recent surveys have found this to be true (Pew Research Center, 2014). However, studies also show that EOL preferences vary by race and ethnicity, with Blacks and Hispanics less likely than Whites to prefer limits on EOL care (Kwak & Haley, 2005; Messinger-Rapport & Kamel, 2005). Additionally, a national survey by the Pew Research Center found that the proportion of Americans who prefer aggressive medical treatment in all circumstances, while still a minority, has been growing, from 15% in 1990 to 31% in 2013 (Pew Research Center, 2014). In short, EOL preferences among Americans are varied and possibly fluid. This study

aimed to shed light on how POLST preferences may vary among nursing home populations and how reporting policies may influence the preference patterns that emerge.

Analyzing POLST data drawn from a sample of Southern California nursing homes, the study describes documented POLST choices at both the resident and facility levels. Because of the diversity of the California population and policy differences, we hypothesize that the prevalence rates for POLST choices that limit care pertaining to resuscitation, medical intervention, and artificially administered nutrition for this study's sample will be lower than comparable prevalence rates reported in previous studies.

Methods

Overview

This cross-sectional study was conducted in 2012, from June to September, to examine POLST-documented EOL care preferences for individuals residing in a convenience sample of nursing homes in Southern California. The study, approved by the University of Southern California's Institutional Review Board, was conducted nearly 2 years after California mandated POLST documentation in the MDS.

Participating Nursing Homes

This study was conducted as part of a larger quality improvement project to help nursing homes implement POLST in accordance with the best practice recommendations promulgated by the Coalition for Compassionate Care of California (CCCC), a POLST advocacy organization with regional POLST coalitions throughout the state. Nursing homes were recruited via a study announcement disseminated electronically to CCCC's contact list. The coalition also posted a link to the study announcement on its website. All nursing homes in or within 3 hr driving distance of downtown Los Angeles were eligible to register for the study, which offered staff in enrolled sites POLST training from CCCC experts. As part of this project, study investigators conducted onsite reviews of POLSTs in all enrolled nursing homes prior to provision of POLST training. Nursing home sites received a stipend of $100 for the completed onsite review.

Data Collection Procedures

Individual POLST Data

In each enrolled nursing home, one of two trained researchers coded all available POLSTs, completed by both long- and short-stay residents. Researchers accessed POLST forms directly from residents' medical charts, which in all cases were housed at the nurses' station or in a chart room. If a medical chart was missing or in use elsewhere in the facility, the researcher did not review the chart for this study. We estimate that the vast majority of the charts accessed for this study—upwards of 80% of the charts reviewed—included a completed POLST. The researchers coded POLST data on a standardized form used by CCCC in its advocacy work to audit POLSTs.

California's POLST form was last revised in 2014; at the time of this study, two earlier versions, dated 2009 and 2011, were approved for use within the state. POLST items of interest to this study included these forms' care preference items and the signature line. Both the 2009 and 2011 POLST versions included three care preference items:

(a) resuscitation, with two options: attempt CPR and do not attempt to resuscitate;
(b) medical intervention, with three options: comfort care only, limited care, and full care; and
(c) artificially administered nutrition, with three options: no artificially administered nutrition, a limited trial, and long-term artificially administered nutrition (Street, NW, Washington, & Inquiries, n.d.).

Any individual who elected CPR was instructed in the POLST to also elect full care (under item b) for the form to be actionable and valid (Coalition for Compassionate Care of California, 2014b). Unlike POLSTs used in some other states, the California forms required the signature of the patient or his or her legal proxy (Coalition for Compassionate Care of California, 2014).

Team researchers used the CCCC POLST audit form to code nursing home residents' POLST preferences and who—patient or proxy—signed the form. The audit form presented a checkbox for each care option under each of the POLST's three preference items. Additionally, there was a checkbox for each preference item left blank or not completed. For the signature item, the audit form presented four checkboxes to select from: patient; (legal) decision-maker; both; or left blank/not completed. In a test sample of 20 POLSTs, the researchers' kappa value for each of these four items was 1.00. No other POLST items are reported in this study.

Facility Data

Descriptive data for enrolled nursing homes were obtained from CalQualityCare.org, a website supported by the California Health Care Foundation that publishes consumer information about California nursing homes, and the Long Term Care Facility Annual Utilization Report for 2012, compiled by the California Office of Statewide Health Planning and Development, the state agency charged with collecting data about California's healthcare infrastructure (California Health Care Foundation, 2014; California Office of Statewide Health Planning and Development, 2012). Facility data obtained from the 2012 utilization report were used to predict POLST choices and included: percentage of residents whose stay was covered

by Medicare (an indicator of a short-term rehabilitative stay); percentage of residents aged 65 or older; percentage of residents of Hispanic ethnicity; and percentage of residents who were White (vs. non-White). It should be noted that nursing homes report residents' race and ethnicity as mutually exclusive characteristics on the state's utilization report. Thus, it is possible for a resident to be counted by White and Hispanic. Facility data obtained from CalQualityCare.org at the time of this study were used to describe the facilities and included: ownership status; number of beds; Medicare and Medicaid certification; and federal star rating (i.e., 1–5, with 5 indicating "much above average"). In addition to reporting facility-level data, CalQualityCare.org also publishes comparable state-level data, including statewide estimates of the percentages of nursing home residents who are older (age 65+), White, and Hispanic.

Analysis

We conducted analyses at both the resident and facility levels. We used frequencies, means, medians, and ranges to describe data at both levels. At the resident level, we examined the relationship between POLST choices and POLST signer using Chi-square calculations. We then conducted mixed-effects logistic regression analyses to examine whether each of the three POLST choices—pertaining to resuscitation, medical intervention, and artificially administered nutrition—was related to who signed the POLST (resident vs. proxy decision-maker) and how much variation existed between facilities. In each model, the dependent variable was the POLST choice, dichotomously coded such that the single full-care choice (e.g., CPR) was compared to the other choice or choices that limited care (e.g., DNR). Using mixed-effect models, the variance that occurred between facilities for each dependent variable was identified both before and after the POLST signer was taken into account. Facility-level differences were then adjusted for by including four facility characteristics in the model: the percentage of residents in the nursing home who were White (vs. non-White); the percentage of residents in the nursing home who were Hispanic (vs. non-Hispanic); the percentage of residents in the nursing home who were older (aged 65+); and the percentage of residents in the nursing home whose stay was covered by Medicare. Although these variables are measured at the facility level, including them in a multilevel mixed-effects model allows for an appropriate analysis and interpretation of their relationship to individual-level decisions within facilities. Variation between facilities is presented both as raw variance and as inter-class correlations (ICC).

Results

Description of Nursing Facilities and Participants

Thirteen nursing homes enrolled in the study. Most enrolled nursing homes were for-profit facilities (n = 11 of 13), and all participated in both the Medicare and Medicaid programs. On average, enrolled NHs had 114 beds (range: 59–231; median = 99), with an average occupancy rate of 90% (range: 82%–100%; median = 92%; see Table 1). Federal star ratings for these nursing homes averaged 2.8 out of five stars (range: 1–5; median = 2).

Across the enrolled nursing homes, the residents served were more racially and ethnically diverse than the state's nursing home population in general. As shown in Table 2, on average, the resident population in enrolled nursing homes was 61.4% White (range: 24.8%–100%; median = 60.5%) and 23.9% Hispanic (range: 0.0%–67.0%; median = 21.0%). By comparison, the average California nursing home served a resident population that was 64% White and 16% Hispanic (California Health Care Foundation, 2014). Enrolled nursing homes also served a younger population: On average, 77.3% of residents in enrolled nursing homes were aged 65 or older (range: 49.6%–99.5%; median = 75.3%; see Table 2). In the average California nursing home, 82% of the resident population was aged 65 or older (California Health Care Foundation, 2014). The percentage of residents in each nursing home whose stay was covered by Medicare ranged from 0.0% to 43.8%, with a mean of 16.0% (median = 12.8%; see Table 2).

In all, 941 POLSTs were reviewed. Referring back to Table 1, the number of POLSTs reviewed per nursing home ranged from 36 to 171, with a mean of 72 (median = 59). Based on each facility's occupancy rate, we estimated the percentage of residents in each facility for which we reviewed a POLST. That rate ranged from 37.5% to 100%, with a mean rate of 74.5% (median = 73.6%).

POLST Preferences at the Resident Level

As shown in Table 3, of the 941 POLSTs reviewed, 49.9% specified a preference for CPR, 46.8% had a DNR order, and 3.2% did not document a resuscitation preference. In terms of care intensity, nearly half (49.2%) indicated full treatment, 30.8% specified limited interventions, and only 16.5% indicated comfort measures only. There were similar rates of documented preferences for long-term artificially administered nutrition (38.5%) and no artificially administered nutrition (38.0%), with 14.3% indicating a limited trial of this intervention and 8.9% having no documented preference. With regard to who signed the POLST on behalf of the patient, 28.6% of reviewed POLSTs were signed by the resident, 62.5% were signed by only the resident's proxy, and 8.9% were not signed.

From a bivariate perspective without consideration of facility effects, POLST choices were related to who signed the POLST. A POLST signed by a resident was significantly more likely than a POLST signed by a resident's healthcare decision maker to document choices for CPR (72.1% vs. 40.9%; $p <$ .001), full care (69.7% vs. 40.9%; $p <$ .001), and long-term artificially administered nutrition (51.0% vs. 36.1%; $p <$ .001).

POLST Preferences at the Facility Level

Analysis of prevalence of care preferences at the facility level showed variation among facilities, as presented in Table 4.

Table 1. Facility Descriptors and Number of Physician Orders for Life Sustaining Treatments (POLSTs) Reviewed in 2012 Sample of Southern California Nursing Homes

Facility	No. of beds	Occupancy rate	Estimated no. of beds occupied	No. of POLSTs reviewed	Percent of estimated occupied beds with reviewed POLST
1	95	0.85	81	80	98.8
2	59	0.98	58	53	91.4
3	98	0.80	78	58	74.4
4	72	0.82	59	42	71.2
5	145	0.74	107	74	69.2
6	45	1.00	45	39	86.7
7	116	0.72	84	85	100.0
8	80	0.95	76	55	72.4
9	99	0.97	96	36	37.5
10	120	0.96	115	59	51.3
11	231	0.90	209	100	47.8
12	196	0.93	182	171	94.0
13	131	0.92	121	89	73.6
Mean	114	0.89	101	72	74.6

Table 2. Facility-Level Characteristics of 2012 Sample of Southern California Nursing Homes (n = 13)

	Mean (range)
% residents who were aged 65+	77.3 (49.6–99.5)
% residents who were White	61.4 (24.8–100)
% residents who were Hispanic	23.9 (0.0–67.0)
% residents with Medicare stays	16.0 (0.0–43.8)

Table 3. Resident-level Choices on Physician Orders for Life Sustaining Treatments (POLSTs; n = 941) Reviewed in 2012 Sample of Southern California Nursing Homes

Treatment category	Orders on POLST, n (%)
POLST signed by	
Resident	269 (28.6)
Resident proxy	588 (62.5)
Not signed	84 (8.9)
Resuscitation	
Attempt cardiopulmonary resuscitation	470 (49.9)
Do not attempt resuscitation	441 (46.8)
No preference documented	30 (3.2)
Medical intervention	
Full treatment	463 (49.2)
Limited interventions	290 (30.8)
Comfort care only	155 (16.5)
No preference documented	33 (3.5)
Artificially administered nutrition	
Long term artificially administered nutrition	364 (38.6)
Limited trial	135 (14.3)
No artificially administered nutrition	358 (38.0)
No preference documented	84 (8.9)

DNR preference rates ranged from a low of 9.8% to a high of 94.7% (mean = 42.3, *SD* = 25.8). Similar variation was found between facilities in terms of desire for comfort care or limited intervention, with rates ranging from 1.9% to 95.3% (mean = 42.9, *SD* = 26.6). Rate of documentation for no or a limited trial of artificially administered nutrition ranged from 9.4% to 95.3% (mean = 47.2, *SD* = 31.7).

Regression Results

Prior to accounting for individual- or facility-level characteristics, unadjusted multilevel models revealed considerable variation at the facility level for attempting CPR (variance = 1.624; ICC = 0.330), providing full medical treatment (variance = 1.973; ICC = 0.375), and administering long-term artificial nutrition (variance = 3.440; ICC = 0.511). In other words, based on ICC values, facility-level random effects composed approximately 33% to 51% of the total residual variance in each model, a result that suggests facility-level differences could be influential. Adjustment for whether the individual signed his or her POLST mitigated the facility-level variation, but only to a modest degree (i.e., ICCs showed that the variance accounted for dropped to 29%, 34%, and 49% for CPR, full medical treatment, and artificially administered nutrition, respectively). The ICCs indicate that a majority of the variation was accounted for, however, once the facility-level characteristics (aged 65+, White, Hispanic, and Medicare) were considered, accounting for 2.1% of the variance in attempting CPR, 4.5% of the variance in providing full medical treatment, and 3.9% of the variance in administering long-term artificial nutrition (Table 5). Thus, in these final models, facility-level random effects have little influence on each model's outcomes.

Regression analyses showed that residents who signed their own POLST forms had greater odds of electing CPR and full care than residents whose POLST forms were signed by their healthcare decision-makers, but had no significant difference in the election of long-term artificially administered

Table 4. Facility-Level Prevalence of Physician Orders for Life Sustaining Treatments (POLST) Choices in 2012 Sample of Southern California Nursing Homes

Facility	POLSTs reviewed	Residents electing DNR—*n* (%)	Residents with comfort care only or limited intervention—*n* (%)	Residents with no artificially administered nutrition or limited trial—*n* (%)
1	80	20 (25.0)	22 (27.5)	16 (20.0)
2	53	4 (7.5)	1 (1.9)	5 (9.4)
3	58	13 (22.4)	16 (27.1)	19 (32.8)
4	42	22 (52.4)	22 (52.4)	32 (76.2)
5	74	25 (33.8)	17 (23.0)	19 (25.7)
6	39	17 (43.6)	17 (43.6)	0 (0)
7	85	54 (63.5)	59 (69.4)	71 (83.5)
8	55	37 (67.3)	36 (65.5)	42 (76.4)
9	36	13 (36.1)	16 (44.4)	18 (50.0)
10	59	41 (69.5)	41 (69.5)	48 (81.4)
11	100	21 (21.0)	22 (22.0)	34 (34.0)
12	171	162 (94.7)	162 (95.3)	163 (95.3)
13	89	12 (13.5)	14 (15.7)	26 (29.2)
Aggregate	941	441 (46.9)	445 (47.3)	493 (52.4)

Note: DNR = do not resuscitate.

Table 5. Multi-level Logistic Regression Models

	Attempt cardiopulmonary resuscitation		Full medical treatment		Long-term artificially administered nutrition	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Individual-level variables						
Resident signed own POLST	2.13 (1.44–3.13)***	2.05 (1.39–3.01)***	1.83 (1.24–2.69)**	1.78 (1.21–2.61)**	0.87 (0.58-.31)	0.86 (0.57–1.29)
Facility-level variables						
% residents who were aged 65+	—	0.95 (0.94–0.97)***	—	0.96 (0.93–0.98)***	—	0.97 (0.95–0.99)**
% residents who were White	—	0.98 (0.97–0.99)**	—	0.98 (0.97–1.00)*	—	0.98 (0.97–1.00)*
% residents who were Hispanic	—	1.02 (1.00–1.03)	—	1.02 (1.00–1.04)	—	1.08 (1.05–1.12)***
% residents with Medicare stays	—	1.02 (1.00–1.04)	—	1.01 (0.99–1.04)	—	0.97 (0.95–1.00)*
Facility-level variance	1.349	0.072	1.708	0.156	3.207	0.135
Inter-class correlation	0.291	0.021	0.342	0.045	0.494	0.039

Note: POLST = Physician Orders for Life Sustaining Treatment.
*$p < .05$. **$p < .01$. ***$p < .001$.

nutrition. Residents in nursing homes with higher percentages of White residents and older adults (age 65 or older) had lower odds of electing more aggressive treatment options across all three domains (CPR, full care, and long-term nutrition). Residents in nursing homes with higher percentages of Hispanic residents had higher odds of electing long-term artificially administered nutrition (8% greater odds for every additional percentage point of Hispanic residents), but had no significant differences for CPR or full medical care. By contrast, residents in nursing homes with higher percentages of residents whose stay was covered by Medicare had lower odds of electing long-term artificially administered nutrition, with a 3% reduction in odds for every additional percentage point of Medicare residents.

Given the relatively low POLST review rates in three nursing homes (Table 1; facilities 9–11, with estimated POLST review rates of 37.5%–51.3%), we conducted a second regression analyses, dropping data from these three nursing homes. Results (not shown) were consistent with results from the overall sample.

Discussion

This study found lower rates of POLST choices limiting care than previous studies (Fromme et al., 2014, 2012; Hickman et al., 2009, 2011, 2014, 2004). Of the 941 POLSTs reviewed for this study, less than half (46.8%) documented a preference for DNR and 47.3% documented limits on medical intervention at the end of life. In previous studies, POLST documentation of DNR ranged from 53.7% to 99% of the forms reviewed while limits on medical intervention were documented on 66.1% to 99% of reviewed forms (Fromme et al., 2014, 2012; Hickman et al., 2009, 2011, 2014, 2004). In our study, about half (52.3%) of reviewed POLSTs documented limits on artificially administered nutrition. This prevalence rate was lower than that documented in similar studies, where limits on artificially administered nutrition were present in 87% to 90% of POLSTs (Hickman et al., 2004, 2009, 2011, 2014).

Two explanations may account for the notable differences between this study's findings and those reported in earlier studies: differences due to sample characteristics and differences due to California's requirement that nursing homes document whether residents execute POLST. We discuss each explanation in turn.

Differences Due to Sample Characteristics

Although we lacked resident-level demographic data, facility-level data showed that our convenience sample of Greater Los Angeles nursing homes served a more racially and ethnically (Hispanic) diverse population than the average nursing home in a state generally considered more racially and ethnically diverse than most other U.S. states (California Health Care Foundation, 2014). Additionally, the sampled nursing homes served a younger population than California nursing homes generally serve (California Health Care Foundation, 2014). Previous studies, including a nationally representative survey conducted by the Pew Charitable Trust in 2013, have found that Blacks, Hispanics, and younger adults are less likely to prefer limits on EOL care as well as less likely to document their EOL preferences in advance directives; conversely, Whites, non-Hispanics, and older adults are more likely to elect limits on EOL care and to document those preferences (Kwak & Haley, 2005; Messinger-Rapport & Kamel, 2005; Pew Research Center, 2014). We found similar results in our study from regression analyses: residents in nursing homes serving comparatively larger populations of older residents and White residents had lower odds of electing the full care option for each of the POLST's three care items; nursing homes serving comparatively larger populations of Hispanic residents had higher odds of electing long-term artificially administered nutrition. In light of these findings, it seems likely that the pattern of POLST choices found in this study were influenced by the diversity of the individuals completing the POLST.

Differences Due to Documentation Policies

POLST choices may also have been influenced indirectly by California's mandate for nursing homes to document whether residents execute a POLST. This mandate, along with outreach by POLST advocacy groups, has raised awareness of POLST among California's nursing home providers (Wenger et al., 2013). Although baseline evidence of POLST use in nursing homes prior to California's documentation mandate is not available, it seems possible that requiring nursing homes to document residents' POLST use prompts staff to introduce POLST more routinely, as part of the MDS assessment. This introduction to POLST may, in turn, prompt more residents to complete the form. To the extent that this sequence of events occurs, it could have influenced our findings in one or more of three ways.

First, more widespread use of POLST in nursing homes could drive down prevalence rates for POLST choices that limit care. As discussed earlier, Whites, non-Hispanics, and older adults are more likely to both document their EOL care preferences and elect limits on that care (Kwak & Haley, 2005; Messinger-Rapport & Kamel, 2005; Pew Research Center, 2014). If these subgroups constituted the earliest adopters of POLST, then it stands to reason that later adopters would be more likely to be non-White, Hispanic, and younger—all subgroups that are less likely to limit EOL care. If California's documentation mandate prompted greater use of POLST by these later adopters, then this expansion could lower the overall prevalence rate of POLST choices limiting care.

Second and related to the above, California's documentation mandate might prompt nursing homes to introduce POLST to residents who are not facing life-threatening or serious chronic illnesses. Here it should be noted that California requires nursing homes to document for all residents, both short- and long-stay, whether the POLST was executed. Short-stay residents, who were not screened from our sample but were omitted from one earlier POLST study (Hickman et al., 2004), may be healthier than long-stay residents and thus more inclined to elect full-care options. Their inclusion in our study may help explain our overall findings (although, unexpectedly, residents in nursing homes with higher percentages of residents whose stay was covered by Medicare had slightly lower odds of electing long-term artificially administered nutrition). Our finding that POLSTs signed by patient surrogates were more likely to limit care also seems in keeping with this explanation, for very ill or critically impaired residents may be both more likely to limit care and less likely to sign the POLST themselves.

Finally, California's documentation mandate could prompt nursing homes to introduce POLST prematurely to at least some residents, which could influence these

residents' POLST choices. Under the mandate, California nursing homes are required to document POLST use within 2 weeks of a resident's admission as part of the MDS assessment (California Department of Health, 2014). Some residents may be ill prepared to discuss POLST within this timeframe. Indeed, CCCC cautions that "POLST should not be included in the (nursing home) admission packet. Doing so conveys the wrong message that completing POLST is simply a formality for admission (Coalition for Compassionate Care of California, 2014b, p. 1)." The 2-week deadline may also inadvertently preclude primary care physicians from POLST discussions, for many of them work offsite and do not visit their nursing home patients that frequently, usually only once per month. Deadlines that reduce the opportunity for residents to discuss their choices with physicians before completing a POLST form are contrary to the principles of the shared decision-making model and as such could result in undesirable outcomes. If the POLST conversation occurs uncomfortably early for some residents or in the absence of their primary physician, these residents, if they decide to execute a POLST, may elect more aggressive care options simply because doing so preserves all options in the face of uncertainty. In this way, less than optimal timing of the POLST conversation could help account for our results.

Limitations

This study's findings must be interpreted cautiously in light of the study's limitations. Our study did not collect information on individual demographics and thus used aggregated facility demographics to examine possible differences due to resident characteristics. Nursing homes in this study represented a convenience sample and are not representative of nursing homes either across California or nationally. We did not record the number of accessed charts that lacked a POLST (although we conservatively estimate that 20% or fewer did not include a POLST), nor did we attempt to locate and review charts that were in use on the floor or otherwise missing from the chart room or nurse's station. As a result, we can only estimate, based on the POLSTs that we did review, the percentage of residents in each facility with a completed POLST. That noted, that we have no reason to believe that charts missing from the chart room or nurse's station on the day of our review created a selection bias in our sample. This is supported by our second regression analysis conducted without nursing facilities with high rates of missing charts, with results consistent with the analysis from the overall sample, a finding that suggests our outcomes are not due to variance in the availability of POLSTs. Finally, we were unable to differentiate long versus short stay nursing home residents. A larger study with a more representative sample is needed to further investigate POLST preferences among nursing home residents.

Conclusion

Our findings suggest that POLST preferences among nursing home residents may be more varied than previous POLST studies have reported or is commonly assumed (Hockley, Watson, Oxenham, & Murray, 2010). The adoption of POLST by a more ethnically and age-diverse population may result in lower prevalence rates for choices that limit care. Policy or regulatory mandates that encourage more universal use of POLST among nursing home residents may also indirectly influence patterns of POLST choices.

Emerging trends favor increased use of POLST by Americans. Some private insurers, for instance, now cover EOL care discussions between patients and their physicians, and the American Medical Association recently recommended that Medicare do the same (Belluck, 2014). All but six states have POLST programs that are either mature or in some stage of development (National POLST Paradigm, 2014). Additionally, the spread of electronic health records is expected to facilitate POLST adoption and documentation (AARP, 2011). At the same time, the U.S. population is becoming more racially and ethnically diverse, with Hispanic and Black populations growing more rapidly than the non-Hispanic White population (U.S. Census Bureau, 2012). Our findings suggest that the convergence of these trends over time may produce patterns of POLST choices that differ from those reported previously. More research is needed to explore this hypothesis. If confirmed, such an outcome is not in and of itself cause for concern; however, in the face of expected change—demographic, regulatory, or otherwise—it is prudent to redouble efforts to orient practice toward what Berwick calls the "true north" of health care quality; that is, patient-centered care (Berwick, 2002). The CCCC recommends that, in nursing homes, "POLST should be completed only after a rich conversation between clinical staff or physician and the resident and their family member (Coalition for Compassionate Care of California, 2014b, pg.1)." Such conversations are in keeping with tenets of the shared decision-making model: They enable residents to make educated, informed choices that align with their personal preferences, values, and beliefs. Adhering to this model will help ensure that outside expectations and pressures—from family members, healthcare providers, or even institutional policies—are not imposed inadvertently on patients' care decisions. Likewise, in California, provider practice that complies with the shared decision-making model may help avert any unintentional consequences that could arise from requiring nursing homes to document whether residents have executed a POLST.

Funding

This study was funded by a grant from the Archstone Foundation. A. N. Rahman was also supported by a grant from the National Institute on Aging (T32AG000037). The sponsors did not influence the research in any way. The content is solely the responsibility of the authors and does not necessarily represent the official views of the funders.

Acknowledgments

We would like to thank our research assistants Nadia Rahman and Erina Szeto for their hard work, attention to detail, and thoughtful suggestions. We would also like to thank the staff at the study's participating nursing homes for allowing us to share their workspace during data collection.

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