

Original Article

POST Forms More Than Advance Directives Associated With Out-of-Hospital Death: Insights From a State Registry

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Abstract

Context. Patients' end-of-life care outcomes often do not reflect their preferences. Ninety-two percent of West Virginians prefer to die outside the hospital, yet only 58.8% do.

Objectives. To compare out-of-hospital death (OHD) between those with completed advance directive (AD) and Physician Orders for Scope of Treatment (POST) forms.

Methods. This was a retrospective cohort study of 2027 West Virginians who submitted AD and/or POST forms to the West Virginia e-Directive Registry and died between October 1, 2010 and December 31, 2013. A multivariable logistic regression model examined the relationship between OHD by form type while adjusting for age and enrollment in hospice.

Results. Patients who completed an AD were significantly less likely to have an OHD (56.9%) than those who completed a POST form with comfort measures orders or a POST form with limited/full intervention orders (88.4% and 75.9%, respectively, $P < 0.001$). The odds of OHD were significantly higher for patients with POST forms with comfort measures orders than for those with ADs (OR 4.239, $P < 0.001$).

Conclusion. A prospective study is needed to validate that a statewide POST program and registry provide a more effective way than ADs to express, document, and honor patients' preferences for an OHD. *J Pain Symptom Manage* 2016;51:240–246. © 2016 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Advance care planning, advance directives, end of life, POLST, electronic registry, site of death

Introduction

Patients' end-of-life care often does not reflect their values and preferences.^{1,2} In particular, retaining control over where they die and what type of treatment they receive are factors patients have identified as important to the quality of their overall experience at the end of life.^{1,3} In a 2005 national study of Medicare beneficiaries with over 2500 respondents, 90.9% wanted to die outside the hospital,⁴ yet in that same year only 73.1% did.⁵ In West Virginia, there is even more discordance. Of West Virginians 18 years of age and older, 92% report that they want to die outside the hospital,⁶ but only 58.8% do.⁷

Advance directives (ADs) were initially conceived as a means for persons to retain control over what happened to them at the end of life,^{1,8} yet results with regard to the impact of ADs on end-of-life care have been mixed. Some studies have found no benefit.^{9–11} For example, a study examining the relationship between AD completion and hospital death at the end of life found no effect of ADs in decreasing hospital deaths.¹² However, in selected older populations, other studies have found that patients with ADs were significantly more likely to receive treatment consistent with their preferences.^{13–15} In West Virginia and in many other states, state-specific ADs include a section where patients can write special

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directives such as “I want to die at home.” This option could potentially result in ADs being effective to ensure that patients who have a preference for an out-of-hospital death (OHD) can have that preference honored.

Acknowledging the limitations of ADs, editorialists have suggested that ADs should be incorporated into broader system-level interventions for end-of-life care.¹ The Physician Orders for Life-Sustaining Treatment (POLST) Paradigm Program is one such system-level intervention that, through the process of advance care planning, converts patients’ preferences for treatment into medical orders.¹⁶ With use of the POLST form, nursing home residents were more likely to have their treatment preferences documented in medical orders than those without them,¹⁷ and the treatment the residents received was consistent with the orders on the POLST form 94% of the time.¹⁸ In addition to the POLST program, Oregon has another system-level intervention, a statewide POLST registry, which enables patients’ POLST form orders to be communicated accurately 24 hours a day, seven days a week to treating health care providers.^{19–21} Using data in the Oregon POLST Registry, Oregon researchers found that 94.6% of patients with comfort measures only orders on their POLST form died outside of the hospital and that patients with comfort measures only orders were significantly less likely to die in the hospital than patients with POLST orders for limited additional interventions or full treatment or no POLST form.²²

To date, the medical literature on differences in site of death associated with the use of ADs versus POLST forms has been very limited.²³ West Virginia has a Physician Orders for Scope of Treatment (POST) program that has the same components as Oregon’s POLST program, called a POLST Paradigm Program²⁴ and for which outcomes similar to those in Oregon have been documented.^{17,18} In addition, West Virginia has a statewide registry that includes ADs and POST forms.²⁵ Merging data from forms submitted to the West Virginia statewide registry and state vital statistics records, the purpose of this research was to compare OHD between those with ADs and those with POST forms. To our knowledge, this is the first head-to-head comparison of the OHD outcome between these two end-of-life care planning approaches.

Methods

Study Sample and Data Sources

The subjects for this study were all West Virginians who voluntarily submitted or had submitted for them completed ADs and/or POST forms to the West Virginia e-Directive Registry and died between

October 1, 2010 and December 31, 2013. The West Virginia e-Directive Registry (<http://www.wvendoflife.org/e-Directive-Registry>) is operated by the West Virginia Center for End-of-Life Care and funded by the West Virginia Department of Health and Human Resources. Patients (or their medical power-of-attorney representative or health care surrogate if the patient lacks decision-making capacity) can initial an opt-in box on an AD or POST form to authorize their form(s) to be sent to the registry and released to treating health care providers. Patients can change all forms submitted to the registry to update them to reflect their current wishes; their older forms are archived and kept in the registry for documentation purposes, but they are not accessible to treating health care providers. The West Virginia e-Directive Registry is accessible 24 hours a day, seven days a week through the West Virginia Health Information Network online portal (<http://www.wihin.org/default.aspx>).

Under a data-sharing agreement, the Vital Registration Office, a division of the Health Statistics Center of the West Virginia Department of Health and Human Resources, provided the West Virginia Center for End-of-Life Care with the name, date of birth, date of death, site of death, and cause of death of West Virginians who died during the study period. The electronic records of the forms submitted to the West Virginia e-Directive Registry were merged with the death records from the Vital Registration Office to compile the database for this study.

Inclusion criteria for the study were as follows: age 18 years or older; a POST form and/or AD in the registry; date of form completed and date of death during the study period; site of death reported; and, for those with a POST form, completion of level of medical intervention preference in Section B (Fig. 1). For patients who had submitted more than one type of form to the registry (10.3% of the sample), the most recently submitted form was used for analysis.

Study Variables

The primary outcome variable for this study was an OHD indicator variable, computed as OHD = 0 for hospital death and OHD = 1 otherwise from the reported site of death variable (nursing home, inpatient hospice, and home, including non-health care facility street address other than home). The main independent variable for this study was type of end-of-life care planning form completed, which was initially recorded with the following options: living will (LW), medical power of attorney (MPOA), combined LW/MPOA, POST form with a comfort measures order, POST form with a limited additional interventions order, and POST form with a full interventions order.

HIPAA PERMITS DISCLOSURE OF POST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY			
West Virginia Physician Orders for Scope of Treatment (POST)		<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Last Name/First/Middle Initial</div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">Address</div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">City/State/Zip</div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%; border-bottom: 1px solid black; margin-bottom: 5px;">Date of Birth (mm/dd/yyyy)</div> <div style="width: 20%; border-bottom: 1px solid black; margin-bottom: 5px;">Last 4 SSN</div> <div style="width: 35%; border-bottom: 1px solid black; margin-bottom: 5px;">Gender</div> </div>	
<p>This is a Physician Order Sheet based on the person's medical condition and wishes. Any section not completed indicates full treatment for that section. When need occurs, <u>first</u> follow these orders, <u>then</u> contact physician.</p>		<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; text-align: center;"> <div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">A</div> <div style="font-size: 0.8em;">Check One Box Only</div> </div> <div style="width: 70%;"> <p>CARDIOPULMONARY RESUSCITATION (CPR): Person has no pulse <u>and</u> is not breathing.</p> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <input type="checkbox"/> Resuscitate (CPR) <input type="checkbox"/> Do Not Attempt Resuscitation (DNR/no CPR) </div> <p>When not in cardiopulmonary arrest, follow orders in B, C, and D.</p> </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; text-align: center;"> <div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">B</div> <div style="font-size: 0.8em;">Check One Box Only</div> </div> <div style="width: 70%;"> <p>MEDICAL INTERVENTIONS: Person has pulse <u>and/or</u> is breathing.</p> <div style="margin-bottom: 5px;"> <input type="checkbox"/> Comfort Measures Treat with dignity and respect. Keep clean, warm, and dry. Use medication by any route, positioning, wound care and other measures to relieve pain and suffering. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. Do not transfer to hospital for life-sustaining treatment. Transfer <u>only</u> if comfort needs cannot be met in current location. </div> <div style="margin-bottom: 5px;"> <input type="checkbox"/> Limited Additional Interventions Includes care described above. Use medical treatment, antibiotics, IV fluids and cardiac monitoring as indicated. Do not use intubation or mechanical ventilation. Transfer to hospital if indicated. Avoid intensive care unit. </div> <div style="margin-bottom: 5px;"> <input type="checkbox"/> Full Interventions Includes care above. Use intubation, advanced airway interventions, mechanical ventilation, and cardioversion as indicated. Transfer to hospital if indicated. Include intensive care unit. </div> <p>Other Orders: _____</p> </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; text-align: center;"> <div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">C</div> <div style="font-size: 0.8em;">Check One Box Only in Each Column</div> </div> <div style="width: 70%;"> <p>MEDICALLY ADMINISTERED FLUIDS AND NUTRITION: Oral fluids and nutrition must be offered as tolerated.</p> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <input type="checkbox"/> No IV fluids (provide other measures to assure comfort) <input type="checkbox"/> No feeding tube </div> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <input type="checkbox"/> IV fluids for a trial period of no longer than _____ <input type="checkbox"/> Feeding tube for a trial period of no longer than _____ </div> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <input type="checkbox"/> IV fluids long-term if indicated <input type="checkbox"/> Feeding tube long-term </div> <p>Other Orders: _____</p> </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; text-align: center;"> <div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">D</div> </div> <div style="width: 70%;"> <p>Discussed with:</p> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <input type="checkbox"/> Patient/Resident <input type="checkbox"/> Health care surrogate <input type="checkbox"/> MPOA representative <input type="checkbox"/> Spouse </div> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <input type="checkbox"/> Court-appointed guardian <input type="checkbox"/> Parent of Minor <input type="checkbox"/> Other: _____ (Specify) </div> </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; text-align: center;"> <div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">D</div> </div> <div style="width: 70%;"> <p>Authorization INITIAL BOX if you agree with the following statement: If I lose decision making capacity and my condition significantly deteriorates, I give permission to my MPOA representative/surrogate to make decisions and to complete a new form with my physician in accordance with my expressed wishes for such a condition or, if these wishes are unknown or not reasonably ascertainable, my best interests.</p> </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; text-align: center;"> <div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">D</div> </div> <div style="width: 70%;"> <p>Registry Opt-In INITIAL BOX if you agree to have your POST form, do not resuscitate card, living will and medical power of attorney form (if completed) submitted to the WV e-Directive Registry and released to treating health care providers. REGISTRY FAX - 304-293-7442</p> </div> </div>			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Signature of Patient/Resident, Parent of Minor, or Guardian/MPOA Representative/Surrogate (Mandatory)</div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">Date</div>			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Signature of Physician</div>			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Physician Name (Print Full Name)</div>	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Physician Phone Number</div>		
<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Physician Signature (Mandatory)</div>	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">Date and Time</div>		
FORM SHALL ACCOMPANY PATIENT/RESIDENT WHEN TRANSFERRED OR DISCHARGED			

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e-Directive Registry FAX 304-293-7442

Fig. 1. The West Virginia Physician Orders for Scope of Treatment form with orders for patient preference for level of medical intervention in Section B.

A chi-square analysis found no difference in OHD by type of AD ($P = 0.715$). Therefore, LW, MPOA, and combined LW/MPOA were merged to form one AD category. POST forms with comfort measures orders were categorized separately from POST forms with limited and full interventions orders because only the comfort measures order specifically states "Do not transfer to hospital for life-sustaining treatment. Transfer only if comfort needs cannot be met in current location." This resulted in a categorical variable of form type for analysis with the following three levels: AD, POST form with comfort measures ordered in Section B of the form, and POST form with limited/full interventions ordered in Section B of the form. Because it was suspected that type of facility submitting the form to the registry may be related to OHD and the data were available, the submitting facility setting was included in the study. For analysis, submitting facility setting was dichotomized into a hospice indicator variable (1 = hospice, 0 = not hospice) to control for hospice enrollment when analyzing OHD by form type. Controlling for age at death and number of months between form completion and death also was considered, and these variables were calculated from existing date variables.

Statistical Analysis

Descriptive statistics were used to characterize the sample, including frequencies and relative frequencies of the categorical site of death, form type, submitting facility, and cause of death variables. Means and standard deviations were used to describe age at death and months from form completion to death in the sample. Chi-square testing was performed to detect differences in site of death comparing all West Virginians decedents and registry decedents during the study period and rates of OHD by type of form completed and by enrollment in hospice. The mean age at death and months from form completion to death were compared for out-of-hospital versus hospital death using independent samples t -tests. A multivariable logistic regression model was fit to examine the relationship between form type and OHD while controlling for enrollment in hospice and age. All analyses were completed using IBM SPSS Statistics version 22 (IBM SPSS Statistics, Armonk, NY).

Study Ethics

This study was approved by the West Virginia University Institutional Review Board.

Results

Description of Study Sample

During the study period, registry decedents were older and more likely to die outside of the hospital

than decedents in the West Virginia population as a whole (Table 1). For the 2027 patients in the study sample, selected sample characteristics (percentages for type of form submitted to the registry, submitting facility, and site of death) are summarized in Table 2. A POST form was completed by 63.4% of the subjects, and hospitals submitted more forms (44.0%) than other facilities. The OHD rate for this sample was 73.3%, with 40.1% of subjects dying at home. The mean age at death in the sample was 74.3 years (SD = 14.1), and the mean number of months to death from form completion was 5.3 months (SD = 11.8) (Table 3). However, months to death from form completion was skewed to the right, and the median for this variable was two months, indicating that half of the sample submitted a form to the registry within two months of dying.

Association Between Out-of-Hospital Death Outcome and Study Variables

Results of the bivariate analyses are summarized in Table 3. In the sample, patients who had completed an AD were significantly less likely to have an OHD (56.9%) than those who had a POST comfort measures order or a POST limited/full interventions order (88.4% and 75.9%, respectively, $P < 0.001$). Patients with limited additional interventions orders ($n = 492$) had an OHD rate of 78.0%, and patients with full interventions orders ($n = 89$) had an OHD rate of 64.0%. Only a minority of patients who completed an AD ($n = 285$, 38.4%) availed themselves of the option to write a special directive regarding preferred treatment or site of death in their AD. Patients whose forms were submitted by hospice died outside the hospital 92.2% of the time, whereas the OHD rate for nonhospice patients was 67.5%. Patients who died in the hospital were significantly younger, on average, than those who experienced an OHD (72.0 vs. 75.1 years, $P < 0.001$), but there was not a statistically significant difference in mean months to death from form completion between those who died in the hospital and those who did not (5.5 months vs. 5.3 months, respectively, $P = 0.733$).

The relationship between OHD and form type was examined using logistic regression controlling for age at death and enrollment in hospice. The odds of OHD with a POST form with comfort measures orders were 4.24 times the odds of OHD with an AD ($P < 0.001$). Not surprisingly, enrollment in hospice was related to OHD in the sample; the odds of OHD for those in hospice were 3.93 times the odds of OHD for nonhospice patients ($P < 0.001$). The logistic regression results are displayed in Table 4.

Table 1
Age- and Site-of-Death Comparison Between All West Virginia Versus Registry Decedents, October 2010 to December 2013

Variable	All Deaths <i>N</i> = 69,794	Registry Deaths <i>n</i> = 2027	<i>P</i> -value
	<i>n</i> = 69,793 ^a		
Age at death, mean (SD)	72.5 (17.8)	74.3 (14.1)	<0.001
Site of death, <i>n</i> (%)	<i>n</i> = 64,238 ^b		<0.001
Hospital	26,188 (40.8)	542 (26.7)	
Nursing home	10,202 (15.9)	451 (22.2)	
Hospice house	5713 (8.9)	222 (11.0)	
Home	22,135 (34.5)	812 (40.1)	

^aOne death record missing age.

^b5556 death records missing site of death.

Discussion

The OHD rate for the study sample, 73.3%, is comparable to the national average of 71%.²⁶ However, the OHD rate for patients in the study with ADs was lower at 56.9%, which is close to the OHD rate for West Virginians as a whole, 58.8%.⁷ That there is essentially no difference in these rates supports previous results indicating that ADs have minimal impact on OHD.¹² Unlike ADs, POST forms with comfort measures orders explicitly state not to transfer the patient to the hospital except if comfort needs cannot be met in the current site of residence. The results of the logistic regression analysis in this study suggest that POST forms with comfort measures are significantly more likely to be associated with OHD than ADs. This finding supports the results found in Oregon that POLST forms with comfort measures orders were associated with the highest OHD rate.²² Our study makes an additional contribution to the Oregon results by demonstrating that POST forms with comfort measures orders were significantly more often associated with OHD than ADs. It is noteworthy that a recently published study by Garrido et al., looking at the

relationship of medical orders (do not resuscitate) versus ADs in quality of life and cost of care in the week before death found no significant relationship between ADs and either quality of life or cost of care in the last week of life.²⁷

In our study, 92.2% of patients enrolled in hospice had an OHD regardless of the type of form they had submitted to the registry. This finding speaks to the efficacy of hospice in respecting patients' wishes to die outside of the hospital and is comparable to that found for the U.S. as a whole in 2012, when 93.6% of hospice patients died outside the hospital.²⁸ It is also similar to a recent report of OHD for Medicare beneficiaries enrolled in hospice who died in 2011 from poor-prognosis cancers and had a 96.6% OHD.²⁹ However, hospice does not provide a comprehensive solution to ensuring respect for patients' end-of-life wishes. Despite its existence in the U.S. since the 1970s,³⁰ still less than half of U.S. patients die with hospice care.³¹ There are multiple barriers to hospice access: physicians may fail to refer patients to hospice; patients may refuse referral³²; and Medicare policy may prevent some dialysis and nursing home patients access to the Medicare hospice benefit.^{33–36} Therefore, advance care planning within a system as reported in this article appears to be an important component to ensure that patients' end-of-life care reflects their values and preferences.

There are several limitations to this study. First, these results apply to a selected group of patients who had completed ADs and/or a POST form, and who (or their legal agent) had authorized that their form be submitted to the West Virginia e-Directive Registry. This process was most likely facilitated by West Virginia health care providers who were knowledgeable about end-of-life care and as a result participated in the POST program and the registry. The study collected information on individuals in all 55 West Virginia counties, but neither patients nor providers were representatively distributed across West Virginia. Because a more extensive medical literature on the benefits of POLST forms is relatively recent,¹⁷ and the registry had only been in existence for three years at the completion of the study period, it is likely that many West Virginians and their physicians were not familiar with the POST form and the West Virginia e-Directive Registry. Therefore, the patients in this study had more favorable circumstances for the likely honoring of their end-of-life care preferences, and the results are not generalizable to all West Virginians. Another important limitation is that it is unknown what percentage of the patients in the study actually desired an OHD. It is reasonable to assume that those patients with comfort measures orders did not want to die in the hospital as the comfort measures order explicitly states not to transfer to the hospital unless

Table 2
Selected Characteristics of Study Subjects, *N* = 2027

Variable	<i>N</i> (%)
Form type	
POST comfort measures	704 (34.7)
POST limited/full interventions	581 (28.7)
Advance directives	742 (36.6)
Submitting facility	
Hospice	473 (23.3)
Hospital	892 (44.0)
Nursing home	251 (12.4)
Other	411 (20.3)
Site of death	
Home	812 (40.1)
Hospice house	222 (11.0)
Hospital	542 (26.7)
Nursing home	451 (22.2)

POST = Physician Orders for Scope of Treatment.

Table 3
Differences in Out-of-Hospital Death Outcome by Study Variables

Variable	All N = 2027	Hospital Death n = 542 (26.7%)	Out-of-Hospital Death n = 1485 (73.3%)	P-value
Age at death, mean (SD)	74.3 (14.1)	72.0 (14.4)	75.1 (13.9)	<0.001
Months to death from form completion				
Mean (SD)	5.3 (11.8)	5.5 (14.3)	5.3 (10.7)	0.733
Median (IQR)	2.0 (5.0)	2.0 (5.3)	2.0 (5.0)	0.894
Form type, n (%)				
POST comfort measures	704 (34.7)	82 (11.6)	622 (88.4)	<0.001
POST limited/full treatment ^a	581 (28.7)	140 (24.1)	441 (75.9)	
Advance directive	742 (36.6)	320 (43.1)	422 (56.9)	
Hospice, n (%)				
No	1554 (76.7)	505 (32.5)	1049 (67.5)	<0.001
Yes	473 (23.3)	37 (7.8)	436 (92.2)	

IQR = interquartile range; POST = Physician Orders for Scope of Treatment.

^aOf the 581 patients, those with limited additional interventions orders (n = 492) had an in-hospital death rate of 22.0% and those with full interventions orders (n = 89) had an in-hospital death rate of 36.0%.

comfort needs cannot be met in the current location. No assumptions can be made about the preferences for location of death of patients who had limited additional interventions or full interventions orders because both orders stipulate that the patient is to be transferred back to the hospital for further medical treatment. A prospective study will be needed to confirm that POST forms with comfort measures ordered are more likely to result in respect for patients' preferences to die outside the hospital than ADs. A third limitation is that additional descriptive variables for the study sample such as race, education, religion, and level of income were not available in the administrative data bases and could not be analyzed to determine their influence on type of form completed and site of death.

A POLST Paradigm Program and Internet-based registries are recommended in the evidence base, and by the National Quality Forum, the AARP, and the Institute of Medicine as preferred practices to improve the care of the dying by honoring individuals' preferences near the end of life.^{17–19,22,37–40} Identifying patients who are at high risk for death with the surprise question,⁴¹ as is the procedure for use of the POLST form,⁴² appears promising for conducting end-of-life care discussions when the time is "just right."² Further research is needed to validate that a statewide system with a POLST Paradigm Program

and registry provides an optimal way to document and honor patients' preferences for an OHD. The elusive goal of establishing a system to enable persons to retain control over what happens to them at the end of life, including where they die and what type of treatment they receive, may finally be in sight.

Disclosures and Acknowledgments

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References

- White DB, Arnold RM. The evolution of advance directives. *JAMA* 2011;306:1485–1486.
- Billings JA, Bernacki R. Strategic targeting of advance care planning interventions: the Goldilocks phenomenon. *JAMA Intern Med* 2014;174:620–624.
- Steinhauser KE, Christakis NA, Clipp EC, et al. Factors considered important at the end of life by patients, family, physicians, and other care providers. *JAMA* 2000;284:2476–2482.
- Barnato AE, Herndon MB, Anthony DL, et al. Are regional variations in end-of-life care intensity explained by patient preferences?: a study of the US Medicare population. *Med Care* 2007;45:386–393.
- Teno JM, Gozalo PL, Bynum JP, et al. Change in end-of-life care for Medicare beneficiaries: site of death, place of care, and health care transitions in 2000, 2005, and 2009. *JAMA* 2013;309:470–477.
- West Virginia Center for End-of-Life Care. West Virginians' attitudes and practices toward end-of-life care. Available at: <http://www.wvendlife.org/MediaLibraries/WVCEOLC/Media/public/EOL-Report-2013-Final-website.pdf>. Accessed September 29, 2015.
- West Virginia Health Statistics Center. West Virginia vital statistics 2011. Available at: <http://www.wvdhhr.org/bph/>

Table 4
Results of Logistic Regression for Out-of-Hospital Death Outcome, n = 2027

Variable	Odds Ratio	95% CI for OR	P-value
Age at death	1.006	(0.999–1.014)	0.111
Form type			<0.001
POST comfort measures ^a	4.239	(3.192–5.630)	<0.001
POST limited/full treatment ^a	1.915	(1.488–2.465)	<0.001
Hospice ^b	3.927	(2.733–5.643)	<0.001

POST = Physician Orders for Scope of Treatment.

^aReference group: All patients with an advance directive.

^bReference group: Nonhospice patients.

- hsc/pubs/vital/2010/2010Vital.pdf. Accessed September 29, 2015.
8. Bok S. Personal directions for care at the end of life. *N Engl J Med* 1976;295:367–369.
9. Fagerlin A, Schneider CE. Enough. The failure of the living will. *Hastings Cent Rep* 2004;34:30–42.
10. Perkins HS. Controlling death: the false promise of advance directives. *Ann Intern Med* 2007;147:51–57.
11. U.S. Department of Health and Human Services. Advance directives and advance care planning: report to Congress. August 2008. Available at: <http://aspe.hhs.gov/daltcp/reports/2008/ADCongRpt.htm>. Accessed September 29, 2015.
12. Silveira MJ, Wiitala W, Piette J. Advance directive completion by elderly Americans: a decade of change. *J Am Geriatr Soc* 2014;62:706–710.
13. Silveira MJ, Kim SY, Langa KM. Advance directives and outcomes of surrogate decision making before death. *N Engl J Med* 2010;362:1211–1218.
14. Detering KM, Hancock AD, Reade MC, Silvester W. The impact of advance care planning on end of life care in elderly patients: randomised controlled trial. *BMJ* 2010;340:c1345.
15. 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;61:209–214.
16. Pope TM, Hexum M. Legal briefing: POLST: physician orders for life-sustaining treatment. *J Clin Ethics* 2012;23:353–376.
17. Hickman SE, Nelson CA, Perrin NA, et al. A comparison of methods to communicate treatment preferences in nursing facilities: traditional practices versus the physician orders for life-sustaining treatment program. *J Am Geriatr Soc* 2010;58:1241–1248.
18. Hickman SE, Nelson CA, Moss AH, et al. The consistency between treatments provided to nursing facility residents and orders on the physician orders for life-sustaining treatment form. *J Am Geriatr Soc* 2011;59:2091–2099.
19. Fromme EK, Zive D, Schmidt TA, Olszewski E, Tolle SW. POLST registry do-not-resuscitate orders and other patient treatment preferences. *JAMA* 2012;307:34–35.
20. Olszewski EA, Newgard CD, Zive D, Schmidt TA, McConnell KJ. Validation of physician orders for life-sustaining treatment: electronic registry to guide emergency care. *J Am Geriatr Soc* 2012;60:1384–1386.
21. Schmidt TA, Olszewski EA, Zive D, Fromme EK, Tolle SW. The Oregon physician orders for life-sustaining treatment registry: a preliminary study of emergency medical services utilization. *J Emerg Med* 2013;44:796–805.
22. Fromme EK, Zive D, Schmidt TA, Cook JN, Tolle SW. Association between physician orders for life-sustaining treatment for scope of treatment and in-hospital death in Oregon. *J Am Geriatr Soc* 2014;62:1246–1251.
23. Hammes BJ, Rooney BL, Gundrum JD, Hickman SE, Hager N. The POLST program: a retrospective review of the demographics of use and outcomes in one community where advance directives are prevalent. *J Palliat Med* 2012;15:77–85.
24. The National POLST Paradigm Task Force. What is POLST? Available at: <http://www.polst.org/develop-a-program/program-requirements/>. Accessed September 29, 2015.
25. West Virginia Center for End-of-Life Care. West Virginia e-Directive Registry. Available at: <http://www.wvendoflife.org/e-Directive-Registry>. Accessed September 29, 2015.
26. National Center for Health Statistics Data Brief. Trends in inpatient hospital deaths: National Hospital Discharge Survey, 2000–2010. 2013. Available at: <http://www.cdc.gov/nchs/data/databriefs/db118.htm>. Accessed September 29, 2015.
27. Garrido MM, Balboni TA, Maciejewski PK, Bao Y, Prigerson HG. Quality of life and cost of care at the end of life: the role of advance directives. *J Pain Symptom Manage* 2015;49:828–835.
28. NHPCO. Facts and figures: Hospice care in America, 2013 ed. Available at: http://www.nhpco.org/sites/default/files/public/Statistics_Research/2013_Facts_Figures.pdf. Accessed September 29, 2015.
29. Obermeyer Z, Makar M, Abujaber S, et al. Association between the Medicare hospice benefit and health care utilization and costs for patients with poor-prognosis cancer. *JAMA* 2014;312:1888–1896.
30. Saunders C. Hospice care. *Am J Med* 1978;65:726–728.
31. NHPCO. Facts and figures: Hospice care in American, 2012 ed. Alexandria, VA: National Hospice and Palliative Care Organization, 2012.
32. Bhargava J, Thompson K, Bachelder R, Bova-Collis R, Moss AH. Hospice and ESRD: knowledge deficits and underutilization of program benefits. *Nephrol Nurs J* 2008;35:461–466.
33. Jennings B, Ryndes T, D’Onofrio C, Bailly MA. Access to hospice care: expanding boundaries, overcoming barriers. *Hastings Cent Rep* 2003;33:S3–S59.
34. Miller S, Lima J, Mitchell SL. Influence of hospice on nursing home residents with advanced dementia who received Medicare-skilled nursing facility care near the end of life. *J Am Geriatr Soc* 2012;60:2035–2041.
35. Tamura MK, Meier DE. Five policies to promote palliative care for patients with ESRD. *Clin J Am Soc Nephrol* 2013;8:1783–1790.
36. Teno JM, Gozalo PL. Quality and costs of end-of-life care: the need for transparency and accountability. *JAMA* 2014;312:1868–1869.
37. National Quality Forum. A national framework and preferred practices for palliative and hospice care quality. Washington, DC: National Quality Forum, 2006.
38. Gillick MR. Reversing the code status of advance directives? *N Engl J Med* 2010;362:1239–1240.
39. Sabatino C, Karp N. Improving advanced illness care: The evolution of state POLST programs. Washington, DC: AARP Public Policy Institute, 2011:55.
40. Institute of Medicine. Dying in America: Improving quality and honoring individual preferences near the end of life. Washington, DC: National Academies Press, 2014:506.
41. Moss AH, Ganjoo J, Sharma S, et al. Utility of the “surprise” question to identify dialysis patients with high mortality. *Clin J Am Soc Nephrol* 2008;3:1379–1384.
42. West Virginia Center for End-of-Life Care. Frequently asked questions about the Physician Orders for Scope of Treatment Form 2014. Available at: http://www.wvendoflife.org/MediaLibraries/WVCEOLC/Media/professional/faq_post-rev-2013.pdf. Accessed September 29, 2015.