*Original Article*

# Timing of POLST Form Completion by Cause of Death

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## Abstract

**Context.** The physician orders for life-sustaining treatment (POLST) paradigm allows health care professionals to document the treatment preferences of patients with advanced illness or frailty as portable and actionable medical orders. National standards encourage offering POLST orders to patients for whom clinicians would not be surprised if they died in the next year.

**Objectives.** To determine the influence of cause of death on the timing of POLST form completion and on changes to POLST orders as death approaches.

**Methods.** This was a cohort study of 18,285 Oregon POLST Registry decedents who died in 2010–2011 matched to Oregon death certificates.

**Results.** The median interval between POLST completion and death was 6.4 weeks. Those dying of cancer had forms completed nearer death (median 5.1 weeks) than those with organ failure (10.6 weeks) or dementia (14.5 weeks; $P < 0.001$). More than 90% of final POLST forms indicated orders for no resuscitation and 65.1% listed orders for comfort measures only. Eleven percent of the sample had multiple registered forms during the two years preceding their death, with the form completed nearest to death more likely than earlier forms to have orders for no resuscitation and comfort measures only, although some later forms did have orders for more treatment.

**Conclusion.** More than half of POLST forms were completed in the final two months of life. Cause of death influenced when POLST forms were completed. POLST forms changed in the two years preceding death, more frequently recording fewer life-sustaining treatment orders than the earlier form(s). J Pain Symptom Manage 2015;50:650–658. 

***Key Words***

*POLST, end-of-life care, illness trajectories, timing of completion*

## Introduction

Waiting too long to engage in advance care planning may result in late hospice referral and, for some, unwanted transitions in the final weeks of life. In 2011, the median national hospice stay was 19.1 days, with 35.8% of enrollees dying within one week of enrollment.[1] Although rates of inhospital death are dropping, Teno et al.[2] report that transitions during the last 90 days of life have increased from 2.1 in 2000 to 3.1 transitions in 2009. Some of these transitions were undoubtedly burdensome and/or unwanted. If called, most EMS protocols require that patients receive life-sustaining treatment and transport to a hospital unless EMS responders see written medical orders to the contrary; thus, having medical orders can help patients avoid unwanted treatment or transitions near the end of life.

Physician orders for life-sustaining treatment (POLST) forms are medical orders completed by a health professional based on the patient's preferences

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regarding cardiopulmonary resuscitation in the case of cardiopulmonary arrest (do not resuscitate [DNR] or attempt resuscitation [cardiopulmonary resuscitation]), scope of treatment when not in cardiac arrest (comfort measures only [CMO], limited interventions, or full treatment), and artificial nutrition (long-term use, defined trial period, or no artificial nutrition by tube; see http://tinyurl.com/klrdob2 for a copy of the 2014 Oregon POLST form).

Hickman et al.[3,4] have shown that POLST reduces unwanted transitions. Tolle et al.[5] reported a 5% in-hospital death rate in a prospective study of nursing home residents with POLST orders for CMO. There is an association between POLST scope of treatment orders and location of death,[6] as well as research indicating that POLST forms support patients in receiving the treatments documented on their POLST forms and avoiding those treatments they do not want.[6,7]

When is the optimal time to complete a POLST form? Although patients have the right to refuse treatments that they do not want, concerns have been raised that documents could be completed too early for patients to have a clear idea of what their preferences will be when they are more ill and nearer to death.[8–10] Tuohey and Hodges[11] provided a broader clinical context for the apprehension expressed by some writers that advance directives and POLST documents will result in limiting treatment if they are completed too soon, at a time when patients might live significantly longer if they *did* receive life-sustaining treatment. Limiting POLST use to patients who are identified as "terminally ill" potentially creates challenges,[12] and many studies document physicians' struggles with prognostic accuracy.[13–15] Given challenges with prognostication, patient denial of terminal illness, and concerns with appropriate timing of advance care planning, the National POLST Paradigm Task Force recommends that clinicians have goals of care conversations and offer a POLST to patients whom they would not be surprised if they died in the upcoming year.[16]

The goal of this study was to examine the timing of POLST completion in Oregon and changes in POLST orders over time. Specifically, the objective was to determine the influence of the cause of death on the timing of POLST form completion as death approaches.

## Methods

This cohort study was reviewed by the Oregon State Public Health Institutional Review Board as well as the Oregon Health & Science University Institutional Review Board and was deemed exempt as all subjects are known decedents.

### *Study Setting*

The study included data from the Oregon POLST Registry, a statewide electronic registry of POLST forms. The completion of a POLST form by a patient is always voluntary, but, if one is completed in Oregon, the signing health care professional or their designee is mandated to submit the form to the Registry unless a patient specifically opts out. The Registry receives forms from all counties in the state and from all care settings, including long-term care, health systems, hospitals, clinics, hospice, home-based care, and individuals. Death certificates for 2010 and 2011 from the Oregon Center for Health Statistics were matched to decedent POLST forms in the Oregon POLST Registry. The primary outcome measured was the timing of POLST form completion in relation to death by cause of death. A similar sample was used in a prior analysis focused on location of death.[6]

### *Population*

The study included POLST forms for the 18,285 registrants in the Oregon POLST Registry for Oregonians who died of natural causes in 2010 or 2011. For each decedent, a two-year interval before date of death was calculated, and death records were matched to any registrant with a form submitted to the Registry within that interval. Only deaths by natural causes were included for the match, excluding suicide, homicide, accident, trauma, or undetermined/pending causes of death because most patients with sudden, unexpected, and traumatic deaths are usually not candidates to have POLST orders.

Forms that had been signed within the two years before each registrant's death were included. A subset of 2004 registrants (11%) was identified as having more than one registered POLST form in the two years before death that reflected different treatment preferences in at least one section as compared with an earlier form.

### *Variables*

Variables from death records from the Oregon Center for Health Statistics included dates of birth and death, race, ethnicity, educational attainment, decedent zip code (coded to rural or urban), sex, age at death, and primary cause of death. Variables from the Oregon POLST Registry included form orders for all POLST forms signed within two years of each decedent's date of death, demographic data, and date each form was signed. Please see Fig. 1 for the POLST form in use during this study.

### *Statistical Analysis*

Descriptive univariate statistics were used to characterize the primary sample, using chi-square to determine significant differences between groups. Differences at the 0.05 level and below were considered