Video Decision Support Tool for Completion of Physicians Orders for Life Sustaining Treatment (POLST):

An Opportunity to Improve Advance Care Planning

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#### Abstract:

Improving communication around Advance Care Planning for patients with advanced illness nearing the end of life is a high priority in our current medical environment. We investigated whether use of a video-guided tool may help facilitate completion of a POLST (Physician Orders for Life Sustaining Treatment) form for patients with advanced illness. Our research found that patients and their decision makers who used the tool were far more likely to complete all sections of the POLST form (p<0.001, OR 0.44; 95% CI, 0.38 to 0.51), more likely to elect a less aggressive level of care, limited or symptom treatment vs. full treatment (p<0.001, OR 0.83; 95% CI, 0.77 to 0.90), more likely to elect Do Not Hospitalize (DNH) (p<0.001, OR 0.16, 95% CI, 0.09 to 0.26), and more likely to refuse tube feeding compared to the control arm (p<0.0001, OR 0.37; 95% CI, 0.22 to 0.61). The work suggests that a video-guided POLST completion tool may augment Advance Care Planning and better align personal goals of care with available therapies. Additionally, this research suggests using a video-guided POLST completion tool has the potential to improve health literacy as it relates to the POLST form and has the potential to improve quality of life and reduce unnecessary cost at the end of life. As the video tool promotes better conversations among selected patients, it highlights an opportunity in patient communication, and a need for further research.

Many patients face important decisions about their care as they advance in age and approach end of life. Advance care planning (ACP) is the process by which patients and their health care providers establish goals, values, and preferences for medical care, and allows patients an opportunity to define their personal wishes [1, 2]. Ideally, these values would be communicated with loved ones, surrogate decision makers and other healthcare providers.

Evidence is available suggesting that early conversations are associated with enhanced care concordant with patient preferences [3-5]. Advance care planning increases the likelihood that individuals' wishes are respected at the end of life and reduces caregiver regret during bereavement [6, 7]. Because of these potential benefits, many medical societies support ACP as a method to improve the quality of end of life care [8]. Additionally ,CMS began reimbursing physicians for Advance Care Planning discussions in January of 2016. Yet, only a minority of physicians discuss advance care planning with their patients [9-11]. Despite the growth of the hospitalist movement, and introduction of palliative care services, the majority of hospitalized patients at risk for death still do not have advance care discussions documented in their electronic records [9]. This may have negative consequences including unnecessary stress for patients and caregivers, and medical care discordant with patients' preferences [12, 13]. Even when ACP does take place, communication is poor, perhaps secondary to provider discomfort engaging in these discussions [14-17].

Physician Orders for Life-Sustaining Treatment (POLST) was developed by a task force of health care professionals interested in improving patients' choices regarding end of life care. Various iterations of the form are used in over 40 states [18]. The POLST form is a standardized, portable, highly visible document intended to communicate patient preferences into a medical order set that is legal across all health care settings a patient may experience in a single state. POLST was found to be an effective tool in several studies [13, 19-22]. They can be completed with surrogates, are actionable, and binding. Because they are medical orders and follow patients across the health care continuum, they are more likely to be followed than advance directives which are not actionable and are open to interpretation. However, completion of POLST forms is not well studied, and still highly dependent on provider communication skills. Choices for patients are thus heavily dependent on how clinical care is presented. We anticipated that many physicians may use the POLST form only to elicit "code status" and thus lose on opportunities to better understand patient preferences. In New Jersey, the POLST form is unique in that it has "Section A" first, which allows a patient to communicate their personal goals of care in the context of their prognosis.

To improve access to high quality communication, our team developed a video support tool designed to enhance communication by clinicians who lack specialty palliative care training. The tool utilized the POLST form and created a structured conversation guide to frame preferences of patients in their last years of life. The ultimate goal is to improve health literacy around the POLST form and better align personal preferences with available therapies during the final phase of life.

At this time, the conventional paradigm is to engage in ACP discussions using verbal descriptions of potential outcomes that may be foreign to patients and their loved ones. Many physicians focus only on extracting patient preferences for cardiopulmonary resuscitation (CPR) and mechanical ventilation. These options may be difficult for patients to understand or imagine, and are often theoretical, making an informed decision-making difficult. Decision aids can increase patients' knowledge of advance care planning, best and worst possible outcomes, are better at delineating values and engage active participation in decision making [23]. Prior studies suggest that video images may improve patient understanding and improve decision making [24-30]. Video support tools offer an opportunity to dynamically depict diminishing health and the nature of treatment options.

We present a study focused on extending our understanding of video support tools, especially related to the POLST form in patients admitted to our institution.

### Methods

#### **Participants**

The study was performed at an inpatient community hospital in Princeton, New Jersey from January 2017 to December 2017. We chose a convenience sample based on inpatient status, given the high volume of at risk patients served, to maximize program implementation. Patients were approached if identified by their treating physician as having an overall poor prognosis with an intention to discuss

advance care planning. We chose this generalized approach rather than a disease specific focus to increase the generalizability of our findings. Basic enrollment criteria included the ability to communicate in English and an estimated prognosis of less then one year as determined by the "surprise" question: "Doctor, would you be surprised if this patient died within the next one year?" The research assistant underwent standardized training and used structured scripts to limit bias. For eligible participants interested in the study, the research staff introduced the concept of advance directives, advance care planning, and introduction to the POLST form as an introduction to the study.

# **Study Design**

All interventions were conducted by members of the research team. Participants were screened to ensure they met eligibility criteria. With practitioner oversight, participants in the intervention arm watched videos and/or read narrative describing each section of the POLST form. The videos were /developing following careful review of the advance care planning and POLST literature. They were reviewed and edited by a team of physicians, with representation from geriatrics, palliative care, internal medicine, pulmonary, critical care, and nephrology. Videos were written using language below eighth grade comprehension level and edited by a health literacy consultant. Participants watched the videos and completed the tool with the practitioner using a hand held tablet.

The tool was structured to mirror the sections of the New Jersey POLST form. Following an introduction to the POLST, the tool first asked patients about their overall Goals of Care: "What are your hopes for the future? What is important to you and where do you want to spend your final months and years? Participants could check off multiple pre-populated options: minimize pain and suffering, remain independent, live as long as possible, better quality of life, peaceful death, cure or remission; and/or type in their own personal response. The next screen described three levels of care, using specific examples: full treatment (doing everything that can be done to keep you alive; could include ICU and surgery), limited treatment (avoiding aggressive treatments such as intensive care and surgery, but could include IV antibiotics and fluids), and symptom treatment (letting nature take it's course; doing everything that can be done to keep you comfortable). Participants who selected Limited Treatment were then asked under what conditions they would want to return to the hospital or if they would prefer to stay home unless transfer was needed for comfort (DNH). Next, the tool described long term and short term tube feeding, their risks and benefits, and offered the options: long term artificial nutrition, no artificial nutrition, or temporary artificial nutrition. The next two screens described what is involved in CPR and intubation, the risks and benefits, and the caution that it is very unlikely to work in older, frail people with serious illness. Participants indicated whether they wanted CPR to be performed or not and whether they wanted to be intubated or not.

The design, content, and structure of the videos were reviewed and edited by the research team. The speaker included in the video gave informed consent to be filmed. No special effects were used. All participants were able to select their responses on the POLST form regarding preferences of care. All data was collected in a private room by a trained member of the research team, following a structured

script. Following completion of the video and selection of patient preferences, an official POLST form was created and printed from the responses provided.

#### **Data Collection**

The primary outcome was participants' completion of the POLST form as determined immediately following either normal care or the video decision support tool. Additional baseline data included age, gender, and participant comfort using the tool. Participants were asked about their perceptions of the video, their comfort using the tool, and whether they would recommend the tool to other patients. The questions were combined into a Likert Scale ranging from 0 to 5; 0 represented complete discomfort and 5 complete comfort with the tool. All data was collected in a private room by a trained member of the research team, following a structured script.

# **Statistical Analysis**

Participant characteristics and outcomes were described using categorical variables, means, and standard deviations for continuous variables. The primary outcome was completion of all aspects of the POLST form. This included section A through section D of the New Jersey POLST form. Secondary outcomes included preferences for individual goals of care, medical interventions, administration of artificial nutrition, cardiopulmonary resuscitation and airway management. Outcomes with 95% confidence interval were reported. Preferences were compared between the two groups using x² tests. All reported p-values are two sided, p<0.05 as statistically significant. Data were analyzed using SAS software, version 9.4. We performed chart review manually, with two independent reviewers blinded to each other's responses. Any discordance was reviewed by a third independent reviewer, blinded to the study.

## **Results**

A total of 214 patients were in the control group of usual care and 112 in the video intervention group. Baseline characteristics of the participants are in table 1. Despite lack of randomization, both groups did not differ in baseline characteristics, with similar age, gender, race, and number of comorbidities.

## **POLST Completion**

Figure 1 shows completion of the POLST form in its entirety between the two groups, with details of each section in Figures 2, 3, 4 and 5. Of the 214 control participants, only 102 (48%) had

completed the entire form. In the intervention arm using the video tool, 110 (99%) completed the POLST form in its entirety (p<0.001).

Section A of the POLST form was completed for 100% of the patients in the video intervention arm compared to 56% in the control group (p<0.001, OR 0.44; 95% CI, 0.38 to 0.51), Figure 1. 107 of the 112 patients in the intervention arm selected limited or symptom treatment only compared to 171 of 214 patients in the control group (p<0.001, OR 0.83; 95% CI, 0.77 to 0.90), Figure 2.

Participants in the intervention arm were more likely to select DNH (p<0.001, OR 0.16, 95% CI, 0.09 to 0.26), Figure 3.

Participants in the intervention arm also had a greater likelihood to forego artificial nutrition compared to the control arm (p<0.0001, OR 0.37; 95% CI, 0.22 to 0.61), Figure 4.

Comparison of preferences for CPR (p=0.6, OR 0.24; 95%Cl, 0.05 to 1.08) and intubation (p=0.18, OR 0.59; 95% Cl, 0.29 to 1.19) trended towards less aggressive care, though the study may have been underpowered to detect a statistical significance (Table 1), Figure 5.

# **Experience with the Video**

Among the 112 participants in the intervention arm, 85 % of those who gave a subjective rating found the video to be "very helpful." Most participants were "very comfortable" watching the video and when asked if they would recommend it to others, the majority said they would. There were no adverse events, such as emotional distress or family conflict, in either arm.

# **Discussion**

In this prospective trial, we examined the impact of a video-guided POLST tool to improve ACP communication. Though prior studies have investigated the usefulness of video support tools to facilitate advance care planning, this is the first of our knowledge focused on POLST form completion. We found that compared to usual care, patients using the video support tool had more comprehensive care planning as indicated by completeness of the POLST form. Our findings are consistent with prior studies that have found that patients viewing such videos have a greater overall knowledge, decreased uncertainty, and less stress in medical decision making [28-32]. Our work builds on the foundation of these studies, demonstrating efficacy in POLST form completion. The POLST paradigm allows a structured approach for many life-threatening illnesses and allows physicians to conceptualize a framework on how to personalize patient care.

Our study is also consistent with prior studies that demonstrated that effective advance care planning discussions are associated with less aggressive care in advanced illness [3, 33]. Review of the literature suggests that patients opt for less aggressive care when they have a better understanding of

their individual goals, preferences and likely outcomes, consistent with our results. These findings highlight that a patient's ability to comprehend all options for medical interventions, along with accompanying risks and benefits is critical in medical decision making.

Physicians and other allied providers consistently report discomfort approaching advance care planning and end-of-life discussions [34-36]. Yet, patients express a longing to be involved in the decision making process, especially in regards to their own advance illness [10, 37-41]. Our study suggests that we physicians may underestimate the resiliency of our patients and highlights a need to improve our approach share decision making. This study presents an innovative approach to decision-making that may bypass some of the obstacles in difficult conversations, such as physician discomfort, patient misunderstanding, and time limitations. Video tools supplementing verbal discussions are likely to play a significant role in allowing patients to make more informed decisions at the end-of-life.

We note that our study has several limitations. First, the study design was not randomized and staff was not blinded to the intervention. Both of these limitations introduce bias. Second, this was a small pilot study at a single institution. Thus, our findings may not be generalizable to communities with a greater percentage of minority groups, less-educated patients, or patients with different characteristics. In addition, although prior data suggest improved serious illness communication enhances patient outcomes, we did not evaluate to what extent POLST form completion influences patient care. Information on whether patients received the type of care they desired is an area of interest and a future study is currently being planned. The purposes of the videos are to reinforce the physician-patient discussion and improve the patient experience during a difficult time. Though emotional responses to the video may have influenced POLST form preferences, the video content underwent scrutiny by providers not involved in the study, with expertise in palliative care and communication. Participant comfort with the video tool also suggests that the videos were not coercive or biased in any way. Lastly, the study was conducted on a convenience sample; therefore the differences we found could be due to some unmeasured characteristics.

Informing patients about choices near the end of life are an essential component to clinical care. Advance care planning is challenging and emotionally charged. In addition, patient comprehension may be hampered by variability in physician counseling, distortions in media representation, anxiety about health care directives, and poor health literacy [42-45]. Our study suggests that video support tools should complement patient-clinician discussions. If used correctly, they may enhance active participation, increase health literacy and encourage shared decision making. The tools may provide standardized information, clarifying the benefits and risks of each decision as outlined by a document such as the POLST form [46].

The admission encounter, which is often the time when advance care preferences are discussed, is a challenging time for hospitalists who are meeting the patients for the first time. A physician is expected to immediately build a relationship with the patient, discuss the plan, and address concerns. These tasks require time, and if done poorly, may threaten the patient-provider relationship. Video support tools are opportunities to prepare patients for serious conversations. The time required in our study to conduct a serious illness conversation appeared feasible within the hospital workflow. Though

our study investigated use of the POLST form, video support may similarly be used to prepare patients for family meetings, discuss a specific treatment or intervention, or more generally to address a decline in status.

To have a measurable impact on downstream outcomes related to ACP, such as resource use at end of life and congruence of care with patient wishes, we suggest that video decision aids should be integrated within the larger shared decision making process. Systems-change components, including strategies to identify vulnerable patients and methods for early palliative care interventions can be readily integrated into the workflow of this video based tool. We would also advocate for innovative ways to engage patients with their primary healthcare provider and surrogate decision maker. Ideally, all decisions made should be documented in the electronic health record that is communicated across different settings.

Our study offers an innovative and practical tool to ACP for patients with serious illness. Video support tools can improve patient understanding of medical interventions that are hard to understand or imagine using words. Team engagement improves access to serious illness care conversations in the inpatient setting, is deserving of future study, and is the platform for many of our future studies. Though more work is needed to standardize these tools across the varied spectrum of clinical care and disease, clinicians and health care systems should adopt these tools to educate and empower patients. Further research on outcomes and cost implications of such interventions are needed.

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#### **Author Disclosure Statement**

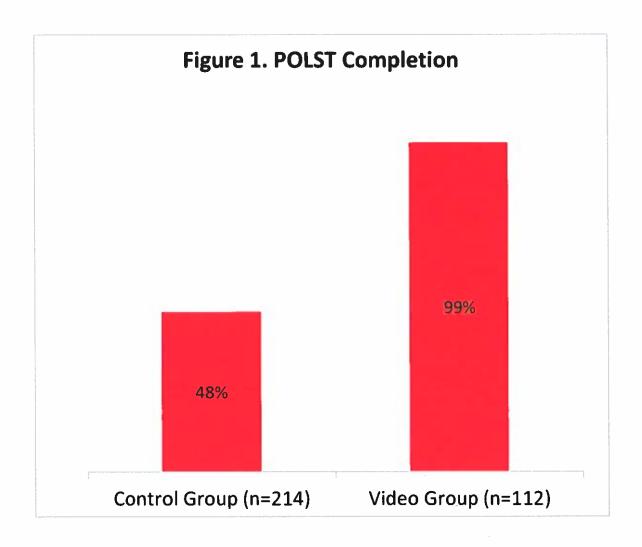
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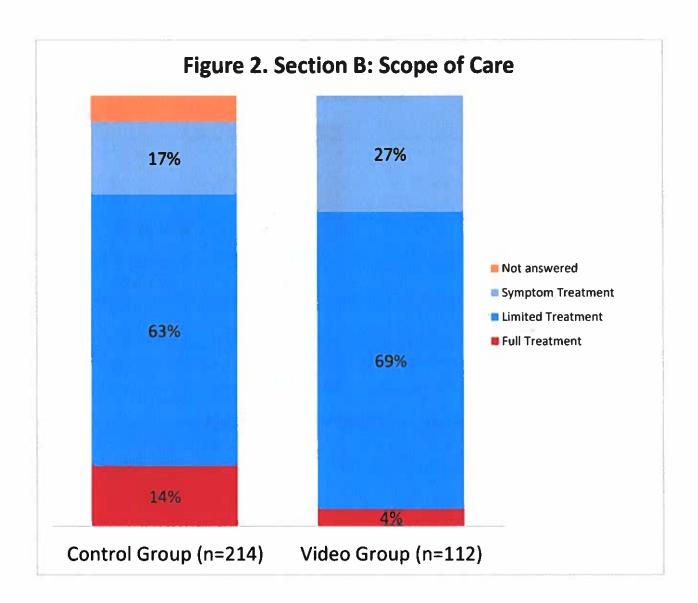
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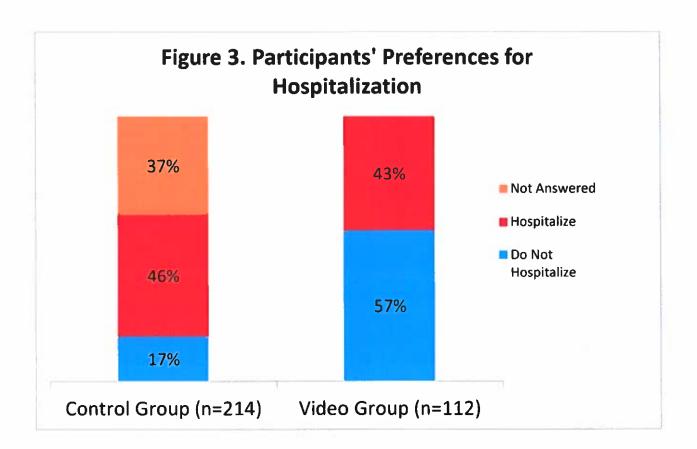
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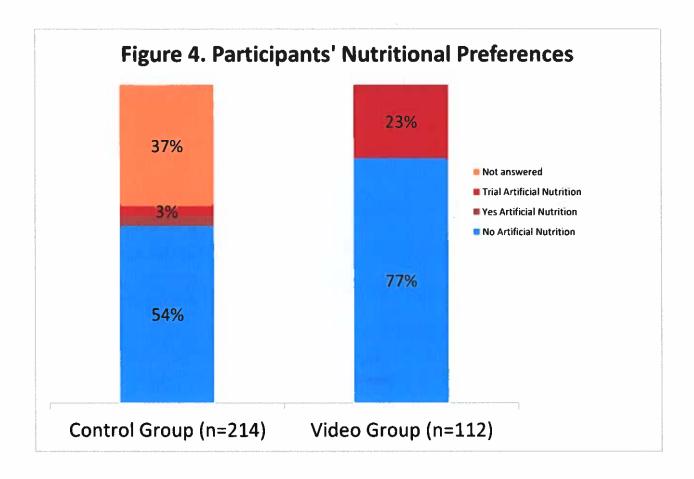
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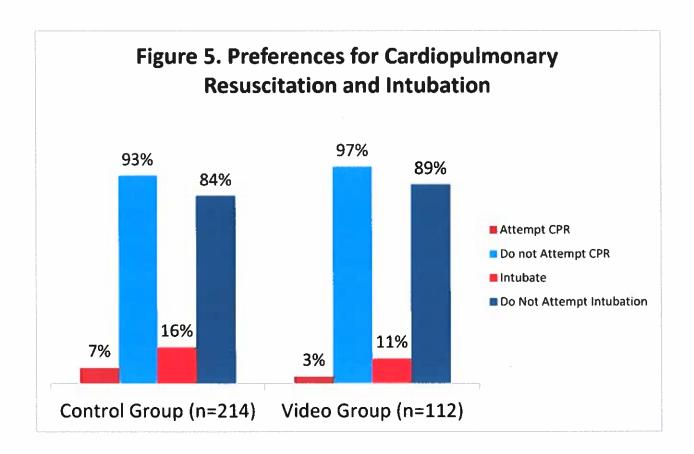
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	Control Group		Video Group	
Characteristic	n=214		n=112	
	No. of Patients	%	No. of Patients	%
Age, years	83		88	
Women	116	54	57	51
Race				
White (non-Latino)	162	76	92	82
umber of Comorbidities				
2	24	11	21	19
3	73	34	35	31
4	39	18	17	15
>4	79	37	39	35

Table 2. Physician Orders for Life-Sustaining Treatment in the Video Support Group Compared to Usual Care

		YOURCAREPLAN (n=112) Percentage 88 years old		Physician Engaged Care (n=214)		
					Percentage	p-value
Average Age				83 years old		
Section A:		112	100%	119	56%	p=<0.001
Section B:						
	Limited Treatment	77	69%	135	63%	p=0.002
	Symptom Treatment	30	27%	36	17%	
	Full Treatment	5	4%	29	14%	
	Not answered	0		14	6%	
	Do not Hospitalize	64	57%	37	17%	p=<0.001
	Go to hospital	48	43%	98	46%	
	Not answered	0		79	37%	
Section C:						
	No artificial nutrition	86	77%	115	54%	p=<0.001
	Yes Artificial nutrition	0	0%	8	3%	
	Temporary Artificial nutrition	26	23%	8	3%	
	Not answered	0		79	37%	
Section D:						
Section D.	Do not attempt Resuscitaiton	109	97%	199	93%	p=0.06
	Attempt Cardiopulmonary Resuscitation	3	3%	15	7%	
	Do not attempt Intubation	100	89%	178	84%	p=0.18
	Attempt Intubation	12	11%	36	16%	
	All sections of POLST completed	110	99%	110	48%	p=<0.001