A COMPARISON OF COMMUNICATED PATIENT PREFERENCES IN ADVANCE DIRECTIVES WITH CARE RECEIVED BY NURSING HOME RESIDENTS

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By

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ABSTRACT

Advance directives are documents that allow patients to communicate wishes with regard to medical care in advance of becoming incapable of expressing those wishes to medical professionals. Advance directives are a key component of the movement toward “patient-centered care,” which emphasizes two-way communication between medical professionals and patients and provision of care that is closely tied to the patient’s priorities. This paper builds on research on effective advance directive programs by investigating how these orders are translated to care received for nursing home residents. Using data from the 2004 National Nursing Home Survey, I focus on “do not hospitalize” and “feeding restrictions” advance directives, to examine how nursing home residents, all of whom would have received the opportunity to complete an advance directive upon admissions to the nursing home per Federal law, experienced care in relation to the wishes they expressed.

While I fully expect that the presence of an advance directive will have a substantive impact on the probability of corresponding medical care, it is important to examine the statistical significance of such a relationship. This is especially true in light of the programs taking root around the country, which emphasize specificity and explicitness in the writing of advance directives. Federal law guarantees individuals the right to accept or refuse medical treatment, and to have an advance directive in place. This paper seeks to examine the extent to which nursing home residents can expect this
right to be fulfilled, and investigate ways that processes and procedures related to
advance directives can be improved.
ACKNOWLEDGEMENTS
I would like to thank my advisor, William Encinosa, for his assistance and guidance in the preparation of this thesis. I would also like to thank my friends, colleagues and classmates and for their assistance and support.
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I. INTRODUCTION

The common law right to refuse or discontinue medical treatment has been established and recognized in the United States for almost a century. How patients exercise their right to make informed consent over their care has been explored in both the judicial and legislative realms. In 1990, Congress passed the Patient Self-Determination Act (PSDA), which required most health care facilities to inform patients about their rights to execute an advance directive. An advance directive is defined as written documents designed to allow competent patients the opportunity to guide future health care decisions in the event that they are unable to participate directly in medical decision making. (Tonelli, 2008). Under the law, hospitals, skilled nursing homes and nursing homes must provide the required information to individuals at the time of admission.

In spite of this requirement, there is no standard format in which the information must be presented, and indeed there may be significant variation in the methods of delivering information related to advance directives, including hospital staff member or physician, or type of form used and whether the form is signed on its own or simultaneously with others many others. Additionally, because there are not national laws or regulations that criminalize or otherwise penalize non-adherence to advance directives, there is little enforcement of the follow-through. Considering the conspicuous absence of these rules, a key area for research in determining the success of laws related to advance directives, and whether further laws or regulations are necessary, is whether the orders are in fact likely to result in care that matches the stated preferences.
This paper will use statistical analysis to investigate whether the actual care received is associated with the patient’s stated preferences in their advance directive. Many advance directive forms allow patients to declare a Do Not Resuscitate (DNR) order or specify a Living Will, which documents an individual or group of individuals with whom the patient entrusts some or all medical decisions when the patient is incapacitated. Forms also typically include other options, including Do Not Hospitalize or Feeding Restrictions (an order not to be fed by artificial means if unable to be fed by oral means). These two, along with the documented care received by the patient, are the focus of this paper.
II. RESEARCH AIMS

Since the passage of the PSDA, research suggests that it has not been conclusively successful in promoting the adoption of advance directives, and it is arguable that this was ever the law’s intention. However, as the title of the law suggests, there is a belief in this country that patients should be able to make self-determinations about end of life care, and thus additional policymaking is required to adequately achieve this objective. There is a great debate over lowering the cost of health care, but it should be made clear that this paper does not delve into that discussion. While research does suggest that end of life care is extremely expensive, and that advance directives may lower the cost of care, this is not guaranteed. Instead this paper looks at the effectiveness of advance directives in terms of whether they are implemented as intended.

There are several ways to define effectiveness of health care in the context of end of life care, only one of which is the focus of this paper. The first is effectiveness in medical terms – whether the treatment achieves the intended benefit for the patient, through an alleviation of pain, a slower spread of the disease, or a cured condition. America promotes and ensures medical effectiveness through the FDA drug approval process, physician board certification, hospital inspections, and the newly created insurance quality rating system included in the Patient Protection and Affordable Care Act (PPACA).

The second way of defining the effectiveness of care is according to the degree to which it has met the needs and preferences of patients receiving care. A major emphasis of health care delivery reforms underway is the movement towards individualized, patient-centered care. Health care professionals are being encouraged to seek ways to
treat the patient, and not simply the patient’s disease, by creating treatment plans inclusive of patient preferences and designing strategies to communicate effectively with patients. Advance directives are an important way to improve patients’ ability to preserve self-direction of their care during times when they otherwise may not be able to communicate wishes. This is the definition with which this paper is primarily concerned, and through which care is determined to be proper or improper. The idea that our medical system can be improved simply by effectively meeting the needs and wishes of all patients, and is in itself a worthy endeavor towards assuring adequate usage of scarce resources is not in itself a controversial one, and is the principal aim of this research. Nevertheless, it is worth acknowledging the third definition of care effectiveness in order define the rhetorical boundaries, because for better or worse, any discussion of either care effectiveness or end of life care will undoubtedly turn to costs.

The escalation of medical costs in America is a very pronounced and indisputable phenomenon. (Kaiser). The metadata suggests that the nation is spending more but not receiving a commensurate return on this increased investment in terms of metrics of care quality, including life expectancy. In the context of end of life care, researchers also have shown that palliative and hospice care is associated with lower costs of care as well as extended survival, versus additional rounds of treatment or chemotherapy. The conversation around end of life care in America is a combustible one; instead of a discussion over “maximized value of care,” rhetoric with terms like “care rationing” and “death panels” often prevails in Congress and the campaign trail -- places where policy agendas are created.
Some nations have no such qualms with discussing cost effectiveness of medical care, and prioritizing treatments and coverage decisions according to results of research, much to the chagrin of the health care economy, including hospitals, physicians and drug companies. There may come a time when the country need to rebuff these and other industries and explicitly seek to control end of life care costs directly with the help of cost effectiveness research. At that point, policymakers may take into consideration effectiveness according to medical outcomes, as well as how the care meets patients stated priorities and desires, or as stated at the point of care or as documented in an advance directive.

Although this project will not be able to identify the reasons why or why not an advance directive was followed, it will seek to identify trends in cases that it was or was not. The three instances I will focus on are: 1) whether residents who had ordered an advance directive stating a wish not to be hospitalized, and examining whether they have indeed been hospitalized recently; and 2) whether residents who ordered an advance directive with feeding restrictions, and whether they have indeed received a feeding tube. Advance directives give patients a chance to make decisions regarding their medical care before they may become incapable of voicing their wishes and being active participants in their care. Ideally, these wishes are communicated to all parties in the patient’s care, and they should all have a common understanding of the patient’s health wishes. Unfortunately, this does not always occur. The directives may not be transmitted to the provider making decisions about care and/or those directives may not be followed. A study of elderly patients hospitalized for acute illnesses found that 75 percent of the time the medical record did not indicate that physicians had consulted the patient’s living
will or the patient's designated proxy before making treatment decisions, including whether to resuscitate. This failure occurred for a number of reasons: nursing facilities failed to transfer the information, patients were not asked or did not volunteer the information, and hospital staff failed to ask or to ensure that such documents were part of the record (Morisson et al).

Several factors could result in this failure, including failure to transmit advance directives, and provider failure to recognize patient autonomy. From a research standpoint, there has been much discussion of the balance between physician power and patient autonomy. The heart of this is a shift in medical care from paternalism to recognition of patient autonomy, bringing the patient into medical care decision-making. At the far edge of the patient autonomy spectrum, the independent choice model places the patient squarely in the center of decision-making. The physician informs patients about options and odds of success and requires that physicians withhold all recommendations. Another model, called enhanced autonomy, softens the independent choice perspective by allowing physicians to state recommendations and focuses on the dialogue between the patient and physician in reaching a decision (Quill, 1996).

Advance directives essentially preclude this dialogue entirely, and are meant to serve as a statement of the patient’s preferences, before the physician even has a chance to convince the patient otherwise. Additionally, the patient is presumed incapacitated when an advance directive is required and so the physician or emergency responder essentially has individual choice of whether or not to implement the advance directive.
III. LITERATURE REVIEW AND INSTITUTIONAL BACKGROUND

Advance directives, as documents, are an important component of how patients plan and communicate their wishes regarding future medical care. In 1990, the U.S. Congress passed the Patient Self-Determination Act, which was intended to enhance patient control over medical treatment decision-making. However, there has been a great deal of criticism and concern over the implementation and effects of the PSDA since its enactment. In addition, much of the research on advance directives suggests that patients may have uneven personal interpretations of advance directives and of what to include in one.

Much of the research on the effectiveness of the Patient Self-Determination Act has focused on advance directives as signed documents, and less so how advance directives are translated into care for patients at the end of life. Conversely, research on strategies to improve advance directives has focused on the documents as part of a larger, coordinated advanced care planning process. Patients are unlikely to complete advance directives unless they believe that doing so will lead to improved satisfaction with end of life care. Accordingly, increased adoption of advance directives depends on how well they are put into action during critical decision-making points.

a. Advance Directives and Nursing Homes

   It is especially important to study advance directives in nursing homes, since decisions about transferring residents to hospitals for more intensive interventions are very frequent; more than 25% of nursing home residents are transferred to an acute hospital each year (Rurup, 2006). Additionally, each state has its own laws regarding how
advanced directives may be used outside of the hospital setting. For instance, most states require that an “Out of Hospital Do not Resuscitate” Order must be filled out on a particular form and must be readily available to show emergency responders if someone should call for assistance. The research of the PSDA in the nursing home setting offers a mixed conclusion of the law’s effectiveness in increasing completion of advance directives. A study of nursing home admissions before and after the implementation of PSDA using medical record reviews found that 35% of the residents in the post-PSDA cohort had an advance directive documented in the medical record. However, most of the residents with advance directives had completed them more than six months before the nursing home admission. The authors found that the major effect of the PSDA for nursing homes has been to enhance the documentation of existing advance directives, which points to PSDA as a potential catalyst for continuity of care and increased care integration. Nonetheless, the authors found little evidence that providing advance directive information at the time of admission enhances the rate of completion of an advance directive (Bradley, 1998).

Research on the types of advance directives completed in nursing homes indicates that they may not be centered on specific care directives. A study which involved a ten-state survey of nursing home residents and advance directives pre- and post-PSDA found that most of the advance planning in nursing homes takes one of two forms: designation of a health care proxy (living will) or institution of a “do-not resuscitate” (DNR) order. While 32% of the residents identified had a health care proxy and 74% had a DNR order, fewer than 8% had an order to forgo artificial nutrition and to forgo hospitalization. The
study found that the rates for feeding assistance and hospitalization unchanged after implementation of the PSDA (Teno, 1997).

b. Issues with Implementing Advance Directives

Research suggests that advance directives may not always be implemented as intended by the patient. A study published by the New England Journal of Medicine, based on an analysis of 96 individuals who died in nursing homes or in hospitals, found that care was consistent with wishes expressed in an advance directive 75 percent of the time, but that the presence of the advance directive did increase the likelihood of such an outcome. The authors concluded that inconsistencies were more likely in the nursing home and that in cases of inconsistencies occurred both because care was less aggressive or more aggressive, but more often more aggressive. They also concluded that the effectiveness of written advance directives was limited by inattention to them and by physicians placing emphasis on other factions in making decisions about care (Danis, 1991). It is important to note, however, that this was published several months before the passage and implementation of the PSDA.

Research suggests that physician non-compliance may be among the reasons why advance directives may not be implemented properly. One small study investigated the degree to which physicians may not be willing to use an advance directive. The researchers examined the role of advance directives in life saving decisions for critically ill patients and found that when patient advance directives were not followed it was not because the doctor unilaterally ignored it. Rather, the advance directives were not
considered applicable in the majority of cases because the physician and family members did not see the patients as “absolutely, hopelessly ill” (Teno, 1998).

Additionally, patients themselves may not be clear in their advance directives as to how stringently their priorities should be respected, and how much power a proxy should have in being able to override their advance directive. Hawkins et al documented 337 patients’ and surrogates’ attitudes about advance directives, and found that many were not willing to be explicit about what types of treatments they wanted. Instead, they expressed general preferences, such as values and goals for care, often in place of specific treatment preferences. In addition, patients who documented their preferences in advance directives were noncommittal as to whether they wanted the orders strictly followed near death; 91% selected proxies with authority to override the directives (Hawkins et al, 2005).

c. Institutional Background

Norms Associated with Advance Directives

The concept of advance directives rests on a foundation that says that patients should be able to state their wishes for medical treatment in advance of becoming unable to communicate them. Proponents of advance directives believe that the patient’s orders are, at a certain point or in some cases, better than the orders given by a physician.

Some patients may believe, however, that this is never true; they may think that either the doctor should be trusted to make decisions in all cases, or that their family should be the party responsible for making critical decisions at the end of life. Thus, the idea that more patient autonomy is always better does not hold true for every patient.
Advance directives are sometimes discussed in terms that imply that every individual must state preferences, but the research discussed above, and the efforts described below instead focus on ensuring that every individual is offered a chance to make this decision. Successfully persuading those who would be inclined to state preferences to actually do so, depends greatly on the trust they have for the medical system and a belief that wishes will be carried out. To this point, there is not a large body of research or policy focus on documenting whether advance directives are being followed and implemented properly.

*Patient Self-Determination Act*

The most relevant federal law in place is the Patient Self-Determination Act (PSDA), which became effective in 1991. Under PSDA, health care organizations (e.g., hospitals, nursing homes, home health agencies, hospice providers, HMOs), are required to provide written information to individuals at the time of admissions regarding their rights to make decisions about medical care, and the right to complete an advance directive. PSDA also says that facilities may not, in any way, discriminate against patients on the basis of whether they do or do not have an advance directive. Additionally, health care facilities are required to educate the community and staff on issues concerning advance directives (American Bar Association).

*State Laws*

The PSDA stipulates that states were mandated to pass statutes authorizing advance directives, but it did not specify what the content of the laws should be. Forty-two states have laws that permit out-of-hospital DNR orders (Sabatino, 1999). However, for advance directives to be effective, medical workers caring for the patient need to be
aware of them. Thus, the next step is laws that allow advance directives to stay with the patient as they move between care settings.

*Physician Orders for Life-Sustaining Treatment (POLST)*

One of the most studied systems of advance care planning and documentation is the “Physician Orders for Life-Sustaining Treatment” (POLST) paradigm, originally developed in Oregon. The centerpiece of the program is the POLST document, a brightly colored medical order form that converts patient treatment preferences into written medical orders based on a conversation among health care professionals, the patient, and/or surrogates about treatment goals. The form transfers with patients across care settings to ensure that wishes are honored throughout the health care system.

In a retrospective study of 90 nursing facilities in Oregon, Wisconsin and West Virginia, residents with POLST forms were more likely to have treatment preferences documented as medical orders than those who did not. POLST orders restricting medical interventions were associated with less use of life-sustaining treatments (Hickman et al, 2010). Importantly, authority to follow the stated preferences is ensured by state law and health care facilities have incorporated use of the POLST form into standard operating procedure.

*Respecting Choices (RC)*

Respecting Choices (RC) is a program implemented La Cross, Wisconsin in 1993, which seeks to make advanced care planning a part of routine medical care and create a “microsystem” of people that “elicit, understand, document, and honor a patient’s preferences about future medical care.” The program does this by standardizing patient
education materials, medical records policies and practices, and uses trained non-physician facilitators in addition to doctors.

The effectiveness of programs like RC and POLST were confirmed by Hammes et al in a retrospective study of individuals who died in La Crosse; the study was of 540 who died in 1995/96 and 400 who died in 2007/08. The researchers measured the effect of improvements made in between the time periods, including implementation of the POLST paradigm, the development of a Power of Attorney for Health Care document that was more user-friendly and provided guidance on completing advance directives, and the launch of an electronic medical record (EMR) system that simplified viewing of patients’ advance directives.

The study found that the positive results already seen following the implementation of RC were sustained and in fact improved upon in the 2007/08 cohort. At the time of death, almost all of the patients had an advance care plan; most plans had specific institutions; they were written with “sufficient clarity that clinicians and surrogates could use them across sites of care, the plan was viewable to healthcare professionals caring for the patient, and the plans were almost always consistent with treatment. The results showed that implementation of the POLST paradigm was highly effective. One of the important limitations of this study is that it was conducted in La Cross County, which is overwhelmingly racially homogenous and where there are two large integrated community health systems that provide all physician and hospital care. Thus, the results may not be generalizable in more diverse areas with less integrated health care delivery systems (Hammes et al, 2010).
The Patient Self-Determination Act was an important first step in ensuring that advance directives are at least mentioned in every patient admission. Taken together, the research generally concludes that the PSDA may have had a marginal impact on completion rates for advance directives, but the law alone is unlikely to have had a meaningful impact on overall patient care at the end of life. More recent efforts have focused on integrating advance directives into a larger care planning discussion, and in improving adherence rates of advance directives. These approaches, such as POLST and RC, show considerable promise.
IV. METHODS AND DATA

Although this project does not seek to identify the reasons why or why not an advance directive was followed, it does seek to identify trends in cases that it was or was not. The three instances I focus on are: 1) whether residents who had ordered an advance directive stating a wish not to be hospitalized, and examining whether they have indeed been hospitalized recently; and 2) whether residents who ordered an advance directive with feeding restrictions, and whether they have indeed received a feeding tube.

To test the hypothesis, this study employs logistic regression models. Here, the outcome variables are binary and the partial effect of the explanatory variables is nonlinear. Logistic regression models rely on maximum likelihood estimation (MLE), which reports coefficient estimates that maximize the likelihood of the sample data set being observed and are especially precise for large samples. The coefficients in logistic regression models show the signs of the partial effects (marginal impacts) of each explanatory variable on the outcome variable of interest. In these models, each explanatory variable is statistically significant if the null hypothesis can be rejected at a small significance level (Wooldridge, 2009).

a. Data

For this study, I use the 2004 National Nursing Home Survey, conducted by the Centers for Disease Control and Prevention. In this survey, a total of 1,174 nursing homes participated, and a total of 14,017 residents were sampled. This survey includes variables relating to race and ethnicity, gender, and type of advance directive if one was signed.
This survey is a nationally representative, cross-sectional probability sample survey of all current residents in nursing homes in the United States with three or more beds and either certified by Medicare or Medicaid or licensed by the state. The sample design was stratified, multistage probability. The first stage was the selection of facilities and the second stage was the selection of residents. The primary sampling strata of facilities was defined by bed size and metropolitan area status. For the 2004 NNHS, 1,500 nursing homes were selected. The second stage sampling of current residents was carried out by the interviewers at the time of their visits to the facilities. The sampling frame for current residents was the total number of residents on the register of the facility as of midnight the day before the survey. A sample of up to 12 current residents per facility was selected, resulting in a total of 14,017 residents (Centers for Disease Control and Prevention).

b. Variables

The dependent variables of interest in my regressions are 1) whether the nursing home resident had a hospital admission (requiring an overnight stay) in the past 90 days, at the time of the interview, and 2) whether the patient had a feeding tube at the time of the interview. Independent variables are described below:

*Specific Advance Directive* indicates whether the patient had in place an advance directive specifically stating whether they should not be hospitalized, or should not be fed by artificial feeding methods respectively.

*Advance Directive but not Specific* indicates that the resident does have an advance directive in place, but not one specifically ordering that they should not receive the treatment in question (either hospitalization or a feeding tube). Examples of such advance
directives may be “Living Will” (or power of attorney), “Do Not Recucitate,” or “Medication Restriction.”

Race indicates the race of the resident as black or Hispanic, with white as the omitted category.

Female indicates that the resident is female, with male as the omitted category.

Widowed is a binary variable indicating that the resident is widowed at the time of the interview.

Married is a binary variable indicating that the resident is married at the time of the interview.

High Blood Pressure; Heart Failure; Stroke; Renal Failure are variables indicating that patient has a code on their record showing a diagnosis of these conditions.

Incapacitated is a variable generated to indicate whether the resident can be deemed incapacitated at the time of the interview. This variable results in a “yes” (or 1) if the resident is severely impaired in his or her ability to make decisions regarding tasks of daily, diagnosed with Dementia (including Alzheimer’s disease), or is comatose. The patient is also determined to be incapacitated if they have ICD-9 codes for severe Amnestic disorder, Epileptic psychosis.

Payer indicates the payment sources for resident’s current admission for first month/billing period. This variable is comprised of two options: either Medicaid or Medicare/Veterans Affairs/Welfare as the payer for their nursing home stay. It should be noted that this is distinct from the payer when the resident is admitted to a hospital, which

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1 The “International Classification of Diseases” is used to code and classify morbidity data from the inpatient and outpatient records, physician offices, and most National Center for Health Statistics (NCHS) surveys.
is likely to be Medicare, unless the resident receives care in a Veterans Administration (VA) facility, in which case it may be covered by VA health benefits (Centers for Medicare and Medicaid Services).

*Age* is a categorical variable showing which quartile of surveyed individuals the residents fall into, at the time of the interview.

*Activities of Daily Living (ADLs)* describes the general health status of the resident through a functional assessment used to provide objective information. The Katz Index of Independence in Activities of Daily Living, commonly referred to as the Katz ADL, is the instrument used to assess functional status as a measurement of the client’s ability to perform activities of daily living independently. The factors considered in this scale are feeding, toileting, transferring, dressing, bathing, continence. Residents are scored yes/no for independence in each of the six functions. A score of 6 indicates full function, 4 indicates moderate impairment, and 2 or less indicates severe functional impairment (Wallace et al, 2007). For this study, patients with a score of zero are indicated through a binary variable.

I use the same set of independent variables to estimate the association of a medical treatment corresponding to the advance directive with the following two dependent variables: 1) Having a “No hospitalization” advance directive in place, and 2) Having a “Feeding Restriction” advance directive in place. The models are specified as follows:

\[
\text{Outcome} = \beta_0 + \beta_1(\text{Specific Advance Directive}) + \beta_2(\text{Advance Directive but not Specific}) + \beta_3(\text{Black}) + \beta_4(\text{Hispanic}) + \beta_5(\text{Female}) + \beta_6(\text{Widowed}) + \beta_7(\text{Married}) + \beta_8(\text{High Blood Pressure}) + \beta_9(\text{Heart})
\]
\[ \text{Failure} + \beta_{10}(\text{Stroke}) + \beta_{11}(\text{Renal Failure}) + \beta_{12}(\text{Incapacitated}) + \]
\[ \beta_{13}(\text{Zero ADLs}) + \beta_{14}(\text{Payer 1}) + \beta_{15}(\text{Payer 2}) + \beta_{16}(\text{Age 2}) + \beta_{17}(\text{Age 3}) + \beta_{18}(\text{Age 4}) + \epsilon \]

Descriptive Statistics

My sample consists of 13,507 nursing home residents. Almost three-quarters are female (71%). 88% identified themselves as white, 10% as black, and 3% as Hispanic, not accounting for multiple identifications. About two-thirds have at least one advance directive on file (65%), but only 4% have an advance directive specifying no hospitalization, and 10% order that no artificial feeding methods should be used. Of all residents, 7% were hospitalized within the last 90 days at the time of the interview, and 6% had a feeding tube at the time of the interview. Over half of the residents interviewed were widowed (54%) and 20% were married. Nearly a quarter of residents were incapacitated at the time of the survey (22%).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any advance directive</td>
<td>.65</td>
<td>.47</td>
</tr>
<tr>
<td>“No hospitalization”</td>
<td>.04</td>
<td>.17</td>
</tr>
<tr>
<td>“Feeding restrictions”</td>
<td>.10</td>
<td>.30</td>
</tr>
<tr>
<td>Hospital admission</td>
<td>.07</td>
<td>.29</td>
</tr>
<tr>
<td>Feeding tube</td>
<td>.06</td>
<td>.22</td>
</tr>
<tr>
<td>Race: White</td>
<td>.88</td>
<td>.33</td>
</tr>
<tr>
<td>Race: Hispanic</td>
<td>.03</td>
<td>.18</td>
</tr>
<tr>
<td>Race: Black</td>
<td>.10</td>
<td>.31</td>
</tr>
<tr>
<td>Female</td>
<td>.71</td>
<td>.45</td>
</tr>
<tr>
<td>Married</td>
<td>.21</td>
<td>.24</td>
</tr>
<tr>
<td>Widowed</td>
<td>.54</td>
<td>.42</td>
</tr>
<tr>
<td>Age at Interview</td>
<td>80.52</td>
<td>12.97</td>
</tr>
<tr>
<td>Incapacitated</td>
<td>.22</td>
<td>.41</td>
</tr>
</tbody>
</table>
TABLE 2. DISTRIBUTION OF CARE RECEIVED BY ADVANCE DIRECTIVE (N=13,507)

<table>
<thead>
<tr>
<th>Care Received</th>
<th>All</th>
<th>Any Advance Directive</th>
<th>Specific Advance Directive&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Hospital Admission</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.84%</td>
<td>4.10%**</td>
<td>2.74%</td>
</tr>
<tr>
<td><strong>Feeding Tube</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.91%</td>
<td>3.22%***</td>
<td>2.69%</td>
</tr>
</tbody>
</table>

<sup>a</sup>Hospital Admission means resident was admitted to hospital and stayed overnight in previous 90 days.

<sup>b</sup>Feeding tube means resident had a feeding tube at the time of the survey.

<sup>c</sup>Specific advance directives are “no hospital admission” in row 1 and “feeding restrictions” in row 2.

** p<.01

*** p<.001

Simple statistics seem to tell the story of an advance directive program that is highly effective. Of residents who selected an advance directive specifying that they should not be hospitalized, .17% were hospitalized in the last 90 days, while 6.67% of those without an advance directive were hospitalized. Of residents who specified that artificial feeding methods should not be used, .19% did have a feeding tube, while 5.72% of residents without that advance directive did not.
V. RESULTS

TABLE 3: LOGISTIC REGRESSION OUTPUT: HOSPITAL ADMISSION AND FEEDING RESTRICTIONS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Logit Coefficient (Hospital Admission)</th>
<th>Logit Coefficient (Feeding Restrictions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific advance directive</td>
<td>.63 (.16)</td>
<td>.29 (.07)***</td>
</tr>
<tr>
<td>Advance directive but not a specific advance directive</td>
<td>.92 (.07)</td>
<td>1.00 (.09)</td>
</tr>
<tr>
<td>Female</td>
<td>.82 (.06)**</td>
<td>.89 (.08)</td>
</tr>
<tr>
<td>Widowed</td>
<td>1.08 (.10)</td>
<td>.80 (.09)*</td>
</tr>
<tr>
<td>Married</td>
<td>1.13 (.11)</td>
<td>1.09 (.12)</td>
</tr>
<tr>
<td>High blood pressure diagnosis</td>
<td>.76 (.11)*</td>
<td>.63 (.13)*</td>
</tr>
<tr>
<td>Heart failure</td>
<td>1.70 (.20)***</td>
<td>.74 (.17)</td>
</tr>
<tr>
<td>Stroke</td>
<td>.95 (.13)</td>
<td>1.08 (.27)***</td>
</tr>
<tr>
<td>Renal failure</td>
<td>1.85 (.34)**</td>
<td>.86 (.27)</td>
</tr>
<tr>
<td>Zero Activities of Daily Living (ADLs)</td>
<td>.73 (.16)</td>
<td>2.11 (.08)**</td>
</tr>
<tr>
<td>Incapacitated</td>
<td>.78 (.06)**</td>
<td>3.88 (.34)**</td>
</tr>
<tr>
<td>Medicaid Payer</td>
<td>1.10 (.10)</td>
<td>1.22 (.13)</td>
</tr>
<tr>
<td>Medicare/VA/Welfare Payer</td>
<td>1.20 (.10)</td>
<td>1.76 (.18)***</td>
</tr>
<tr>
<td>Age 2(^{nd}) quartile</td>
<td>.86 (.09)</td>
<td>.43 (.47)***</td>
</tr>
<tr>
<td>Age 3(^{rd}) quartile</td>
<td>.81 (.08)</td>
<td>.38 (.05)***</td>
</tr>
<tr>
<td>Age 4(^{th}) quartile</td>
<td>.56 (.07)***</td>
<td>.23 (.03)***</td>
</tr>
<tr>
<td>Black</td>
<td>1.12 (.12)</td>
<td>2.61 (.27)***</td>
</tr>
<tr>
<td>Hispanic</td>
<td>.71 (.15)</td>
<td>2.71 (.43)***</td>
</tr>
<tr>
<td>N</td>
<td>13,507</td>
<td>13,507</td>
</tr>
<tr>
<td>Log-Liklihood</td>
<td>-3431.5342</td>
<td>-2440.3446</td>
</tr>
<tr>
<td>Pseudo R(^2)</td>
<td>.0186</td>
<td>.1302</td>
</tr>
</tbody>
</table>

*p<.05; ** p<.01; *** p<.001.
The regression output for the hospitalization model indicates that the presence of a “do not hospitalize” advance directive is associated with 37.3% lower odds of being hospitalized than those without an advance directive. This difference is not statistically significant, however. The factor of largest magnitude is having a heart failure condition, which increases odds of having been hospitalized by 70%. The resident’s payer is not a statistically significant factor, after all other factors have been controlled for, nor is age with the exception of the fourth quartile, which is associated with 44% lower odds of having been hospitalized. Race factors are not statistically significant in this model.

The model for artificial feeding methods tells a somewhat different story. The presence of an advance directive is associated with 71% lower odds for a feeding tube compared to patients that lack such an advance directive; this difference is highly statistically significant (p<.000). Unsurprisingly, other strong factors associated with the presence of a feeding tube are having had a stroke, being incapacitated, and having zero ADLs. When all other factors are held constant, the likelihood of having a feeding tube decreases significantly with higher age quartiles, but this is almost certainly because the other factors such as health conditions such as stroke and incapacitation are being held constant.

I then conduct regression-based simulations to show whether patients would receive the treatment in question relative to whether they had specific, non-specific, or no advance directives in place. The results have implications for potential efficacy and design of programs to promote advance directives. The simulated marginal effect of the type of advance directive on the probability of receiving the medical treatment in
question (hospitalization or feeding tube), holding other variables at their means, is illustrated in Figure 1.

FIGURE 1. LOGISTIC SIMULATION: HOSPITALIZATION AND FEEDING TUBE BASED ON PRESENCE OF ADVANCE DIRECTIVE

In this simulation, having a specific advance directive is associated with a lower probability of receiving the medical treatment in question. This is especially true for feeding restriction advance directive. The presence of another advance directive not specifying whether hospitalization or artificial feeding methods should be used, results in almost no change from “no advance directive” cohort. This is likely because “no hospitalization” and “feeding restrictions” are not commonly used advance directives among residents in this sample.
VI. DISCUSSION

Limitations

There are several important limitations to this study. Although the survey does capture important information about what interventions the patient has had in the last 90 days (e.g., hospitalization), it is not certain that the advance directive was necessarily completed before that intervention. It is possible that for some nursing home residents, it was after their most recent hospitalization that they elected to implement an advance directive.

There is also an issue with regard to the uniformity and comprehensiveness of advance directives offered to residents at the time of the admission to the home. We already know that some states have programs in place that encourage residents being admitted to fill out a full advance directive, with intensive consultation from nursing home staff and/or counselors, but this is not likely to be the case in all states. Thus, this study can provide broad generalizations, but does not offer a specific answer as to whether certain advance directive formats result in medical treatment consistent with patient wishes.

Policy Implications

The regression models tell a mixed story as to the effectiveness of advance directives in resulting in treatment that corresponds to patient wishes. The regression output indicates that the presence of a “do not hospitalize” advance directive does result in a much lower probability of being hospitalized, with factors such as race, gender, health conditions, and payment source being held constant. This difference, however, is not statistically significant. On the other hand, a feeding restriction advance directive is associated with a lower likelihood of having a feeding tube, at a highly statistically
significant level. It is plausible, though not investigated in this study, that the event of being hospitalized likely occurs in an urgent or acute situation during which the resident or their caregivers are unable to call attention to the advance directive. Conversely, a feeding tube is a longer-term event, in which there is time to ensure that advance directives are followed.

The results of this study suggest that a specific advance directive is associated with patients’ wishes being followed. Nonetheless, this is a highly complex picture, and a full story is not possible without much greater investigation. The most commonly cited advance directives are “do not resuscitate” and “living will” which are typically general statements saying that if a patient’s condition becomes terminal, measures to prolong life should be discontinued. Research suggests that patients often use advance directives to express general preferences, such as values and goals for care, in place of specific treatment preferences. However, programs such as POLST and Respecting Choices, which convert goals and values into medical orders, by way of conversation between medical professional, the patient, and their family have had success. Having a full understanding of the options available to patients with regard to end of life care is associated with very high rates of compliance with advance directives, and with accurate representation of the advance directive in the patients’ electronic medical records.

As has been stated, the PSDA has not been overwhelmingly successful in engendering a widespread adoption of advance directives around the country. Several states, however, have instituted programs to promote advance directive adoption and create an environment where they are implemented properly. It is well worth policy-makers time to investigate the presence of a problem with advance directive
implementation and to consider spreading paradigms that have been instituted in some states to ensure that they are successful. This paper supports a body of evidence that suggests that advance directives, when implemented properly with a high degree of specificity as to the patients’ preferences, result in care consistent with those wishes.

Toward this aim, Congress seemed prepared to increase funding for end of life counseling through the PPACA, but the policy was rolled back shortly thereafter. In January 2011, Centers for Medicare & Medicaid Services (CMS) decided to rescind its inclusion of “voluntary advance care planning” as part of the set of services for which physicians would be reimbursed during annual wellness visits (Medicare Program). Thus, while the PSDA was a step in the direction of recognizing the importance of advance directives, the federal government on the whole has not encouraged advance care planning through follow-on policies, and there exist opportunities for greater engagement with patients and a push toward specificity in advance directives.
REFERENCES


