Patient and Health-Care Provider Interpretation of do not Resuscitate and do not Intubate

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ABSTRACT

Background: Advance directives and end of life care are difficult discussions for both patients and health-care providers (HCPs). A HCP requires an accurate understanding of advanced directives to educate patients and their family members to allow them to make an appropriate decision. Misinterpretations of the do not resuscitate (DNR), do not intubate (DNI), and the Physicians Orders for Life-Sustaining Treatment (POLST) form result in ineffective communication and confusion between patients, family members, and HCPs.

Methodology: An anonymous, multiple choice online and paper survey was distributed to patients, family members of patients (PFMs), and HCPs from December 12, 2012 to March 6, 2013. Data regarding demographics, the accuracy of determining the correct definition of DNR and DNI, the familiarity of the POLST form and if a primary care physician had discussed advanced directives with the participants were collected.

Results: A total of 687 respondents participated in the survey. Patients and PFMs could not distinguish the definition of DNR (95% confidence interval [CI] [1.453–2.804]) or DNI (95% CI [1.216–2.334]) 52% of the time while HCPs 35% and 39% of the time ($P < 0.0005$). Regarding the POLST form, 86% of patients and PFMs and 50% of HCPs were not familiar with the POLST form. Sixty-nine percent of patients and family members reported that their primary care physician had not discussed advanced directives with them. Twenty-four percent of patients and family members reported that they had previous health-care experience and this was associated with increased knowledge of the POLST form ($P < 0.0005$). An association was also seen between the type of HCP taking the survey and the ability to correctly identify the correct definition of DNR ($P < 0.0005$).

Conclusion: Discussion of end of life care is difficult for patients and their family members. Often times multiple discussions are required in order to effectively communicate the definition of DNR, DNI, and the POLST form. Education of patients, family members, and HCPs is required to bridge the knowledge gap of advance directives.

Key words: Do not intubate, Do not resuscitate, Physicians Orders for Life Sustaining Treatment

INTRODUCTION

Varying interpretation of do not resuscitate (DNR) by patients, families and staff impacts the DNR consent process in the hospital setting.[1] The misunderstanding of advance directives has been noted among those at the health-care provider (HCP) level, therefore making it difficult for patients and family members to agree on advance directives when they are receiving incongruence of the meaning of DNR.[1,2] Most often due to illness on hospital admission, a patient may be unable to be his/her own health-care advocate, leaving family members with the difficult decision of end of life care. Regarding end of life care, a shift from the “legal transactional approach” to the “communication approach” over the years has become apparent.[3]
The Physicians Orders for Life-Sustaining Treatment (POLST) form has been recently implemented in many extended care facilities and HCPs are beginning to encounter this form in the emergency department, as well as other areas of the hospital. The POLST form differs from advance care directive/living will, which only applies should a person be deemed to be permanently unconscious or suffering from an end-stage medical condition, which would result in death despite full medical treatment. The POLST form is a medical order, immediately and continually applicable, that dictates one's wishes regarding life-sustaining treatments to be honored in all health-care settings, and is a result of a discussion between the patient/surrogate decision-maker and the physician. If HCPs have a clear and uniform understanding of the POLST form, DNR, and do not intubate (DNI), it can avoid confusion and ensure appropriate concepts are communicated to patient and family members during admission.

We sought to quantify the percentage to which both patients, family members of patients (PFMs) and HCPs misinterpret the advanced directives of DNR and DNI. In addition, this study sought to highlight the overall need for both HCPs and patients to be educated regarding the POLST form.

**METHODOLOGY**

**Study design and population**

This study was a prospective survey consisting of patients, PFMs and HCPs in a community teaching hospital. The study was undertaken from December 12, 2012 to March 6, 2013 at Conemaugh Memorial Medical Center in Johnstown, Pennsylvania, USA, after the Institutional Review Board approval.

**Study procedures**

Eligible participants were 18 years of age or older, were patients or PFMs used English as their primary language and presented to an outpatient registration desk. These individuals were asked to complete a paper copy of the survey [Appendix 1]. Inclusion criteria for HCPs were attending physicians, resident physicians, registered nurses, and physician assistants. These participants were asked to anonymously complete an online survey via SurveyMonkey® [Appendix 2]. Only the principal investigator and research coordinator had administrator access to the survey responses. Participants were excluded from the study if they were under the age of 18, did not use English as their primary language, or a HCPs other than attending physicians, resident physicians, registered nurses, and physician assistants.

**Statistical analysis**

For the purpose of statistical hypothesis testing of DNR and DNI, the answers given to the pertinent questions were coded into a dichotomous response, either incorrect or correct. The survey questions with the correct answers are: “What is the definition of DNR? - No cardiac resuscitation (including chest compressions, electrically shocking the heart, and use of medications to restart the heart)” and “What is the definition of DNI - no intubation and no mechanical ventilation (breathing tube, breathing machine).” IBM SPSS version 19 (Armonk, NY, USA) was used for all statistical analyses. A Chi-square test of association was applied separately to DNR versus DNI, DNR versus POLST, and DNI versus POLST for both groups.

**RESULTS**

A total of 687 participants responded to the survey with 474 being HCPs (69%) and 213 (31%) being patients or PFMs. HCP responses consisted of 68.2% registered nurses (322/474), 18.9% attending physicians (89/474), 7.8% resident physicians (37/474), and 5.1% physician assistants (24/474). Sixty-nine percent of patients and family members reported that their primary care physicians had not discussed advance directives with them. Of the patients/family members surveyed, 52% could not identify DNR or DNI correctly (DNR confidence interval [CI] 1.453–2.804 and DNI CI 1.216–2.334), while 35% and 39% of HCPs were unable to correctly define DNR and DNI, respectively (P < 0.0005) [Table 1]. There was a statistically significant association between correctly identifying DNR and years of practice (P < 0.0005) and correctly identifying DNI with the type of health-care provider (P < 0.0005).

Patients and PFMs were not familiar with the POLST form 86% of the time while health-care workers 50% of the time [Table 2]. Twenty-four percent of patients and PFMs indicated that they had worked as a HCP previously. A Chi-square test found a statistically significant association only between the POLST and previous employment as a HCP (P < 0.0005) and the type of health-care worker (P < 0.0005).
As an HCP, one will most likely take part in an end of life discussion with a patient and/or their family members. These discussions occur both in the inpatient and outpatient setting. Fueled by this sensitive and emotional topic, conversations can become time consuming and frustrating for all participants. Providers seek support from colleagues and staff to parallel the information communicated to patients and families. This prospective study illustrates that we cannot rely on another HCP to correctly address DNR/DNI. The knowledge deficiency among HCPs can lead to inconsistent and incorrect information on advance directives being communicated to patients and their family members.

Based upon our study, patients and PFMs do not have a clear understanding of advance directives and require public education on the subject. Quantification of the hypothesized knowledge gap could provide insight into the type and degree of required education for patients, family members, and HCPs. This education, in turn, would allow for more effective communication and implementation of a patient’s wishes. By educating patients on the definition of DNR and DNI, they can make informed decisions on their wishes for end of life care, providing an individualized continuity of care by both HCPs and family members in the future. Sixty-nine percent of patients and family members replied that their primary care physicians have never addressed advance directives with them on routine office visits. With education, providers could become more comfortable with the subject matter and in turn be motivated to discuss advance directives with patients.

The POLST form has been recently implemented in many extended care facilities and HCPs are beginning to encounter this form more frequently in than the past. The POLST is aimed at preserving patient dignity and includes comfort measures, supportive and full treatment options for patients to choose from. The POLST form is poised to be a powerful tool in the near future, increasing communication between HCPs and patients. However, the lack of knowledge of the POLST form with patients, PFMs, and HCP could hinder its usage.

Future studies can focus on the same survey to be performed after education of advance directives for both patient/family member and HCPs. Exploration of POLST-ordered comfort measure patients and appropriate utilization of emergency room (ER) resources/decrease in inappropriate transfers to ER could also be area for future studies.

Limitations

This was a single study institution survey study; therefore the applicability of the results may differ in another hospital. Further studies will be necessary to determine if these results are applicable on a more general scale. Due to attending physicians and registered nurses being the majority of HCP responses, we were unable to perform an independent weighing analysis of distribution versus disparity between the groups of HCPs surveyed. Therefore, a supplementary study should be completed on HCPs, so that a statistical analysis can be performed at a higher level of power on stratification of the providers. In addition, the survey did not indicate whether or not the HCP worked in a nonacute as opposed to an acute department, where the subjects of advance directives are more likely to occur.

**CONCLUSION**

Discussion of end of life care often requires many attempts to effectively communicate the definition of DNR, DNI, and the POLST form to patients and families. A clear and uniform understanding by HCPs would avoid confusion and ensure that appropriate concepts are communicated. This study illustrates the knowledge gap on advance directives (specifically DNR, DNI, and the POLST form) that is present not only in the patient population but also among HCPs. Education is required to bridge the gap of advance directives with the goal of implementing consistent patient end of life care decisions.
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Conflicts of interest
There are no conflicts of interest.

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APPENDIX 1: PATIENTS AND PATIENT’S FAMILY MEMBERS’ SURVEY

This anonymous questionnaire is for research purposes to evaluate the education needed about end of life care and aid in providing better patient communication/care. The report may be published in a professional health-care journal. Your choice to complete or not to complete the questionnaire will have no impact on your employment at MMC. Thank you for your time.

Once you finish the survey, please place the survey in the provided envelope.

1. Please check the box that best describes your job title:
   □ Attending
   □ RN
   □ Nurse practitioner
   □ Resident physician
   □ PA

2. What is the definition of do not resuscitate?- Please check all that apply:
   □ No cardiac resuscitation (including chest compressions, breathing tube, mechanical ventilation, electrically shocking the heart and medications in attempt to restart the heart and support life)
   □ No intubation or mechanical ventilation (breathing tube, breathing machine)
   □ No intubation or mechanical ventilation with no cardiac resuscitation (see definition in question #2)

3. Are you familiar with the Physicians Orders for Life-Sustaining Treatment form?
   □ Yes
   □ No

5. Years of practice
   □ 1–5 years
   □ 6–15 years
   □ >15 years

6. If you are a PCP, do you routinely discuss advance directives with your healthy patients or their family members?
   □ Yes
   □ No
   □ Not applicable.

APPENDIX 2: HEALTH-CARE PROVIDER SURVEY

This anonymous questionnaire is for research purposes to evaluate the education needed about end of life care and aid in providing better patient communication/care. Your choice to complete or not to complete the questionnaire will have no impact on your treatment or on your relationship with your providers. The report may be published in a professional health-care journal. Thank you for your time.
Please return completed form to the registration attendant.

1. What is the definition of do not resuscitate? – Please check all that apply:
   - No cardiac resuscitation (including chest compressions, breathing tube, mechanical ventilation electrically shocking the heart and medications in attempt to restart the heart and support life)
   - No intubation or mechanical ventilation (breathing tube, breathing machine)
   - No intravenous fluids, antibiotics, medicine, nutritional support, dialysis, pain management
   - No surgical procedures

2. What is the definition of do not intubate:
   - No intubation (breathing tube)
   - No intubation or mechanical ventilation (breathing tube, breathing machine)

   □ No intubation or mechanical ventilation with no cardiac resuscitation (see definition in question #2)

3. Are you familiar with the Physicians Order for Life-Sustaining Treatment form?
   - Yes
   - No

4. Have you worked as a health-care provider?
   - Yes
   - No

5. Has your primary care doctor discussed advanced directives with you?
   - Yes
   - No

6. Please check your age range below
   - 18–30 years old
   - 31–64 years old
   - ≥65 years old