Unpacking Resident-Led Code Status Discussions: Results from a Mixed Methods Study

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Background: We previously showed that a multimodality communication skills intervention improved internal medicine residents’ ability to perform a code status discussion (CSD) with a standardized patient (SP). However, the impact of education on CSD content and outcomes is unknown. We compared CSDs between intervention and control residents to identify key drivers of code status determination.

Methods: Fifty-one internal medicine PGY1 residents were randomized to either intervention (n=23) or control (n=28). Intervention group residents received a multimodality CSD skills training program including lectures, deliberate practice of CSD skills, and maintenance of a CSD log. Six months later all residents completed a 15 minute videotaped CSD with a single SP portraying a 47-year-old man hospitalized with metastatic colon cancer. Digital recordings were transcribed verbatim, de-identified, independently reviewed, and coded by two of three coders using an open coding approach. Coders assessed the final CSD determination based on resident statements as: a) full code, b) do-not-resuscitate (DNR), or c) could not be determined. Discrepancies were discussed and resolved by consensus. Chi-square tests were used to evaluate the association between study group (intervention vs. control) and the key themes identified through qualitative analysis.

Results: Inter-rater reliability for code status determination was high (Cohen’s kappa = 0.89). Three intervention and one control resident (8%) did not complete code status determination within the allotted time. Final code status determination for the remaining discussions was full code for 12/20 (60%) in the intervention group and 22/27 (81%) in the control group (p=0.10). Themes associated with determination of full code included focusing on the mechanics of resuscitation and not providing clinical context, framing the decision as one that only the patient can make, and equating the patient’s description of himself as a fighter with a desire to be resuscitated. Themes associated with determination of DNR included: discussion of outcomes of resuscitation and quality of life, discussing resuscitation in the context of patient values/goals, and physician recommendation regarding code status. Compared to controls, intervention residents were more likely to explore patient values/goals (75% vs. 33%; p=0.005), provide clinical context when discussing resuscitation (80% vs. 19%, p=0.000), and make a recommendation regarding code status (40% vs. 0%, p=0.000). They were less likely than controls to equate the patient’s use of the term “fighter” with preference for full code (20% vs. 52%, p=0.03) and frame the decision as one solely for the patient (25% vs. 59%, p=0.02). There were no significant differences between intervention and control residents for discussion of outcomes or quality of life; topics which both groups did infrequently.

Conclusions: CSD determination was driven primarily by how residents framed discussion of code status, and whether they incorporated patient values and goals and/or made a recommendation regarding code status. Limited by a small sample size, we found a trend toward intervention residents being more likely than controls to conclude the SP desired DNR status. Additional research is needed to evaluate the effect of education on CSD determination in actual patient encounters.
Comparison and accuracy of life expectancy predictions by patients, physicians, and prognostic models in older patients with type 2 diabetes

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Background: Diabetes care guidelines have called for the individualization of care goals for older patients (e.g., A1C) based on life expectancy (LE). To carry out these recommendations, the estimation of LE is critical for setting appropriate diabetes care goals. We compared LE predictions in a cohort of older patients with type 2 diabetes with actual mortality. The prognostic estimates were made by the patient, the patient’s physician, Vital Statistics life tables, and the Chicago Type 2 Geriatric Diabetes Simulation Model.

Methods: The cohort of older (65+ years of age) type 2 diabetes patients were enrolled in a study of treatment preferences between 12/2000-1/2003. During this study, each patient and his/her physician provided a life expectancy prediction in separate surveys. The CDC Vital Statistic life tables were used to obtain life expectancy estimates based on age and sex of the patients. The Chicago Type 2 Geriatric Diabetes Simulation Model, a combination of diabetes complication and geriatric mortality prediction models, was used to calculate LE based on patient demographics, duration of diabetes, risk factor levels, functional status, and comorbid illnesses. We also considered the predictive performance of the average of physician and model estimates. Observed survival time was determined with data from the National Death Index through December 31, 2010. Each estimate of five-year mortality and LE was compared to observed survival. We compare the sensitivity, specificity, and c-statistic from logistic regression for prediction of 5-year mortality. Harrell’s c-statistic and standard deviation for survival time were also calculated.

Results: 447 patients had both patient and physician estimates. 63% were female and 79% were Black. The mean (standard deviation) age of the cohort was 73.4 (5.9) years and duration of diabetes was 13.2 (10.4) years. At 5 years, 108 (24%) had died and 201 (45%) had died by the end of the period of observation. For estimating five year mortality, the worst performing individual prognostic method according to the c-statistic was Vital Statistics (0.599), followed by patients (0.625). Both had very low sensitivities and high specificities. Physician estimates had one of the highest c-statistics (0.692) with a sensitivity of 0.528 and a specificity of 0.755 for predicting 5-year mortality. The simulation model had a similar c-statistic (0.683) but had a high sensitivity (0.907) and low specificity (0.307). The average of the physician and model estimates generated a higher c-statistic (0.733) than any individual prognostic method. The hierarchy of predictive performance according to Harrell’s c-statistic was similar.

Conclusions: Physicians and a diabetes simulation model provided LE estimates that performed similarly well in this cohort, although physicians were more optimistic and the model more pessimistic than observed mortality. The average of these estimates had a higher c-statistic than any individual prognostic method. This result suggests that diabetes prediction models may complement and support the intuition of physicians as they make treatment decisions for older diabetes patients.
A Novel Website to Prepare Diverse Older Adults for Decision Making and Advance Care Planning: A Pilot Study

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Background: Advance care planning (ACP) has typically focused on advance directives and preferences for treatments, such as CPR. We have reconceptualized ACP as a multi-step process focused on preparing patients with skills needed for communication and in-the-moment decision making. To operationalize this paradigm, we created a new ACP website called PREPARE that is interactive, written at 5th-grade reading level, and shows people through videos and a step-by-step process how to communicate what is most important in life and how to make informed medical decisions. To assess the efficacy of PREPARE, we created and assessed the validity of a new survey that detects behavior change in ACP and then conducted a separate pre-to-post efficacy study.

Methods: Study #1 (Survey Validation) validates the ACP Engagement Survey, which includes Process Measures of behavior change (knowledge, self-efficacy, and readiness, 5-point Likert) and Action Measures (e.g., “Did you do X?” yes/no) of multiple ACP behaviors such as choosing a surrogate, asking someone to be a surrogate, and speaking to surrogates and doctors about one’s wishes. We administered surveys at baseline and one-week later to 50 diverse, older adults from San Francisco hospitals. Internal consistency of the Process Measures was assessed using Cronbach’s alpha (only for continuous variables) and test-retest reliability for both Process and Action Measures was examined using intraclass correlations. Study #2 (PREPARE Efficacy): Using a separate cohort (n=43) from low-income, San Francisco senior centers, we assessed change in ACP Engagement Survey responses (Process and Action Measures) and change in percentage of participants in the lowest, “precontemplation”, behavior stage of change to higher stages (contemplation, preparation, action, maintenance) at baseline and 1-week after viewing PREPARE. We also assessed PREPARE’s ease-of-use on a 10-point scale, 10 being the easiest. To assess comparisons, we used paired t-tests and McNemar’s tests.

Results: Study #1 (Survey Validation): Mean age was 69.3 (SD 10.5) and 42% were non-White. The internal consistency of the Process Measures was 0.94. Intraclass correlations were 0.70 for the Process Measures and 0.86 for the Action Measures. Study #2 (PREPARE Efficacy): Mean age was 68.4 (SD 6.6) and 65% were non-White, and 33% had limited health literacy. Behavioral change Process Measure average Likert scores increased from 3.1 (SD 0.9) to 3.7 (SD 0.7), p <.001. Action Measures did not change significantly in one week. However, precontemplation significantly decreased for most ACP actions including asking someone to be a surrogate 39.5% vs. 23.3%, p<.04; talking to the doctor about the surrogate, 62.8% vs. 30.2%, P,.001; talking with the surrogate and doctor about medical wishes, 46% vs. 28%, p=.02 and 61% vs. 35%, P=.003, respectively. PREPARE was rated 9 out of 10 (SD 1.9) for ease-of-use.

Conclusions: A new patient-centered ACP website prepares people for ACP communication and medical decision making and is easy-to-use among older adults from diverse backgrounds. The new ACP Engagement Survey that measures both ACP behavior change and ACP actions demonstrated good reliability and validity. And, the PREPARE website significantly improves individuals’ behavior change and engagement in ACP. The website is available at www.prepareforyourcare.org and a clinical trial is underway.
Ensuring Culturally Competent Falls Questions in Population-based Surveys

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Background: Falls are the leading cause of injuries among older adults. Yet, relatively little is known about differences in falls among ethnic groups, even though differences have important implications for clinical care and resource allocation. A 2007 California Health Interview Survey (CHIS) study showed significantly lower fall rates in Asian elders than in other ethnic groups, 4.2% in Chinese Americans vs. 12.4% for All Races. We hypothesized that Chinese-specific language and/or translation issues might have led to under-reporting of falls. In Chinese, the single word for ‘falls’ is too narrow to capture the different types of falls; instead, the circumstances of the fall should be specified.

Methods: As part of an academic-community partnership for a falls screening pilot project at a community health center in Oakland, CA, we surveyed 78 elderly Chinese patients about falls in the past year. The survey included the CHIS question “During the past 12 months, have you fallen to the ground more than once?” followed by questions that specified falls subtypes (falls, trip over, slip, faint, loss of balance, involuntary fall). Bilingual medical assistants (MA) conducted the survey as part of routine patient care. Instrument validation consisted of review by academic falls experts and bilingual, bicultural staff and pilot tested with study-eligible patients in the same practice. Questions were translated and back-translated to ensure linguistic accuracy.

Results: All 4 participating MAs initially found the CHIS question impossible to articulate. Of the 78 participants, 12 (16%) refused to answer the CHIS question because they did not understand it. In reporting whether they had fallen in the past year, 8 (10%) answered “yes” to the CHIS question while 20 (26%) answered “yes” to at least 2 falls subtypes. Of the 70 who answered “no” or refused to answer the CHIS question, 13 (19%) answered “yes” to 2 subtypes and 2 (3%) answered “yes” to 3 subtypes.

Conclusions: Falls prevalence in the elderly Chinese population may be under-reported in CHIS and other population-based surveys due to two types of translation issues: the phraseology used and cultural/linguistic differences in how falls are discussed. Providers should ensure that Chinese-speaking patients are asked about falls subtypes, and population-based surveys should ensure linguistic competency for greater accuracy in responses.
Trends in Advance Directive Use and Hospitalization Among Elderly Americans, 2000-2010

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Background: Elderly patients are advised to complete advance directives (i.e. living wills and durable powers of attorney for healthcare) to guide decision-making about the aggressiveness of treatment in the event that they lose decision-making capacity. Studies show that most elderly prefer to limit aggressive care at the end of life, avoid hospitalization, and die at home. We chose to describe population trends in advance directive completion, hospitalization, and place of death for 2000-2010.

Methods: We used data from the Health and Retirement Study (HRS), a biennial longitudinal survey of a nationally representative cohort of elderly adults regarding their medical, social, and financial situation. The sample included 6122 HRS participants who died between 2000-2010 and were 60 or older at the time of death. Data were drawn from proxy interviews regarding the decedent’s circumstances at death. We used descriptive statistics to examine variation in prevalence of living wills (LWs), durable powers of attorney for healthcare (DPAHC), hospitalization rates in the last year of life, and rates of hospital death by year of death. We used multivariable logistic regression to explore the association between these outcomes and subjects’ sociodemographic and clinical characteristics. We accounted for the complex sampling design of the HRS in all analyses.

Results: Most subjects had an advance directive prior to death (63.2%). The proportion of decedents who had a LW and/or DPAHC at the time of death increased from 47% in 2000 to 72% in 2010 (p=0.000). DPAHCs were more popular than LW for 10 out of 10 years and rates of DPAHC completion increased more rapidly over time. During the same period of time, the rates of hospitalization in the year prior to death significantly increased, while the rates of hospital death significantly decreased.

Conclusions: There has been a significant increase in rates of advance directive completion over the last decade, with durable powers of attorney for healthcare being preferred over living wills. During the same time period, however, there was a significant increase in hospitalization rates but a decrease in hospital death, suggesting that advance directives may not protect patients from hospitalization, but instead increase the likelihood that they are discharged prior to death.