

CC1-03:

### Documentations of Advanced Health Care Directives in the Electronic Health Record: Where Are They?

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**Background/Aims:** Advanced Care planning is becoming a major public health concern. The ambulatory care setting is a new frontier for delivery of palliative care services. Understanding patients' preferences and documenting them in an accessible location can facilitate honoring patients' wishes. However, physicians document Advanced Health Care Directives (AHCD) in various locations within EpicCare EHR, including progress notes, scanned documents, and the problem list. The aim of the study is to identify the locations of AHCD decision documentations in the EHR. **Methods:** Extensive search of AHCD terms in EPIC EHR, e.g., Physician Orders for Life-Sustaining Treatments (POLST), living will, and power of attorney, using 10 years of EHR data (2000-2010) in a large multispecialty ambulatory group practice in Northern California. **Results:** A total of 76,887 patients had a documented AHCD decision. About 69% (53,270 of 76,887) had a decision in progress notes, 43% (33,265/76,887) in scanned documents, and 34% (26,146/76,887) in problem list. Overall, 36% of patients (28,045/76,887) had only progress note documentations, 25% (19,116/76,887) had only scanned documents, 16% (12,606/76,887) had both progress notes and problem list, and 12% (8,964/76,887) had documentation in all 3 locations. POLST documents made up 2% (853/37,706) of scanned documents. About 59% of patients (45,240/76,887) were  $\geq 65$  at the time of their first AHCD documentation. About 57% (44,067/76,887) were female. About 90% (5,689/6,347) of patients who died had their first AHCD decision documented within 5 years of their death. Documentation was updated nearing death - 90% (3,594/3,989) of patients who died and had more than one documented decision had their last decision documented within a year of death. **Discussion:** Most AHCD decisions are in progress notes in the EHR which can be difficult to access for busy physicians. Physicians' effort to elicit patient preferences for AHCD and subsequent decisions may be wasted if these decisions cannot be readily found in the EHR in actionable formats. Scanned documents containing signatures of the patient, surrogate, and if applicable, the physician, may be more actionable than text in progress notes without proper signatures and flagging. Standardizing the location of these important decisions needs to become a priority.

**Keywords:** Advanced Health Care Directives; Electronic Health Record; Health Informatics

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CC1-04:

### Online Patient Access to Their Medical Record and Health Providers is Associated With a Greater Use of Clinical Services

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**Background/Aims:** To compare utilization of office and telephone encounters by patients with online access to their electronic medical record (EMR) to patients without online access. **Methods:** Administrative data for ambulatory care patients enrolled in a group model HMO from May 2006 through June 2009, using an electronic medical record with an online patient access feature, which includes: appointment requests, results review, medication list, refill request, problem list, care instructions, and email communication with their healthcare providers. We collected administrative data for health plan utilization documented in the EMR for patients 12 months before and after the activation of their online access and for a matched cohort of patients without online access. The analytic data set included those with and without online access matched on propensity scores within a 5% range based on age, gender, and co-morbidity within baseline visit and year strata. **Results:** The propensity matched cohorts (N = 51,535; in each cohort) contained 54.2% females, an average age of 43.7 years, 6.9% were less than age 20, 36.2% ages 20-39, 43.3% ages 40-59, and 13.7% ages 60 and over. Eighty-six percent of the cohort had none of four chronic illnesses, 7.4% with asthma, 5.7% with diabetes, 1.5% with coronary artery disease, and 1% with

congestive heart failure. In the year following activation of their on-line access, this cohort had increased rates (per patient per year) of office visits (3.1 vs. 2.2,  $p < 0.001$ ), telephone contacts (3.9 vs. 3.4,  $p < 0.001$ ), after-hour clinic visits (0.1 vs. 0.07,  $p < 0.001$ ), in-patient hospitalizations (0.07 vs. 0.06,  $p < 0.01$ ) compared to a matched cohort of patients without on-line access. However, on-line access patients had a decreased incidence rate of emergency department use (0.15 vs. 0.18,  $p < 0.001$ ) during the year of follow-up compared to the cohort without on-line access. **Discussion:** Patients with online access to their health information and to their healthcare providers also had an increased use of clinical services. Further research is needed to understand this association and to evaluate the effect online access has on patient health outcomes.

**Keywords:** Electronic Medical Record; E-mail; Health Informatics

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## Health Services Research

PS1-54:

### Retrospective Cohort Study of Medication Adherence History and Risk for 90-day Hospital Readmission in a Medicare Cost Plan

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**Background/Aims:** Identifying factors related to readmission is important for successfully targeting appropriate interventions to groups at risk for readmission. The objective of this study was to investigate the association of long-term medication adherence with hospital readmission in a cohort of beneficiaries enrolled in a Medicare cost plan. **Methods:** The study employed a retrospective cohort design using pharmacy and healthcare utilization claims from a Medicare Cost Contract plan for January 2009 through December 2009. Inpatient hospitalization was identified based on the revenue code (100-169, and 200-219). Eligible members were continuously enrolled through the study period, and experienced at least one hospitalization in 2009 after which they were discharged to home. About 1767 members were eligible and included in the analysis. Approximately 13% had a claim for a subsequent readmission during the study period. Medication adherence in the year before the index hospitalization was measured with the medication possession ratio (MPR), defined as the supply of medications in days minus the last fill days supply divided by the total number of days between the last fill date and the first fill date for drugs for chronic medication. Likelihood of readmission within 90 days was estimated using the logistic regression. Covariates entered into the model included demographics, MPR (both continuous and categorical with 3 categories: low (MPR < 0.5), medium (.5 < MPR < .8), and high (MPR > .8 adherence), and having an office visits within 30 days of discharge. **Results:** Members with high medication adherence were less likely than those with low adherence to have a claim indicating 90-day readmission (OR = .35,  $p = 0.01$ ). When considered as continuous, higher MPR was associated with decreasing risk of readmission (OR = 0.24,  $p = 0.02$ ). Having an office visit within 30 days from the date of discharge was as associated with a decreased risk of readmission (OR = 0.06,  $p < 0.001$ ). **Discussion:** The health behavior of long-term adherence to medications was associated with risk of readmission. A major study limitation is the underestimation of readmission rates due to lack of complete capture of hospital claims. An important next step will be to replicate the study with a larger population for which all claims are captured.

**Keywords:** Rehospitalization; Medication Adherence; Health Services Research

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