Interdisciplinary Development of Electronic Palliative Care Decision Support

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Purpose: Palliative care (PC) is patient and family-centered medical care that prevents or treats symptoms and side effects of disease and treatment.(Wysham et al., 2016) PC is associated with more efficient resource use and decreased medical costs.(Bernacki et al., 2012) Ideally, PC is proactive and begun early in the illness in conjunction with other life prolonging therapies. Unfortunately, many PC consultations are reactive and occur in the acute care setting, once patient symptoms have become unbearable.(Aldridge et al., 2016; Grudzen, Hwang, Cohen, Fischman, & Morrison, 2012) **Methods:** Palliative care (PC) is patient and family-centered medical care that prevents or treats symptoms and side effects of disease and treatment.(Wysham et al., 2016) PC is associated with more efficient resource use and decreased medical costs.(Bernacki et al., 2012) Ideally, PC is proactive and begun early in the illness in conjunction with other life prolonging therapies. Unfortunately, many PC consultations are reactive and occur in the acute care setting, once patient symptoms have become unbearable.(Aldridge et al., 2016; Grudzen, Hwang, Cohen, Fischman, & Morrison, 2012)

Although there are few published examples in the literature of inter-disciplinary teams engaging and designing health information systems to support team processes, the nature of the EHR to capture the complexity of PC patients with multiple providers suggests it could provide the foundation for improving communication among patients, caregivers, providers, and could improve the timeliness of identifying programs and effectiveness of follow-up.**(Dy et al., 2011; Tsavatewa, Musa, & Ramsingh, 2012)** The targeted technology available in the EHR, including clinical decision support (CDS) could facilitate screening patients for earlier identification of patients in or about to be in distress; to provide more appropriate referrals to specialized care; and to facilitate more rapid communication among patients, caregivers, and clinicians.**(Allsop et al., 2016; Chih et al., 2013; Hocker et al., 2015)**A clinical-academic partnership was formed among a southern California health system and a school of nursing including palliative care nurses, EHR report writers, and research scientists to create a list of desired elements grounded in both clinical relevance and current scientific literature to be used to identify oncology patients who could benefit from a PC referral. The initial list of data points in the EHR was edited for redundancies and pathways were created to draw data from different EHR databases to create an efficient report of patient demographics, resource utilization, and clinical indicators.

Semi-structured interviews were carried out with a purposive sample of health professionals and EHR programmers who were part of the healthcare system's palliative care steering group. Using a pragmatic qualitative approach, the study aimed to capture a representative view of key stakeholders/end users to inform implementation of the needed screening list. Six nurses, 4 physicians, 1 administrator, and 10 other clinicians and support staff were recruited. The participants offered their thoughts on the inclusion of needed information to build the correct patient profile. Negotiation of data points was based on role, system healthcare goals, and past experience with palliative care and oncology. They reviewed eight iterations of the trigger list until a final version of the preliminary report was designed. The report included a total of 49 items. Query results were validated by manual chart audits of 10%.

Results:

A randomized sample of 694 patients enrolled in palliative care services at three hospitals within the large multi-community hospital healthcare system from January 1, 2013 to December 31, 2015 were identified and the elements of the trigger list matched against their electronic chart retrospectively. Of these 51.7% were male, 65.4% were White, and 80.8% were English speaking. Almost half (49.7%) were Medicare recipients and 51.4% declared themselves as a 'do-not-resuscitate' (DNR). Nearly, all patients (97.6%) who would have been identified by the trigger list had been seen by a palliative care nurse. Successfully matched variables included the International Statistical Classification of Disease and Related Health Problems (ICD-9) code, admission date, gender, ethnicity, religion, language, age, insurance, code status, completion of an advance directive, emergency department visits, intensive care unit (ICU) admissions, less than 30 day readmission, and if the patient was on hospice within the last 24 months. Manual review was need to provide clinical details such as difficulty swallowing, unresponsiveness, oxygen dependency, inability to move self up in bed, inability to sit in bed, and presence of a palliative care or hospice note.

Conclusion:

Healthcare systems are exploring the use of CDS and related electronic algorithms as a way to alert clinicians and trigger a palliative care assessment based on patient symptomatology gathered in the EHR. This study demonstrated that a computer generated report is usefully for identifying individuals appropriate for palliative care. The next steps include further algorithm development; end-user testing; and data marker refinement to increase patient identification sensitivity. Although the project is still maturing, a key finding was that the interdisciplinary team worked well for the design of the approach, as well as its placement within the work flow.

Title:
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Keywords:
clinical decision support, electronic health record and palliative care

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Abstract Summary:
Following the session the attendee will be able to define palliative care and develop a greater understanding of the challenges and complexities in designing clinical decision support within the EHR for identification of patients who might benefit from palliative care.

Content Outline:

- Palliative care (PC) is patient and family-centered medical care that prevents or treats symptoms and side effects of disease and treatment
    - PC is associated with more efficient resource use and decreased medical costs
    - Many PC consultations are reactive and occur in the acute care setting
- Targeted technology available in the EHR, including clinical decision support (CDS) could facilitate screening patients for earlier identification of patients in or about to be in distress

- A clinical-academic partnership was formed among a southern California health system and a school of nursing including palliative care nurses, EHR report writers, and research scientists
    - Semi-structured interviews were carried out with a purposive sample of health professionals and EHR programmers
    - They reviewed eight iterations of the trigger list until a final version of the preliminary report was designed
    - The report included a total of 49 items
    - Query results were validated by manual chart audits of 10%

- A randomized sample of 694 patients enrolled in palliative care services at three hospitals within the large multi-community hospital healthcare system from January 1, 2013 to December 31, 2015 were identified and the elements of the trigger list matched against their electronic chart retrospectively
    - Successfully matched variables included the International Statistical Classification of Disease and Related Health Problems (ICD-9) code, admission date, gender, ethnicity, religion, language, age, insurance, code status, completion of an advance directive, emergency department visits, intensive care unit (ICU) admissions, less than 30 day readmission, and if the patient was on hospice within the last 24 months
    - Manual review was need to provide clinical details such as difficulty swallowing, unresponsiveness, oxygen dependency, inability to move self up in bed, inability to sit in bed, and presence of a palliative care or hospice note

- This study demonstrated that a computer generated report is usefully for identifying individuals appropriate for palliative care
- Although the project is still maturing, a key finding was that the interdisciplinary team worked well for the design of the approach, as well as its placement within the work flow

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Author Summary: Dr. Bush's current research interests and funding are focused on patient-centered outcomes. She is the PI of an AHRQ PCOR award and has created a multi-disciplinary team of patients, parents, caretakers, and researchers to address patient engagement using technology such as the patient portal in predominantly under-served populations with chronic illness.

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Professional Experience: Dr. Connelly has a broad background in nursing, with specific training and expertise in areas including: Decreasing disparities and improving care for diverse populations and dissemination; and evaluating methods by which appropriate interventions are introduced and adopted in clinical practice, . Since starting her research career with a NIDA funded postdoctoral fellowship, she has served on and led, numerous NIH funded studies in promoting health through prevention/early intervention including PI on R01- MH075788, a recently completed successful randomized clinical trial evaluating the effectiveness of an intervention incorporating telehealth to improve the screening, referral, and treatment for maternal depression among low-income culturally diverse women during the perinatal period. She has led 6 major studies focusing on women and family physical and mental health issues and health inequities, as well as developing and testing culturally responsive interventions in the healthcare system to improve its response to families and co-occurring health inequities.
Author Summary: Dr. Cynthia Donaldson Connelly is the Scholars Professor and Director of Research at the University of San Diego Hahn School of Nursing and Health Science Beyster Institute for Nursing Research. She is also a research scientist at the Child and Adolescent Services Research Center, San Diego, Rady Children's Hospital and Health Center - San Diego, and a Fellow in the American Academy of Nursing.

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Author Summary: Dr. Etland's training and expertise is in oncology and palliative care. She has led multiple initiatives to increase access of care and quality of life for vulnerable populations of Latinos. She has utilized her expertise as a P.I. and co-P.I. in studies using large datasets examining aspects of palliative care patients.

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Author Summary: Ms. Baum's research interest are focused on patient-centered outcomes given her professional background in critical care. As a new researcher she had the opportunity to work with experienced researchers and multi-disciplinary teams across populations. These populations include but are not limited to third world country, maternity, end-of-life, as well as adult critically ill patients.

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Author Summary: Dr. Georges' scientific background includes both a trajectory of data based research into symptom distress management and a long-term publication record of cutting-edge model development in the area of suffering. She has published extensively on the conceptualization of human suffering, and has conducted an ongoing program of research focused on suffering and compassion in the palliative care population during the past decade.