

Interdisciplinary Development of Electronic Palliative Care Decision Support

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DISCLOSURE

The authors have no competing interests to declare.

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Sharp Healthcare System

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LEARNING OBJECTIVES

After participating in this session the learner should be able to:

- Define palliative care.
- Develop a greater understanding of the challenges and complexities of using analytics and clinical documentation to support improved bedside care.
- Understand how the EHR might be used for identification of patients who might benefit from palliative care.

BACKGROUND

- Palliative care (PC) is patient and family-centered medical care
- Prevents or treats symptoms and side effects of serious disease and treatment; not hospice
- Associated with more efficient resource use and decreased medical costs
- Ideally PC is proactive and begun early in the illness; many PC consultations are reactive and occur in the acute care setting
- Frequently patients who would benefit from palliative care are not readily identified



CONCEPT

- Provide automated electronic algorithms/clinical decision support to alert clinicians and trigger PC assessment
 - Earlier identification of patients
 - Provide more appropriate referrals to specialized care
 - Facilitate more rapid communication among patients, caregivers, and clinicians

GOAL

- Create report with data elements derived from information already gathered and “readily” available in the EHR
 - Reduce consuming manual chart screening
 - Lessen time attending rounds to identify potential patients and increase time spent with patients

NOVEL APPROACH

- Few published examples of interdisciplinary teams engaging and designing health information systems to support team processes
- Formed clinical-academic partnership between Southern California health system and a school of nursing
 - Research scientists
 - Palliative care nurses
 - Physicians
 - EHR report writers



IDENTIFYING DATA ELEMENTS



- Purposive sample of health professionals and EHR programmers
 - Members of the healthcare system's palliative care steering group
 - Six nurses
 - Four physicians
 - One administrator
 - Ten other clinicians and support staff
- Identified stakeholders/end users suggested needed information based on their expertise using semi-structured interviews

CRITERIA LIST REVIEW PROCESS

- Initial list of data points edited for redundancies
- Pathways were created to draw data from different EHR databases
- Negotiation of data points to create draft report of patient demographics, resource utilization, and clinical indicators reflecting place in workflow
- Significant methodological question:
 - Alert to the clinician taking care of the patient?
 - Report of possible patients sent to the palliative care team?
- Eight iterations

IDENTIFIED DATA ELEMENTS

Demographics/Administrative

- Patient Name
- Unit/Bed
- Admit Date
- Age
- Advance directives



Clinical History

- Two or more hospitalizations or ED visits in one year
- Admission from LTC
- Admission from hospice or prior hospice enrollment
- Any ICU stay in the last year
- Any ICU stay greater than 7 days
- Readmission in the last 30 days (any cause)

CLINICAL INDICATORS AND RESOURCE UTILIZATION

- Current symptoms
 - Difficulty swallowing
 - Unresponsive
 - O2 dependent
 - Ventilator dependent or assisted/full support
- Therapeutic Approaches
 - Permanent tracheostomy
 - Dialysis catheter
 - Chest tube insertion
 - Pain pump
 - Intubations (excluding OR)
 - Therapeutic Hypothermia

CLINICAL INDICATORS AND RESOURCE UTILIZATION

- Mobility
 - Unable to move up in bed
 - Unable to sit on edge of bed
 - Foot boots
 - Specialty bed
 - Activity – 2-person assist
 - Feeding: total assistance or tube
 - Quadriplegia
- Other Elements
 - Laboratory Values
 - Anuric
 - PaO₂
 - Ejection fraction
 - FEV
 - Confusion Assessment Method

VALIDATION I

- Randomized sample of 694 patients enrolled in palliative care services at January 1, 2013 to December 31, 2015 in community health system
- Nearly all patients (97.6%) who would have been identified by the trigger list had been seen by a palliative care nurse

VALIDATION II

- Successfully matched variables: admission date, gender, ethnicity, religion, language, age, insurance, code status, completion of an advance directive, ED visits, ICU admissions, less than 30 day readmission, and if patient were on hospice within the last 24 months
- Manual review needed to provide clinical details: difficulty swallowing, unresponsiveness, oxygen dependency, inability to move self in bed, inability to sit in bed, and presence of a palliative care or hospice note

Palliative Care Trigger List

89/M FIN: [REDACTED] Admit: 06/16/2016 Room: [REDACTED] Admit Src: Home/Physician Referral Positive Ind Score: 11	Inpt/ED 2+ 1Yr: Yes ICU Stay 1Yr: Yes ICU > 7 Days: 30 Day Readm: Yes Prior Hospice: Advance Dir: None	Unresponsive O2 Dependent: Move up in bed: Unable Sit edge of bed: Unable Diff Swallow: None	Pain Pump: BIPAP: Yes	Feeding Tube: Dialysis Cath: Chest Tube: Pro BNP: 1746 [06/19/2016 06:01] Albumin: Anuric:	Calcium: PaO2: Creatinine: 2.1 [06/20/2016 05:04] CAM: Intraspinal Cath:	Intubate: Foot Boots: Specialty Bed: Yes 2 Person Assist: Yes Quadraplegia:
93/M FIN: [REDACTED] Admit: 06/17/2016 Room: [REDACTED] Admit Src: Home/Physician Referral Positive Ind Score: 11	Inpt/ED 2+ 1Yr: Yes ICU Stay 1Yr: Yes ICU > 7 Days: 30 Day Readm: Yes Prior Hospice: Advance Dir: Not Documented	Unresponsive O2 Dependent: Move up in bed: Unable Sit edge of bed: Unable Diff Swallow: None	Pain Pump: BIPAP: Yes	Feeding Tube: Dialysis Cath: Chest Tube: Pro BNP: Albumin: 2.1 [06/20/2016 07:08] Anuric: Indwelling catheter	Calcium: 7.1 [06/21/2016 06:48] PaO2: Creatinine: 2.8 [06/18/2016 12:08] CAM: Intraspinal Cath:	Intubate: Foot Boots: Yes Specialty Bed: Yes 2 Person Assist: Yes Quadraplegia:
91/F FIN: [REDACTED] Admit: 06/17/2016 Room: [REDACTED] Admit Src: Home/Physician Referral Positive Ind Score: 10	Inpt/ED 2+ 1Yr: Yes ICU Stay 1Yr: Yes ICU > 7 Days: 30 Day Readm: Yes Prior Hospice: Advance Dir: None	Unresponsive O2 Dependent: Move up in bed: Unable Sit edge of bed: Unable Diff Swallow: None	Pain Pump: BIPAP: Yes	Feeding Tube: Dialysis Cath: Chest Tube: Pro BNP: 4372 [06/21/2016 07:25] Albumin: Anuric: Voiding, no difficulties	Calcium: 7.8 [06/21/2016 07:25] PaO2: Creatinine: CAM: Intraspinal Cath:	Intubate: Foot Boots: Yes Specialty Bed: 2 Person Assist: Yes Quadraplegia:
86/M FIN: [REDACTED] Admit: 06/17/2016 Room: [REDACTED] Admit Src: Home/Physician Referral Positive Ind Score: 8	Inpt/ED 2+ 1Yr: Yes ICU Stay 1Yr: Yes ICU > 7 Days: 30 Day Readm: Yes Prior Hospice: *Yes Advance Dir: None	Unresponsive O2 Dependent: Yes Move up in bed: Unable Sit edge of bed: Unable Diff Swallow: None	Pain Pump: BIPAP: Yes	Feeding Tube: Dialysis Cath: Chest Tube: Pro BNP: Albumin: Anuric: Indwelling catheter	Calcium: PaO2: Creatinine: CAM: Intraspinal Cath:	Intubate: Foot Boots: Specialty Bed: 2 Person Assist: Yes Quadraplegia:
81/M FIN: [REDACTED] Admit: 06/19/2016 Room: [REDACTED] Admit Src: Home/Physician Referral Positive Ind Score: 8	Inpt/ED 2+ 1Yr: Yes ICU Stay 1Yr: Yes ICU > 7 Days: 30 Day Readm: Yes Prior Hospice: Advance Dir: Margaret Young is the DPOA	Unresponsive O2 Dependent: Move up in bed: Unable Sit edge of bed: Unable Diff Swallow: Unable to assess	Pain Pump: BIPAP: Yes	Feeding Tube: Dialysis Cath: Chest Tube: Pro BNP: Albumin: Anuric: Indwelling catheter	Calcium: 1.14 Ionized [06/20/2016 04:48] PaO2: Creatinine: CAM: No, delirium not present Intraspinal Cath:	Intubate: Foot Boots: Specialty Bed: Yes 2 Person Assist: Yes Quadraplegia:

ADDITIONAL FINDINGS

- Approximately 10 months from concept to first version of patient identification list
- Currently, in 343 bed hospital PC team has 1.5 full time equivalents to work on 80-90 referrals per month
 - Approach may be most appropriate as foundation for beginning PC services or in situations where there remains some reluctance to refer
- Trigger list versus clinical implementation
 - Sometimes physicians do not want their patients seen by PC team
 - Patients or families decline the services
 - Trigger list is only one piece of the clinical picture

SUMMARY

- Diverse stakeholder identification critical
- Provide list of data element groupings and methods used for analytics
- Evolution of feasibility study with pragmatic interdisciplinary approach
 - Facilitate screening of patients who were in or about to be in distress
 - Provide more appropriate referrals to needed specialized care
 - Support more rapid communication among patients, caregivers, and clinicians in order to improve access to palliative care
 - Demonstrate an applied approach to integrating CDS in the clinical setting
- Showcases some of the challenges associated with working with data extracted from a clinical environment

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Thank you!
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