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Utilizing Clinical Decision Support within the Electronic Health Record to Screen for Palliative Care

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STATEMENT OF THE PROBLEM

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- Approximately 90 million Americans, of whom 20% are Medicare recipients, suffer from chronic medical conditions who could potentially benefit from palliative care services
- Palliative care services can save hospitals approximately $1.3 million annually, and $1700 per admission per patient, when 500 consults are completed
- Most palliative care consultations occur in the acute care setting, once symptoms become unbearable and symptom burden overcomes the patient

STATEMENT OF THE PROBLEM

- Electronic clinical decision support and utilization of triggers to identify individuals who might benefit from palliative care using an algorithm within the Electronic Health Record (EHR) can enable the multidisciplinary team to facilitate the palliative care services in a timely manner

- Increases quality of life, decreases pain and suffering, decreases hospital costs by decreasing heroic measures and intensive care admissions while wishes are warranted

PURPOSE

- Utilize variables available in the EHR of palliative care patients receiving palliative care services (PCS) in the acute care setting to identify triggers for PCS referral

SPECIFIC AIMS

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- **AIM #1:** Characterize EHR data related to palliative care consultations among severely and chronically ill patients in the acute care setting.

- **AIM #2:** Examine the relationships between the list of clinical EHR data, select demographics (age, gender, race, ethnicity, religion), in a sample of palliative care patients.

RESEARCH DESIGN

- Feasibility study of a 49-item variable list created by the research project's healthcare system with extraction individualized to the EHR product (Cerner)

- Descriptive, correlational design, using de-identified retrospective data extracted from the EHR

STUDY METHODOLOGY

- Following IRB approval, data capturing encounters from January 1, 2013 to December 31, 2015 was obtained from a large multi-community hospital healthcare system operating three palliative care sites in San Diego County.
- All patients enrolled in palliative care services at these sites had equal chance of being selected
- A merged list at each site was created and every sixth patient was selected for the indicated time frame
- Randomization continued until 15% of the total palliative care population at each site was achieved

STUDY SAMPLE & SIZE

- A total of 2452 patient files met the inclusion criteria; 694 patients remained after randomization

INCLUSION

- Being an acute care patient identified as a palliative care patient with a medical record at one of the palliative care sites
- 18 years or older
- Received care between January 1, 2013 and December 31, 2015

EXCLUSION

- Not meeting any of the inclusion criteria

DATA COLLECTION

- An Institutional Review Board (IRB) approval was obtained from the associated hospital and University
- Data collection occurred retrospectively; no active patient recruitment occurred
- Information was queried and extracted at each hospital using Cerner
- Accuracy of the electronic data verified using manual chart review to provide verification of electronic clinical decision support algorithm

DATA ANALYSIS

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- SPSS Version 23 was used for quantitative data analysis
- Descriptive statistics including frequencies and means were used to illustrate palliative care patient characteristics
- Analysis of Variance (ANOVA) and *Chi*-Square were used to examine associations among the trigger variables and palliative care patients using the electronic clinical decision support
- A *p* value of <0.05 was the cut point for statistical significance

RESULTS

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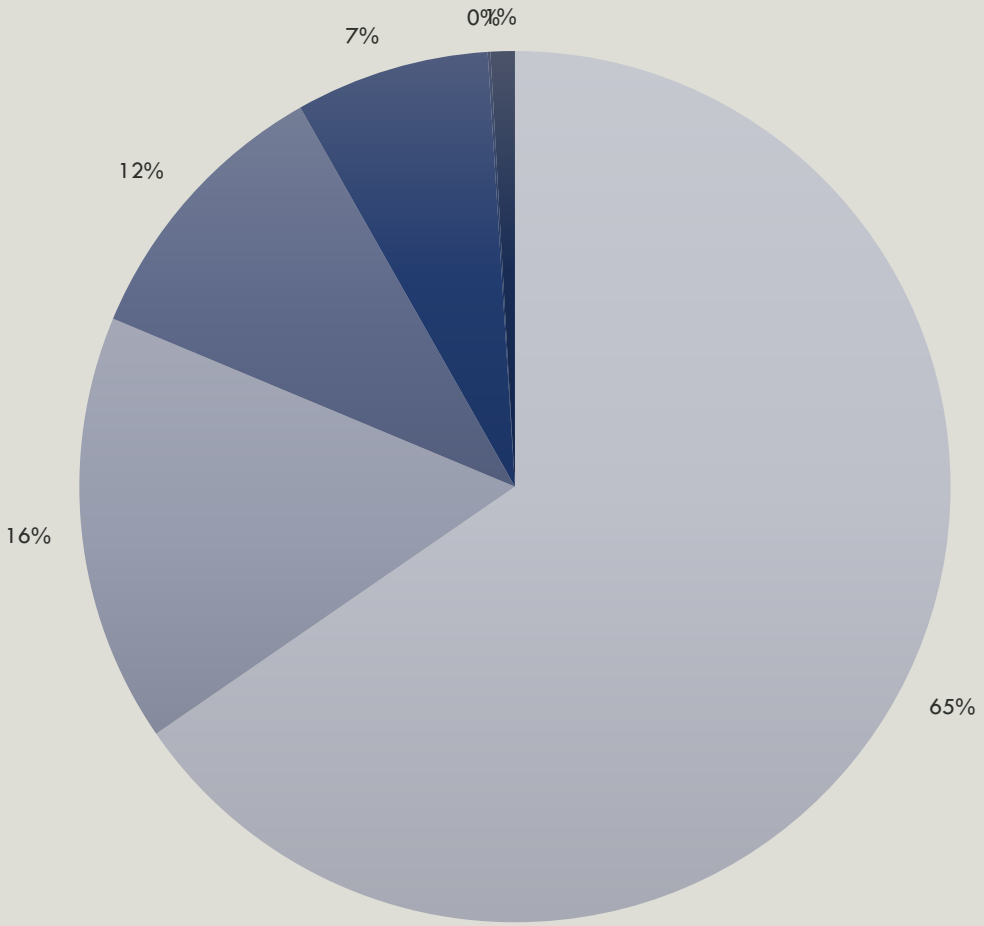
- A randomized sample yielded 694 palliative care patients, of whom 97.6% were seen by a palliative care nurse, while seeking acute care treatment at one of the three hospitals:
  - 51.7% male
  - 80.8% English speaking
  - 51.4% DNR

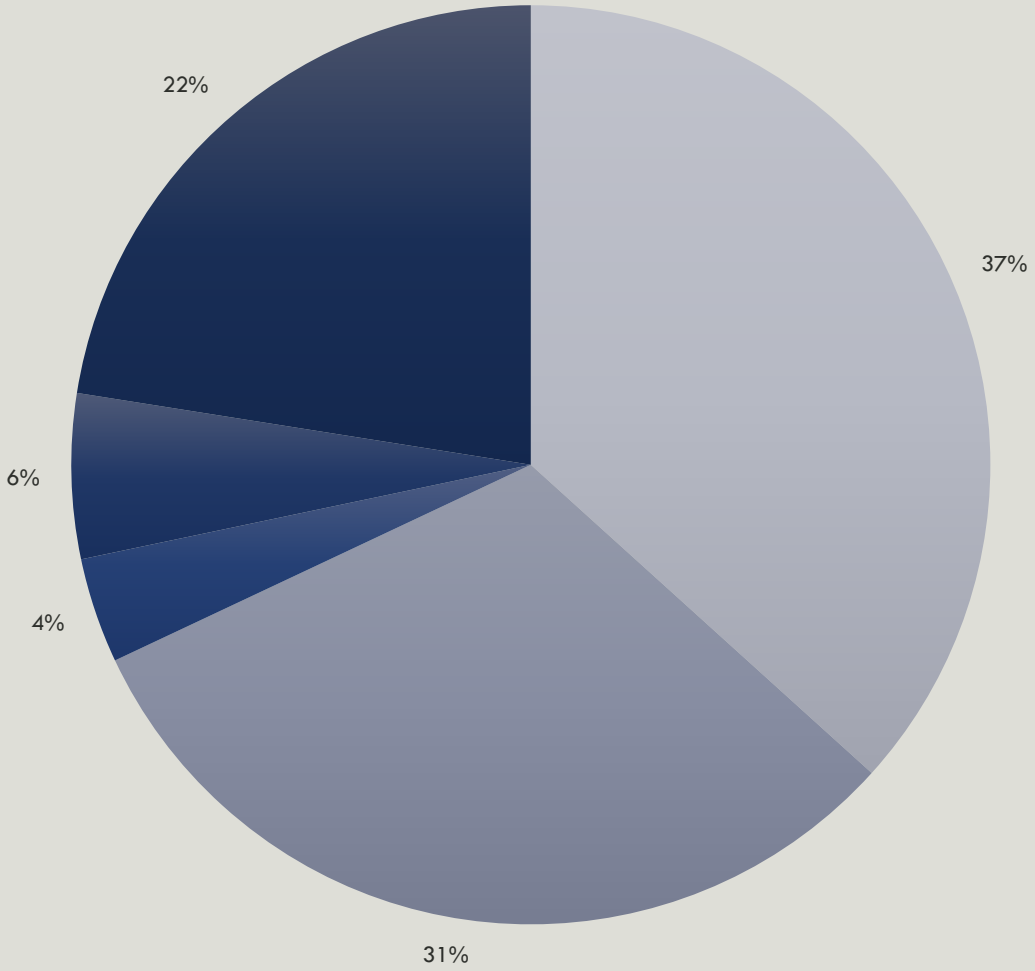
RESULTS

- Ethnicity
  - 65.4% White
  - 15.9% Hispanic
  - 10.5% Asian
  - 7.2% African American
  - 0.1% Native American
  - 0.9% Missing



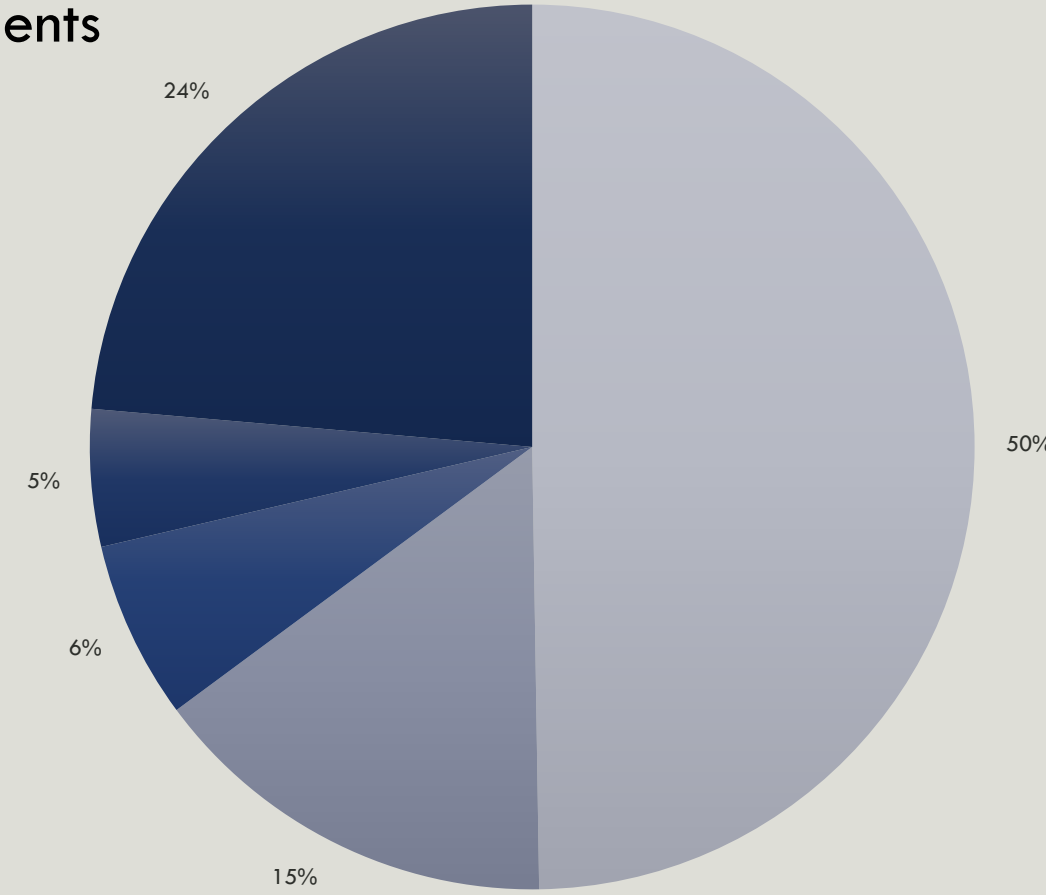
RESULTS

- Religion
  - 36.7% Christian
  - 31.3% Catholic
  - 3.7% Buddhist
  - 5.8% Other
  - 22.5% Missing



RESULTS

- Insurance
  - 49.7% Medicare recipients
  - 15.1% AARP
  - 6.5% Secure Horizons
  - 5% Medi-Cal
  - 23.6% Other



RESULTS

- Race/ethnicity/code status status ($X^2 = 11.311$, p .02)

		Code Status	
		Full	**DNR**
Ethnicity	**White**	207 (30.1%)	247 (35.9%)
	Hispanic	52 (7.6%)	58 (8.4%)
	Asian	40 (5.8%)	33 (4.8%)
	African American	34 (4.9%)	16 (2.3%)
	Native American	0	1 (0.1%)
Pearsons *Chi-* Squared = 11.311, p = .023			

RESULTS

- Language/presence of advance directive ($X^2 = 13.845$, p .008)

		Advance Directive		
		No	**Yes**	**POLST**
Language	**English**	213 (30.7%)	141 (20.3%)	206 (29.7%)
	Spanish	37 (5.3%)	7 (1.0%)	16 (2.3%)
	Other	29 (4.2%)	15 (2.2%)	29 (4.2%)
Pearsons *Chi-* Squared = 13.845, p = .008				

RESULTS

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- Change of code status/loss of responsiveness (X^2 =15.129, p<.001)

		Code Status	
		Full	**DNR**
Unresponsiveness	**No**	258 (37.3%)	225 (32.5%)
	Yes	78 (11.3%)	131 (18.9%)
Pearsons *Chi-* Squared = 15.129, p <.001			

PRACTICE IMPLICATIONS

- PATIENT:
  - Clinical decision support designed to improve patient safety and quality of care
  - Increased patient-centered response
- NURSING:
  - Utilization of clinical decision support improves identification of patients who would benefit from palliative care
  - Integrates nurses into the palliative care workflow

DISCUSSION

- This study laid foundation for integration of an algorithm into the EHR for clinical decision support to accurately identify palliative care patients. Future studies should:
  - Include a more diverse population in need of palliative care services
  - Include education and income status of patients
  - Exclude left-ventricular assist device patients

CONCLUSION

- Data available in the EHR can be used to identify:
  - Statistically significant associations among palliative care patient that support clinical evaluation and treatment
  - Important preliminary findings and the foundation for increased refinement of electronic clinical decision support within the EHR
  - ICD-10 codes in future studies for increased improvement of electronic clinical decision support within the EHR

ACKNOWLEDGEMENTS

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- My research committee: *Dr. Ruth A. Bush PhD, MPH, Dr. Cynthia Connelly PhD, RN, FAAN, and Dr. Jane Georges PhD, RN*
- Dr. Caroline Etland PhD, RN for making this research possible
- *The Hahn School of Nursing and Health Science and Betty and Bob Beyster Institute for Nursing Research* for giving me the opportunity to continue as a Merit Scholar and Irene S. Palmer Grant recipient

Thank you

for

your attention