Electronic Medical Record Alerts to Improve High-risk Breast Cancer Patients' Rate of Referral to Genetic Counseling

Nicole Lawing, Jan Wong, Nasreen Vohra, Debra Mascarenhas, Elizabeth Gottsch, Brenda Carpenter, Allison Meyer, Eleanor Harris, Darla Liles, Mahvish Muzaffar

Nicole Lawing
Brody School of Medicine
East Carolina University
Greenville, North Carolina 27834
lawingn14@students.ecu.edu

INTRODUCTION

- 10-15% of breast cancer cases are hereditary in nature with BRCA1 and BRCA2 mutations accounting for the majority and increasing risk for various malignancies
- National Comprehensive Cancer Network (NCCN) has set forth guidelines to identify patients meeting criteria for genetic risk evaluation so that further testing and risk reduction strategies may be offered
- The Quality Oncology Practice Initiative cites "referral to genetic counseling for high risk breast cancer patients" as a core quality metric.
- Nationwide referral rates are low, including Leo Jenkins Cancer Center (LJCC), with the average referral rate between 2007-2014 of 59%
- Recent research has shown improvements of referral rates for ovarian cancer patients by using electronic medical records (EMR)

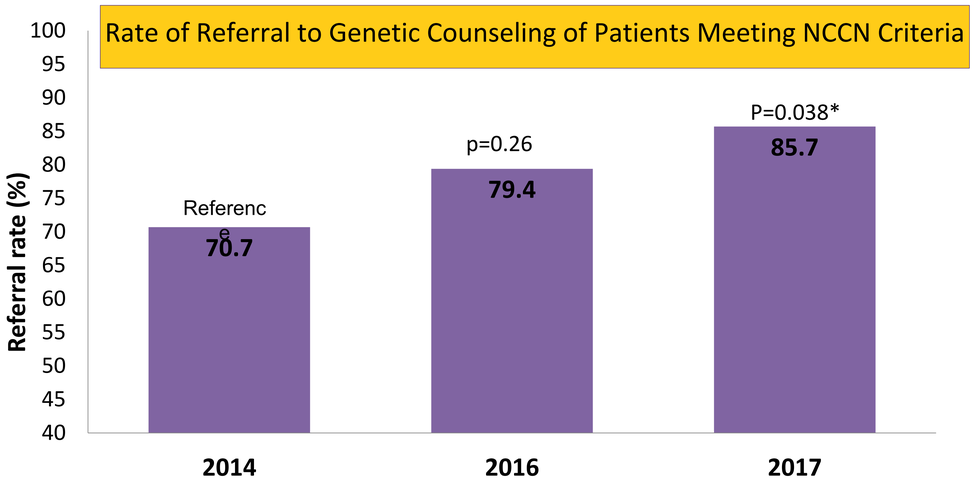
OBJECTIVE

- We sought to assess compliance with NCCN guidelines for genetic risk evaluation and testing among breast cancer patients treated at LJCC
- We hypothesize that implementing an electronic medical record identification and referral system will increase referral rates from 2014 rate of 70% to approximately 80% or higher
- We also wish to increase genetic counseling rates by utilizing nurse navigator follow up to further explore the reasons why patients do not attend counseling

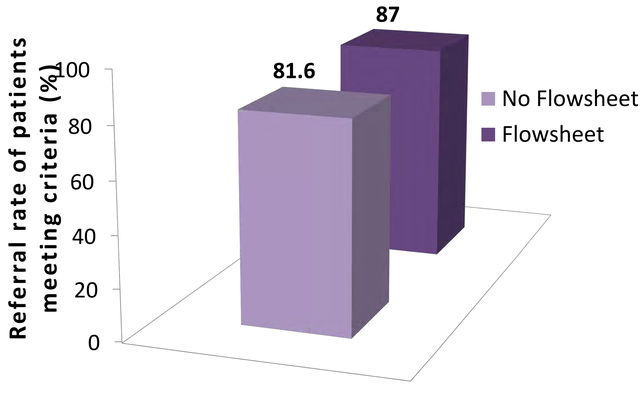
MATERIALS & METHODS

- A document flowsheet was implemented in EPIC at LJCC in 2017 that automatically sends a genetic referral if NCCN criteria are met
- Retrospective electronic chart review of 223 patients diagnosed with breast cancer at LJCC between January 2016 and August 2017, to assess rates of genetics referral, counseling, and testing
- NCCN guidelines were used to determine if patients met criteria for further genetic risk evaluation
- Rates of referral, counseling and testing were determined for those who met criteria using chi-squared and odds ratio
- Pre (2016) and post (2017) EMR template implementation was analyzed
- Reasons for not undergoing genetic counseling were assessed

RESULTS



Improved Genetic Counseling Referral Rate for Patients with Flowsheet Filled



Reason for not undergoing genetic counseling

Reasons	2016 N(%)	2017 N(%)
Refused	7 (41.1)	4 (22.2)
Financial	1 (5)	3 (16.6)
No Show	1 (5)	5 (27.7)
Undocumented	4 (23.5)	0 (0)

SUMMARY

- A total of 108 genetic document flowsheets were filled by providers
- Of patients diagnosed in 2017, 72.3% of flowsheets were filled
- The flow sheet was significantly more likely to be filled if the patient met criteria (56%) compared to those who did not meet criteria (36%)
- Referral rates showed an increasing trend with time
- In 2017, for patients who met NCCN criteria and had a genetic flowsheet completed, the referral rate was 90.6%
- Genetic counseling and testing rates remained the same with time
- Reasons for not undergoing counseling were better documented in 2017, with none unknown compared to 23% unknown in 2016
- Patients from counties with low median household income were less likely to attend genetic counseling once referred

CONCLUSIONS

- Improvements have been seen in referral rates of high-risk breast cancer patients after utilizing the EMR flowsheets
- This difference was especially large for those who met the less obvious criteria, family history of pancreatic and/or prostate cancer (22% in 2010-2014 vs 91% in 2016-2017)
- About three quarters of flowsheets were filled in 2017, so efforts must be continued in order to reach 100%
- Ten patients who met criteria and had a flowsheet completed were not referred for genetic risk assessment; this was determined to represent a technical issue of the automatic referral not being triggered, which has since been resolved
- Despite increased rates of referral, rates of attending counseling did not significantly increase, so patient education and nurse navigator follow up are increasingly important

FUTURE DIRECTIONS

- We propose using similar flowsheets across the Vidant Health Network oncology practices for all genetic cancers