Assessing the Population Risk for Breast Cancer in Eastern North Carolina: A Pilot Program at the Outer Banks Hospital

ECU BRODY SCHOOL OF MEDICINE

VIDANT HEALTH

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BACKGROUND

Breast cancer (BC) is the most common cancer in eastern NC, just as it is in America. We have for many years had worse outcomes in our 29-county region due to many factors, including an inherently higher risk population. We performed a pilot study on our local population at the Outer Banks Hospital, which is a community member of the Vidant Medical network, in order to assess and model this rural risk which we believe to be high. The hypothesis we hold is that if we can model the risk and offer better targeted screening and prevention, we can lower the disparity in breast-cancer related outcomes in the 29-county region we serve.

PROJECT AIM

Our goal with this study was to pilot an innovative model within ENC to assess this risk, and stratify the risk for women using evidence-based guidelines. We hope to examine this model after 1.5 years to see what impact it has had, and to duplicate this model within the larger network of Vidant.

Using a critical access point in the at-risk population, we aim to introduce a risk assessment tool to establish the cancer risk and use that information to help guide screening. The hypothesis is that some of these risks are modifiable through lifestyle modification, and some are not (e.g. family history and genetics), but they are all modeled using evidence-based tools available nationally.

PROJECT DESIGN/STRATEGY

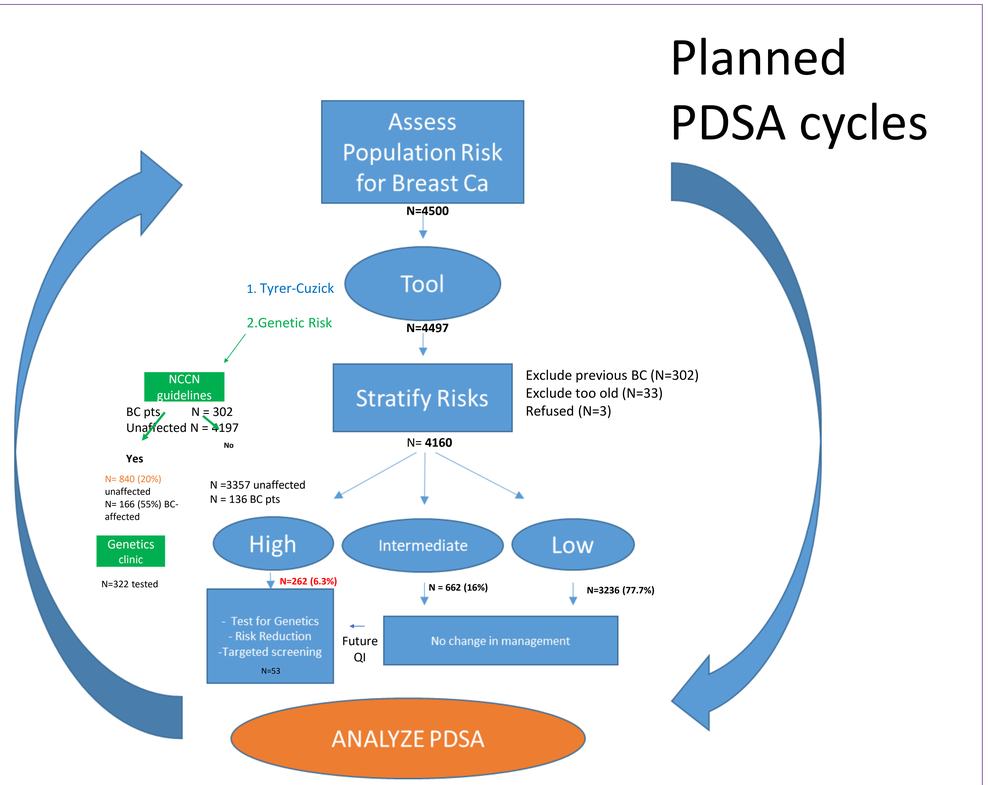
We aim to add services to accommodate these increased rural needs, including 1) genetics risk assessment clinic, 2) a risk modification clinic, and 3) a "high risk" clinic to follow these women who are at elevated risk and offer customized management.

We plan to pilot this at a V-COM hospital (TOBH) first, then replicate it to other V-COM hospitals in the Vidant network to improve screening within Eastern North Carolina for Breast Cancer. We used PDSA approach with monthly review of data.

Based on the pilot data from TOBH we present here, we should be able to predict the needs for the system and estimate the impact on the Vidant Network in BC care.

Our long term aim is to reduce the later stages of presentation of cancer by offering more appropriate screening, and prevent cancer by mitigating the risks in patients with above-average risk factors.

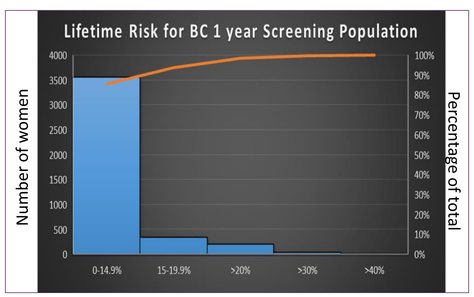
CHANGES MADE (PDSA CYCLES)



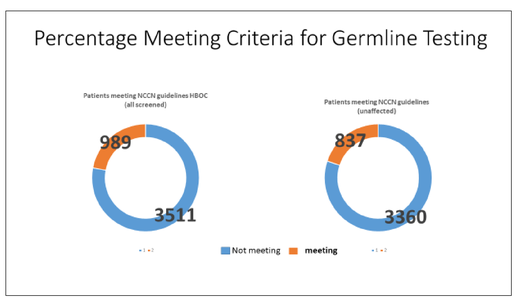
Results after 1 year

RESULTS/OUTCOMES

Annual population of 4500 women screened at intake point of mammography. We compared results prior to improvement with post-intervention. No women were being formally assessed for BC risk prior to this pilot. Within rural screening radiology population, 1:16 women are at increased-risk for BC, defined by lifetime risk ≥ 20%. One-in-five unaffected women (>20%) in screening population met NCCN guidelines for hereditary testing. Using this model of intervention in a population with elevated risks is helpful to identify areas of opportunity to improve rural outcomes.



Low-normal above average high risk very high



LESSONS LEARNED

Timing	Issue	Result/Lesson Learned
Pre- PDSA Cycle 1	IRB approval took 7 months	This delayed intervention/apply sooner in future QI projects
Cycle 1 (after 1 month)	TC scores did not account for familial risk adequately and need second tool	Added elements from NCCN guidelines into questionnaire after studying data with FH
Cycle 1 (after 3 months)	1 in 5 patients met HBOC testing criteria per NCCN	We needed to add clinic time to consult with 3 times more patients than we anticipated
Cycle 2 (3 + months)	1 in 5 patients continue to meet HBOC criteria and one physician oncologist cannot absorb this extra volume of consults (400 patients a month screened and 1 in 5 need evaluation for HBOC)	We added genetics extender counselor to help with consults and testing/counseling needs. This required certification through a program, and we chose City of Hope for one of our nurses
Cycle 2 (3+ months)	Patients > 30 percent Lifetime Risk needed additional referral for chemoprevention in addition to breast surgeon HR clinic	Nurse Navigator contacted to additionally have these patients seen by Med Onc independently of HR clinic
Cycle 3 (6 + months)	compliance in terms of patients responding to our attempts	We began more attempts to capture very high risk (pts with TC > 30 percent) genetics extender
Cycle 3 (6+ months)	Manual calculations missing when nurse out	We considered future automated process
Cycle 4	Imaging expenses associated with High Risk Clinic started to become a barrier	We created abridged MRI protocol, following models used at places such as MDACC
Cycle 5	High Risk dropped from 7 percent to 4 percent in 2020	We contacted IBIS website and they notified us that TC v8b was added to account for competing lifestyle risks, resulting in changed scores
Cycle 6	Gene panel (19) felt to be too limited	We discussed with other programs (Stanford) and increased to 84-gene panel
Cycle 7	Other risks identified with pathogenic genetic testing results besides BC (for example pancreatic, colon, ovarian)	We hardwired a process for GYN ONC referrals to discuss risk-reducing surgery (e.g. BRCA and RAD51C); added imaging for pancreatic cancer screening (PALB2); hardwired referrals for colonoscopy (e.g. Lynch Syndrome)
Cycle 8	High familial rate of Ovarian cancers (8 percent of our patients)	We created referral to GYN ONC to discuss RR surgery even in women with negative genetics, especially in women with > 1 first degree relative with OC
Cycle 8	COVID-19 a barrier to consults in person and testing on site	We shifted to 100% virtual telehealth and shipped at-home kits for testing
Cycle 9 (9 months)	Compliance with Very High Risk (LR > 30%)	We more aggressively contacted all patients in this category to make sure they were being followed in a HR Breast Clinic
Cycle 10 (12 months)	Imaging and other risk modifiers for Above-Average Risk women	8% of additional women with LR 15-20% (above-average) could benefit from other imaging (esp. if dense breasts) and referred as needed (e.g. MRI)

This model for improving BC risk assessment and testing at small community cancer-accredited hospital was successful and addressed a rural need. We discovered high rate of increased-risk women, and high percentage of women who need genetic testing. A next step with this is to employ the tool in primary care setting locally, and duplicate it elsewhere in the Vidant network.
We implemented clinics to help address this need, and we anticipate the long term effects will be to lower the (breast) cancer risks rurally .

ACKNOWLEDGEMENTS

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