

Impact of Patient Education on Awareness and Adherence to Pancreatic Cancer Screening in BRCA2 Mutation Carriers

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BACKGROUND

- BRCA2 mutation carriers face a ~3.5x higher risk of pancreatic cancer (Xie et al., 2022).
- National Comprehensive Cancer Network (NCCN) now **recommends screening for all carriers aged ≥50 or 10 years before the earliest family case, regardless of family history.**
- Awareness and adherence remain low, and no studies have evaluated awareness of these updated NCCN guidelines.
- Hypothesis:** Targeted patient educational email and video will increase awareness and screening uptake among BRCA2 carriers.

METHODS

We conducted a quality improvement study at MUSC's Hereditary Cancer Clinic to assess **if education improved pancreatic cancer screening awareness/uptake.**

An email was sent to 350 patients, including:

- NCCN guideline summary
- Educational video by Dr. Kevin Hughes
- Scheduling instructions
- REDCap survey link

The REDCap survey assessed:

- Awareness of updated guidelines
- Perceived helpfulness of email/video
- Interest in scheduling screening

RESULTS

Educational emails on updated NCCN guidelines sent to 350 patients.

Chart review

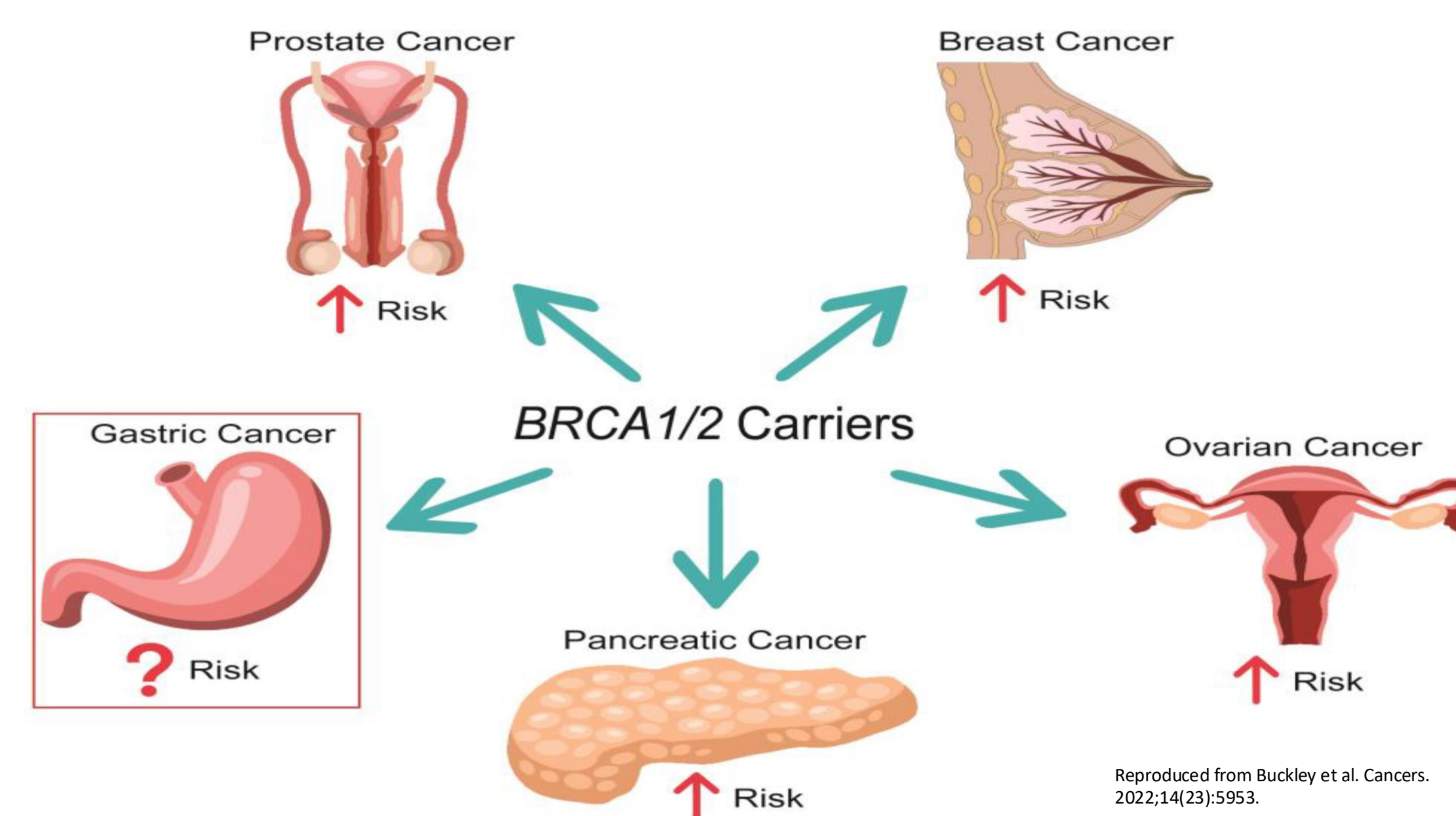
350 patient records:

- 187 individuals (53.4%) ineligible (e.g., deceased, BRCA-2 negative, have completed pancreatic cancer screening, or already scheduled)
- 163 patients (46.6%) eligible

Among eligible 163 patients:

- 25 patients scheduled upcoming visits with the Hereditary Cancer Clinic to discuss pancreatic cancer screening.
 - 8 (4.9%) contacted the Hereditary Cancer Clinic via phone/MyChart
 - 17 (10.4%) scheduled directly via REDCap survey
- 138 (84.7%) did not respond and will be prioritized for follow-up

Cancer Risks Associated with *BRCA1* and *BRCA2* Germline Pathogenic Variants



Reproduced from Buckley et al. Cancers. 2022;14(23):5953.

 National Comprehensive Cancer Network®		NCCN Guidelines Version 1.2026 Pancreatic Cancer Screening	NCCN Guidelines Index Table of Contents Discussion
PANCREATIC CANCER SCREENING			
- Data on the efficacy of pancreatic cancer screening are largely derived from studies of individuals with P/LP germline variants in pancreatic cancer susceptibility genes and/or a family history of pancreatic cancer. This guideline addresses pancreatic cancer screening specifically in individuals with a germline P/LP variant associated with increased risk of exocrine pancreatic cancer. See table below for gene-specific recommendations. - For individuals considering pancreatic cancer screening, the Panel recommends that screening be performed in experienced high-volume centers. The Panel recommends that such screening only take place after an in-depth discussion about the potential limitations to screening, including cost, the high incidence of benign or indeterminate pancreatic abnormalities, and uncertainties about the potential benefits of pancreatic cancer screening. - Consider screening using annual contrast-enhanced MRI/magnetic resonance cholangiopancreatography (MRCP) and/or endoscopic ultrasound (EUS), with consideration of shorter screening intervals, based on clinical judgment, for individuals found to have potentially concerning abnormalities on screening. Studies have typically started screening with contrast-enhanced MRCP and/or EUS in individuals at increased risk for pancreatic cancer. The Panel emphasizes that most small cystic lesions found on screening will not warrant biopsy, surgical resection, or any other intervention.			
Consider pancreatic cancer screening (preferably in the setting of a longitudinal study) for the following:			
• Individuals with P/LP germline variants in <i>STK11</i>	• Beginning at age 30–35 years (or 10 years younger than the earliest exocrine pancreatic cancer diagnosis in the family, whichever is earlier).		
• Individuals with P/LP germline variants in <i>CDKN2A</i>	• Beginning at age 40 years (or 10 years younger than the earliest exocrine pancreatic cancer diagnosis in the family, whichever is earlier).		
• Individuals with P/LP germline variants in <i>ATM</i> or <i>BRCA2</i>	• Beginning at age 50 years (or 10 years younger than the earliest exocrine pancreatic cancer diagnosis in the family, whichever is earlier).		
• Individuals with P/LP germline variants in one of the other pancreatic cancer susceptibility genes (<i>BRCA1</i> , <i>MLH1</i> , <i>MSH2</i> , <i>MSH6</i> , <i>EPCAM</i> , <i>PALB2</i> , <i>TP53</i>)	GENE-A - Beginning at age 50 years (or 10 years younger than the earliest exocrine pancreatic cancer diagnosis in the family, whichever is earlier) for individuals with exocrine pancreatic cancer in ≥1 first- or second-degree relatives from the same side of (or presumed to be from the same side of) the family as the identified P/LP germline variant.^a - There are currently insufficient data regarding the yield and benefits of pancreatic cancer screening for carriers of P/LP variants in genes other than <i>ATM</i>, <i>BRCA2</i>, <i>STK11</i>, and <i>CDKN2A</i> in the absence of a close family history of exocrine pancreatic cancer.		

CONCLUSIONS

- Targeted emails modestly increased awareness and engagement in BRCA2 carriers.
- Demonstrate potential of targeted email outreach to promote adherence to pancreatic cancer screening guidelines.
- Helped us improve our efficacy for reaching patients.

SUMMARY

- Managing genetic mutations requires ongoing education and support.
- Targeted emails show promise, but response rates remain modest.
- We have enhanced efficiency in the patient outreach process, and our approach can be adapted to other high-risk genetic mutations and screening guidelines.
- Continued outreach will aim to improve screening uptake and early cancer detection.

REFERENCES

- Buckley KH, Niccum BA, Maxwell KN, Katona BW. Gastric Cancer Risk and Pathogenesis in *BRCA1* and *BRCA2* Carriers. *Cancers*. 2022; 14(23):5953. <https://doi.org/10.3390/cancers14235953>
- Xie C, Luo J, He Y, Jiang L, Zhong L, Shi Y. BRCA2 gene mutation in cancer. *Medicine* (Baltimore). 2022 Nov 11;101(45):e31705. doi: 10.1097/MD.00000000000031705. PMID: 36397405; PMCID: PMC9666215.