Providence

Barriers to Early Adoption of Novel Cancer Screening Among Those with Elevated Risk of Cancer

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Disclaimer and Acknowledgements

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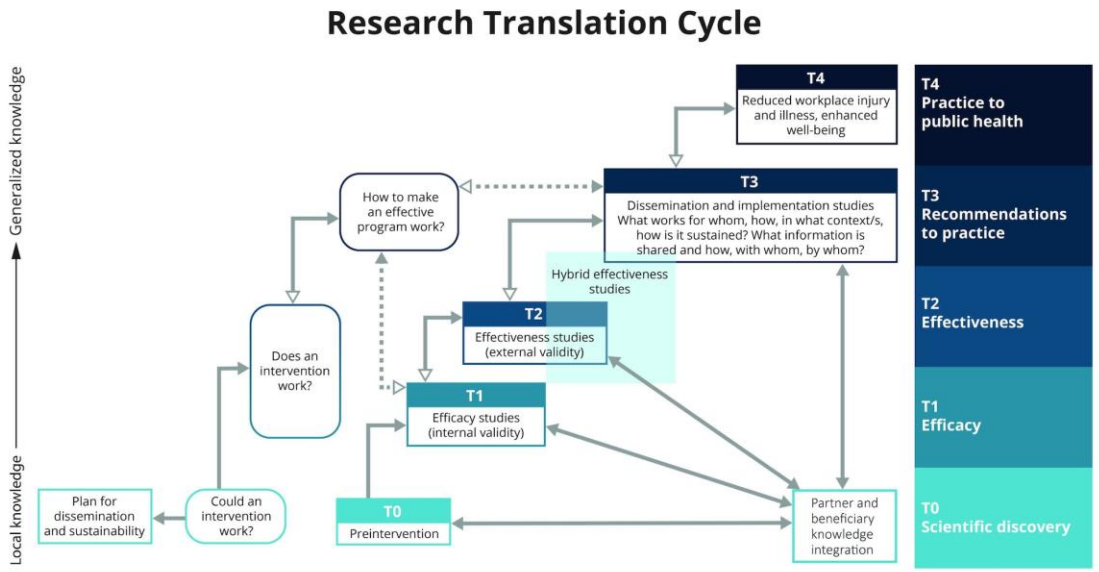
Background

- Multicancer early detection (MCED) tests are a novel type of technology
- MCED tests measure biological substances shed by cancer cells in the blood and are currently under study in clinical trials across the world
- MCED testing differs from current cancer screening in two important ways:
  - Single blood test instead of x-rays, imaging tests, or medical procedures
  - Tests for many types of cancers from different organ sites (including for cancers that have no current available testing)
- Differences between MCED testing and current cancer screening present unique challenges to implementation:
  - barriers/facilitators for patients
  - development of post-positive support

MCED Pace of Implementation



Guerin RJ, Glasgow RE, Tyler A, Rabin BA, Huebschmann AG. Methods to improve the translation of evidence-based interventions: A primer on dissemination and implementation science for occupational safety and health researchers and practitioners. *Saf Sci*. 2022;152:105763. doi:10.1016/j.ssci.2022.105763

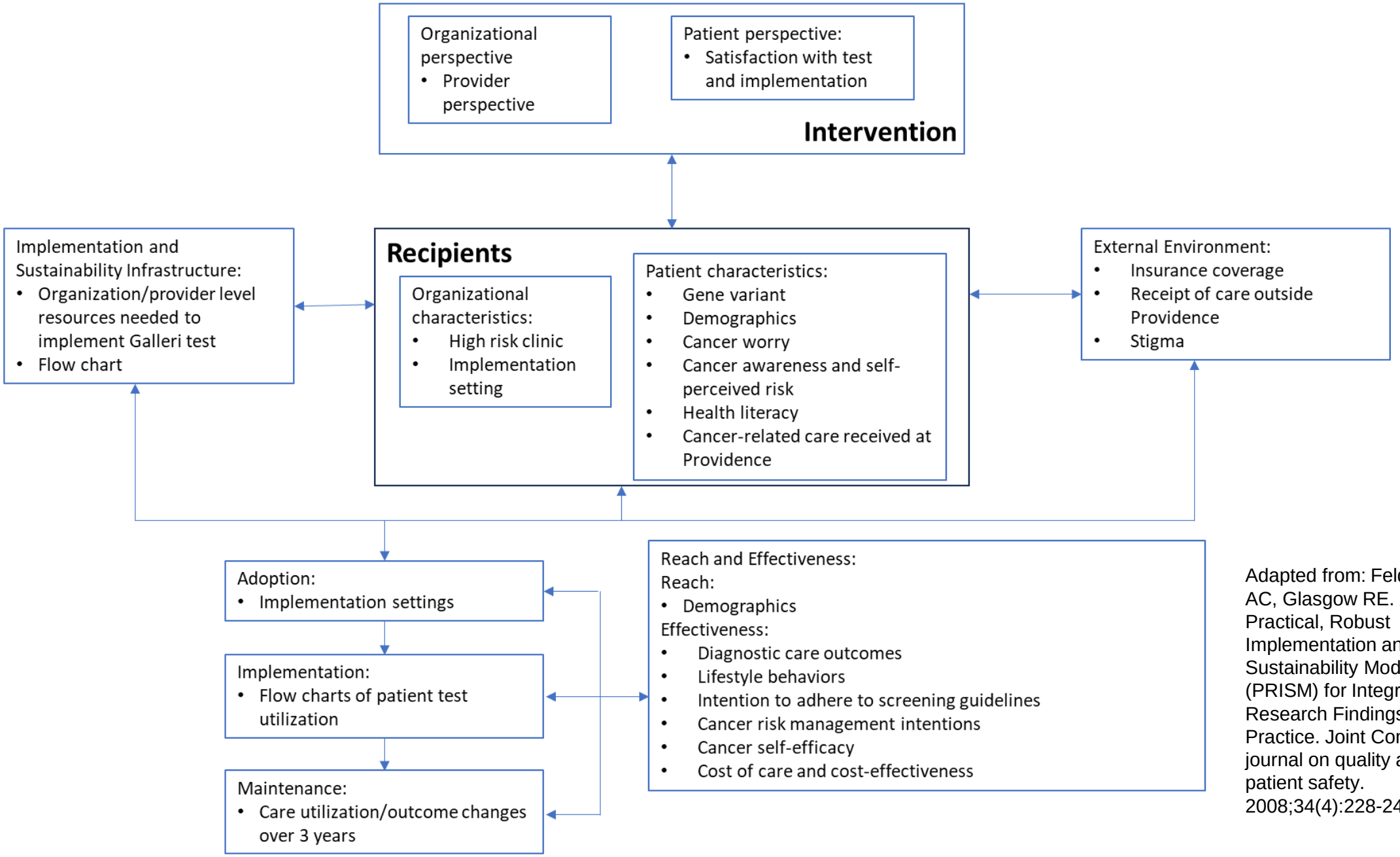
- Historically, implementation science has occurred after effectiveness studies
- Sequential ordering of effectiveness and implementation research can lead to long research-to-practice gaps
- Providence Health & Services was an early adopting system of the Galleri® test, an MCED developed by GRAIL
- As part of early adoption, Providence wanted to better understand implementation factors that are significant for MCED testing

Background for Current Study

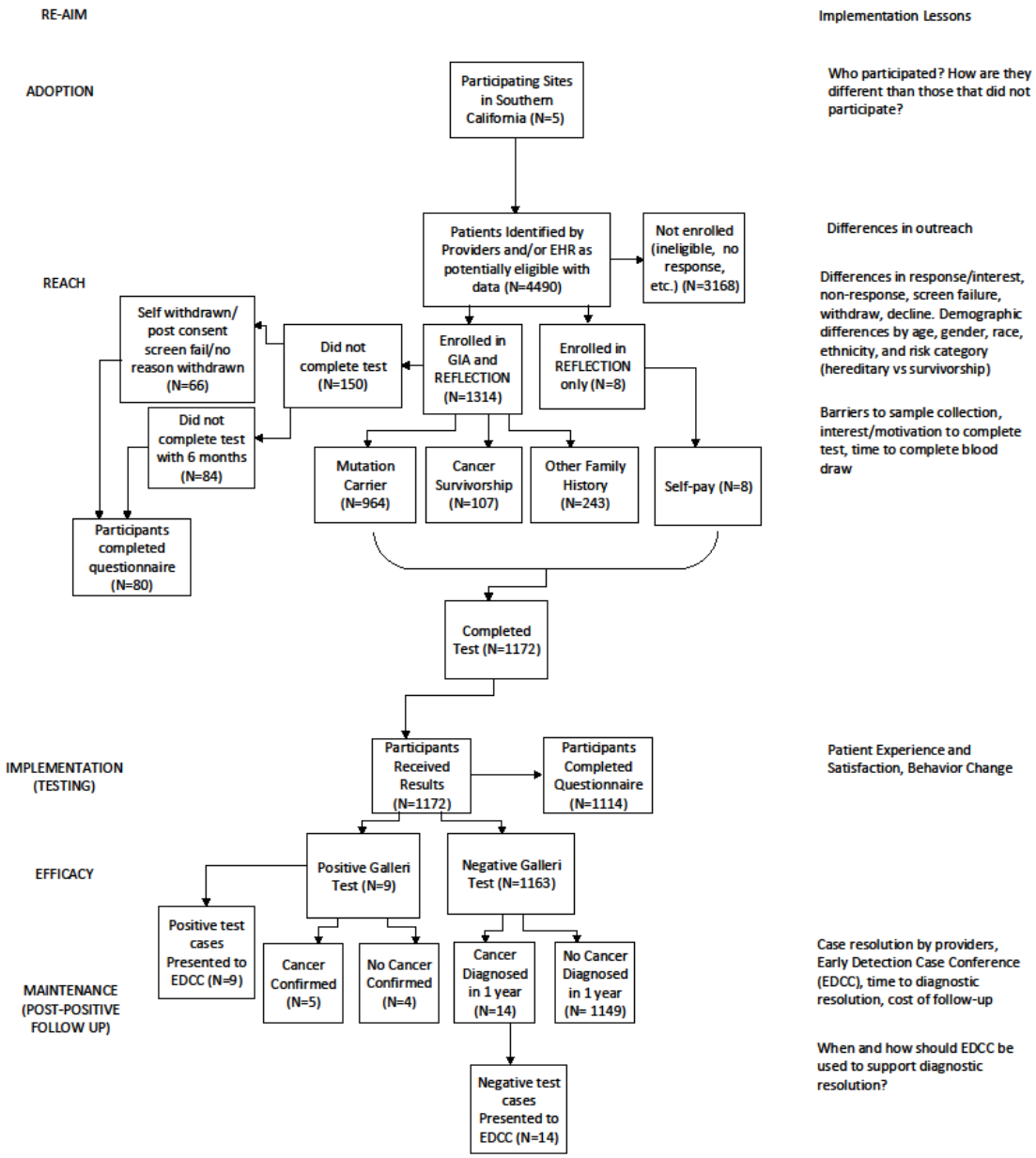
- Our study, Galleri in Action, was an implementation study conducted in conjunction with the REFLECTION study (NCT05205967)
- The purpose of the REFLECTION study is to understand the real-world experience of Galleri® in clinical settings
- Providence patients offered the Galleri® test included those with enhanced cancer risk, including genetic risk, family history, and previous cancer diagnosis
- In addition to describing clinical outcomes, REFLECTION assessed the feasibility and acceptability of the Galleri® test from the patient perspective and health care resource utilization associated with cancer diagnostic work up after a post-positive test
- Galleri in Action built on this study to additionally examine implementation factors and impact on patient behaviors

Current Study Sample

- Across five hospital sites in Southern California, Providence offered enrolled patients free MCED tests to better understand what barriers to adoption of this new technology exist in addition to cost
- In 2022-2023, patients were enrolled in the study and offered the test remotely and in-clinic, followed-up over the following year using participant surveys and electronic health record data abstraction
- To support patients who chose to complete an MCED test (either through the research studies or ordered commercially), several new clinical pathways were created at Providence, including an Early Detection Case Conference to provide post-positive support
- The RE-AIM and PRISM frameworks were used as the conceptual framework of MCED implementation in this study



Adapted from: Feldstein AC, Glasgow RE. A Practical, Robust Implementation and Sustainability Model (PRISM) for Integrating Research Findings into Practice. Joint Commission journal on quality and patient safety. 2008;34(4):228-243.



Adaptation of: Allen CG, Hunt KJ, McMahon LL, Thornhill C, Jackson A, Clark JT, Kirchoff K, Garrison KL, Foil K, Malphrus L, Norman S, Ramos PS, Perritt K, Brown C, Lenert L, Judge DP. Using implementation science to evaluate a population-wide genomic screening program: Findings from the first 20,000 In Our DNA SC participants. Am J Hum Genet. 2024 Mar 7;111(3):433-444. doi: 10.1016/j.ajhg.2024.01.004. Epub 2024 Feb 1. PMID: 38307026; PMCID: PMC10940017.

Methods

- Between 2022-2023, 4490 patients at elevated risk for cancer with complete data were identified as potentially eligible by providers and/or EHR and were invited to a study offering a no-cost MCED test.
- Of these, 1322 enrolled in REFLECTION and 1172 completed the test
- Examining enrollment as a proxy for interest in or early adoption of MCED testing, multivariate logistic regression examined demographic factors associated with enrollment:
- Among those enrolled, factors associated with test completion were assessed using chi-square tests of independence

Results: Enrollment

- Black patients (AOR 0.5, 95% CI: 0.31-0.82, p-value = 0.006) and Asian patients (AOR: 0.74, 95% CI: 0.56-0.97, p-value = 0.03) were less likely than invited white patients to enroll in this study
- Hispanic patients had lower odds of enrollment than non-Hispanic patients invited to this study (AOR: 0.55, 95% CI: 0.45-0.68, p-value < 0.001)
- Cancer survivors had higher odds of enrolling in this study than patients invited due to familial/genetic risk (AOR: 2.51, 95% CI: 1.83-3.45, p-value < 0.001)
- Age was also significant, with increasing age associated with a slight decline in enrollment (AOR: 0.99, 95% CI: 0.98-0.99, p-value < 0.001)
- Non-significant factors included sex and some racial differences (including for American Indian/Alaska Native relative to white patients, or Native Hawaiian or other Pacific Islander relative to white patients)

Results: Test Completion

Among those enrolled, those who completed the test were:

- More likely to be 50+ years old versus under 50 (OR: 1.99, 95% CI: 1.39-2.85; p=0.001)
- To have Medicare versus commercial/private insurance (2.38, 1.26-4.96, p=0.006)
- To have a higher health status versus lower health status (2.35, 1.45-3.83, p=0.002)

There were no significant differences in test completion by race, ethnicity, sex, prior cancer history, family history of cancer, smoking status, cancer worry, or recommended screening adherence intentions.

Limitations:

- Questionnaire response rate differed between group who completed test and did not complete test
- Test completion analysis is bivariate and associations may be impacted by adjusting for potential confounders

Implications for D&I

- Demographic differences in study enrollment mirrored enrollment disparities in other cancer screening studies
- Differences between enrollment rate in those with personal history of cancer versus familial/genetic risk alone may be received to perceived benefit of the test
- Among those enrolled, those who were younger and less healthy were less likely to complete the test
  - These results may indicate barriers to MCED test utilization in addition to cost among those with elevated risk for cancer (such as perceived benefit of the test)
- Findings identify important additional barriers to adoption of MCED tests in people with enhanced cancer risk
- **Focusing on barriers to adoption earlier in the translational research continuum may provide guidance to decrease the research-to-practice gap for novel cancer screening tests**

Next Steps

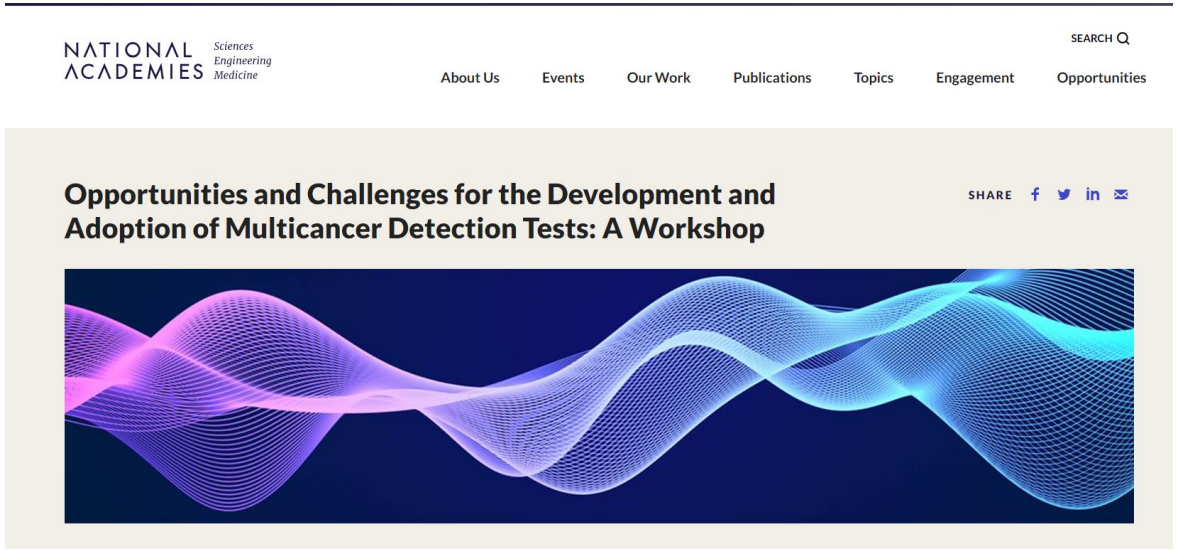
- Our next goals are to:
  - Understand patient behaviors and attitudes one year after they were offered their first test
  - Examine impacts of offering annual testing (tests offered yearly to those who are eligible for up to three years)
  - Understand context using mixed method approach, including patient and provider interviews
  - Add a comparison group of patients offered usual care alone

Questions?

Contact me: kara.Bensley@providence.org

Want to learn more? Check out the recent NASEM workshop on Multicancer Detection Tests (October 2024):

nationalacademies.org/event/42236_10-2024_opportunities-and-challenges-for-the-development-and-adoption-of-multicancer-detection-tests-a-workshop



Additional Slides

Details on Predictors

Enrollment Analysis:

- Age (continuous)
- Race (American Indian/Alaska Native, Asian, Black, Native Hawaiian/Pacific Islander, White, Patient Refused, Unknown, Other)
- Ethnicity (Hispanic, non-Hispanic, Not Reported)
- Sex (male, female)
- Cohort (Genetic Mutation, Other Family History, Cancer survivorship, self-pay)

Test Completion:

- Age (<50, 50 and older)
- Race (American Indian/Alaska Native, Asian, Black, Native Hawaiian/Pacific Islander, White, Not Reported)
- Ethnicity (Hispanic, non-Hispanic, Not Reported)
- Sex (male, female)
- Insurance status (Commercial/private, Medicaid, Medicare/Government, other, none, not reported)
- Prior cancer history (yes/no; EHR based)
- Smoking status (yes/no, EHR based)
- Personal history of cancer (yes/no, EHR based)
- Family history of cancer (yes/no, EHR based)
- Perceived health status (Higher = Excellent, Very Good, Lower = Good, Fair, Poor)
- Cancer worry (see next slide)
- Recommended screening adherence intentions (very unlikely, unlikely, likely, very likely)

Cancer Worry

- How often have you thought about your chances of getting cancer? (Not at all, A little bit, Somewhat, Very Much)
- Have these thoughts affected your mood? (Not at all, A little bit, Somewhat, Very Much)
- Have these thoughts interfered with your ability to do daily activities? (Not at all, A little bit, Somewhat, Very Much)
- How concerned are you about the possibility of getting cancer one day? (Not at all, A little bit, Somewhat, Very Much)
- How often do you worry about developing cancer? (Not at all, A little bit, Somewhat, Very Much)
- How much of a problem is this worry? (Not at all, A little bit, Somewhat, Very Much)

Comparison of Significant Factors

Factors associated with Enrollment:

- Age (older = less likely to enroll in study)
- Race (Asian and Black patients less likely than white patients to enroll)
- Ethnicity (Hispanic patients less likely to enroll)

Factors NOT associated with enrollment:

- Sex
- Some racial differences

Factors associated with Test Completion:

- Age (older = more likely to complete test)
- Medicare (more likely to complete test)
- High health status (more likely to complete test)

Factors NOT associated with test completion:

- Race
- Ethnicity
- Sex
- Prior cancer history, family history of cancer, smoking status, cancer worry, or recommended screening adherence intentions