

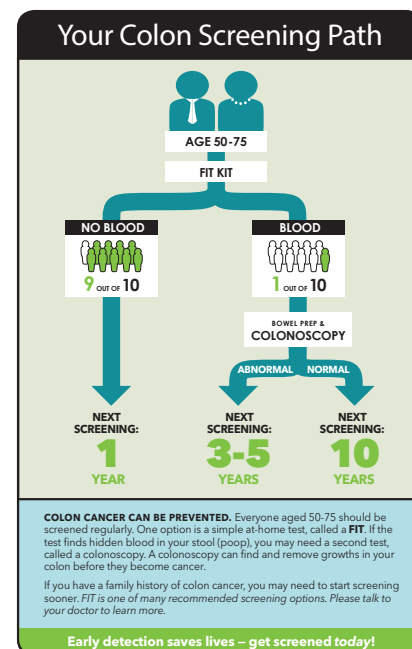
Using Risk Prediction to Target Navigation for Follow-Up Colonoscopy in Community Health Centers

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CONTEXT

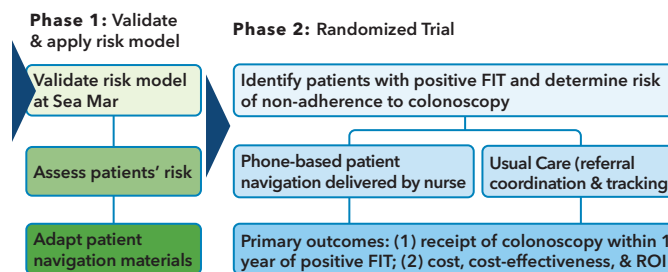
- Colorectal cancer (CRC) screening by annual fecal immunochemical test (FIT) is accessible and cost-effective¹
- Effectiveness of FIT screening depends on follow-up colonoscopy after a positive FIT result
- 50% of FIT-positive patients fail to complete this essential screening component²
- Patient navigation can improve follow-up colonoscopy adherence
- To reduce costs, health centers could target navigation to patients who are unlikely to complete the procedure on their own



OBJECTIVE

- The Predicting and Addressing Colonoscopy Non-adherence in Community Settings (PRECISE) clinical trial:

- Developed a risk model of follow-up colonoscopy adherence
- Is testing if patient navigation raises rates of colonoscopy adherence overall
- Is testing the patient navigation's effectiveness among by risk probability of adherence



- 2-phase patient-randomized trial of patient navigation vs. usual care
- Enroll ~1200 patients across 28 Sea Mar clinics
- 5-year R01 study funded by the National Cancer Institute

SETTING AND POPULATION STUDIED

- Large community health center, 37% Latino
- Aged 50-75
- Had an abnormal FIT result in the past month
- Randomized to patient navigation or usual care
- 312 patients randomized to date (recruitment target = 1200)

STUDY DESIGN AND ANALYSIS

RISK PREDICTION

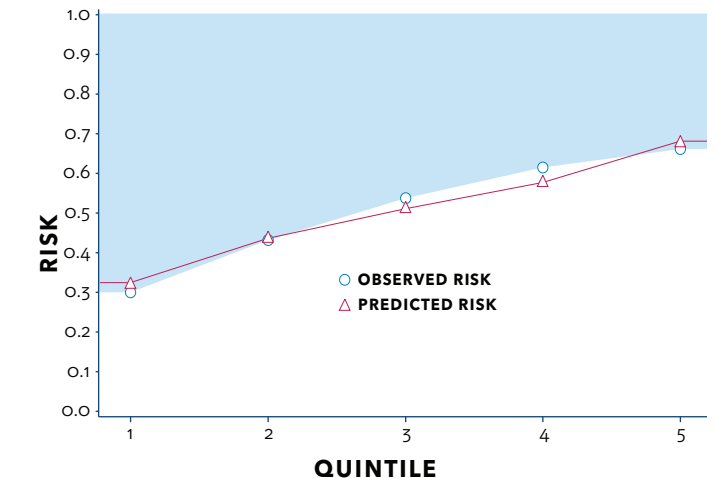
- Retrospective dataset of 1401 patients
- 12 patient-level variables that predict the probability of completing a follow-up colonoscopy
- Model showed adequate separation of patients across risk levels for non-adherence to follow-up colonoscopy.

Characteristics in the Final Model

MODEL PERFORMANCE	
C-statistic (bootstrapped)	.65(.61)*
R ²	6.5%
DEMOGRAPHICS	
Age	
Race	
Language	
Marital Status	
Insurance	
County of Primary Care	
CLINICAL CHARACTERISTICS	
Number of encounters in the past year	
Number of missed appointments in the past year	
Prior CRC screening	
Prior mammogram (for female patients)	
Body Mass Index (BMI)	
Gagne comorbidity score	

* The c-statistics have been bootstrap-corrected to account for shrinkage to provide a more realistic estimate of discrimination in future populations. R² based on the D-statistic is a summary measure of discrimination based on the variation in explained risk.

Observed vs. Predicted Likelihood (risk) of Completing a Colonoscopy



OUTCOME MEASURES

This innovative clinical trial is testing the effectiveness and financial feasibility of patient navigation using a predictive model. The primary outcome is colonoscopy completion following an abnormal FIT test. This study seeks to determine the value of the program across varying risk of colonoscopy completion and hopes to improve colorectal cancer screening completion in community health centers.

REFERENCES:

- American Cancer Society. Cancer Statistics Center. https://cancerstatisticscenter.cancer.org/?_ga=2.130227215.1253277561.1567535910.2042669230.1548289813#/. Published 2019. Accessed September 3, 2019.
- Liss DT, Brown T, Lee JY, et al. Diagnostic colonoscopy following a positive fecal occult blood test in community health center patients. *Cancer Causes Control*. 2016;27(7):881-887.
- Royston P, Altman DG. External validation of a Cox prognostic model: principles and methods. *BMC Med Res Methodol*. 2013;13:33.
- Steyerberg EW, Vergouwe Y. Towards better clinical prediction models: seven steps for development and an ABCD for validation. *Eur Heart J*. 2014;35(29):1925-1931.