Patient Factors Predict Receipt of and Time to Follow-up Colonoscopy After Abnormal FIT in a Large Federally Qualified Health Center

Authors:
Megan R. McLeod, MD, MS[1] (mrmcleod@mednet.ucla.edu)
Jessica Tuan, MPH[2] (jessicajtuan@ucla.edu)
Beth A. Glenn, PhD[2,3] (bglenn@ucla.edu)
Alison K. Herrmann, PhD, MS[2,3] (aherrmann@ucla.edu)
Analissa Avila, MS[2,3,4] (adavila20@ucla.edu)
Debra Rosen, RN, MPH[5] (debrarosen@nevhc.org)
Catherine M. Crespi, PhD[2,3,4] (ccrespi@ucla.edu)
Narissa Nonzee, PhD[6] (nnonzee@coh.org)
Christine Park, MD, MPH, CLE, FAAP[5] (christinepark@nevhc.org)
Alicia Lwin, MD[5] (alicialwinmd@nevhc.org)
Joanna Quintanilla, CHES, CLE[5] (joannaquintanilla@nevhc.org)
Roshan Bastani, PhD[2,3] (bastani@ucla.edu)
Folasade P. May, MD, PhD, Mphil[2,7,8] (fmay@mednet.ucla.edu)

Affiliations:
1) Department of Medicine, David School of Medicine, UCLA, Los Angeles, CA, USA
2) UCLA Kaiser Permanente Center for Health Equity, Jonsson Comprehensive Care Center, UCLA, Los Angeles, CA, USA
3) UCLA Fielding School of Public Health, UCLA, Los Angeles, CA, USA
4) Department of Biostatistics, School of Public Health, UCLA, Los Angeles, CA, USA
5) Northeast Valley Health Corporation, Los Angeles, CA, USA
6) Division of Health Equities, Department of Population Sciences, City of Hope, Duarte, CA, USA
7) Vatche and Tamar Manoukian Division of Digestive Diseases, Department of Medicine, David Geffen School of Medicine, UCLA, Los Angeles, CA, USA
8) Greater Los Angeles Veterans Affairs Healthcare System, Los Angeles, CA, USA

Disclosures: None to report
Character count: 2889/2900
Abstract due:
Submission Category: AGA. GI oncology. Colorectal Cancer Screening and Surveillance: Cohort, Clinical Outcomes & Comparative Effectiveness Studies including Trials

Introduction: Fecal immunochemical test (FIT) effectiveness for colorectal cancer (CRC) prevention and early detection is contingent on timely colonoscopy after abnormal results. Receipt of follow-up colonoscopy is low in safety-net settings, including Federally Qualified Health Centers (FQHCs), which provide primary care services to 30 million Americans annually. We aimed to determine patient factors associated with receipt of, and time to, follow-up colonoscopy in one of the largest FQHCs in California.

Methods: We identified patients ages 50-75 with an abnormal FIT result between 1/1/2016 and 8/13/2019 at Northeast Valley Health Corporation (NEVHC) in Los Angeles County. Data were obtained from electronic health records. Outcomes were 1) receipt of follow-up colonoscopy at 6 mos. and 2) number of days between FIT result and follow-up colonoscopy. We used multivariable logistic regression to assess correlates of colonoscopy at 6 months after abnormal FIT and Cox regression to identify patient characteristics associated with time to colonoscopy.

Results: Our study included 1,475 patients (abnormal FIT rate 12.4%) and the overall follow-up colonoscopy completion rate was 19.3% at 6 months. The mean (sd) time to colonoscopy completion was 8.5 (7.5) months, or 259.6 (228.6) days. Median age at FIT completion was 58.6 years, 62.4% were female, 80.5% were Latino/a, 74.0% reported Spanish language preference, and 49.5% were Medicaid insured (**Table**). Patients of other race/ethnicity (aOR 0.12, 95%CI 0.02-0.97) and with Spanish preference (aOR 0.55, 95%CI 0.35-0.85)

were less likely to have completed colonoscopy within 6 months compared to White patients and English speakers (**Table**). Patients with health insurance or with an abnormal FIT in later study years were more likely to have completed colonoscopy within 6 months (**Table**). Black (aHR 0.41, 95%CI 0.18-0.95) and other race/ethnicity (aHR 0.36, 95%CI 0.13-0.99) patients were more likely to have longer time to colonoscopy compared to White patients. Patients with Medicare had shorter time to colonoscopy compared to uninsured patients (HR 1.45, 95%CI 1.05-2.01), and patients with an abnormal FIT in later study years also had shorter time to colonoscopy (**Figure**).

Discussion: FQHCs face considerable challenges to obtaining colonoscopies for patients with abnormal FIT results. In this large FQHC, patients with abnormal FIT were less likely to undergo colonoscopy within 6 months if their primary language was Spanish or if they were uninsured and were more likely to have a long delay to colonoscopy if they were Black or uninsured. We also observed improvement in FIT follow-up over time, likely reflecting the impact of system-level interventions at NEVHC, including tracking and navigation for patients with abnormal FIT results. Additional policies, resources, and interventions are urgently needed.

Table: Patient Demographics and Clinical Data, and Multivariable Logistic Regression to Identify Patient-Level Correlates of Colonoscopy Completion at Six Months Following Abnormal FITs resulted between 1/1/2016 and 8/13/2019 (n=1475).

Patient characteristic	**Mean (SD) or n (%)**	**Unadjusted OR (95% CI)**	**Adjusted OR (95% CI)**
Age at FIT completion, years	58.6 (6.2)	0.99 (0.97, 1.01)	0.97 (0.95, 0.99)
Female sex	921 (62.4%)	1.10 (0.87, 1.39)	1.25 (0.94, 1.67)
Race/ethnicity			
Non-Hispanic White	189 (12.8%)	Ref	Ref
Hispanic/Latino	1187 (80.5%)	**0.65 (0.45, 0.95)**	1.03 (0.62, 1.73)
Non-Hispanic Asian	49 (3.3.%)	**0.35 (0.13, 0.93)**	0.44 (0.16, 1.22)
Non-Hispanic Black	29 (2.0%)	0.68 (0.24, 1.90)	0.54 (0.19, 1.55)
Unknown/Other (AI/AN, NH/OPI, multi-racial)	21 (1.4%)	**0.13 (0.02, 0.99)**	**0.12 (0.02, 0.97)**
Preferred language			
English	364 (24.7%)	Ref	Ref
Spanish	1092 (74.0%)	**0.67 (0.49, 0.91)**	**0.55 (0.35, 0.85)**
Other	19 (1.3%)	0.20 (0.03, 1.49)	0.19 (0.02, 1.46)
Insurance type			
Public Program/Self-pay (uninsured)	453 (30.7%)	Ref	Ref
Covered CA/Private	119 (8.1%)	**1.95 (1.19, 3.21)**	**1.89 (1.14, 3.15)**
Medicaid	730 (49.5%)	**1.52 (1.10, 2.10)**	**1.48 (1.05, 2.08)**
Medicare	173 (11.7%)	**2.06 (1.33, 3.20)**	**2.95 (1.75, 4.96)**
Monthly visits after positive FIT result	0.4 (0.3)	1.35 (0.94, 1.94)	1.23 (0.84, 1.79)
Time of positive FIT result			
2016: Jan 1 – Dec 31	263 (17.8%)	Ref	Ref
2017: Jan 1 – Dec 31	319 (21.6%)	**2.10 (1.29, 3.39)**	**2.07 (1.27, 3.38)**
2018: Jan 1 – Dec 31	469 (31.8%)	**2.42 (1.53, 3.81)**	**2.47 (1.56, 3.92)**
2019: Jan 1 – Aug 13	424 (28.7%)	**1.84 (1.15, 2.95)**	**1.85 (1.14, 3.00)**

*Bolded values indicate significance at the p<0.05 level.

Figure: Adjusted hazard ratios (HRs) of time-to-colonoscopy (range: 1 – 53 months) after a positive FIT result based on mixed-effects Cox proportional hazards (PH) regression using patient demographics to predict time-to-colonoscopy (n=1475).